Guide to DHS Statistics

DHS-8

The Demographic and Health Surveys Program

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Foreword

DHS surveys collect a wealth of information on a wide range of topics from a representative sample of the population in the countries that participate in The DHS Program. For each country, the information collected is processed, tabulated, and presented in a report that describes the living conditions and the demographic and health situation in the country. Before producing the tables, many steps are necessary to ensure that the data properly reflect the situation they intend to describe. This involves editing the data for consistency, imputation of key dates of events, weighting the sample results, considering such factors as the sample design and response rates, calculating the wealth index, and constructing accurate summary variables.

Many of the procedures involved are straightforward and are familiar to demographic analysts. However, other procedures need special attention and have been developed on the basis of experience accumulated over many years regarding the preferred way of calculating certain indicators, what to guard against, and what not to forget.

This Guide to DHS Statistics is meant to be a tool for all data users. It can be an aid for those who are just starting out in data analysis, a tool for checking procedures for those whose skills are more advanced, and a reference document for all who deal with data generated by The DHS Program surveys. Even those who do not analyze data using a statistical software package can benefit from a deeper understanding of the definitions of these indicators and a closer examination of the numerators and denominators.

I hope that this valuable tool will significantly increase the capacity of many researchers to do their own tabulations and analyses. I trust that it will help make data users aware of the precautions to take and the procedures that need to be followed to ensure that indicators are calculated correctly. It should also ensure that the strengths and limitations of certain data and indicators are clear to all users.

Sunita Kishor

Project Director

Acknowledgements

1) Introduction and Description of DHS Datasets

Purpose of the Guide

This guide has two main purposes:
- To explain how statistics produced in Demographic and Health Surveys (DHS) reports are defined and calculated and serve as a reference document for researchers.
- To provide an overview of the structure and use of DHS datasets.

The first version of this document (Rutstein and Rojas, 2003 [updated 2006]) had been prepared in response to feedback received from DHS data users on the need for a detailed guide to assist them in understanding DHS data sets and reproducing the statistics in DHS reports. This version updates the earlier versions to capture new variable definitions and the expanding array of data.

The first chapter of the guide deals with general topics including DHS data file structure, recode files and variable naming, sampling design, sampling weights and sample stratification, century month codes and other created variables, matching and merging datasets, adjustment factors employed in surveys in which only ever-married women are interviewed, and background variables used in tabulations.

The remaining chapters deal with the definitions of individual statistics presented in DHS reports by chapter.

Updates to the Guide

This is the DHS-8 version of the guide which updates the indicator definitions to reflect the changes and additions made to the indicators as part of DHS-8. There are several major changes reflected in this version of the guide, which include:
- Additional indicators and updates to existing indicators to reflect the use of a pregnancy history, rather than a birth history, including:
  - Changes to the denominators for reproductive health indicators in Chapter 9) Reproductive Health, to present indicators for live births and stillbirths, rather than just for live births as in earlier rounds of DHS.
  - Inclusion of indicators such as the stillbirth rate in Chapter 8) Infant and Child Mortality
- Updating of indicators for Infant and Young Child Feeding (IYCF) based on updated guidance from WHO/UNICEF.
- Separating the water and sanitation indicators from Chapter 2) Population and Housing and placing them in their own chapter: Chapter 16) Water and Sanitation.

There are also many smaller changes to indicators throughout the guide, to fully describe the additions and changes made to indicators throughout the DHS-8 tabulation plans.

The prior version of the guide was the second version of the DHS-7 guide and it had the following major additions or revisions to the original DHS-7 Guide to DHS Statistics:

- *Chapter 19) Female Genital Cutting (FGC)* was added to this version and reflects the standard indicators that would be created if the FGC module was included in the DHS survey.
- *Chapter 20) Fistula* was added and reflects the standard indicators that would be created if the Fistula module was included in the DHS survey.
- WASH indicators (now in Chapter 16) Water and Sanitation, but previously in *Chapter 2) Population and Housing)* were updated to reflect the changes and additional indicators in current global guidelines.
- Indicators that reflect meal frequency and dietary diversity in *Chapter 11) Nutrition* were updated.

Other minor revisions throughout may have been made to improve the accuracy, usefulness, and overall appearance of the guide. Any indicator that had key information altered or improved is marked as updated.

The DHS Program

The DHS Program was established by the United States Agency for International Development (USAID) in 1984. Originally designed as a follow-up to the [World Fertility Survey](#) (WFS) and the Contraceptive Prevalence Survey (CPS) projects, it has provided technical assistance to more than 350 surveys in over 90 countries, advancing global understanding of health and population trends in developing countries. The DHS Program has been implemented in overlapping five-year phases:

DHS-I	1984 – 1990
DHS-II	1989 – 1993
DHS-III	1992 – 1998
DHS-IV	1997 – 2003 (MEASURE DHS)
DHS-V	2003 – 2008 (MEASURE DHS+)
DHS-VI	2008 – 2013 (MEASURE DHS Phase III)
DHS-7	2013 – 2018
DHS-8	2018 – 2025

The DHS Program has been implemented by the same team since its inception although the name of the organization has changed through acquisitions. It was first awarded in 1984 to Westinghouse Health Systems, which subsequently evolved into part of Macro Systems, ORC Macro, Macro International and is now part of ICF. The DHS Program is implemented by ICF and its partners Path, Avenir Health, Johns Hopkins Center for Communication Programs, Vysnova, Blue Raster, and Encompass.

The main objective of The DHS Program is *to improve the collection, analysis, and dissemination of population, health, and nutrition data and to facilitate use of these data for planning, policy-making, and program management*, resulting in:
- Improved tools, methods, partnerships, and technical guidance to collect quality population, health, and nutrition data.
- Increased in-country individual and institutional capacity for identification of data needs and for survey design, management, and data collection to meet those needs.
- Improved availability of DHS Program survey data and information.
- Advanced availability and synthesis of DHS Program survey data.
- Improved facilitation of DHS Program data use among stakeholders worldwide.

Many countries have conducted multiple surveys to establish trend data that enable them to gauge progress in their programs. Countries that participate in The DHS Program are primarily countries that receive USAID assistance; however, several non-USAID supported countries have participated with funding from other donors such as UNICEF, UNFPA, the World Bank, and national governments. The [Demographic and Health Survey](#) was the original survey tool developed by The DHS Program in 1984. More than 300 DHS surveys in over 90 countries have been conducted since the program's inception.

The DHS Program has evolved over the years to incorporate several other survey types:

The DHS Program created the [AIDS Indicator Survey](#) (AIS) in 2003 to respond to the need for global monitoring of the HIV/AIDS epidemic. The AIS is a household-based survey focusing on HIV and AIDS

knowledge, attitudes, behavior, and prevalence. Demand for the AIS was not as high as had been anticipated, largely because the DHS was also designed to collect the same HIV data as a subset of the larger DHS and most countries requested a DHS rather than an AIS. Eleven AIS surveys were conducted in 2003-2015.

In 2006, The DHS Program began implementing the Malaria Indicator Survey (MIS), also a household-based survey, designed to collect data focused on internationally accepted malaria indicators. More than 30 MIS have been conducted since 2006. Though a DHS collects the same malaria indicators as an MIS, differences between the two surveys include the collection of malaria parasitemia and data collection during malaria high transmission season during an MIS, whereas a DHS typically collects data during the dry season.

Finally, the Service Provision Assessment (SPA) survey is a health facility assessment that provides a comprehensive overview of a country's health service delivery. It meets the need for monitoring health system strengthening in developing countries.

This Guide will focus on DHS surveys and the statistics produced in the reports; note that most DHS survey reports include all the statistics that are presented in the more narrowly focused AIS and MIS reports.

Model Questionnaires

One of the key aims of The DHS Program is to collect data that are comparable across countries. To achieve this, standard model questionnaires have been developed. These model questionnaires—which have been reviewed and modified in each of the eight phases of The DHS program—form the basis for the questionnaires that are implemented in each country. Typically, a country is asked to adopt the model questionnaire in its entirety but can add questions of particular interest. However, questions in the model may be deleted when they are irrelevant in a particular country.

DHS surveys are designed to collect data on marriage, fertility, mortality, family planning, reproductive health, child health, nutrition, and HIV/AIDS. Due to the subject matter of the survey, women of reproductive age (15–49) are the focus of the survey. Women eligible for an individual interview are identified through the households selected in the sample. Consequently, all DHS surveys utilize a minimum of two questionnaires—a Household Questionnaire and a Woman's Questionnaire.

The Household Questionnaire is used to list all the usual members and visitors in the selected households. The respondent for the Household Questionnaire is any knowledgeable person age 15 or older living in the household. Some basic information is collected on the characteristics of each person listed, including his/her age, sex, education, and relationship to the head of the household. The main purpose of the Household Questionnaire is to provide the mechanism for identifying women eligible for individual interview and children under five who are to be weighed, measured, and tested for anemia. In addition, information is collected about the dwelling itself, such as the source of water, type of sanitation facilities, materials used to construct the house, ownership of various consumer goods, and use of iodized salt.

The Biomarker Questionnaire, introduced as part of DHS-7, collects biomarker data for eligible household members. These include anthropometric measurements (height and weight), tests for the hemoglobin level in blood for anemia, samples for HIV testing, malaria testing and other lab-based biomarkers. Previously, in DHS-IV to DHS-VI, the biomarker questionnaire was part of the Household Questionnaire.

The Woman's Questionnaire forms the central part of the DHS questionnaires and covers all of the key topics of the survey. The Woman's Questionnaire surveys women of reproductive age (15-49). The Woman's Questionnaire, along with other questionnaires, has undergone changes in every phase of DHS. In DHS-I through DHS-IV, questionnaires for women distinguished between countries with high and low contraceptive prevalence rates. The DHS Model "A" Woman's Questionnaire was for use in the high contraceptive prevalence countries, while the DHS Model "B" Woman's Questionnaire was for use in countries with relatively low contraceptive use. The main difference between these questionnaires was that the "A" core collected considerably more information on family planning than the "B" core. In DHS-V and later, these have been combined into a single Woman's Questionnaire.

The DHS-8 Woman's Questionnaire includes the following standard sections:
1) Background characteristics (age, education, religion, etc.)
2) Reproduction
3) Contraception
4) Pregnancy and postnatal care
5) Child immunization
6) Child health and nutrition

7) Marriage and sexual activity
8) Fertility preferences
9) Husband's background and woman's work
10) HIV/AIDS
11) Other health issues

The Man's Questionnaire is similar but shorter than the Woman's Questionnaire and is used to collect data on background characteristics, reproduction and fertility preferences, contraception, employment and gender roles, HIV/AIDS, and other health issues. The respondent to the Man's questionnaire is men of reproductive age (typically 15 to 49, 54, or 59).

In 2015, The DHS Program introduced the Fieldworker Questionnaire to collect data on the background characteristics of interviewers, supervisors, field editors and health technicians. Data from the fieldworker questionnaire permit users to include characteristics of the fieldworkers as well as the survey respondents in their analysis.

In 2019, The DHS Program revised the core Household, Woman's, Man's, and Biomarker questionnaires for DHS-8. Changes include the shift from a birth history to a full pregnancy history and the addition of minimum dietary diversity for women. Revisions involved the addition of 183 questions, deletion of 122 questions, and new topic areas such as alcohol consumption and breast and cervical cancer screening. This questionnaire will not be implemented in fieldwork until 2020. See
https://www.dhsprogram.com/publications/publication-DHSM11-DHS-Questionnaires-and-Manuals.cfm
for more information about the questionnaire revision process and
https://www.dhsprogram.com/What-We-Do/Survey-Types/DHS-Questionnaires.cfm for more information on the DHS questionnaires.

The model questionnaires for all eight phases of DHS can be found at:

DHS-8   https://www.dhsprogram.com/publications/publication-DHSQ8-DHS-Questionnaires-and-Manuals.cfm
DHS-7   https://www.dhsprogram.com/publications/publication-DHSQ7-DHS-Questionnaires-and-Manuals.cfm
DHS-VI https://www.dhsprogram.com/publications/publication-DHSQ6-DHS-Questionnaires-and-Manuals.cfm
DHS-V   https://www.dhsprogram.com/publications/publication-DHSQ5-DHS-Questionnaires-and-Manuals.cfm
DHS-IV https://www.dhsprogram.com/publications/publication-DHSQ4-DHS-Questionnaires-and-Manuals.cfm
DHS-III https://www.dhsprogram.com/publications/publication-DHSQ3-DHS-Questionnaires-and-Manuals.cfm
DHS-II https://www.dhsprogram.com/publications/publication-DHSQ2-DHS-Questionnaires-and-Manuals.cfm
DHS-I   https://www.dhsprogram.com/publications/publication-DHSQ1-DHS-Questionnaires-and-Manuals.cfm

Questionnaire Modules

Some countries have a need for special information not contained in the model questionnaires. To accommodate this need and to achieve some level of comparability across countries that apply them, optional questionnaire modules have been developed on a series of topics. The modules currently available in the DHS-8 phase are:

- Accident and Injury
- Adult and Maternal mortality
- Child Well-being and Household Structure
- Chronic Disease
- Disability
- Domestic Violence
- Female Genital Cutting
- Fistula
- Food Insecurity Experience Scale (FIES)
- Human Papilloma Virus (HPV)
- Mental Health
- Newborn Care
- Out-of-pocket Health Expenditures
- Supplemental Module on Maternal Health Care

The modules can be found at https://www.dhsprogram.com/publications/publication-DHSQM-DHS-Questionnaires-and-Manuals.cfm and are available in English and French.

Various other modules have been used in previous phases of DHS, but are no longer maintained as supported modules, including:

- Children's education
- Consanguinity
- HIV/AIDS
- Malaria
- Male circumcision
- Pill-taking behavior
- Sterilization experience
- Verbal autopsy
- Women's status

Some of these modules have been incorporated into the standard DHS questionnaire, including much of the HIV/AIDS, Malaria, and Women's Status modules. Earlier versions of some of these modules can be found at https://www.dhsprogram.com/publications/publication-DHSQMP-DHS-Questionnaires-and-Manuals.cfm.

DHS surveys are also sometimes requested to include UNICEF Multiple Indicator Cluster Surveys (MICS) modules, such as:

- Child Discipline
- Child Labor
- Early Childhood Development Index

These modules can be found as part of the MICS tools at http://mics.unicef.org/tools.

Other Basic Documentation

To achieve comparable information across countries, it is necessary to ensure that the questionnaires and the survey procedures followed in each country are similar. Therefore, The DHS Program has developed a set of basic documentation to go with the model questionnaires. The basic documentation consists of the following manuals, most of which are available in English and French:

The DHS Interviewer's Manual provides a detailed explanation of the survey questions and tips on conducting interviews.

The DHS Supervisor's and Editor's Manual explains the roles of the supervisor in leading the field teams, and for editors, how to check completed questionnaires.

Training Field Staff for DHS Surveys is designed for survey managers to provide tips on how to organize and conduct training for field staff. It describes techniques of mock interviewing, demonstration interviews in front of the class, field practice, and sample tests for trainees.

The DHS Sampling Manual presents the DHS approach to issues like optimum sampling frames, sample domains, stages, and sample selection. The Household Listing portion of the sampling manual describes how to locate selected sample points, how to draw a sketch map, and how to list the households and structures.

The DHS Tabulation Plan for Key Indicators Report describe the key tabulations in the Key Indicators Report.

The Tabulation Plan for DHS Final Report details the tabulations that will be produced with the survey data for each chapter of the report. This manual also aids data processing staff in determining the exact tabulations that are required for the survey reports. The Guide to DHS Statistics should be used in conjunction with the Tabulation Plan and describes the statistics presented in each tabulation.

The Biomarker Field Manual is designed to be used, in combination with classroom instruction and practical experience, to teach fieldworkers how to collect biomarkers for a DHS, MIS or AIS.

The DHS User's Guide for Questionnaires in Excel is a guide to using the Excel versions of the DHS questionnaires in adapting them to individual surveys.

Incorporating Geographic Information into Demographic and Health Surveys: A Field Guide to GPS Data Collection is designed to be a start-to-finish guide to Global Positioning System (GPS) data collection in DHS, MIS, and AIS. This guide provides background information on GPS, how the technology works, how GPS data are collected, and how they are used in the context of a DHS.

DHS Survey Organization Manual is intended as an aid to host country survey staff, donors, and others, and explains the standard approach to implementing a DHS.

The basic documentation for The DHS Program can be found at
https://www.dhsprogram.com/search/index.cfm?bydoctype=publication&bypubtype=35.

Reports and Data

The survey results for each participating country are published initially in a [Key Indicators Report](#) (KIR - formerly known as a preliminary report), followed by a more detailed [Final Report](#) and a [Summary Report](#) (also known as Key Findings) report. The latter two reports are widely distributed and constitute the primary outputs of the project. Results are also presented through fact sheets and other dissemination materials.

Further dissemination of survey data is achieved through the publication of analytical and other reports. Of particular relevance for program and policy purposes are the [Comparative Report](#) series. These descriptive reports provide information across survey countries and can contribute greatly to the policy debate through the exhaustive view they provide on a particular situation in a large number of countries. [Analytical Studies](#) are also published and provide rigorous analysis of survey data, emphasizing policy and program-relevant themes and research questions. [Further Analysis](#) reports provide results emanating from research that is typically based in and on a single DHS country. [Methodological Reports](#) cover issues relating to the collection and analysis of DHS data, particularly focusing on new types of data.

DHS data are also shared through a number of tools, including the STATcompiler, Mobile app, API, Spatial Data Repository (see *Other Tools and Resources*). However, the major output of the surveys is the micro-level datasets distributed through the DHS Data Archive.

Data Archiving

The DHS Program believes that widespread access to survey data by responsible researchers has enormous advantages for the countries concerned and the international community in general. Therefore, The DHS Program policy is to release survey data to the public when the main survey report is published, generally within 12 months after the end of fieldwork.

DHS Archive

DHS maintains a data archive of all survey datasets collected over the more than 30 years of The DHS Program. Datasets are available at https://www.dhsprogram.com/data/available-datasets.cfm. Users log in or register for access to datasets at https://dhsprogram.com/data/dataset_admin/login_main.cfm.

Once registered and access permission has been provided, users may download the datasets from the required countries. The DHS Program has developed a set of tutorial videos on YouTube on dataset registration, modifying dataset requests, dataset names, dataset types, downloading datasets, downloading multiple datasets, and an introduction to DHS datasets (these are just a few of the DHS tutorial videos on YouTube).

The reformatting of each dataset into standard recode files facilitates use of DHS data. These files standardize the variable names and coding categories across countries and construct many of the commonly used variables such as marital status or age in five-year groups. Because DHS surveys collect an enormous amount of information on different subjects for the household, household members, women age 15–49, children under age five, and men age 15–59, these standard recode files are a particular advantage for cross-country analysis. The DHS recode datasets are described in more detail in *Organization of DHS Data*.

IPUMS-DHS

IPUMS-DHS is designed to facilitate further analysis of DHS data. It provides an interface to select and download a customized set of variables across a number of surveys or countries in a single dataset. IPUMS-DHS contains thousands of consistently coded variables on the health and well-being of women, children, and births, and on all household members.

IPUMS-DHS datasets do differ from datasets available directly through The DHS Program website. The IUPMS-DHS datasets are created from the original recode datasets. Either dataset can be used to reproduce the results published in the DHS survey reports, but the variable names and the coding schemes within the datasets are different. While the original datasets use a naming system of letters and digits for the variables (e.g. v705), the IPUMS-DHS datasets use short names for the variables (e.g. currwork). Additionally, the coding of each variable is different. The IPUMS-DHS datasets have harmonized coding schemes across the phases of DHS with more detailed coding schemes incorporating survey-specific codes consistently over time.

The indicator definitions in the Guide to DHS Statistics refer to the variable names and coding from the DHS standard recode datasets available through https://www.dhsprogram.com/.

Model Datasets

The DHS Program has created model datasets so users can become familiar with datasets without having to register for access. These datasets have been created strictly for practice and do not represent any country's actual data. Model datasets are based on the DHS-VI Questionnaire and Recode. They can be downloaded from the Download Model Datasets page on the website.

DHS Website

The DHS Program website provides access to survey documentation, survey reports, analytical studies, datasets and much more. Resources include:

- Core documentation: questionnaires, manuals, and methodology
- Microdata and Indicator data: Datasets, support for dataset use, and links to online data tools
- Publications: including survey reports, and dissemination materials
- Further analysis reports: analytical studies, comparative reports and methodological reports
- Journal articles database: a database of peer-reviewed journal articles that feature DHS data
- Indicator information: Topical pages provide an in-depth look at key topics including SDGs

Other Tools and Resources

STATcompiler allows users to make custom tables, charts, and maps with DHS indicator-level data. The STATcompiler contains over 1,000 indicators for all DHS countries. It is designed to explore trends and cross-country comparisons. The tool is available in English and French.

API: The DHS Program Application Programming Interface (API) provides software developers access to aggregated indicator data from The DHS Program. The API can be used to create various applications to help analyze, visualize, explore, and disseminate data on population, health, HIV, and nutrition from more than 90 countries.

Mobile app: The DHS Program mobile application provides up-to-date indicator data through tables, charts, and maps, as well as basic survey information and links to publications. It is available for free for Apple and Android devices. Search "DHS Program" in your app store.

GitHub: This DHS Program Code Share Project is aimed at providing Stata, SPSS and R code for all DHS Program indicators listed in the Guide to DHS Statistics. The project began in 2019 and now includes code in Stata, SPSS and R for DHS-7 indicators and is being updated to provide code for DHS-8 indicators. The code is published on the DHS Program GitHub site which contains four repositories: DHS-Indicators-Stata, DHS-Indicators-SPSS, DHS-Indicators-R, and DHS-covariate-extraction. Users can download the code from these repositories or clone the repository to their own GitHub site. Users can also suggest changes to the code that will be reviewed by DHS Program staff before acceptance.

The DHS Program User Forum is an online community designed to foster conversation and data use support between DHS data users. Users can search the forum for answers to frequently asked questions on technical or analytical topics, post new questions, or respond to queries from other users. The DHS Program staff moderate the forum and often provide answers to questions.

Spatial Data Repository: The DHS Program Spatial Data Repository (SDR) provides geographically-linked health and demographic data from The DHS Program and the U.S. Census Bureau for mapping in a geographic information system (GIS).

- Boundaries: Explore how DHS region boundaries have changed over time and download survey boundary data.
- Modeled surfaces: Modeled surfaces are produced using standardized geostatistical methods, publicly available DHS data, and a standardized set of covariates across countries. Each map

package contains a mean estimate surface, an uncertainty surface, and corresponding information on the model creation process and validation.

- Covariates: Datasets containing key covariate data for DHS Program survey clusters from external geospatial covariate datasets covering agriculture, climate, environment, health, infrastructure, and population variables. GitHub also contains Python code for the extraction of covariates from other sources for DHS clusters.

Blog: The DHS Program blog highlights new tools, explores complex data topics, and keeps followers abreast of changes to the questionnaire and other developments

eLearning courses: The DHS Program has partnered with K4Health to develop 3 eLearning courses on the Global Health eLearning Center:
- Demographic and Health Surveys: Data Use
- Data Visualization: an Introduction
- Social Media for Health and Development

YouTube: The DHS Program's YouTube channel is the home of tutorial videos, Key Findings videos, and interviews with topical experts. Of particular relevance to dataset users are the following:

DHS Program and Data Use Videos
- Intro to The DHS Program (7 min)
- How to Read Tables
    - English (7 min)
    - French (10 min total)
    - Also available in Portuguese, Spanish, Arabic
- Sampling and Weighting (Part I and Part II) (30 min total)
- De Jure and De Facto (5 min)
- Using DHS Datasets for Analysis: 9 videos (32 min total)
- Matching DHS Final Report Tables: Parts I-IV (19 min total)
- STATcompiler Tutorial
    - Parts 1-3 (English) (<15 min)
    - Parts 1-3 (French) (<15 min)
- DHS Program digital resources (4 min)
- GIS Playlist: 4 videos (27 min total)
- Top 10 STATcompiler features (3 min)
- Application Programming Interface (API) (3 min)
- How to subscribe to forums & topics DHS Program User Forum (6 min)
- Introduction to DHS data analysis in R: 4 videos (21 min)
- DHS Dataset Types in 60 Seconds: (1 min)

Topical Videos
Family Planning
- Contraceptive Prevalence Rate: Indicator Snapshot (4 min)
- Contraceptive Calendar Tutorial Part I & Part II (15 min total)
- Demand satisfied by modern methods: Indicator Snapshot (8 min)
Malaria
- ITN Access: Indicator Snapshot (English or French) (6-9 min)

Maternal Mortality Ratio (MMR) and Pregnancy-related Mortality Ratio (PRMR) 3 video playlist
- [MMR Indicator Snapshot](#) (8 min) (English)
- [Differences between MMR and PRMR](#) (9 min) (English)
- [Interpreting trends in PRMR](#) (14 min) (English)

Announcements and updates about new surveys, data, and resources are made on the DHS website, through email alerts (register on the website), and through social media channels:

[X (formerly Twitter)](#)	@dhsprogram
[API X (formerly Twitter)](#)	@dhsprogramAPI
[Facebook](#)	facebook.com/dhsprogram
[LinkedIn](#)	linkedin.com/company/dhs-program
[DHS Newsletter](#)	bit.ly/DHSsubscribe
[DHS Blog](#)	blog.dhsprogram.com
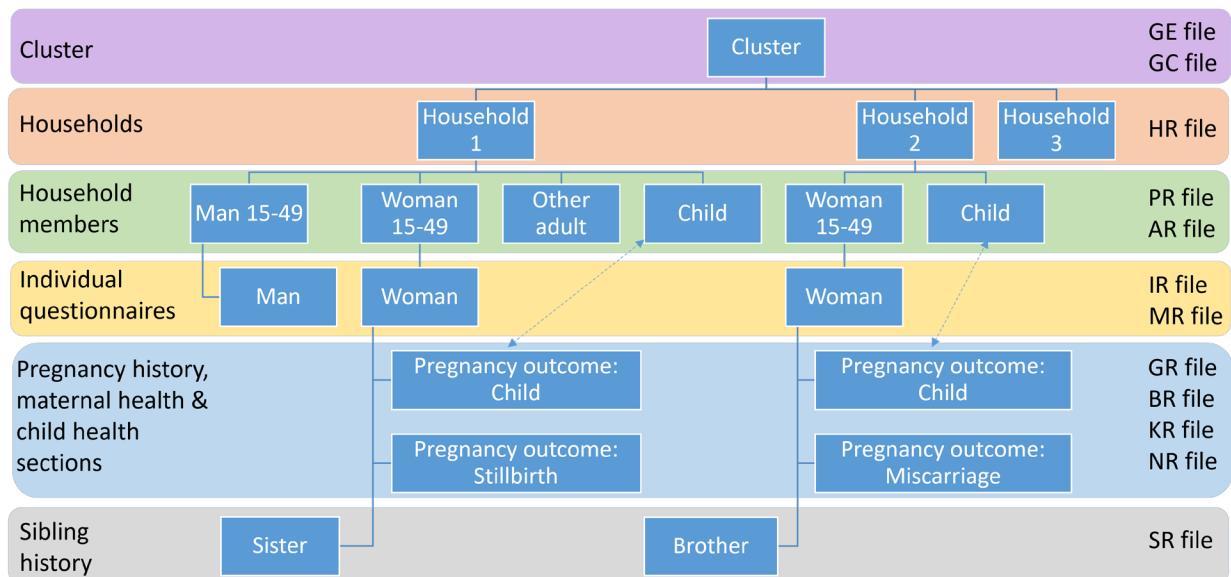
Organization of DHS Data

Structure of DHS Data

DHS surveys collect data through four main questionnaires. The Household Questionnaire collects data on the characteristics of the household and list all household members. The household roster within this questionnaire captures key characteristics of each household member and is used to select women and men eligible for individual interviews. The Biomarker Questionnaire collects information for each eligible household member on anthropometric measurements and levels of hemoglobin, and records information about samples for biomarker testing. Eligible household members are typically children under age 5, and women and men age 15-49.

Women and men age 15-49 (age range varies for men) are interviewed using the Woman's Questionnaire and Man's Questionnaire respectively. The Woman's Questionnaire, in addition to questions about the woman, contains a birth history that is used to list all children (alive or dead) that the respondent has given birth to, with the child's sex, date of birth, age, and survival status. The birth history is then the basis for selecting children under certain ages for the maternal health, immunization, child health, and nutrition sections of the questionnaire.

The data from a DHS survey naturally forms a hierarchy of households within a cluster, household members within each household, interviewed women and men as a subset of household members, pregnancies, and children of each interviewed woman, as well as siblings of interviewed women as shown in the example figure below.

Within this hierarchy, data may be collected about the same person in more than one questionnaire. For example, data about women may be collected in the Household Questionnaire, and also in the Woman's Questionnaire. Similarly for men, some basic characteristics are collected in the Household Questionnaire and in the Man's Questionnaire. Additionally, data on children may be collected in the Household Questionnaire and in the pregnancy history within a Woman's Questionnaire – these data can be linked in analysis.

The DHS Program uses a software package, CSPro, to process its surveys. CSPro is developed by the US Bureau of the Census, ICF, and SerPro SA with funding from USAID. CSPro is specifically designed to meet the data processing needs of complex surveys such as DHS, and one of its key features is its ability to handle hierarchical files. CSPro is used in The DHS Program in all steps of data processing with no need for another package or computer language. All steps, from entering/capturing the data to the production of statistics and tables published in DHS final reports, are performed with CSPro. In addition, CSPro provides a mechanism to export data to the statistical packages Stata, SPSS, SAS, and R.

The example above shows that, while a single questionnaire is always completed for each household in the DHS sample, the number of Woman's Questionnaires or Man's Questionnaires that will be completed depends on the number of eligible women or men listed in the Household Questionnaire. In other words, for each Household Questionnaire there may be zero or several Woman's or Man's Questionnaires.

The hierarchical data file produced in CSPro has a two-level structure reflecting the relationship between the questionnaires; the Household Questionnaire and Biomarker Questionnaire are at level 1 and the Woman's and Man's Questionnaires are at level 2. Within each CSPro level, there can be one or more different types of records each containing many variables. For example, records in the household level in a typical DHS file can be single (e.g. household characteristics) or multiple (e.g. household member's roster). Thus, using the same file, it is possible to work with different units of analysis (households, household members, women, men, and children). This makes the analysis of variables across different units very convenient.

The hierarchical structure defined by CSPro has several advantages and disadvantages. Among the advantages, the following can be highlighted:
- All the data are stored in just one ASCII file. Virtually all packages can read ASCII files.
- Since all the data are stored in the same file, it is easy to maintain the integrity of the data in terms of data structure related to levels and records.
- The data file mirrors the paper questionnaire. Each section in the questionnaire can be defined as a record in the data file and only the information that is needed is present in the file.

The major disadvantage is that only CSPro easily handles hierarchical data. Most analysis software does not support hierarchical data, or at least not simply, so The DHS Program produces a set of exported datasets from the CSPro versions of the DHS recode files with different units of analysis that are convenient for use in statistical software such as Stata, SPSS, SAS, and R.

In the exported files, there is one record for each case. All variables in each case are placed subsequently on the same record. The multiple or repeating records from the hierarchical file are placed one after the other on the record, with the maximum number of occurrences of each section represented in the data file. For example, if a data file collects information on the age of a woman's children, up to a maximum of 20 children, then there will be 20 records represented in the data file whether or not a woman had the maximum number of children. Each variable in a repeating section is placed immediately after the preceding variable of the same occurrence, such that all variables for occurrence 1 precede all variables for occurrence 2 of a section.

For more information, see the YouTube tutorial video Introduction to DHS Data Structure.

Recode Files

There are four main questionnaires in DHS surveys: a Household Questionnaire, a Biomarker Questionnaire, a Woman's Questionnaire, and a Man's Questionnaire. There are also several standardized modules for countries with interest in extra topics. These modules are applied as part of the Household, Biomarker, Woman's, or Man's Questionnaires.

Since the very beginning of DHS, a recode file has been a standard part of the survey process. Primarily the recode file was developed to define a standardized file that would facilitate cross-country analysis. Initially it was also to compare data with the World Fertility Surveys (WFS) to study trends. In DHS-I the recode file was defined only for the Woman's Questionnaire, as the Household Questionnaire was originally just used for the selection of women for interview. Additionally, the use of a Man's Questionnaire was not part of the original design, and only a few men's surveys took place in DHS-I. The recode file proved to be very useful and as a result, since DHS-II, a recode file was introduced for the Household and Man's Questionnaires.

DHS questionnaires have changed extensively since the first phase. For this reason, there is a different recode definition for each DHS phase. However, if a variable is present in one or more phases, that variable has the same meaning in each phase in which it is present. If a question is dropped from one phase to another, the name of the variable used for that question is not reusable. The variable will not be present in the recode of the phase where it was dropped. If a new question is added to the core questionnaire, a new variable will be added to the recode definition.

See https://www.dhsprogram.com/data/Data-Variables-and-Definitions.cfm for a discussion of the benefits of the recode files.

Recode files are created using a hierarchical model in CSPro and later exported to files compatible with Stata, SPSS, SAS, and R for use by analysts. The DHS Recode Manual provides a description of the contents of the recode file, including a brief description of each variable and the applicable base for the variable. The DHS Recode Map provides a simple codebook for the standard DHS recode. The DHS Recode Manual and Map for all phases of DHS can be found at https://www.dhsprogram.com/publications/publication-dhsg4-dhs-questionnaires-and-manuals.cfm.

The DHS Program recode files are exported into several dataset types. Below is a description of the dataset types referred to in the Guide to DHS Statistics, together with the unit of analysis (or case) for each dataset:

HR: Household Recode
Unit of analysis: Household
Includes household characteristics, the household roster, and biomarkers rosters as repeating sets of variables. This dataset is used for calculation of household level indicators such as water and sanitation (see *Chapter 2*).

PR: Household members (or Persons) Recode
Unit of analysis: Household member
Includes characteristics of household members including age, sex, marital status, education, as well as biomarker measurement information. The dataset includes both de facto and de jure household

members. It also includes the characteristics of the households where the individual lives or was visiting. This dataset is used for analysis of education of household members (Chapter 2) and of anthropometry and anemia in children under age 5 (Chapter 11).

IR: Individual (Women's) Recode

Unit of analysis: De facto woman interviewed

Contains all the data collected in the Woman's Questionnaire for de facto women plus some variables from the Household Questionnaire. Up to 20 births in the birth history (see also *BR file*), and up to 6 children under age 5 (see also *KR file*), for whom pregnancy and postnatal care as well as immunization, health and nutrition data were collected, can be found as repeated variables in this file. This dataset is used for most woman-level analysis including marriage and sexual activity (Chapter 4), fertility and fertility preferences (Chapters 5 and 6), family planning (Chapter 7), anthropometry and anemia in women (Chapter 11), malaria prevention for women (Chapter 12), HIV/AIDS (Chapters 13 and 14), women's empowerment (Chapter 15), and domestic violence (Chapter 17).

BR: Births Recode

Unit of analysis: Birth

Contains the full birth history of all women interviewed, including information on pregnancy and postnatal care as well as immunization, health and nutrition data for children born in the last 5 years. Data for the mother of each of these children are also included. This dataset is used for fertility (Chapter 5) and mortality (Chapter 8) analysis.

GR: Pregnancies Recode

Unit of analysis: Pregnancy outcome

Contains the full pregnancy history of all women interviewed, including information on type of pregnancy outcome, and pregnancy and postnatal care for pregnancies ending in the 3 years preceding the survey. Data for the mother of each of these pregnancy outcomes are also included.

KR: Kids Recode

Unit of analysis: Child under age 5 born to a woman interviewed

Contains information related to the child's pregnancy and postnatal care and immunization, health and nutrition data. The data for the mother of each of these children is also included. This dataset is used to look at child health indicators such as immunization coverage, vitamin A supplementation, recent occurrences of diarrhea, fever, and cough for young children and treatment of childhood diseases (Chapter 10), nutrition of young children (Chapter 11), and malaria prevention and treatment (Chapter 12).

NR: Pregnancy and postnatal care Recode

Unit of analysis: Pregnancy outcome in the 3 years preceding the survey to a woman interviewed

Contains the information related to pregnancy and postnatal care for pregnancy outcomes in the 3 years preceding the survey. This dataset is used for analysis of maternal healthcare (Chapter 9).

MR: Men's Recode

Unit of analysis: De facto man interviewed

Contains all data collected in the Man's Questionnaire de facto men plus some variables from the Household Questionnaire. This dataset is used for most man-level analysis including marriage and sexual activity (Chapter 4), fertility preferences (Chapters 6), and HIV/AIDS (Chapters 13 and 14).

CR: Couples Recode
Unit of analysis: Married woman and man
Contains data for married or living together women and men who both declared that they are married (living together) to each other and with completed individual interviews. This dataset is the result of linking the IR and MR files, based on whom they both declared as partners. In polygynous societies a man's data may be linked to more than one woman's data. This dataset is used for analysis of couples, principally related to HIV (Chapters 13 and 14).

SR: Siblings Recode
Unit of analysis: Sibling
Contains data for each sibling of the interviewed woman including their sex, survival status, age (if alive), age at death and years since death (if deceased), and for female siblings age 12 and above information on whether the death was pregnancy-related. This dataset is used for analysis of adult and maternal mortality (Chapter 16).

AR: HIV testing Recode
Unit of analysis: Person tested for HIV
Contains the result of lab testing for HIV from blood samples provided by women and men, together with a separate weight variable for use when analyzing HIV test results. This dataset is used for analysis of HIV prevalence (Chapter 14).

The DHS Program has also prepared two geographic datasets that data analysts can use with DHS data:

GE: Geographic Data
Unit of analysis: Cluster
The geographic datasets (also known as GPS data) contain a single record per cluster in which the survey was conducted and provide the latitude, longitude, and elevation for the survey cluster, for use in Geographic Information Systems (GIS). Questions concerning the geographic data are addressed on the Geographic Data forum within the DHS User Forum.

GC: Geospatial Covariates
Unit of analysis: Cluster
The geospatial covariate datasets link survey cluster locations to ancillary data, known as covariates, that contain data on topics including agriculture, environment, health, infrastructure, and population factors. This allows individuals with limited GIS experience to conduct geospatial statistical analysis without having to manually source and link these covariates to cluster locations. These covariates are extracted from freely available global datasets. See the Spatial Data Repository's Covariates webpage and Methodology webpage for more information. Python code for the extraction of covariates from other sources for DHS clusters can be found on GitHub.

In addition to the contextual variables that can be included in analysis from the geospatial covariates, interviewers can also have an effect on the responses to certain survey questions. To permit analysis of interviewer effects on survey responses analysts can also use the characteristics of the fieldworkers.

FW: Fieldworker's Dataset

Unit of analysis: Fieldworker
Contains the basic characteristics of each fieldworker who participated in the survey, including their age, sex, marital status, level of education, region of residence, languages, and prior experience with DHS or other surveys. Data from the fieldworker's dataset may be linked to the survey responses using the interviewer, supervisor, field editor, or biomarker specialists IDs.

Additional dataset types also exist, and when using older datasets, two of these are of particular relevance:

WI: Wealth Index

Unit of analysis: Household
Contains the wealth score and quintiles for surveys prior to the late 1990's. Wealth Index analysis was introduced to The DHS Program around the end of the 1990's. When the decision was made to include the wealth index as part of DHS, standard variables were added to the recode definition for both the household and individual datasets (hv270 and hv271 for households; v190 and v191 for women; and mv190 and mv191 for men). For surveys conducted prior to the change in the recode file definition a file was created containing the score and the quintile variables. Wealth index files were created for all DHS surveys except surveys carried out as part of DHS-I. This dataset can be linked to any of the datasets described above.

HW: Height and Weight

Unit of analysis: Children under age 5
In 2006 new child growth standards were introduced by WHO. Prior to this time, The DHS Program used the NCHS/CDC/WHO reference. After the adoption of the new WHO standards, standard recode variables hv70 to hv73 and hw70 to hw73 were added to the recode definition to store the z-scores based on the new WHO child growth definition. All files using the DHS-V, DHS-VI or DHS-7 recode structure have these variables. For surveys prior to DHS-V, a file was created containing the z-scores based on the new standard. In early DHS phases only children of interviewed women were measured. Starting with DHS-III onwards all children under five listed in households interviewed have been measured. This dataset can be linked to the household members (PR), the children under five (KR) or the births (BR) datasets described above if height and weight was taken for children in the households. The file can only be linked to the children under five (KR) or birth (BR) dataset when only children of interviewed women were measured for early DHS phases.

Additional information about datasets can be found in The DHS Program YouTube video on DHS Dataset Types in 60 Seconds and on The DHS Program at https://www.dhsprogram.com/data/Dataset-Types.cfm.

Recode File Naming

Survey datasets are distributed as compressed .zip files. Each zip file contains a dataset and related documentation files. The naming of the zip files and their contents follows the DHS file naming convention: *CCDDVVFF[DS]*.ZIP

Code Description:

- *CC*: Country Code
- *DD*: Dataset Type. See *File types* above.
- *VV*: Dataset Version. First character - DHS Phase, second character - Release version.
- *FF*: File Format. DT - Stata, SV - SPSS, SD - SAS, FL - Flat, no file format – Hierarchical.
- *DS*: Data Structure. SPA only: SR - SPA Recode, SP - SPA Raw.

For example, UGIR7ADT.ZIP contains the Stata version of the Individual Women's Recode dataset for the Uganda 2016 DHS conducted as part of DHS-7.

The DHS file naming convention is described in detail at https://www.dhsprogram.com/data/File-Types-and-Names.cfm.

The list of datasets available for each survey can be found on The DHS Program website at https://www.dhsprogram.com/data/available-datasets.cfm, or through The DHS Program API using the datasets call, e.g. https://api.dhsprogram.com/rest/dhs/datasets?f=html&perpage=1000. The API call can be filtered by country, survey, survey type, file format, or dataset type (file type). See https://api.dhsprogram.com/#/api-datasets.cfm for more information on using the API datasets call.

Recode Variable Naming

Variables in the recode file begin with one or two letters followed by one to four (typically three) digits and in some cases followed by a letter. Following is a list describing the general variable name conventions.

Household Recode (HR) and Household Member Recode (PR)

hv0xx   Basic characteristics of the household interview (hhid,hv000-hv048)
hv8xx   Time of household interview and date of biomarker visit (hv801-hv807a)
hv1xx   Characteristics of household members (hvidx,hv101-hv140)
hv2xx   Characteristics of the household (hv201-hv271a)
haxx   Anthropometry, anemia and biomarkers for women (ha0-ha73)
hbxx   Anthropometry, anemia and biomarkers for men (hb0-hb73)
hcxx   Anthropometry, anemia and biomarkers for children (hc0-hc73)
hmlxx   Mosquito net characteristics and use (hmlidx,hml3-hml11,hml21-hml24,hmla-hmle)
   Mosquito net use by household members (hml12-20), and malaria test results (hml30-hml40)
hdisx   Disability (idxdis,hdis1-hdis9)
hclx   Child labor (hchline,hchl2a-hchl14,hchlwgt)
hcdix   Child discipline (hcdi2-hcdi4,hcdwgt)
haix   Accidents and injuries (haiidx,hai1-hai13z)
hexx   Health expenditure (idxhex,hex1-hex5), inpatient health expenditures (hex20-hex38), outpatient health expenditures (hex70-hex79,hexowgt)
hfsx   Food insecurity experience scale (hf1-hfs8,hfs_mod,hfs_sev)
shxxx   Survey-specific household or household member characteristics

Women's Individual Recode (IR), Births Recode (BR), Pregnancies Recode (GR), Pregnancy and Postnatal Care Recode (NR), and Children Under age 5 Recode (KR)

v0xx   Basic characteristics of the women's interview (caseid,v000-v048)
v1xx   Woman's characteristics (v101-v191a)
bxx   Birth history (bidx,bidxp,bord,b1-b21)
pxx   Pregnancy history (pidx,pidxb,pord,p0-p32)
v2xx   Reproduction (v201-v249)
v3xx   Contraception (v301-v3a14)
mxx   Maternal health, pregnancy, postnatal care and breastfeeding (midx,midxp,m1-m82,ml0-ml2,mnb1-mnb12,mh3a-mh25)
v4xx   Anthropometry and anemia of interviewed women, breastfeeding, and feeding of youngest child living with mother (v401-v486)
hxx   Immunization and child health (hidx,h0-h80g)
hwxx   Anthropometry for children of interviewed women (hwidx,hw1-hw73)
v5xx   Marriage and sexual exposure (v501-v544)
v6xx   Fertility preferences (v602-v636)
v7xx   Husband's characteristics, women's work, women's empowerment (v701-v746)
   HIV/AIDS knowledge, attitudes and practices, and sexually transmitted infections (v750-v792y)
v8xx   Interview characteristics (v801-v815c)
   HIV related practices, sexual activity (v820-v867g)
vcal   Reproductive/contraceptive calendar
mmxx   Adult and maternal mortality (mmidx,mm1-mm16)

mlxx   Malaria-related child health (idxml,ml0-ml25a)
        Social behavioral change communication (ml501-ml514)
dxxx   Domestic violence (d005,d100-d130c)
gxxx   Female genital cutting (g100-g119,gidx,g121-124)
ecdxx   Early childhood development index (idxecd,idxecdp,ecd21-ecd40)
chdxx   Chronic diseases (chd01-chd33)
mthxx   Mental health (mth1-mth24)
fisxx   Fistula (fi1-fi12)
sxxx   Women's survey-specific

Men's Recode (MR)

mv0xx   Basic characteristics of the men's interview (mcaseid,mv000-mv048)
mv8xx   Interview characteristics (mv801-mv803)
mv1xx   Man's characteristics (mv101-mv191a)
mv2xx   Reproduction (mv201-mv253)
mv3xx   Contraception (mv301-mv3b25b)
mv4xx   Smoking, tuberculosis and other adult health issues (mv463a-mv485b)
mv5xx   Marriage and sexual exposure (mv501-mv541)
mv6xx   Fertility preferences (mv602-mv634d)
mv7xx   Employment (mv714-mv747b)
        HIV/AIDS knowledge, attitudes and practices, and sexually transmitted infections (mv750-mv793b,mv820-mv867g)
mgxxx   Female genital cutting (mg100-mg119)
mchdxx Chronic diseases (mchd01-mchd33)
mmthxx Mental health (mmth1-mmth24)
smxxx   Men's survey-specific

HIV Testing Data (AR)

hivxx   HIV test results

Recode variable names are used consistently across DHS, AIS, and MIS surveys to facilitate analysis regardless of type of survey.

Not Applicable and Missing Values and Other Special Codes

In DHS datasets there are several special values that have particular codes. Two of them are very important – not applicable and missing. The DHS Program treats these two differently although some software treat them as the same.

- "<u>Not applicable</u>" is defined as when a question is not supposed to be asked due to the flow of the questionnaire. For example question 227 in the Woman's Questionnaire "How many months pregnant are you?" is not applicable if the answer to the preceding question 226 "Are you pregnant now?" is No or Unsure. Question 227 would be left blank in the questionnaire in this case.

- "<u>Missing</u>" is defined as a variable that should have a response, but because of interviewer error the question was not asked. For example, question 227 "How many months pregnant are you?" should be answered if a woman responded Yes to question 226 "Are you pregnant now?" If the interviewer incorrectly left the question blank, then a code is required to recognize that. The general rule for DHS data processing is that answers should not be made up, and so a "missing value" will be assigned. The data will be kept as missing in the data file and no imputation for this kind of question will be done. Missing values in general are codes 9, 99, 999, 9999, etc. depending on the number of digits used for the variable.

There are important differences in how "not applicable" and "missing" are handled in each of the statistical software:

- In Stata, in most datasets both not applicable and missing values have been converted to Stata's missing value (.). In some datasets though the codes remain as 9, 99, 999 or 9999. Starting in DHS-8, missing values will be (.a) and not applicable values will be (.).

- In SPSS, not applicable values are converted to system missing, while the missing values are converted to user missing.

- In SAS, as in Stata, both not applicable and missing values have been converted to SAS' missing value (.)

The distinction between "not applicable" and "missing" can be important for matching results from DHS reports. In general, the denominators for most indicators in DHS reports exclude the "not applicable" cases but include the "missing" cases. Careful attention to the selection of the denominator and then ensuring that "missing" values are correctly treated is important for ensuring that results match those published in DHS survey reports.

There are some important background variables where the "missing" code is not accepted, including:

- Geographical variables such as type of place of residence (urban/rural) (hv025, v025, mv025, v102, mv102), regions (hv024, v024, v101, mv101), and any other variable whose value can be established by the sample design

- Level of education for women and men in the individual questionnaire (v106, mv106)

- Current use of contraception for women (v312)

- Current marital status of women and men (v501, mv501)

- Variables related to the woman's birth history (v201 to v210, b0, b4, b5, b9).

Note though that in earliest phases of DHS it is possible that some of these variables may have "missing" values.

In addition to "not applicable" and "missing" values there are often other special values recorded in the datasets. Codes 8, 98, 998, 9998 are assigned to "don't know" responses. These codes are normally pre-coded in the questionnaires and are consistently used throughout the recode file.

Another special code used for data editing purposes is code "Inconsistent." This code is generally used in the secondary editing of data, when a value or code is not plausible, but it is impossible to determine the correct code. For example, dates for vaccinations recorded as having occurred before the birth of the child. The value is not missing but is not possible. The secondary editing team is instructed to first check for clues that could lead to correcting the problem, but if that is not possible, to establish which piece of information is wrong (day, month, or year) and assign the code for "Inconsistent" to that item. Inconsistent codes are 7, 97, 997, 9997 depending on the variable number of digits.

Other special responses may be coded 96 (996, 9996), 95 (995, 9995), 94 (994, 9994), etc. For example, in variable v226 (Time since last period (comp) (months)) code 996 means "Never menstruated", code 995 means "Before last birth", and code 994 means "In menopause". As another example, variable v525 (age at first sex) has codes 99 "Missing", 98 "Don't know", 97 "Inconsistent", 96 "At first union", and 0 "Not had sex".

All of these special codes should be taken into account when analyzing DHS datasets. For example, if they are not excluded to calculate the mean age at first sex, eventually the mean will be inflated by ages 96, 97, 98, and 99. Even code 0 would need to be excluded as it would incorrectly deflate the mean age at first sex.

In general, The DHS Program uses a conservative approach to the calculation of indicators including missing and special values in denominators of most percentages (but not means and medians) and excluding them from the numerators or showing them as separate categories in percent distributions.

Construction of Variables

DHS Recode files are created through a complex recoding application, converting the raw data as collected in the questionnaires into a standardized recode format for use in analysis. In this process there are a number of different types of variables constructed. For most variables this is a one-to-one conversion, possibly recoding categories (e.g. converting No = 2 in the questionnaire to No = 0 in the recode variable), while for others the creation is more complex. The creation of some types of variables is described below.

Multiple Response Variables

In multiple response questions, the question is asked, and the respondent spontaneously begins providing answers. The answers are not read, but the interviewer must classify the response according to the options available for the question. The interviewer keeps probing for other responses until the respondent says that she has no more answers. Question 414 of the Woman's Questionnaire is a typical example of this type of question:

| 414 (1) | Whom did you see?

Anyone else?

PROBE TO IDENTIFY EACH TYPE OF PERSON AND RECORD ALL MENTIONED. | **HEALTH PERSONNEL**
    DOCTOR . . . . A
    NURSE/MIDWIFE . . . . B
    AUXILIARY MIDWIFE C
OTHER PERSON
    TRADITIONAL BIRTH ATTENDANT . . . . D
    COMMUNITY HEALTH WORKER/
        FIELD WORKER   . . . . E

OTHER _____ X
                         (SPECIFY) | |

At the time of data capture, all responses are stored in just one field. However, dealing with combinations of alphabetic codes presents a challenge for analysis purposes, so each response for this type of question is translated into codes 0 = No, 1 = Yes, 9 = Missing, in separate variables in the recode files:

m2a	Prenatal care: Doctor
m2b	Prenatal care: Nurse/Midwife
m2c	Prenatal care: Auxiliary Midwife
m2d	*Prenatal care: CS Health Specialist*
m2e	*Prenatal care: CS Health Specialist*
m2f	*Prenatal care: CS Health Specialist*
m2g	Prenatal care: Traditional Birth Attendant
m2h	Prenatal care: Village Health Worker
m2i	*Prenatal care: CS Other Person*
m2j	*Prenatal care: CS Other Person*
m2k	Prenatal care: Other Response (uncoded)
m2l	*Prenatal care: CS Other*
m2m	*Prenatal care: CS Other*
m2n	Prenatal care: No One

(variables in italics are used for survey-specific categories)

In creating these variables there are several conditions taken into consideration with this type of variable:

- If the question was missing, all applicable variables will be assigned the code "missing".
- If a response category does not exist for a particular survey, the variable will be left blank "not applicable".
- There are provisions for survey-specific (CS = country-specific) responses that are not part of the standard model questionnaires. For example, some countries include additional categories of health professionals.

Multipart Questions

In multipart questions the response for the separate parts of the question are usually stored in separate variables in the recode files. For example, question 418 in the Woman's Questionnaire is as follows:

418	As part of your antenatal care during this pregnancy, did a healthcare provider do any of the following:		YES	NO	DK	
	a) Measure your blood pressure?	a) BP	1	2	8	
	b) Take a urine sample?	b) URINE	1	2	8	
	c) Take a blood sample?	c) BLOOD	1	2	8	
	d) Listen to the baby's heartbeat?	d) HEARTBEAT..............	1	2	8	
	e) Talk with you about which foods or how much food you should eat?	e) FOODS	1	2	8	
	f) Talk with you about breastfeeding?	f) BREASTFEED	1	2	8	
	g) Ask you if you had vaginal bleeding?	g) BLEEDING	1	2	8	

Each part of the question is treated as a separate variable in the recode file:

m42c   During pregnancy: blood pressure taken
m42d   During pregnancy: urine sample taken
m42e   During pregnancy: blood sample taken
m42f   During pregnancy: listen to baby's heartbeat
m42g   During pregnancy: talk about foods to eat
m42h   During pregnancy: talk about breastfeeding
m42i   During pregnancy: ask about vaginal bleeding

Each variable is coded 0 = No, 1 = Yes, 9 = Missing.

Date Variables

Certain date variables in DHS surveys receive special treatment. As dates are central to the calculation of fertility and mortality rates and the selection of cases for inclusion in other analyses, there is a need for fully specified dates (month and year) for key events. These events are:

- Date of birth of the respondent
- Date of first marriage or union
- Dates of birth of each child
- Date started using current method of contraception
- Date current pregnancy started
- Date of interview

Note that the date of interview is always fully specified and can have no special values.

However, the respondent may not know the exact date of an event, the date (or part of it) may have been left blank by the interviewer, or the date may have been inconsistent with other information. For all of these situations the month and/or year part of the date variables may have either the missing value code or one of the other special codes. As fully specified dates are required for analysis, The DHS Program uses a process of date editing and imputation to impute exact dates (to the month and year) for each of these dates.

The DHS Program date editing and imputation uses a multi-step process:
1) Construct logical ranges using the information reported for the date.
2) Apply isolated constraints to narrow the ranges
3) Apply neighboring constraints to further narrow the ranges
4) Ensure sufficient gap between events, further narrowing ranges
5) Random imputation within final ranges.

The result of these steps is the production of imputed dates for the key dates:
- Date of birth of the respondent (month: v009, year: v010, CMC: v011, flag: v014)
- Date of first marriage or union (month: v507, year: v508, CMC: v509, flag: v510)
- Dates of birth of each child (month: b1, year: b2, CMC: b3, flag: b10)
- Date started using current method of contraception (month: v315, year: v316, CMC: v317, flag: v318)
- Date current pregnancy started (duration of current pregnancy: v214, flag: v223)
- Date of interview (month: v006, year: v007, CMC: v008)

Flag variables indicate the information originally provided as input to the imputation process for the date. Note that although date of current pregnancy started is imputed, the variable included in the recode file is just the duration of pregnancy, calculated by subtracting the imputed date current pregnancy started from date of interview.

Each of these steps is described in more detail in DHS Data Editing and Imputation (Croft, 1991) https://www.dhsprogram.com/publications/publication-DHSG3-DHS-Questionnaires-and-Manuals.cfm.

For simplicity of calculation dates of key events are presented both as month and year and in terms of Century Month Codes.

Century Month Code

Century month codes (CMC) are calculated by taking the difference between the year of an event and 1900, multiplying by 12, and adding the month of the event:

$$CMC = (Year – 1900) * 12 + Month$$

January 1900 is CMC, February 1900 is CMC 2, January 1901 is CMC 13, and December 1999 is CMC 1200. For example, the CMC for August 2018 is:

$$CMC = (2018 - 1900) * 12 + 8 = 1424$$

In other words, 1424 months have elapsed between January 1900 and August 2018, inclusive.

Based on CMC it is possible to calculate the month and year using the following formulas:

Year = int((CMC - 1)/12) + 1900   [int(x) is the integer part of x]
Month = CMC - ((Year - 1900) * 12)

The year 1900 was chosen as the reference date because all of the DHS relevant events occurred during the twentieth or twenty-first centuries. Century Month Codes was also used in the World Fertility Surveys (https://wfs.dhsprogram.com/) that were the precursor to The DHS Program, and all dates in those surveys (conducted from 1976 to 1984) were in the 20th century, hence the name.

Century month codes are particularly important to check consistency of dates, to calculate intervals between events, and in the imputation of dates when the information for an event is missing or partially complete. The main DHS events with their corresponding recode variable names are given above.

Example:

Let us see the events for a married, sterilized respondent with three births and with event dates that occurred as shown in the following figure. If a horizontal line is drawn from the woman's date of birth to the date of interview, all the events can be depicted in the line.

Variables	v011	v509	b3_1	b3_2	b3_3	v317	v008
Dates	04/1992	10/2011	07/2013	10/2014	11/2016	04/2017	08/2018
CMC	1108	1342	1363	1378	1403	1408	1424
Event	Date of birth	Date of marriage	Date of birth of first child	Date of birth of second child	Date of birth of third child	Date of sterilization	Date of interview

DHS uses century month codes extensively during the process of editing and imputing data. The advantages of the approach include the following:
- When checking for consistency, use of the century month codes makes it easy to check not only that the events occurred in chronological order, but also that there should be a minimum interval between them. For example, b3_2 - b3_1 should be greater or equal to 9 months (the expected duration of a pregnancy).
- For imputation purposes, if information were missing between two events, the random imputation would be quite reasonable. For example, if date of birth for the second child is unknown, that birth should have occurred between the first birth plus nine months, and nine months before the third birth. The lower and upper limits for a random number generator are plausible, e.g.:
    random (b3_1 + 9, b3_3 - 9) = random (1372, 1394)

The use of CMC in analysis facilitates the calculation of intervals or ages at different events. Throughout The DHS Program analysis programs, instructions such as those shown below are very common:
- Respondent's age   = int((v008 - v011)/12)   (1424 - 1108)/12 = 26 years
- Age at first birth   = int((b3_1 - v011)/12)   (1363 - 1108)/12 = 21 years
- Age at sterilization   = int((v317 - v011)/12)   (1408 - 1108)/12 = 25 years

- Age of last child in months   = v008 - b3_3   1424 - 1403 = 11 months
- Interval between birth 1 and 2   = b3_2 - b3_1   1378 - 1363 = 15 months
- Months since sterilization   = v008 - v317   1424 - 1408 = 16 months

DHS recommends that analysts use the century month code variables when dealing with intervals or ages at different events.

The Century Month Code works well for most DHS analyses, but there are three countries that use non-western calendars. To date these countries are:

- Ethiopia: The Ethiopian calendar is 7-8 years behind the Gregorian (Western) calendar, and the Ethiopian year starts around September 11th or 12th of each year (exact day varies). 1st July 2017 is 24 Sane (the 10th month) 2009 in the Ethiopian calendar. The Ethiopian calendar consists of 12 months of 30 days, plus one month of 5 days (or 6 days in a leap year). The century month codes in the dataset are all based on the Ethiopian calendar, but "squeezing" the 13th month into a 12-month calendar. The reference date for surveys in Ethiopia is 1 Mäskäräm 1900 in the Ethiopian Calendar, which is September 12, 1907, in the Gregorian calendar. To approximately adjust dates to the Gregorian calendar add 92 months to the CMC.

- Nepal: The Nepali calendar is 56-57 years ahead of the Gregorian (Western) calendar, and the Nepali year starts around mid-April of each year (exact day varies). 1st July 2017 is 17 Ashad (the 3rd month) 2074 in the Nepali calendar. The Nepali calendar is made up of 12 months of between 28 and 32 days, and the number of days in a month can vary from year to year. The century month codes in the dataset are all based on the Nepali calendar. The reference date for surveys in Nepal is 1 Baisakh 1900 in the Nepali Calendar, which is April 16, 1843, in the Gregorian calendar, for all surveys in Nepal except for the Nepal DHS 1996, in which the reference date was 1 Baisakh 2000 in the Nepali Calendar, which is April 14, 1943, in the Gregorian calendar. To approximately adjust dates to the Gregorian calendar subtract 681 months from the CMC, or, in the case of Nepal DHS 1996, add 519 months.

- Afghanistan: The Afghan calendar is 621-622 years behind the Gregorian (Western) calendar, and the Afghan year starts around March 20th or 21st of each year (exact day varies). 1st July 2017 is 10 Saratan (the 4th month) 1396 in the Afghan calendar. The Afghan calendar is made up of 12 months, the first 6 of which have 31 days, the next 5 months have 30 days, and the last month has 29 or 30 days in a leap year. The century month codes in the dataset are all based on the Afghan calendar with 1300 as the base year, rather than 1900. The reference date of surveys in Afghanistan is 1 Hamal 1300, which is March 21, 1921, in the Gregorian calendar. To approximately adjust dates to the Gregorian calendar add 255 months to the CMC.

All calculations with CMCs in these surveys work as they do for any other survey. The exception is any analysis requiring specific years, in which case adjustments must be made to the calculated CMC as described above. It should be noted, however, that these are approximate adjustments as the calendars start in the middle of month and dates of events to the day would be required to calculate exact adjustments.

Century Day Code

In DHS-7, The DHS Program introduced the collection of day of birth of children in the birth history in addition to the month and year of birth. Adding day of birth permits calculating the age of children more accurately. Calculating age in months using just month and year of birth and month and year of interview meant that age in months could be off by one month in approximately half of all cases. For many analyses this difference was small and had little effect, but for some analyses this difference could be more meaningful. With the introduction of day of birth, and the need to calculate age of children more accurately, The DHS Program introduced the Century Day Code (CDC). The Century Day Code is the number of days from the beginning of 1900. January 1, 1900, is CDC 1, January 2, 1900, is CDC 2, December 31, 1999, is CDC 36525, and August 1, 2018 is CDC 43313. The Century Day Code is not simple to calculate manually, but it is the same system used in Excel for calculations between dates.

Excel

To find the CDC for a date using Excel, enter the date into a field (say A1), and then, in another field (say B1) enter:
`=VALUE(A1)`
Similarly, to get the date from a CDC value in Excel, use the day(), month() and year() functions in Excel (or simply convert the Numeric cell to a Date cell).

Stata

In Stata, the CDC can be calculated using the mdy() function as follows:
`gen CDCode = mdy(month, day, year) + 21916`
e.g.
`gen b18 = mdy(b1, b17, b2) + 21916`
The mdy() function uses January 1, 1960, as its base. The 21916 is the offset to use January 1, 1900, as the base (365.25 * 60 + 1).

SPSS

In SPSS, the CDC can be calculated using the yrmoda() function as follow:
`compute CDCode = yrmoda(year, month, day) - (yrmoda(1900, 1, 1) - 1) + 1.`
e.g.
`compute B18 = yrmoda(B2, B1, B17) - (yrmoda(1900, 1, 1) - 1) + 1.`
The yrmoda() function uses October 14, 1582, as its base.

The Century Day Codes are used with the date of birth of children and the date of interview and permit the calculation of age of children accurate to the day (see *Age of Children*). For some dates of birth of children, the exact date may not be fully specified at the time of data collection. For these dates an imputation process is followed, building on the imputation process for date variables described above, and resulting in the imputation of a century day code for all children in the woman's birth history.

Analyzing DHS Data

It is important that analysts be familiar with certain key aspects of DHS data to be able to calculate accurately the indicators described in further chapters. The following sections describe some of the key elements to pay attention to in analyzing DHS data.

Sample Design, Stratification and Sampling Weights

DHS sample designs are usually two-stage probability samples drawn from an existing sample frame, generally the most recent census frame. A probability sample is defined as one in which the units are selected randomly with known and nonzero probabilities. A sampling frame is a complete list of all sampling units that entirely covers the target population.

Stratification is the process by which the sampling frame is divided into subgroups or strata that are as homogeneous as possible using certain criteria. Within each stratum, the sample is designed and selected independently. The principal objective of stratification is to reduce sampling errors. In a stratified sample, the sampling errors depend on the population variance existing within the strata but not between the strata. Typically, DHS samples are stratified by geographic region and by urban/rural areas within each region.

Within each stratum, the sample design specifies an allocation of households to be selected. Most DHS surveys use a fixed take of households per cluster of about 25-30 households, determining the number of clusters to be selected. In the first stage of selection, the primary sampling units (PSUs) are selected with probability proportional to size (PPS) within each stratum. The PSUs are typically census enumeration areas (EAS). The PSU forms the survey cluster. In the second stage, a complete household listing is conducted in each of the selected clusters. Following the listing of the households a fixed number of households is selected by equal probability systematic sampling in the selected cluster.

The overall selection probability for each household in the sample is the probability of selecting the cluster multiplied by the probability of selecting the household within the cluster. The overall probability of selection of a household will differ from cluster to cluster. See Appendix A of the DHS Survey Reports for most surveys for the details specific to that survey.

DHS dataset users should be aware that, in most cases, the data must be weighted. This is because the overall probability of selection of each household is not a constant. The following describes how DHS weights are constructed and when they should be used.

Sampling weights

Sampling weights are adjustment factors applied to each case in tabulations to adjust for differences in probability of selection and interview between cases in a sample, due to either design or happenstance. In DHS surveys, in most surveys the sample is selected with unequal probability to expand the number of cases available (and hence reduce sample variability) for certain areas or subgroups for which statistics are needed. In this case, weights need to be applied when tabulations are made of statistics to produce the proper representation. When weights are calculated because of sample design, corrections for differential response rates are also made.

There are four main sampling weights in DHS surveys: household weights, household weights for the men's subsample, individual weights for women, and individual weights for men:

- The household weight (hv005) for a particular household is the inverse of its household selection probability multiplied by the inverse of the household response rate in the stratum.
- The household weight for the men's subsample (hv028) for a particular household is the inverse of its household selection probability for the subsample multiplied by the inverse of the household response rate for the subsample in the stratum.
- The individual weight for women (v005) is the household weight (hv005) multiplied by the inverse of the individual response rate for women in the stratum.
- The individual weight for men (mv005) is the household weight for the men's subsample (hv028) multiplied by the inverse of the individual response rate for men in the stratum.

There may be additional sampling weights for sample subsets, such as anthropometry, biomarkers, HIV testing, etc. There is only a need for the additional sample weights if there is a differential probability in selecting the subsamples. For example, if one in five households is selected in the whole sample for doing biomarkers, then an additional sample weight is not necessary. However, if one in five households in urban areas and one in two households in rural areas are selected, then an additional sample weight is necessary when estimating national levels or for any group that includes cases from both urban and rural areas. Notwithstanding the foregoing, the DHS has customarily included both household weights and individual weights for the subsample for the men's surveys, normalizing the weights for the number of households in the subset for the men's surveys, and to the number of men's individual interviews even when no differential sub-selection has been used.

Response rate groups are groups of cases for which response rates are calculated. In DHS surveys, households and individuals are grouped into sample strata and response rates are calculated for each stratum.

Household Response Rate

Coverage: All households. Excluded are dwellings without a household (no household lives in the dwelling, address is not a dwelling, or the dwelling is destroyed).

Numerator: Number of households with a completed household interview (hv015 = 1).

Denominator: Number of households with a completed household interview, households that live in the dwelling, but no competent respondent was at home, households with permanently postponed or refused interviews, and households for which the dwelling was not found (hv015 in 1, 2, 4, 5, 8).

The household response rate for the men's subsample is calculated in the same way but restricting numerator and denominator to household selected for the men's subsample.

Women's Individual Response Rate

Coverage: Women eligible for interview, usually women age 15-49 who stayed in the household the night before the survey. In ever-married samples, women are eligible for interview only if they have ever been married or lived in a consensual union. In some surveys, the age range of eligibility has differed, e.g., ever-married women age 12-49.

Numerator: Number of eligible women with a completed individual interview (v015 = 1).

Denominator: Number of eligible women with a completed individual interview, eligible women not interviewed because they were not at home, eligible women with permanently postponed or refused interviews, eligible women with partially completed interviews, eligible women for whom an interview could not be completed due to incapacitation or other reasons (v015 in 1:9).

Men's Individual Response Rates

Coverage: Men eligible for interview, usually men age 15-49, 15-54, or 15-59 who stayed in the household the night before the survey. In ever-married samples, men are eligible for interview only if they have ever been married or lived in a consensual union. The age range of eligibility varies from survey to survey.

Numerator: Number of eligible men with a completed individual interview (mv015 = 1).

Denominator: Number of eligible men with a completed individual interview, eligible men not interviewed because they were not at home, eligible men with permanently postponed or refused interviews, eligible men with partially completed interviews, eligible men for whom an interview could not be completed due to incapacitation or other reasons (mv015 in 1:9).

Normalization of Weights

Sample design weights are produced by the DHS sampler using the sample selection probabilities of each household and the response rates for households and for individuals. The initial design weights are then normalized by dividing each weight by the average of the initial weights (equal to the sum of the initial weight divided by the sum of the number of cases) so that the sum of the normalized weights equals the sum of the cases over the entire sample. The normalization is done separately for each weight.

Application of Sampling Weights

Sample weights are calculated to six decimals but are presented in the standard recode files without the decimal point. They need to be divided by 1,000,000 before use to approximate the number of cases. Sampling weights can be applied in two main ways:
1) A simple application of weights when all that is needed are indicator estimates.
2) As part of complex sample parameters when standard errors, confidence intervals or significance testing is required for the indicator.

The methods of applying the weights varies across the various statistical software.

Example 1: Simple weighting

The below examples for Stata, SPSS and R produce simple weighted estimates of current use of modern methods. Note that any standard error or confidence interval given by the below commands assume a simple random sample and do not take into account the complex sample used in DHS surveys.

```
* Open the model dataset
use "ZZIR62FL.DTA", clear

* Percentage currently using a modern method
gen modern_use = (v313 == 3)

* Create weight variable
gen wt = v005/1000000

* Tabulate indicator by region
mean modern_use [iw=wt], over(v024)

Mean estimation           Number of obs  =   8,348

  _subpop_1: v024 = region 1
  _subpop_2: v024 = region 2
  _subpop_3: v024 = region 3
  _subpop_4: v024 = region 4


--------------------------------------------------------------
    Over |    Mean   Std. Err.   [95% Conf. Interval]
------------+-------------------------------------------------
modern_use |
  _subpop_1 |  .1724828   .007062    .1586395   .1863262
  _subpop_2 |  .2148514   .0102385   .1947815   .2349213
  _subpop_3 |  .3124085   .0096652   .2934622   .3313547
  _subpop_4 |  .1928716   .0099471   .1733729   .2123704
--------------------------------------------------------------
```

SPSS

```
* Open the model dataset.
get file = "ZZIR62FL.SAV".

* Percentage currently using a modern method.
compute modern_use = (v313 = 3).

* Create weight variable.
compute wt = v005/1000000.
weight by wt.

* Tabulate indicator by region.
means tables=modern_use by v024 /cells mean count.
```

Report

modern_use

V024 Region	Mean	N
1 Region 1	.1725	2863
2 Region 2	.2149	1610
3 Region 3	.3124	2300
4 Region 4	.1929	1574
Total	.2231	8348

R

```
# load libraries
```

```
library(foreign)
library(plyr)

# Open the model dataset
dta <- read.dta("ZZIR62FL.dta", convert.factors = FALSE)

# Percentage currently using a modern method
dta$modern_use <- ifelse(dta$v313==3,1,0)

# Create weight variable
dta$wt <- dta$v005/1000000

# Tabulate indicator by region
ddply(dta,~v024,summarise,mean=weighted.mean(modern_use, wt))

 v024   mean
1  1 0.1724828
2  2 0.2148514
3  3 0.3124085
4  4 0.1928716
```

Complex sample designs

However when standard errors, confidence intervals or significance testing is required, then it is important to take into account the complex sample design. For the complex sample design, it is necessary to know three pieces of information – the primary sampling unit or cluster variable, the stratification variable, and the weight variable.

The primary sampling unit variable is typically v021 (or hv021 or mv021). If this variable does not contain the PSU number, then, in all but a few surveys, the cluster number (v001 or hv001 or mv001) can be used. In most surveys there is a one-to-one correspondence between the cluster number and the PSU number, but in a small number of surveys, for example some of the surveys in Egypt, the PSU and cluster number do not match one-to-one – see Appendix A in the DHS survey reports for details of the sampling design.

The stratification variable is typically v023 (or hv023 or mv023), however the stratification variables have not been consistently defined in many surveys and may need to be created. It is best to check the sample design in Appendix A of the DHS survey reports to verify the stratification used in the design of the sample. In many surveys, the stratification is based on urban and rural areas in each region (v024 x v025).

The weight variable is v005 (or hv005 or mv005) divided by 1,000,000.

To apply the complex sample design parameters in estimating indicators each of the statistical software use a different set of commands applying the sample design and producing the indicator estimates:

Stata: svyset and svy: commands
SPSS: csplan, csdescriptives and cstabulate commands
R: survey package, including svydesign and other svy functions.

Example 2: Complex sample design weighting

The below examples for Stata, SPSS, and R, continuing on from example 1, demonstrate the use of the complex sample designs for estimates of current use of modern methods, together with standard errors and confidence intervals.

```
* define strata
gen stratum = v023
* alternative strata based on region and urban/rural
* egen stratum = group(v024 v025)

* complex sample design parameters
svyset v021 [pw=wt], strata(stratum)

svy: mean modern_use, over(v024)

Survey: Mean estimation

Number of strata =      8     Number of obs   =    8,348
Number of PSUs   =    217     Population size = 8,347.9996
                  Design df    =     209

  _subpop_1: v024 = region 1
  _subpop_2: v024 = region 2
  _subpop_3: v024 = region 3
  _subpop_4: v024 = region 4


-----------------------------------------------------------------
             |           Linearized
       Over |    Mean   Std. Err.    [95% Conf. Interval]
-------------+---------------------------------------------------
modern_use  |
  _subpop_1 |   .1724828   .0154383    .1420481   .2029175
  _subpop_2 |   .2148514   .0140044    .1872434   .2424594
  _subpop_3 |   .3124085   .0357686    .2418951   .3829219
  _subpop_4 |   .1928716   .0139509    .1653691   .2203742
-----------------------------------------------------------------
```

```
* Define strata.
compute stratum = v023.
* alternative strata based on region and urban/rural.
* compute stratum = v024 * 2 + v025.

* Complex sample design parameters.
csplan analysis
 /plan file='C:\Temp\DHS_IR.csplan'
 /planvars analysisweight=wt
 /design strata=stratum CLUSTER=v021
 /estimator type=wr.

* Complex Samples Descriptives.
csdescriptives
 /plan file='C:\Temp\DHS_IR.csplan'
 /summary variables=modern_use
 /subpop table=v024 display=layered
 /mean
 /statistics se cin
 /missing scope=analysis classmissing=exclude.
```

Univariate Statistics				
			95% Confidence Interval	
V024 Region	Estimate	Standard Error	Lower	Upper
1 Region 1 Mean modern_use	.1725	.01544	.1420	.2029
2 Region 2 Mean modern_use	.2149	.01400	.1872	.2425
3 Region 3 Mean modern_use	.3124	.03577	.2419	.3829
4 Region 4 Mean modern_use	.1929	.01395	.1654	.2204

R

```
library(survey)

# Complex sample design parameters
DHSdesign<-svydesign(id=dta$v021, strata=dta$v023, weights=dta$wt, data=dta)

# tabulate indicator by region
svyby(~modern_use, ~v024, DHSdesign, svymean, vartype=c("se","ci"))

 v024 modern_use       se    ci_l    ci_u
1   1 0.1724828 0.01543828 0.1422244 0.2027413
2   2 0.2148514 0.01400441 0.1874033 0.2422995
3   3 0.3124085 0.03576857 0.2423034 0.3825136
4   4 0.1928716 0.01395092 0.1655283 0.2202149
```

Notes and Considerations

The sum of the sample weights only equals the number of cases for the entire sample and not for subgroups such as urban and rural areas.

Sample weights are inversely proportional to the probability of selection and are used to correct for the under- or over-sampling of different strata during sample selection. If weights are not used, all calculations will be biased toward the levels and relationships in the over-sampled strata. Comparisons of regression coefficients, as well as rates, percentage, means, etc. coming from different surveys are only valid if weights have been used to correct for the sample designs of the different surveys.

An option to use sample weights is included in virtually all procedures in all statistical packages. Weights tend to increase the size of standard errors and confidence intervals, but not by large amounts. Recommendations against the use of weights for estimating relationships, such as regression and correlation coefficients, in prior versions of the Guide to DHS statistics are no longer DHS policy.

For more information on DHS sample design, stratification and sample weights, see the DHS Sampling and Household Listing Manual (https://www.dhsprogram.com/publications/publication-DHSM4-DHS-Questionnaires-and-Manuals.cfm). See also the DHS YouTube videos:
>Part I: Introduction to DHS Sampling Procedures
>Part II: Introduction to Principles of DHS Sampling Weights
>Part III: Demonstration of How to Weight DHS Data in Stata
>Part IV: Demonstration of How to Weight DHS Data in SPSS and SAS
>Setting the survey design using DHS data in R - Part 3

Households

Households are the primary unit selected for interview in DHS surveys. The definition of a household is a person or group of related or unrelated persons who live together in the same dwelling unit(s), who acknowledge one adult male or female as the head of the household, who share the same housekeeping arrangements and who are considered a single unit.

Each country has its own definition of a household, which may vary slightly from this definition, but generally the definition is very similar.

De Facto and De Jure Populations

When listing household members in the roster of a DHS Household Questionnaire, the household respondent is asked "Please give me the names of the persons who usually live in your household and guests of the household who stayed here last night, starting with the head of the household." For each person listed the respondent is asked "Does (NAME) usually live here?" and "Did (NAME) stay here last night?" For most people listed, the answer to both questions will be yes. However, there are some people for whom the respondent says yes, they usually live in the household, but no, they did not stay in the household the previous night. Conversely, there may be some guests who do not usually live in the household but stayed in the household the previous night.

The group of people that usually live in the surveyed households are known as the de jure population (or usual residents) and the group of people that stayed in the household the previous night are known as the de facto population. Typically, more than 90 percent of the persons listed in the household roster are both de jure and de facto household members.

Theoretically a person could be a de jure member in one household and a de facto member in another household and could potentially be included more than once in the survey. To avoid this potential double counting of people it is important to ensure that either a de facto population or a de jure population is selected for all analysis of the data. Either one is a valid population. DHS generally selects a de facto sample as the response rate is usually higher for the de facto population as they stayed in the household the previous night and are less likely to be away. The DHS individual women's recode (IR file) and men's recode (MR file) only contain de facto women and men respectively.

In the household members recode (PR file), all persons listed in the household roster are included in the file and the choice of population for reporting may differ depending on the indicator. For example, for anthropometric measures, anemia testing, and HIV testing, The DHS Program selects the de facto population as the persons must be measured and tested and the response rate is typically higher for this group. However, for indicators that are about the household, such as the water and sanitation indicators, and where the person may not be interviewed themselves, The DHS Program reports based on the de jure population as the person usually lives in the household and uses the water and sanitation facilities, whereas the water and sanitation facilities used by any guest in the household may be quite different in their own household compared to the surveyed household.

For all indicators based on the household members (PR file), either the de jure population (hv102 = 1) or the de facto population (hv103 = 1) is selected. See the YouTube video on De Jure and De Facto for more information.

Age of Children

The age of children is used frequently in selecting the children to be included in the denominators and numerators of many of the indicators described in the following chapters. In DHS-7, The DHS Program changed the way in which the age of children is calculated to provide a more accurate estimate of their age. Day of birth was added for all births in the birth history in DHS-7 questionnaires. Adding day of birth permits the calculation of ages of children in days, and allows for the more accurate calculation of age in months (https://www.dhsprogram.com/data/calculating-the-age-of-children.cfm).

Due to the addition of the age in days, The DHS Program also introduced the Century Day Code (CDC) – the number of days since January 1, 1900. Several variables related to the century day codes have been added, and as well as several new age-related variables:

v008a: CDC date of individual interview, similar to the century month code variable v008.
b17:   Imputed day of birth for children of the respondent (similar to the imputed month and year of birth in b1 and b2).
b18:   CDC date of birth of children of the respondent.
b19:   Age of child, or months since birth for children who have died, in completed months, computed as:
                $b19 = int((v008a - b18) / 30.4375)$
hv008a: CDC date of household interview
hv807a: CDC date of biomarker data collection
hml16a: Age of child in months for children. Used for reporting malaria testing for children
hc1a: Age of child in days for children included in the biomarker questionnaire
hc20:   CDC date of biomarker data collection for children. If date of measurement is included for individual children the variable may be different than hv807a, for example when retaking child's measurements
hc32a: CDC date of birth of children included in the biomarker questionnaire
hw1a: Age of child in days for children included for anthropometry in the biomarker questionnaire

Changes have also been made to the method of calculating several existing variables:

b8:   Age of child in years – now calculated based on b19, instead of v008 - b3
b11, b12:   Previous and succeeding birth interval. Previous birth interval was previously calculated as b3(i) - b3(i+1), but is now calculated as int((b18(i) - b18(i+1)) / 30.4375), and a similar change is made for the succeeding birth interval
v208:   Births in the five years preceding the survey
v209:   Births in the 12 months preceding the survey
v222:   Interval between last birth and date of interview in months
v238:   Births in the three years preceding the survey
v337:   Months of use of current contraceptive method
hc1:   Age of child in months for children for whom anthropometric measures were taken, computed as follows:
                $hc1 = int((hv807a - hc32a) / 30.4375)$

hw1:   Age of child in months for children of respondents for whom anthropometric measures
                were taken. hw1 is set equal to hc1. Take note that hc1 and hw1 are calculated with
                reference to the date of biomarker data collection, and this can occasionally differ from
                the date of individual interview, and so, on rare occasions hw1 and b19 may differ
                slightly.
hml16:   Age of child in months for children included in the malaria bed net roster

Additionally, anywhere that a restriction based on the age of the child or the number of months since a
birth, e.g. selecting all children born in the last five years, the condition has been changed to refer to
b19 instead of v008 - b3.

In surveys that introduced the day of birth of the child, changes have been made in the analysis of the
data in two main ways:

1) The restrictions on the denominator for tables now all use the age variables based on the
   calculation to the day, rather than to the month. In most cases this means changing selections
   such as

           if (v008 - b3 < 60)

   to

           if (b19 < 60)

   If the original restriction is applied, the analysis will exclude a small number of cases that are
   included with the newer calculation. On average, this will add approximately half a month's
   worth of additional births or children into the analysis.

2) All background age group variables used in analysis are now based on the revised ages.
   Previously on average, because the calculation method only considered month and year and not
   day of birth, the age group of 0 months would have roughly half the number of cases of age
   group 1 month, or other older single month age groups. With the new method, age group 0
   months will have a roughly similar number of cases as other single month age groups.

These changes affect virtually all tables related to children, particularly to children under the age of five.
Fertility rate and childhood mortality rate tables are not currently changed as these tables exclude the
month of interview from calculations and effectively use complete months in the calculations.

For analysts it is recommended that they change their selection criteria in analysis from using v008 - b3
< xx to b19 < xx. It is possible to generalize the logic changes to creating b19 using the old approach if it
does not exist in the dataset, or to use b19 if it does exist. Below are examples for use in Stata and SPSS:

Stata
```
capture confirm variable b19
if _rc { // b19 does not exist, so create equivalent for old calculation method
 gen b19 = v008 - b3
 label variable b19 "Age of child in months or months since birth"
}
else {
 capture assert b19 == .
 if _rc == 0 { // b19 exists, but is empty
  replace b19 = v008 - b3
 }
}

tab yyy zzz [iw=wt] if b19 < xx
```

```
* check if pre- DHS-7 recode file.
if (char.index("123456789", char.substr(v000,3,1)) < 7) b19 = v008-b3.
variable label b19 "Age of child in months or months since birth".
* if not, check if b19 is empty.
if (sysmis(b19)) b19 = v008-b3.

compute filter_$=(b19 < xx).
filter by filter_$.
crosstab tables=yyy by zzz.
```

This approach will use b19 if it exists in the dataset, but otherwise create its equivalent using the old age calculation method and allow the production of analyses that are consistent with the tabulations in the DHS reports.

All Women Factors

Definition

Factors for adjusting ever-married samples to estimate statistics based on all women.

Coverage:
 Population base: All de facto women (PR file)
 Time period: Current status at time of survey

All women factors are specific for individual years of age and specific for the particular subgroup to be estimated (e.g., there are two sets of factors by type of area: one for urban areas and one for rural areas).

Numerator: Number of all de facto women age 15-49 (hv103 = 1 & hv104 = 2 & hv105 in 15:49), by single years of age (hv105) and background characteristics

Denominator: Number of de facto ever-married women age 15-49 (hv103 = 1 & hv104 = 2 & hv105 in 15:49 & hv115 in 1:9), by single years of age (hv105) and background characteristics

Variables: PR file.
hv103	Slept last night
hv104	Sex of household member
hv105	Age of household members
hv115	Current marital status
hv005	Household sample weight

Calculation

Numerator: From the household survey, tabulation by single year of age and by subgroup of the number of women 15–49 years of age of any marital status who slept in the household the night before the interview.

Denominator: From the household survey, tabulation by single year of age and by subgroup of the number of women age 15–49 years who slept in the household the night before the interview who have ever been married.

Tabulations use the household sampling weights (hv005).

All women factors are numerator divided by denominator. Factors are multiplied by 100 in the recode file.

Example:

The following table shows an example of the number of women age 15-49 for all women, ever-married women and the resulting all women factors according to place of residence (urban/rural) and total. The

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distribution was obtained from the household schedule for de facto women (women who stayed in the household the night before the survey). The data are weighted using the household weights.

Age	All Women			Ever-Married Women			All Women Factors x 100		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
15	50.70	413.65	464.35	0.00	43.55	43.55	884	950	1066
16	48.18	466.25	514.44	0.00	127.09	127.09	884	367	404
17	41.07	381.55	422.61	15.84	254.55	270.40	884	150	156
18	42.16	380.85	423.01	20.01	301.43	321.44	211	126	132
19	58.19	377.12	435.31	35.83	318.74	354.57	162	118	123
20	57.33	387.45	444.78	40.69	351.82	392.51	141	110	113
21	53.13	293.66	346.78	41.45	263.32	304.77	128	112	114
22	50.88	318.50	369.38	37.06	305.28	342.34	137	104	108
23	35.92	383.58	419.51	28.06	359.32	387.38	128	107	108
48	17.46	175.20	192.66	17.46	172.85	190.31	100	101	101
49	14.18	152.22	166.40	13.51	152.22	165.73	105	100	100

The "all women factors" are calculated by dividing the total number of women by the number of ever-married women for each characteristic (urban/rural and total) within each single age. The factor for women 15 years old living in rural areas is 9.5 or an ever-married woman age 15 living in a rural area represents 9.5 women of the total women population in that area for that survey. This value is calculated by dividing 413.65 by 43.55.

It is important to note that there are no ever-married women for ages 15 and 16 in the urban areas. To calculate the factors for those ages, the total number of women needs to be accumulated until an age where ever-married women are found (age 17 in this case). The result of this accumulation is then divided by the number ever-married women found.

$$(50.70 + 48.18 + 41.07)/15.84 = 139.95/15.84 = 8.84$$

The same factor is applied to women ages 15, 16, and 17 because 15.84 ever-married women represent the 139.95 accumulated women for those age groups.

Handling of Missing Values

Women with missing or unknown age are excluded from both the numerator and the denominator. Women with unknown or missing marital status are considered never-married.

Notes and Considerations

Women in consensual unions and women separated from consensual unions are considered as ever-married.

If there are no or very few women ever-married for a single age for the subgroup, then neighboring ages are combined to calculate the all women factor, using the same value for each of the single ages.

The all women factors for ever-married samples are the inverse of the proportions ever-married at the time of the survey.

The all women factors are used because of the selection process used in the design of the sample. Therefore, it is only appropriate to use internally generated factors and not to use information external to the survey. For each subgroup to be estimated, the same factor is applied to each woman irrespective of the time period to be estimated since it is based on sample selection.

In surveys using samples of ever-married women and ever-married men, the same methodology is used to calculate all men factors.

Although the factors are calculated at the household level, they are normally used at the women's level (or men's levels for ever-married men's surveys). To do that, each woman is assigned a factor for each characteristic for which the factors are calculated. The links to assign the factors are age and the characteristic. In the example above an ever-married woman 18 years old, living in an urban area, would be assigned the factors 1.32 for the total (awfactt = 132) and 2.11 for place of residence (awfactu = 211). When establishing the values for the characteristics to be used as links, they must be taken from the household members data (PR file) and not from the woman's data. The reason is that there may be differences from the data reported in the Household Questionnaire compared with the data recorded in the Woman's Questionnaire. A different person than the respondent to the Woman's Questionnaire may report age and education of the woman in the Household Questionnaire. However, when factors are calculated they need to use the household variables (because not all women have an individual interview).

Another important issue is that factors can only be calculated for characteristics present in the Household Questionnaire. For example, factors for media exposure or knowledge of HIV/AIDS cannot be calculated because they are collected at the women's level.

The appropriate all women factor to use in analysis is that of the woman's reported single year of age from the household survey at the time of the survey for the subgroup to be tabulated. Fortunately the DHS individual recode files already includes the all women factors. DHS individual woman's recode files (IR files) include five standard variables containing all women factors:
- awfactt All women factor for total population
- awfactu All women factor for place of residence (urban/rural)
- awfactr All women factor for region (according to the country's regions)
- awfacte All women factor for education (none, primary, secondary, higher)
- awfactw All women factor for wealth index (lowest, second, middle, fourth, highest)

Surveys may also include additional all women factors for other background characteristics, particularly when survey specific educational groupings are used.

These variables are five-digit variables with two implicit decimals, so they must be divided by 100 before applying. Any table that is based on total population for ever-married samples should use these factors. All tables based on all women (fertility rates, age at first union, age at first sex, etc.) must use all women factors. If the background variable to be used is not one of the standard or country-specific all women factors they have to be created as described above.

The "all women" factor is sometimes known as the "all woman" factor and variables may be named either way in the data files.

Application of All Women Factors

In tabulations, all women factors are treated as adjustments to the respondent sampling weight variable for each woman, multiplying the weight variable for the woman by her appropriate all women factor to inflate the number of cases from the number of ever-married women to the number of all women. In many cases though it is not as simple as multiplying the sampling weight by the all women factor. For example, to calculate the percentage married before age 15 of all women from an ever-married sample, simply applying the all women factor to the weight variable would be to assume that the same proportion of never-married women were married before age 15 as ever-married women, and this is clearly impossible. Rather we know that no never-married women aged 15 and older were married before age 15. In terms of the calculation, this means that the all women factor must be applied to the denominator only, and not to the numerator.

Similarly, to calculate the mean number of children ever born for all women from an ever-married sample, the assumption is made that never married women have had no children. Thus it is not necessary to increase the numerator (the number of children ever born) as there are no children to add, but it is necessary to inflate the denominator to include all women.

In practice, using statistical software, it is typically not possible to use simple percentages or means when using all women factors, but rather to calculate ratios of variables. Below are examples of calculating the mean number of children ever born in Stata and SPSS:

Stata

```
* Mean number of children ever born for ever-married women.
gen wt = v005/1000000
mean v201 [iw=wt]

* Mean number of children ever born for all women.
gen awf = awfactt/100
ratio v201 / awf [iw=wt]
```

SPSS

```
* Mean number of children ever born for ever-married women.
compute wt = v005/1000000.
weight by wt.
means tables=v201 /cells mean count.

* Mean number of children ever born for all women.
compute awf = awfactt/100.
weight by v005.
ratio statistics v201 with awf /print=wgtmean.
```

Note that in SPSS the ratio statistics command does not permit non-integer weights so v005 is used as the weight directly without dividing by 1,000,000.

Median Calculations

There are four different types of median calculations in DHS statistics, and results vary according to the type of variable being analyzed. The calculations for the first three types of medians are calculated in a similar manner and vary basically in the final result. Medians using the current status data are calculated using a different methodology. To illustrate the approach used in calculating the first three types of medians, consider the following table, which will be used in examples below:

Variable	Percentage	Cumulative Percentage
…	…	19
21	9	28
22	7	35
23	8	43
24	9	52
25	6	58
26	5	63
…	…	…

Medians for Completed Time Periods

These are medians for variables such as intervals between events or ages calculated at different events. Medians for this type of variable take into consideration that ages are given in completed years. The median for completed time periods is calculated as:

$$\textbf{median} = \ m_i + \frac{0.5 - p_i}{p_{i+1} - p_i} + 1$$

where i is the age category immediately prior to reaching 50%, mi is the number of completed years for that category, p i is the cumulative proportion at the age category immediately prior to reaching 50%, and p i+1 is the cumulative proportion at the age category immediately after reaching 50%.

A respondent who is currently 21 years old could be somewhere between 23 years and 0 days old and 23 years and 364 days old. The addition of 1 in the calculation is because the cumulative percentage for a particular category is the percentage up to the end of the category. For example, the cumulative percentage for age 23 is the cumulative percentage by age 24.

Example

If the variable above in question is age at an event in completed years, the median would be calculated for a completed period. In this case the interpolation will take place between the ages of 23 and 24. The result of the interpolation is 23 + (50 - 43)/(52 - 43) + 1 = 24.8. The one year has to be added as, according to the completed year definition of age, the cumulative percentage of 43 percent occurred before reaching 24 years and the cumulative value of 52 percent occurred before reaching 25 years of age.

Examples of these types of medians are age at first sexual intercourse, age at first union, age at first birth, age at sterilization, median number of months since preceding birth, and median number of months pregnant at time of first antenatal care visit.

Medians for Continuous Variables

These are medians for variables such as children's weight at birth or any other type of measurement in the continuous scale. The median for continuous variables is calculated as:

$$\textbf{median} = \ m_i + \frac{0.5 - p_i}{p_{i+1} - p_i}$$

where i is the entry immediately prior to reaching 50%, m_i is the value for that entry, p_i is the cumulative proportion at the value immediately prior to reaching 50%, and p_{i+1} is the cumulative proportion at the value immediately after reaching 50%.

Example

If the variable in the table above was continuous, for example, time to collect water (for purposes of simplicity, time is truncated to the minute). The interpolation would also take place between 23 and 24 minutes, and no adjustment is needed. The median time to collect water would then be 23.8 minutes.

The standard DHS-7 tabulation plan currently includes no examples of medians for continuous variables, although median time to collect water, or median birth weight are examples of this type of median that could be calculated using DHS data.

Medians for Discrete Variables

These types of medians apply to variables such as number of children, number of antenatal care visits, or in general any discrete variable where the only possible values are integers. For example, a respondent can only have one, two, or any integer number of children. It is not possible to have 2.3 children.

If the variable is discrete, the median would be obtained at 24 when 50 percent or more was reached. However, it is also possible to present an interpolated median for discrete variables, and in this case the same formula is used as for continuous variables. Examples of these medians in the Guide to DHS Statistics include median years of education in Chapters 2 and 3.

Medians using Current Status Data

These types of medians are calculated for variables where 100 or close to 100 percent of the population have a characteristic at the beginning of an event and the percentages diminish as time passes by. For example, 100 percent of children do not know how to walk at birth. As time progresses, some children begin to walk, and there is an age (in months) where 50 percent or more of the children learn to walk.

Current status data are used in DHS to calculate the median duration of breastfeeding, post-partum amenorrhea, post-partum abstinence, and post-partum insusceptibility. Looking at how the median duration of breastfeeding is calculated (the same principle applies for amenorrhea, abstinence, and insusceptibility), information is first obtained on the proportion of children currently being breastfed (for breastfeeding, according to the children's age in months). For purposes of providing some stability to the proportions, the birth data are grouped into two-month intervals. Before calculating the proportions, the distribution is smoothed by a moving average of three groups.

To smooth the distribution by a three-group moving average, sum the previous, current, and following value of the distribution and divide it by 3. For example, the smoothed total children for the age group

2–3 comes from: (137.6 + 183.0 + 193.4)/3 = 171.3. The first (0–1) and last (34–35) age groups cannot be smoothed, so they remain with the original values. The number of children currently being breastfed is also shown unsmoothed and smoothed. With the distributions smoothed, the percentages of children in each group are calculated:

Age	Total children	Children breastfed	Total children smoothed	Children breastfed smoothed	Percentage breastfed
0-1	137.6	152.0	137.6	152.0	90.5
2-3	183.0	192.3	171.3	186.7	91.8
4-5	193.4	215.9	186.1	206.7	90.0
6-7	181.8	211.8	181.5	210.6	86.2
8-9	169.4	204.2	173.5	206.2	84.2
10-11	169.4	202.6	162.4	199.0	81.6
12-13	148.5	190.2	164.2	203.4	80.7
14-15	174.6	217.3	148.9	203.9	73.0
16-17	123.6	204.1	132.5	206.4	64.2
18-19	99.3	197.7	92.1	177.4	51.9
20-21	53.5	130.5	62.3	144.5	43.1
22-23	34.0	105.3	42.2	148.2	28.5
24-25	39.2	208.9	31.4	186.5	16.8
26-27	21.0	245.4	24.7	213.9	11.6
28-29	14.0	187.5	13.9	202.5	6.9
30-31	6.7	174.6	9.4	159.8	5.9
32-33	7.5	117.4	7.0	149.5	4.7
34-35	6.7	156.4	6.7	156.4	4.3

The first age (duration) for which the proportion falls below 50 percent will be used for the calculation of the median by linear interpolation between the midpoint of that age group and the next youngest midpoint age. The median in this example falls between the age groups 18–19 and 20–21. Between these two age groups is when the transition from more than 50 percent (51.9%) to less than 50 percent (43.1%) of children still being breastfed occurred. The interpolation is then done between the midpoints for the age groups. In DHS-7, the midpoint of the 18-19 month age group is the average of the lower and upper limits of the age group (18.0+20.0)/2 = 19.0. Similarly for age group 20-21 the midpoint is 21.0. Note that in DHS-VI and earlier phases the midpoints would have been 18.5 and 20.5 respectively due to the different calculation of age (the age distribution would also be different though). This is because, prior to DHS-7, the age of children was calculated in months only, and the month of interview was on average only half a month, and consequently all following month groups had a midpoint half a month less.

It should be noted that, in DHS-VI and earlier, the midpoint for the first age group is calculated in a somewhat different manner. On average, there were only about half as many children born in the month of the interview than in any other regular month. A reasonable age for children born in the month of interview was 0.25, assuming that interviews are uniformly distributed. Thus, the age average

for kids born 0 to 1 months was calculated as (0.5 * 0.25 + 1)/1.5 = 0.75. In DHS-7, the midpoint for the first age group is simply (0.0 + 2.0)/2 = 1.0.

The median is calculated using the following formula:

$$\textbf{median} = \textbf{m}_i + (\textbf{m}_{i+1} - \textbf{m}_i) \cdot (\textbf{p}_i - 0.5) / (\textbf{p}_i - \textbf{p}_{i+1})$$

$$median = 19.0 + (21.0 - 19.0) \cdot (51.9 - 50.0) / (51.9 - 43.1)$$
$$median = 19.4$$

Details of the calculation of these medians are provided with each indicator in the chapters that follow.

Matching and Merging Datasets

The DHS Program distributes separate datasets for households (HR), household members (PR), women's (IR), births (BR), children under five (KR), men's (MR), and couples (CR) files. Care has been taken to include all variables deemed important for each of these files. For example, variables for household characteristics are included in the women, men, and children's files. However, there are instances when researchers need to merge or combine different files to obtain the variables that meet their analysis requirements. This section discusses the variables and mechanisms that can be used to accomplish that task.

ID Variables

One of the advantages of processing complex surveys with a software capable of handling hierarchical files is that it allows tight control of the case identifiers. The DHS Program makes considerable effort to ensure that files can be matched seamlessly whenever a relationship is possible. To properly manipulate the files it is necessary to know the variables that identify cases in each file. The following table shows those variables:

Type	File	ID Variable	Cluster Number	Household Number	Household Line Number	Other IDs
HR	Household	hhid	hv001	hv002		
PR	Household members	hhid	hv001	hv002	hvidx	Mother: hv112 Father: hv114
IR	Women	caseid	v001	v002	v003	Husband: v034
MR	Men	mcaseid	mv001	mv002	mv003	Wives: mv034_i
BR	Births	caseid, bidx	v001	v002	Mother: v003 Child: b16	Birth: bidx
KR	Children	caseid, bidx	v001	v002	Mother: v003 Child: b16	Birth: bidx
CR	Couples	caseid	v001	v002	Wife: v003 Husband: mv003	
AR	HIV test		hivclust	hivnum	hivline	
GE	Geographic	dhsid	dhsclust			
GC	Geospatial covariates	dhsid	dhsclust			
HW	Height & weight	hwhhid, hwline / hwcaseid, hwline			hwline	
WI	Wealth index	whhid				
			hhid			
			caseid			

The ID variables hhid, caseid, and mcaseid are alphabetic variables that uniquely identify households, women, and men respectively. These variables are a concatenation of the cluster number and household number for the household file, and cluster, household number, and line number for women, men, and couples. The variable hhid is a 12-character string with the cluster and household number right-aligned in the string. The variables caseid and mcaseid are 15-character strings with the cluster,

household, and line number right-aligned in the string. The first 12 characters of variables caseid and mcaseid match with hhid and are followed by 3 characters for the line number. In the concatenated variables numbers are converted to strings with leading blanks for each part of the ID.

Example

File	ID Variable	Width	Value	Cluster Number	Household Number	Line Number
Household	hhid	12	`"......17..23"`	17	23	
Women	caseid	15	`"......17..23..2"`	17	23	2
Men	mcaseid	15	`"......17..23..1"`	17	23	1

Note: A dot (.) is used above to represent a blank in the ID values.

The layout of the hhid and caseid strings will vary depending on the number of digits used for the cluster and household number in the survey. In addition, some surveys also include a dwelling number in the hhid and caseid string between the cluster and household number.

In the case of children, variable caseid is the same as that of their mother plus a consecutive number to differentiate among children in reverse chronological order. The ID for couples is that of the woman (caseid - as opposed to mcaseid for the man) because in polygynous countries a man can be the partner for more than one woman.

Type of Relationship

When merging data files it is important to know the type of relationship that exists between the files to be merged as well as the type of output file desired (unit of analysis). There are two main types of relationships: The first is that of many entities related to one entity (m:1) and the second is that of one entity related to just one other entity (1:1). A third possibility is a many-to-many relationship, but that is not generally used in analyzing DHS data.

An example of many-to-one relationships can be found between women or men and households. There may exist zero or several Woman's or Man's Questionnaires for each household (see *Structure of DHS Data*), and there is just one household that will match each woman or man.

An example of one-to-one relationships can be found between children of interviewed women in the KR file and the children's records as household members in the PR file. There will be at most one record in the PR file for a child in the KR file, but there could be no record in the PR file if the child has died or the child does not live in the household. [Note – however, that when merging PR data for a child to the KR data, it may be necessary to define the relationship as many-to-one (m:1) as the household line number will be not applicable (missing in Stata, system missing in SPSS) for any child who has died or lives elsewhere and is not listed in the household schedule, and these may appear as duplicate IDs.]

In some surveys, the couple's relationship between a woman and man may be considered a one-to-one relationship, but in many surveys, there are polygynous unions and so the relationship is usually a many-to-one (m:1) relationship between women and men.

Merging Files

All statistical packages, including Stata, SPSS, SAS, and R, have commands that allow merging of files, but regardless of the software the following steps are necessary:
- Determine the common identifiers (identification variables)
- Determine the base (primary) file. The base file essentially establishes the unit of analysis
- Determine the variables to merge from the secondary file to the primary file
- Ensure both data files are sorted by the identification variables
- Finally, use the right commands for the software to merge the files

Normally, when the relationship is that of many-to-one (m:1), the base file is the one with the many entities. For example, if merging data from households and women, the base file should be the women's file because this will assign to every woman the characteristics of her household. If the match is done the other way around, in some software, once the program matches the first woman it will not look for another woman or it will give an error for finding duplicate cases. In the case of matching women and children, the base file should be the children's file, and the mothers' characteristics are assigned to children.

In DHS surveys, Man's Questionnaires are often applied to a subsample of households. This means that not all currently married women have a match with a Man's Questionnaire. In this case, the base file should be the Man's Questionnaire and the resulting file (unit of analysis) will be the Couples file.

If the relationship is that of one-to-one (1:1), the base file is normally the one with the smaller number of cases.

Merging can be performed using either the ID variables (hhid, caseid, mcaseid) or using the cluster number (hv001, v001, mv001), household number (hv002, v002, mv002), and household line number (hvidx, v003, mv003, or other line number variables). Most matches will work using either set of information in most cases, but there are some issues with some surveys:
- The ID variables are left-aligned in a few surveys, rather than right aligned, complicating converting caseid to hhid. This can be corrected by right aligning the variable:

    Stata: `replace hhid = substr("        ",1,12-length(hhid)) ///`
    `             + substr(hhid,1,length(hhid))`

    SPSS: `compute hhid = concat(char.substr("        ",1,12-char.length(hhid)),`
    `          char.substr(hhid,1,char.length(hhid))).`

- In some surveys hhid has a different length than 12 or caseid or mcaseid has a different length than 15. These can usually be corrected to the right length, but care should be taken to ensure that no data are lost from the IDs in the process.

- The combination of cluster, household and line number is not unique in some surveys. For these surveys, typically there is also a dwelling number which must be used, and the household number is the number within the dwelling. For these surveys it is necessary to include the dwelling number in the set of variables used for matching. The dwelling number will usually be a survey-specific variable starting with "sh", "s", or "sm" for household, woman's and man's files.

Examples

The following is a list of common combinations of datasets that may be merged together:

Unit of analysis (Base or Primary file)	Matched with (Secondary file)	Relation-ship	Needed to merge in
Household members (PR)	Household (HR)	m:1	Mostly not needed – household variables already included in PR file, however needed for merging net roster for ITN access indicators.
Children in household members file (PR) (Example 2 below)	Parent in household members file (PR)	m:1	Parent's characteristics
Children in household members file (PR)	Mother in women's file (IR)	m:1	Mother's characteristics
Children in household members file (PR)	Child in children's file (KR or BR)	1:1	Child's characteristics
Children in household members file (PR)	Height/weight file (HW) (for surveys pre 2007)	1:1	Child's anthropometry
Women (IR)	Household (HR)	m:1	Household characteristics
Men (MR)	Household (HR)	m:1	Household characteristics
Children of interviewed women (KR or BR) (Example 1 below)	Household (HR)	m:1	Household characteristics
Women (IR)	Woman in household members file (PR)	1:1	Woman's biomarkers or other characteristics of woman
Men (MR)	Man in household members file (PR)	1:1	Man's biomarkers or other characteristics of man
Children of interviewed women (KR or BR)	Child in household members file (PR)	1:1	Child's biomarkers or other characteristics of child
Women or Men (IR/MR)	HIV test (AR)	1:1	HIV test results
Women (IR)	Partner in men's file (MR)	m:1	Not needed – use the Couple's (CR) file
Children of interviewed women (KR or BR)	Woman (IR)	m:1	Not needed – woman's variables already included in KR or BR file

Children of interviewed women (KR or BR)	Mother in household members file (PR)	m:1	Mother's biomarkers or other characteristics of mother
Children of interviewed women (KR or BR)	Height/weight file (HW) (for surveys pre 2007)	1:1	Child's anthropometry
Household members (PR)	Mosquito nets (HR)	m:1	Characteristics of mosquito nets
All (HR, PR, IR, KR, BR, MR, CR)	Wealth index files (WI) (for early surveys)	m:1	Wealth index
All (HR, PR, IR, KR, BR, MR, CR)	Geographic (GE)	m:1	GPS coordinates
All (HR, PR, IR, KR, BR, MR, CR)	Geospatial covariates (GC)	m:1	Geospatial covariates

A few of these types of merges are not typically needed as the variables of interest are already included in the base file.

Most merges can be done in a number of ways, but typically follow the approach of:
1. Opening the secondary file and extracting just the variables that need to be merged together with the ID variables for matching, sorting the data on the ID, and saving into a temporary file. This may include renaming ID variables or variables to be merged to facilitate the merge.
2. Opening the primary file, ensuring that the same ID variables are available, sorting on the IDs.
3. Merging as a many-to-one (m:1) or one-to-one (1:1) match on the ID variables.

Below are a few examples in Stata and SPSS of typical merges from the list above.

Example 1:

This example merges household characteristics from the household (HR) file to the children under five (KR) file. This is a relatively simple merge based on the household ID using either hhid or the combination of cluster number and household number. When using the household ID (hhid) it is necessary to construct this from the caseid variable in the KR file for matching. Alternatively, using the cluster number and household number, the variables in the household file are renamed to permit matching. Either approach to matching should produce the same results.

Stata

```
* Example of matching and merging household characteristics to children under five

* open secondary file, e.g. household file, selecting just the variables needed
use hhid hv001 hv002 hv201 hv205 using "ZZHR62FL.dta", clear

* rename, generate or clone variables to be used for matching
rename hv001 v001
rename hv002 v002

* sort according to the ID variables
sort hhid
* or, sort v001 v002
```

```
* save temporary file of just the variables to merge in
tempfile secondary
save "`secondary'", replace

* open primary file
* e.g. Children's file
use "ZZKR62FL.dta", clear

* creating matching variables
gen hhid = substr(caseid,1,12)
* or use v001 and v002 below

* sort according to the ID variables needed for matching
sort hhid
* or, sort v001 v002

* now merge the data from the secondary file to the primary file
* keep(master match) keeps all entries from the KR file
merge m:1 hhid using "`secondary'", keep(master match) keepusing(hv201 hv205)
* or, merge m:1 v001 v002 using "`secondary'", keep(master match) keepusing(hv201
hv205)

* check the merge - should all be matched
tab _merge
```

SPSS

```
* Example of matching and merging household characteristics to children under five.

* open secondary file, e.g. household file, selecting just the variables needed.
get file = "ZZHR62FL.sav"
 /keep hhid hv001 hv002 hv201 hv205.
* note that if width of hhid is 36 not 12, close the file and set unicode off.

* rename or compute variables to be used for matching.
rename variables (hv001 = v001) (hv002 = v002).

* sort according to the ID variables.
sort cases by hhid.
* or, sort cases by v001 v002.

* name the working dataset.
dataset name secondary.

* open primary file.
* e.g. Children's file.
get file = "ZZKR62FL.sav".

* creating matching variables.
string hhid (a12).
compute hhid = char.substr(caseid,1,12).
* or use v001 and v002 below.

* sort according to the ID variables needed for matching.
sort cases by hhid.
* or, sort cases by v001 v002.

* now merge the data from the secondary file to the primary file.
match files /file = * /table = secondary /by hhid.
* or, match files /file = * /table = secondary /by v001 v002.
```

```
* close the secondary file.
dataset close secondary.

* check the merge - should all be matched.
frequencies variables=hv201.
```

Note for SPSS users: If the string variables for hhid or caseid are three times the expected size (expected size: 12 for hhid and 15 for caseid), the file was opened in Unicode mode. Close the file, set unicode off, and retry.

Example 2:

This example merges mother's characteristics from the household members (PR) file to the children's records in the household members (PR) file. This example looks complicated in that both the base file and the secondary file are the same file but is relatively simple. It requires creating a simple file of the selected characteristics, with the ID variables, and then matching that file to the PR file based on the correct IDs. A person ID variable (pid) is created for use in matching and is based on the household member line number in the secondary file, and on the mother's line number in the primary file. This will match only for the children whose mother is also listed in the household members file.

Stata

```
* Example merging mother's characteristics into household members data (PR)

* open secondary file (household member's - PR)
* for mother's characteristics, e.g. age and level of education
use hhid hvidx hv105 hv106 using "ZZPR62FL.dta", clear
* rename person ID for matching on, and mother's age and education vars
rename hvidx pid
rename hv105 mother_age
rename hv106 mother_educ
label variable mother_age "Mother's age"
label variable mother_educ "Mother's education"
* sort file by IDs
sort hhid pid
* save temporary data file
tempfile secondary
save "`secondary'", replace

* open primary file - also PR file
use "ZZPR62FL.dta", clear
* generate person ID for matching on - based on mother's ID
gen pid = hv112
* sort file by IDs
sort hhid pid

* merge mother's characteristics into PR file
merge m:1 hhid pid using "`secondary'", keep(master match)

* check the merge - data only available for children under 18
tab _merge if hv105 < 18,m
* majority of children have mothers also in HH, but many don't
```

SPSS

```
* Example merging mother's characteristics into household members data (PR).

* open secondary file (household member's - PR)
```

```
* for mother's characteristics, e.g. age and level of education.
get file = "ZZPR62FL.sav"
 /keep hhid hvidx hv105 hv106.
* rename person ID for matching on, and mother's age and education vars.
rename variables (hvidx = pid) (hv105 = mother_age) (hv106 = mother_educ).
variable labels mother_age "Mother's age".
variable labels mother_educ "Mother's education".
* sort file by IDs.
sort cases by hhid pid.

* name the working dataset.
dataset name secondary.

* open primary file - also PR file.
get file = "ZZPR62FL.sav".
* generate person ID for matching on - based on mother's ID.
compute pid = hv112.
* sort file by IDs.
sort cases by hhid pid.

* merge mother's characteristics into PR file.
match files /file = * /table = secondary /by hhid pid.

* close the secondary file.
dataset close secondary.

* check the merge - data only available for children under 18.
compute merge_var = (sysmis(mother_age)).
value labels merge_var 0 "Matched" 1 "No match".
compute filter_$ = (hv105 < 18).
filter by filter_$.
frequencies variables=merge_var.
* majority of children have mothers also in HH, but many don't.
```

This approach can also be used to match women's characteristics from the IR file to the children's characteristics in the PR file. The only differences are in creating the temporary file, based on the IR file data. It requires constructing hhid from caseid as in the prior example (or using the cluster and household number) and creating pid from the woman's line number (v003).

Example 3:

This example merges children's characteristics from the household members (PR) file to the children under five (KR) file. In this example, rather than creating the matching variables in the secondary file, they are created in the base file. In Stata, because b16 will be missing for dead children or children living elsewhere, the merge must be treated as many-to-one (m:1), even though the cases actually merging will be one-to-one (1:1). This is because the IDs must be unique for a 1:1 match, but as more than one case within a household may be missing for b16, they are not unique. The KR file could be subset to only include children listed in the household before the merge, and then a 1:1 match can be used.

Stata
```
* Example merging children's characteristics from PR into children under five data
(KR)

* open secondary file (household member's - PR)
* for children's characteristics, e.g. birth registration
use hhid hvidx hv140 using "ZZPR62FL.dta", clear
* sort file by IDs
```

```
sort hhid hvidx
* save temporary data file
tempfile secondary
save "`secondary'", replace

* open primary file - KR file
use "ZZKR62FL.dta", clear
* generate household and person ID for matching on
gen hhid = substr(caseid,1,12)
gen hvidx = b16
* sort file by IDs
sort hhid hvidx

* merge mother's characteristics into PR file
merge m:1 hhid hvidx using "`secondary'", keep(master match)

* check the merge
tab b16 _merge,m
* majority of children in KR file are also in PR file, but not all
```

```
* Example merging children's characteristics from PR into children under five data
(KR).

* open secondary file (household member's - PR)
* for children's characteristics, e.g. birth registration.
get file = "ZZPR62FL.sav"
 /keep hhid hvidx hv140.
* sort file by IDs.
sort cases by hhid hvidx.
* name the working dataset.
dataset name secondary.

* open primary file - KR file.
get file = "ZZKR62FL.sav".
* generate household ID and person ID for matching on.
string hhid (a12).
compute hhid = char.substr(caseid,1,12).
compute hvidx = b16.
* sort file by IDs.
sort cases by hhid hvidx.

* merge children's characteristics into KR file.
match files /file = * /table = secondary /by hhid hvidx.

* close the secondary file.
dataset close secondary.

* check the merge.
compute merge_var = (sysmis(hv140)).
value labels merge_var 0 "Matched" 1 "No match".
frequencies variables=merge_var.
* majority of children in KR file are also in PR file, but not all.
```

Example 4:

This example merges HIV test results from the AR file to the women's data (IR) file. In this example, the
hhid and caseid variables do not exist in the AR file, so the merge will be based on the cluster,
household, and line number variables. The relationship between the cases is a 1:1 match, and the
women's data will be the base file.

Stata

```
* Example merging HIV test results from AR into women's data (IR)

* open secondary file (HIV test results - AR)
use using "ZZAR61FL.dta", clear
* rename matching variables to the same as in the IR file
rename hivclust v001
rename hivnumb v002
rename hivline v003
* sort file by IDs
sort v001 v002 v003
* save temporary data file
tempfile secondary
save "`secondary'", replace

* open primary file - IR file
use "ZZIR62FL.dta", clear
* sort file by IDs
sort v001 v002 v003

* merge HIV test results into IR file
merge 1:1 v001 v002 v003 using "`secondary'", keep(master match)

* check the merge
tab _merge,m
* women were tested in roughly half the sample, and some refused testing
* need to merge in PR file data to check this though.
```

SPSS

```
cd "C:\Users\21180\OneDrive - ICF\Data\DHS_model".
* Example merging HIV test results from AR into women's data (IR).

* open secondary file (HIV test results - AR).
get file = "ZZAR61FL.sav".
* rename matching variables to the same as in the IR file.
rename variables (hivclust = v001) (hivnumb = v002) (hivline = v003).
* sort file by IDs.
sort cases by v001 v002 v003.
* name the working dataset.
dataset name secondary.

* open primary file - IR file.
get file = "ZZIR62FL.sav".
* sort file by IDs.
sort cases by v001 v002 v003.

* merge HIV test results into IR file.
match files /file = * /table = secondary /by v001 v002 v003.

* close the secondary file.
dataset close secondary.

* check the merge.
compute merge_var = (sysmis(hiv03)).
value labels merge_var 0 "Matched" 1 "No match".
frequencies variables=merge_var.
* women were tested in roughly half the sample, and some refused testing
* need to merge in PR file data to check this though.
```

Background Characteristics

In most DHS report tabulations, results are presented by background characteristics. These characteristics fall into groups according to the unit of analysis to which they apply. These units include the cluster, household, household member, individual woman respondent, individual man respondent, birth, or child. Characteristics from higher levels may also be used in tabulations at lower levels. For example, cluster level characteristics such as region and type of place of residence are used at all levels, and individual women's characteristics such as level of education may be used when reporting on their children.

The main background characteristics are described here briefly for each of these units:

Cluster

Region of residence
Region of residence (hv024, v024, v101, mv024) is defined for every cluster or enumeration area as part of the sample design for the survey. Region of residence is typically the first administrative level within the country, or a grouping of the first administrative level.

Type of place of residence
Type of place of residence (hv025, v025, v102, mv025) is the designation of the cluster or enumeration area as an urban area or a rural area. As for region of residence, the type of place of residence is established for the cluster as part of the sample design for the survey and cannot vary within cluster.

The definition of a cluster as urban or rural is made according to the definition used in each country. The traditional distinction between urban and rural areas within a country has been based on the assumption that urban areas, no matter how they are defined, provide a different way of life and usually a higher standard of living than rural areas. In many developed countries this distinction has become blurred, and the principal difference between urban and rural areas in terms of living standards tends to be the degree of population concentration or density (UNSD, 2017). UNSD recommends that the classification of a cluster as urban or rural is made first and foremost on a measure of population density. However, other criteria may also be considered in the designation of the cluster, including the percentage of the population involved in agriculture, the availability of electricity or piped water, and the ease of access to healthcare, schools, or transportation, among others. There is no one standard definition of urban and rural, and the definition used is necessarily country specific and may change over time.

Household

Wealth Quintile
The wealth index (hv270, v190, mv190) is a composite measure of a household's cumulative living standard. The wealth index is calculated using data on a household's ownership of selected assets. Information on the wealth index is based on data collected in the Household Questionnaire. This questionnaire includes questions concerning the household's ownership of a number of consumer items such as a television and car; dwelling characteristics such as flooring material; type of drinking water source; toilet facilities; and other characteristics that related to wealth status.

Each household asset for which information is collected is assigned a weight or factor score generated through principal components analysis. The resulting asset scores are standardized in relation to a standard normal distribution with a mean of zero and a standard deviation of one.

Each household is assigned a standardized score for each asset, where the score differs depending on whether or not the household owned that asset. These scores are summed by household, and individuals are ranked according to the total score of the household in which they reside. The sample is then divided into population quintiles -- five groups with the same number of individuals in each to create the break points that define wealth quintiles as: Lowest, Second, Middle, Fourth, and Highest.

The asset index is developed on the basis of data from the entire country sample and used in most tabulations presented, based on separate scores prepared for rural and urban households, and combined together to produce a single asset index for all households.

Wealth quintiles are expressed in terms of quintiles of individuals in the population, rather than quintiles of individuals at risk for any one health or population indicator.

See https://www.dhsprogram.com/topics/wealth-index/Index.cfm for more information on the wealth index, and particularly:

- DHS Comparative Reports No. 6, The DHS Wealth Index (Rutstein and Johnson, 2004) https://www.dhsprogram.com/publications/publication-cr6-comparative-reports.cfm for the original approach to the creation of the wealth index, and
- DHS Working Papers No. 60, The DHS wealth index: Approaches for rural and urban areas (Rutstein, 2008) https://www.dhsprogram.com/publications/publication-WP60-Working-Papers.cfm for the revised approach.

Source of drinking water

The main source of drinking water (hv201) for members of the household is classified as improved and unimproved sources, following the WHO/UNICEF Joint Monitoring Programme (JMP) on Water and Sanitation guidelines. The JMP provided an updated methodology for this classification in 2018 and this was implemented in DHS surveys in September 2018 (WHO/UNICEF, 2018). Typically, this is used as a characteristic related to prevalence of diarrhea.

Type of toilet facility

The type of toilet facility (hv205) members of the household usually use is classified into groups for improved sanitation, unimproved sanitation: shared facility, unimproved sanitation: unimproved facility, and open defecation, following the WHO/UNICEF Joint Monitoring Programme (JMP) on Water and Sanitation guidelines. As for source of drinking water, the updated JMP methodology was implemented in DHS surveys in September 2018 (WHO/UNICEF, 2018). Typically, this is used as a characteristic related to prevalence of diarrhea.

Cooking fuel

The main type of cooking fuel (hv226) used by the household is used as a characteristic related to prevalence of symptoms of acute respiratory infections (ARI).

Household Member

Sex
Sex of each household member (hv104) is collected in the Household Questionnaire with the question: "Is (NAME) male or female?". The DHS Program does not typically collect data for any other categories. Respondents are permitted to refuse to answer, and their responses will be excluded from any sex-specific results.

Age
Age of each household member (hv105) is asked in the Household Questionnaire with the question "How old is (NAME)?". Age is recorded in completed years, with children under one year recorded as 0 years old. Ages above 95 are recorded in a category of 95 or more.

Education
Education is generally reported as the highest level of education attended (not necessarily completed) (hv106 or hv109) in categories of no education, primary, secondary, higher than secondary. The classification of education used in the tabulations may vary from country to country. The education system in each country also varies and the number of years of education in each level will vary.

Characteristics of parents
Characteristics of parents of children under age 18 may be used including education level, survival status (alive or dead), and residence status (lives with child or does not live with child) of the mother or father. Additionally, interview status (interviewed, not interviewed but in household, not in household), nutritional status (thin, normal, or overweight or obese), and smoking status (smokes cigarettes or tobacco, or does not smoke) of the mother are commonly used characteristics. Constructing variables for characteristics of parents requires matching and merging data (see *Matching and Merging Datasets*).

Individual Woman

Age
Rather than relying on the age reported by the respondent to the Household Questionnaire, individual women are asked their date of birth and age as part of their interview. Age (v012) is recorded in completed years and is typically reported in 5-year groups (v013).

Education
Level of education of the respondent (v106), as for age, interviewed women are asked for the highest level of school they attended, and the highest grade they completed at that level. Education is generally reported as the highest level of education attended (not necessarily completed) in categories of no education, primary, secondary, higher than secondary. In some surveys, primary education may be broken down into primary incomplete and primary complete and similarly secondary education may be broken down into secondary incomplete and secondary complete (v149).

Marital status
Respondents are asked "Are you currently married or living together with a man as if married?" and if the answer is no, not in union, they are asked "Have you ever been married or lived together with a man as if married?" Women that respond yes to the latter question are asked "What is your marital status

now: widowed, divorced, or separated?" Marital status is typically reported in 3 groups as a background characteristic: Never married or in union, currently married or in union, or divorced, separated, or widowed (v502). The term "currently married" is used in DHS reports as a shorthand for currently married or in union. In some tables, particularly those related to HIV the never-married category is further disaggregated into those who ever had sex or never had sex.

Marital duration

Marital duration (v512) is the number of years since first marriage calculated from the date of interview minus the date of first marriage, grouped into 5–year groups (v513). Women who are not currently married or in union are excluded. Currently married women who have been married two or more times are presented in a separate group.

Number of living children

The total number of children the individual woman respondent has given birth to, including any current pregnancy (v219, v220).

Maternity status/Currently pregnant

For maternity status, whether the respondent is pregnant (v213), breastfeeding (v404) or neither. For currently pregnant, whether the respondent was currently pregnant at the time of the interview.

Employment status

Whether the respondent is currently employed (v714) (having worked in the past 7 days, including women who did not work in the past 7 days but who are regularly employed and were absent from work for leave, illness, vacation, or any other such reason), worked in the past 12 months (but not currently) (v731), or not employed in the past 12 months. Employment in the past 12 months may also be broken down into those paid cash and those not paid cash (v741).

Religion

Survey specific classification of the religious group to which the respondent associates himself or herself (v130).

Ethnic group

Survey specific classification of the ethnic group to which the respondent belongs (v131).

Other individual characteristics

A number of other background characteristics are also used in various tabulations, particularly in tabulations related to HIV indicators, including knowledge of condom source, type of union, times slept away from home in past 12 months, time away in past 12 months, ANC for last birth in past 3 years.

Birth

Survival status

Whether or not the child is still alive at the time of the interview (b5).

Birth order

Birth order (bord) or parity is the order number of the births from first to last. Twins are given the same birth order, but the birth order of a child born after twins will be the total number of births preceding plus one. For example, if a second birth resulted in twins the birth order will be 2 for both twins, and a birth following the twins will be birth order 4.

Sex of preceding birth

The sex of the child born prior to the child of interest (b4(i+1) where i+1 is the following entry in the birth history as the birth history is in reverse chronological order). Not applicable for first-order births.

Survival of preceding birth

The survival status of the child born prior to the child of interest (b5(i+1) where i+1 is the following entry in the birth history as the birth history is in reverse chronological order). Not applicable for first-order births.

Previous birth interval

The difference calculated in months between the date of birth of the child of interest and the date of birth of the preceding child, typically presented in years (b11). Not applicable for first-order births.

Previous pregnancy interval

The difference calculated in months between the start of the pregnancy of interest and the date of birth or termination of the preceding pregnancy. Presented as <15 months, 15-26 months, 27-38 months, and 39+ months which correspond to birth intervals of <24 months, 24-35 months, 36-47 months, and 48+ months. First pregnancies are presented separately.

Birth size

Size of the child at birth (m18) is classified as small or very small, and average or larger, and is based on the mother's report of the relative size of the child at birth.

Mother's age at birth

The age of the mother at the time of the birth is calculated by subtracting the date of birth of the individual woman respondent from the date of birth of the child (int((b3 - v011)/12)). Mother's age at birth is typically presented in 5-year or 10-year groups.

Child

Sex

Sex of child (b4) as reported in the birth history (or, for anthropometry and anemia, sex reported in the household schedule if the child was not reported in a birth history of an individual woman respondent).

Age

Age of child (b19) is calculated from the reported date of birth and/or age of the child from the birth history. Incomplete dates of birth are imputed, and an age calculated for the child if necessary. For anthropometry and anemia indicators, age may be computed from the date of birth reported in the biomarker questionnaire if the child was not listed in the birth history of an individual woman

respondent. Typically presented in 12-month, 6-month, or smaller age groups, depending on the indicator. See also *Age of Children*.

Antenatal care visits
Antenatal care visits (m14) are presented in groups of none, 1-3, 4+.

Place of delivery
Place of delivery (m15) is categorized into health facility, respondents' or other home, or elsewhere. In some surveys, health facility may be broken down into public and private facilities.

Assistance at delivery
Whether the delivery of a birth was assisted by a health professional, someone else, or no one (m3a – m3n).

Breastfeeding status
Whether the child was currently breastfeeding at the time of the survey (m4).

Individual Man

Age
Age for men (mv012) is collected in the same way as for women and is usually reported in 5-year groups (mv013). The age range for men may vary and could go up to 54, 59, or even 64 in some surveys.

Education
Education for men (mv106) is collected and presented in the same way as for women.

Marital status
Marital status for men (mv502) is collected and presented in the same way as for women.

Number of living children
Number of living children (mv218) is the total number of children that the man has fathered and may include children born to more than one wife or partner.

Male circumcision
Whether the man has been circumcised or not (mv483). In some surveys the type of circumcision (mv483b) – traditional or medical – may also be presented.

Other Units of Analysis

Other units of analysis are represented in DHS Program tabulations and may have particular characteristics associated with them, for example:
Mosquito nets – Type of mosquito net (insecticide treated net or not) (hml7).
Episodes of contraceptive use – Reasons for discontinuation (vcal_2).

References for Background Characteristics

UNSD. 2017. Principles and Recommendations for Population and Housing Censuses, Rev.3
https://www.un.org/development/desa/capacity-development/tools/tool/principles-and-recommendations-for-population-and-housing-censuses-rev-3/

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2017. *Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines*. License: CC BY-NC-SA 3.0 IGO.
https://apps.who.int/iris/handle/10665/258617

WHO and UNICEF. 2018. *JMP Methodology: 2017 Update & SDG Baselines*
https://data.unicef.org/resources/progress-drinking-water-sanitation-hygiene-2017-update-sdg-baselines/

Rutstein, S.O. and K. Johnson. 2004. *The DHS wealth index*. DHS Comparative Reports No. 6. Calverton, Maryland, USA: ORC Macro. https://www.dhsprogram.com/publications/publication-cr6-comparative-reports.cfm

Rutstein, S.O. 2008. *The DHS wealth index: Approaches for rural and urban areas*. DHS Working Papers No. 60. Calverton, Maryland, USA: Macro International.
https://www.dhsprogram.com/publications/publication-WP60-Working-Papers.cfm

Data Suppression and Parenthesizing

The DHS Program uses a set of guidelines for the minimum number of cases that are required to present an indicator. The minimum number of cases for a statistic is based on the unweighted number of cases. For most statistics, parentheses are used if based on 25 to 49 unweighted cases and an asterisk if based on fewer than 25 cases.

For fertility rates, including the TFR, parentheses are used if based on 125 to 249 person-years of exposure, and not shown if fewer than 125 person-years of exposure.

For mortality rates, parentheses are used if based on 250 to 499 children exposed in any of the component rates, and an asterisk if based on fewer than 250 children.

For contraceptive discontinuation rates, rates based on 125 to 249 exposed women in the first month are shown in parentheses. Rates based on fewer than 125 exposed women are not shown.

Medians from smoothed data are shown in parentheses when the denominator of the smoothed percentage for the group preceding the first group which falls below 50 percent plus the number of cases in the adjacent categories that are used for smoothing that group is based on 25 to 49 cases. If this denominator is less than 25 cases, then the median is not shown.

Indicator Guidelines

Indicator Pages

The below description provides a summary of the contents of the indicator pages that follow in this guide. Each indicator page provides a description of the indicators, the population group and time period they represent, how the indicators are calculated, including the definition of numerators and denominators and the datasets and variables used, how missing and "don't know" responses are handled, any changes over time, and useful references and resources.

①   *Brief subject title for the indicators*

②   **Title of the indicators in a single statement**

③   **Definition**

        Provides a more detailed definition of the indicators, listing each indicator separately.

④   Coverage: Summarizes the population covered by the indicators and the time period to which the indicators apply:

⑤   Population base: The population group to which the indicators apply (e.g. households, household members, women, men, births, children, etc.), and the datasets to use for this population (e.g. HR, PR, IR, MR, BR, GR, KR, NR, SR, etc.)

⑥   Time period: The period preceding the survey to which the indicators apply

⑦   Numerator(s): Number of the population meeting the criteria for inclusion in the numerator(s) of the indicators. Criteria for selection for the numerator(s) are given based on the variables in the recode file. Unless noted, the criteria for the numerator(s) are a subset of those selected for the denominator(s) below, and the selection criteria for the denominator(s) is not usually repeated in the numerator(s).

⑧   Denominator(s): Number of the population meeting the criteria for inclusion in the denominator of the indicators. Criteria for selection for the denominator are given based on the variables in the recode file. If no criteria is specified, the denominator is formed of all cases in the dataset.

⑨   Variables: Dataset(s) used to produce the indicators and the list of variables needed to calculate the indicators. If indicators are to be disaggregated, the background variables to use are not included in this list.

        v???   Variables needed for the indicator

        ?005   Sample weight variable

⑩   **Calculation**

        Explanation of the calculation of the indicators, typically based on the numerator(s) and denominator(s) defined above. For most indicators that are simple percentages this is numerator divided by denominator multiplied by 100. For more complicated indicators a detailed description of the calculation method is provided.

⑪　Handling of Missing Values

Explanation of how missing values and "Don't know" responses are handled for the indicators.

⑫　Changes over Time

Brief description of the ways in which the indicators have changed over time between different phases of The DHS Program.

⑬　References

List of key references to international indicator guidelines further describing the indicators or cross-national analyses using the indicators.

⑭　Resources

A list of resources relevant to the indicators, including links to DHS videos and webpages.

⑮　DHS-8 Tabulation plan: Table number reference to the DHS-8 Tabulation Plan, found at https://www.dhsprogram.com/publications/publication-DHSM6-DHS-Questionnaires-and-Manuals.cfm

⑯　API Indicator IDs: IDs for use with the DHS Application Programming Interface (API) described at https://api.dhsprogram.com/#/index.html. The full list of API Indicator IDs can be found at http://api.dhsprogram.com/rest/dhs/indicators?f=html

API link – link to present national indicator data for surveys from the API in a browser.
STATcompiler link – link to national indicator data in STATcompiler.

Example Indicator Page

① *Knowledge of HIV or AIDS*

② **Percentage of women and men who have heard of HIV or AIDS**

③ **Definition**

Percentage of women and men age 15-49 who have heard of HIV or AIDS.

④ Coverage:

⑤ Population base: Women and men age 15-49 (IR file, MR file)

⑥ Time period: Current status at time of survey

⑦ Numerator: Number of women (or men) age 15-49 who respond "Yes" that they have heard of HIV or AIDS (women: v751 = 1; men: mv751 = 1)

⑧ Denominator: Number of women age 15-49 or number of men (age range varies by survey)

⑨ Variables: IR file, MR file.

v751	Ever heard of HIV or AIDS (women)
v005	Woman's individual sample weight
mv751	Ever heard of HIV or AIDS (men)
mv005	Man's individual sample weight

⑩ **Calculation**

Numerator divided by denominator, multiplied by 100.

⑪ **Handling of Missing Values**

Missing values are assumed to reflect a lack of knowledge about HIV or AIDS and are therefore not included in the numerator.

⑫ **Changes over Time**

Prior to DHS-7, the standard questionnaires asked if women and men had "ever heard of an illness called AIDS". Due to improved knowledge about HIV/AIDS and the decrease in AIDS cases as treatment is more common, some respondents may be more familiar with the term "HIV" than "AIDS". The purpose of the question is to assess basic knowledge of either HIV or AIDS.

In DHS-8 this has become an optional question. It may be deleted in countries with near universal knowledge of HIV in which case everyone is assumed to have knowledge of HIV.

⑬ **References**

Bankole, A., S. Singh, V. Woog, and D. Wulf. 2004. "Risk and protection: youth and HIV/AIDS in sub-Saharan Africa.". https://www.guttmacher.org/news-release/2004/new-resource-documents-hiv-risk-and-protection-african-youth

Khan, M.A.2002. "Knowledge on AIDS among female adolescents in Bangladesh: evidence from the Bangladesh demographic and health survey data." *Journal of health, population and nutrition*: 130-137.

⑭ **Resources**

⑮   DHS-8 Tabulation plan: Table 13.0.w

⑯   API Indicator IDs:
           HA_KAID_W_HRD, HA_KAID_M_HRD
           (API link, STATcompiler link)

Using Indicator Pages

Example code

The indicator pages can be used as a guide in constructing code in statistical software for tabulating indicators. Below are examples in Stata and SPSS for producing indicators based on the information in the indicator pages. Most indicators are simple percentages computed as the proportion meeting some numerator condition that is a subset of cases meeting the denominator condition. The below code provides a generic example of code, applied to the indicator page example above. The code below provides examples of simple tabulations that do not take into account the complex sample design, as well as examples that take into account the complex sample design and produce confidence intervals and standard errors for the indicators.

Stata

```
* open dataset, using type of dataset from variables list, e.g. IR file in this case
use "ZZIR62FL.dta", clear

* select denominator
* gen denom = ( denominator criteria )
* or denom = 1 if all cases are selected
gen denom = 1

* select numerator, based on subset of denominator
* gen numer = ( numerator criteria ) if (denom == 1)
gen numer = (v751 == 1) if (denom == 1)

* Label numerator variable
label variable numer "Knows of HIV/AIDS"
label define YesNo 1 "Yes" 0 "No"
label values numer YesNo
format numer denom %1.0f

* set up weight
* gen wt = weightvar / 1000000
gen wt = v005/1000000

* simple tabulation
tab numer [iw=wt] if (denom == 1)

* or by background characteristic, e.g. by region
tab v024 numer [iw=wt] if (denom == 1), row

* or for complex samples use svyset and svy: tab

* first set up strata variable - can vary from survey to survey
* example using v023, but may be a combination of v024 and v025
gen strat = v023
* or egen strat = group(v024 v025)

* set up svyset command
svyset v021 [pw=wt], strata(strat)

* tabulate using svy: tab
svy: tab numer if (denom == 1), ci se

* or by background characteristic
svy: tab v024 numer if (denom == 1), row ci se
```

```
* open dataset, using type of dataset from variables list, e.g. IR file in this case.
get file = "ZZIR62FL.SAV".

* select denominator
* compute denom = ( denominator criteria ).
* or denom = 1 if all cases are selected.
compute denom = 1.

* select numerator, based on subset of denominator.
* if (denom = 1) numer = ( numerator criteria ).
if (denom = 1) numer = (v751 = 1).

* Label numerator variable.
variable labels numer "Knows of HIV/AIDS".
value labels numer 1 "Yes" 0 "No".
formats numer denom (f1.0).

* set up weight.
* compute wt = weightvar/1000000.
compute wt = v005/1000000.
weight by wt.

* filter for selected cases.
filter by denom.

* simple tabulation.
frequencies variables=numer.

* or by background characteristic, e.g. by region.
crosstabs tables=v024 by numer /count=asis /cells=row.

* or for complex samples use csplan and csdescriptives.

* first set up strata variable - can vary from survey to survey.
* example using v023, but may be a combination of v024 and v025.
compute strat = v023.
* or compute strat = v024*2 + v025.

* turn off weight to avoid warning message, as weight comes from csplan.
weight off.

* set up csplan command.
csplan analysis /plan file='DHS.csaplan'
 /planvars analysisweight=wt
 /srsestimator type=wor
 /design strata=strat cluster=v021
 /estimator type=wr.

* tabulate using csdescriptives.
csdescriptives /plan file='DHS.csaplan'
 /summary variables = numer
 /mean
 /statistics se cin.

* or by background characteristic.
csdescriptives /plan file='DHS.csaplan'
 /summary variables = numer
 /subpop table=v024
 /mean
 /statistics se cin.
```

Numerator and denominator conditions

The indicator pages provide generic logic for the definitions of the numerators and denominators that is not specific to any particular software and needs to be translated to the software to be used for analysis. Below is a brief explanation of the generic code used and how to implement it in Stata or SPSS.

Generic code	Stata code	SPSS code
`var = n`	`var == n`	`var = n or var EQ n`
`var ≠ n`	`var != n`	`var <> n or var NE n`
`var ≠ a,b`	`var != a & var != b`	`var <> a AND var <> b`
`var in a,b,c`	`var == a	var == b	var == c` `or` `inlist(var,a,b,c)`	`var = a OR var = b OR var = c` `or` `any(var,a,b,c)`

`var in x:y`	`var >= x & var <= y`
	`or`
	`inrange(var,x,y)`
		`var >= x AND var <= y`
		`or`
		`range(var,x,y)`

`var in a,b,c,x:y`	`var == a	var == b	var == c	` `(var >= x & var <= y)` `or` `inlist(var,a,b,c)	` `inrange(var,x,y)`	`var = a OR var = b OR var = c` `OR (var >= x AND var <= y)` `or` `any(var,a,b,c) OR` `range(var,x,y)`

`x <= var <= y`	`var >= x & var <= y`
	`or`
	`inrange(var,x,y)`
		`var >= x AND var <= y`
		`or`
		`range(var,x,y)`

`x < var < y`	`var > x & var < y`	`var > x AND var < y`

`condx & condy`
`e.g.`
`vara = x & varb`
`= y`
	`condx & condy`
	`e.g.`
	`vara == x & varb == y`
		`condx & condy or`
		`condx AND condy`
		`e.g.`
		`vara = x & varb = y`
		`or`
		`vara = x AND varb = y`

`condx or condy` `e.g.` `vara = x or varb` `= y`	`condx	condy` `e.g.` `vara == x	varb == y`	`condx	condy or` `condx OR condy` `e.g.` `vara = x	varb = y` `or` `vara = x OR varb = y`
`any of vara – x` `= 1`	`vara = 1	varb = 1	varc = 1 |` `... varx = 1`	`vara = 1	varb = 1	varc = 1	... varx = 1`

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Part III Country Profiles:
https://apps.who.int/iris/bitstream/handle/10665/44368/9789241599757_eng.pdf?sequence=1

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2) Population and Housing

The focus of this chapter is to describe the environment in which women, children and men live. This description shows housing facilities (dwelling characteristics, types of technology and fuel used for cooking, space heating, and lighting, and household possessions), household arrangements (headship, size), and general characteristics of the population such as age-sex structure, literacy, and education. A distinction is made between urban and rural settings where many of these indicators usually differ.

Besides providing the background for better understanding of many social and demographic phenomena discussed in the following chapters, this general description is useful for assessing the level of economic and social development of the population.

Heating Fuels and Technologies

Percent distribution of households and de jure population by type of space heating technology and heating fuel

Definition

1) Percent distribution of households and de jure population by main type of space heating technology.
2) Percent distribution of households and de jure population by heating fuel.
3) Percentage of households and de jure population primarily relying on clean fuels and technologies for space heating

Coverage:

Population base:
a) Households (HR file)
b) De jure household population (HR file or PR file)
Time period: Current status at time of survey

Numerators:

1) Number of households and de jure population by type of heating technology (hv259 in 1:6, and for relevant technologies (hv259 in 2:5), by presence and absence of a chimney (hv260)
2) Number of households and de jure population by type of heating fuel (hv261)
3) Number of households and de jure population relying on clean fuels and technologies for space heating (hv261 in 1:6)

Denominators:
a) Number of households
b) Number of de jure population (hv012 – see *Calculation*)

Variables: HR file, PR file.
hv012   Number of de jure members (if using HR file)
hv102   Usual resident (if using PR file)
hv259   Heating technology
hv260   Presence of chimney for heating technology
hv261   Heating fuel

Calculation

Percent distribution of de jure population can be calculated using the HR file and simply weighting the data by the sample weight (hv005/1000000) multiplied by the number of de jure household members (hv012). Alternatively, the PR file can be used instead, selecting the de jure members (hv102 = 1) and weighting just by the sample weight (hv005/1000000).

Notes and Considerations

Clean heating fuels and technologies for space heating include central heating, electricity, LPG/natural gas/biogas, solar air heater, and alcohol/ethanol. A response of 'don't know' for presence of a chimney is counted as a no.

Changes over Time

Collection of information on heating fuels and technologies began in DHS-8.

Resources

DHS-8 Tabulation plan: Table 2.3 and Table 2.4

MICS6 Indicator TC.16 Primary reliance on clean fuels and technologies for space heating

API Indicator IDs:
Households
Heating Technology:
```
HC_HTTC_H_CHT, HC_HTTC_H_MSH, HC_HTTC_H_MSC, HC_HTTC_H_MSW, HC_HTTC_H_TSH,
HC_HTTC_H_TSC, HC_HTTC_H_TSW, HC_HTTC_H_MCS, HC_HTTC_H_MCC, HC_HTTC_H_MCW,
HC_HTTC_H_TCS, HC_HTTC_H_TCC, HC_HTTC_H_TCW, HC_HTTC_H_3SO, HC_HTTC_H_OTH,
HC_HTTC_H_NON
```
(API link, STATcompiler link)

Heating fuel:
```
HC_HTFL_H_CFT, HC_HTFL_H_CHT, HC_HTFL_H_ELC, HC_HTFL_H_NAT, HC_HTFL_H_SOL,
HC_HTFL_H_LPG, HC_HTFL_H_BIO, HC_HTFL_H_ALC, HC_HTFL_H_GDS, HC_HTFL_H_KER,
HC_HTFL_H_COL, HC_HTFL_H_CHR
```
(API link)

```
HC_HTFL_H_WOD, HC_HTFL_H_STR, HC_HTFL_H_AGR, HC_HTFL_H_DNG, HC_HTFL_H_BMS,
HC_HTFL_H_GBP, HC_HTFL_H_SWD, HC_HTFL_H_OTH, HC_HTFL_H_NON
```
(API link, STATcompiler link)

Clean fuels and technologies:
```
HC_HTFL_H_CFT
```
(API link, STATcompiler)

De jure population
Heating technology:
```
HC_HTTC_P_CHT, HC_HTTC_P_MSH, HC_HTTC_P_MSC, HC_HTTC_P_MSW, HC_HTTC_P_TSH,
HC_HTTC_P_TSC, HC_HTTC_P_TSW, HC_HTTC_P_MCS, HC_HTTC_P_MCC, HC_HTTC_P_MCW,
HC_HTTC_P_TCS, HC_HTTC_P_TCC, HC_HTTC_P_TCW, HC_HTTC_P_3SO, HC_HTTC_P_OTH,
HC_HTTC_P_NON
```
(API link, STATcompiler link)

Heating fuel:
```
HC_HTFL_P_CFT, HC_HTFL_P_CHT, HC_HTFL_P_ELC, HC_HTFL_P_NAT, HC_HTFL_P_SOL,
HC_HTFL_P_LPG, HC_HTFL_P_BIO, HC_HTFL_P_ALC, HC_HTFL_P_GDS, HC_HTFL_P_KER,
HC_HTFL_P_COL, HC_HTFL_P_CHR
```
(API link)

```
HC_HTFL_P_WOD, HC_HTFL_P_STR, HC_HTFL_P_AGR, HC_HTFL_P_DNG, HC_HTFL_P_BMS,
HC_HTFL_P_GBP, HC_HTFL_P_SWD, HC_HTFL_P_OTH, HC_HTFL_P_NON
```
(API link, STATcompiler link)

Clean fuels and technologies:
```
HC_HTFL_P_CFT
```
(API link, STATcompiler link)

Household Electricity, Flooring Material, and Sleeping Rooms

Percent distribution of households and de jure population by housing characteristics

Definition

Percent distribution of households and de jure population by housing characteristics.

Coverage:
>   Population base:
>   a) Households (HR file)
>   b) De jure household population (HR file or PR file)
>   Time period: Current status at time of survey

Numerators:
Number of households and de jure population by housing characteristic:
1) Electricity (hv206)
2) Flooring material (hv213)
3) Rooms used for sleeping (hv216)

Denominators:
a) Number of households
b) Number of de jure population (hv012 – see *Calculation*)

Variables: HR file, PR file.

hv012	Number of de jure members (if using HR file)
hv102	Usual resident (if using PR file)
hv206	Has electricity
hv213	Main floor material
hv216	Number of rooms used for sleeping
hv005	Household sample weight

Calculation

Percent distribution of de jure population can be calculated using the HR file and simply weighting the data by the sample weight (hv005/1000000) multiplied by the number of de jure household members (hv012). Alternatively, the PR file can be used, selecting the de jure members (hv102 = 1) and weighting just by the sample weight (hv005/1000000).

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households and population with missing information are included as separate categories.

Notes and Considerations

Percent distribution adds up to 100 percent.

Resources

DHS-8 Tabulation plan: Table 2.1

API Indicator IDs:
Households
Electricity:
```
HC_ELEC_H_ELC, HC_ELEC_H_NEL, HC_ELEC_H_DKM
```
([API link](), [STATcompiler link]())

Flooring:
```
HC_FLRM_H_NAT, HC_FLRM_H_ETH, HC_FLRM_H_DNG, HC_FLRM_H_RUD, HC_FLRM_H_WDP,
HC_FLRM_H_PLM, HC_FLRM_H_OTR, HC_FLRM_H_FIN, HC_FLRM_H_PQT, HC_FLRM_H_VIN,
HC_FLRM_H_CER, HC_FLRM_H_CEM, HC_FLRM_H_CPT, HC_FLRM_H_OTH, HC_FLRM_H_DKM
```
([API link](), [STATcompiler link]())

Rooms for sleeping:
```
HC_RMSL_H_1RM, HC_RMSL_H_2RM, HC_RMSL_H_3RM, HC_RMSL_H_DKM
```
([API link](), [STATcompiler link]())

De jure population
Electricity:
```
HC_ELEC_P_ELC, HC_ELEC_P_NEL, HC_ELEC_P_DKM
```
([API link](), [STATcompiler link]())

Flooring:
```
HC_FLRM_P_NAT, HC_FLRM_P_ETH, HC_FLRM_P_DNG, HC_FLRM_P_RUD, HC_FLRM_P_WDP,
HC_FLRM_P_PLM, HC_FLRM_P_OTR, HC_FLRM_P_FIN, HC_FLRM_P_PQT, HC_FLRM_P_VIN,
HC_FLRM_P_CER, HC_FLRM_P_CEM, HC_FLRM_P_CPT, HC_FLRM_P_OTH, HC_FLRM_P_DKM
```
([API link](), [STATcompiler link]())

Rooms for Sleeping:
```
HC_RMSL_P_1RM, HC_RMSL_P_2RM, HC_RMSL_P_3RM, HC_RMSL_P_DKM
```
([API link](), [STATcompiler link]())

MICS6 Indicator SR.1: Percentage of household members with access to electricity

Cooking Fuels and Technologies

Percent distribution of households and de jure population by place for cooking, cooking technology, and cooking fuel, percentage using clean fuels and technologies for cooking, and percentage using solid fuel for cooking

Definition

1) Percent distribution of households and de jure population by place for cooking.
2) Percent distribution of households and de jure population by main type of cooking technology.
3) Percent distribution of households and de jure population by cooking fuel.
4) Percentage of households and de jure population using clean fuels and technologies for cooking.
5) Percentage of households and de jure population using solid fuel for cooking.

Coverage:

Population base:
a) Households (HR file)
b) De jure household population (HR file or PR file)

Time period: Current status at time of survey

Numerators:
1) Number of households and de jure population by place for cooking:
   a) In the house, separate room/kitchen (hv241 = 1 & hv242 = 1)
   b) In the house, no separate room/kitchen (hv241 = 1 & hv242 = 2)
   c) In a separate building (hv241 = 2)
   d) Outdoors (hv241 = 3)
   e) Other (hv241 = 6)
   f) No food cooked in household (hv222 = 95)
2) Number of households and de jure population by main type of cooking technology (hv226), and for solid fuel stoves (hv226 in 9:17), by presence and absence of a chimney (hv240)
3) Number of households and de jure population by type of cooking fuel (hv226 in 9:17)
4) Number of households and de jure population using clean fuels and technologies for cooking (hv226 in 1:6)
5) Number of households and de jure population using solid fuel for cooking (hv226 in 9:17)

Denominators:
a) Number of households
b) Number of de jure population (hv012 – see *Calculation*)

Variables: HR file, PR file.
hv012   Number of de jure members (if using HR file)
hv102   Usual resident (if using PR file)
hv241   Food cooked in the house/separate building/outdoors
hv222   Type of cookstove
hv242   Household has separate room used as kitchen
hv226   Type of cooking fuel

hv240   Presence of chimney for cooking technology
hv005   Household sample weight

Calculation

Percent distribution of de jure population can be calculated using the HR file and simply weighting the data by the sample weight (hv005/1000000) multiplied by the number of de jure household members (hv012). Alternatively, the PR file can be used instead, selecting the de jure members (hv102 = 1) and weighting just by the sample weight (hv005/1000000).

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households and population with missing information are included as separate categories.

Notes and Considerations

Clean fuels and technologies for cooking include stoves/cookers using electricity, liquefied petroleum gas (LPG)/natural gas/biogas, solar, and alcohol/ethanol.

Solid fuels include coal/lignite, charcoal, wood, straw/shrub/grass, agricultural crops, animal dung/waste, processed biomass (pellets) or woodchips, garbage/plastic, and sawdust.

Percent distribution adds up to 100 percent.

Changes over Time

In DHS-IV through DHS-7, information was collected solely on the type of fuel used for cooking. With time, this information was used to produce indicators on the percentage using solid fuel for cooking (starting in DHS-VI) and the percentage using clean fuel for cooking (starting in DHS-7). In DHS-8, the critical indicator is no longer the type of fuel used when cooking, but rather the combination of fuel and technology (SDG 7.1.2 - Proportion of population with primary reliance on clean fuels and technology). In some surveys, information was collected on whether or not solid fuel stoves have an internal fan (to improve stove efficiency). In DHS-8, a question on the presence of a chimney is included for solid fuel stoves. This information does not currently factor into any internationally recognized indicators. A response of 'don't know' for presence of a chimney is counted as a no.

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Resources

DHS-8 Tabulation plan: Table 2.2, 2.4

API Indicator IDs:
Households
Place for cooking:
```
HC_CKPL_H_HSE, HC_CKPL_H_SEP, HC_CKPL_H_OUT, HC_CKPL_H_NFD, HC_CKPL_H_DKM,
HC_CKPL_W_OTH
```
(API link, STATcompiler link)

Cooking technology:
```
HC_CKTC_H_CFT, HC_CKTC_H_ELC, HC_CKTC_H_SOL, HC_CKTC_H_LPG, HC_CKTC_H_NAT,
HC_CKTC_H_BIO, HC_CKTC_H_LFA, HC_CKTC_H_OFT, HC_CKTC_H_LFN, HC_CKTC_H_MSF
```
(API Link)

```
HC_CKTC_H_MSC, HC_CKTC_H_MSW, HC_CKTC_H_TSF, HC_CKTC_H_TSC, HC_CKTC_H_TSW,
HC_CKTC_H_3SO, HC_CKTC_H_OTH, HC_CKTC_H_NFD
```
(API Link, STATcompiler link)

Cooking fuel:
```
HC_CKFL_H_ELC, HC_CKFL_H_LPG, HC_CKFL_H_KER, HC_CKFL_H_COL, HC_CKFL_H_CHR,
HC_CKFL_H_WOD, HC_CKFL_H_STR, HC_CKFL_H_AGR, HC_CKFL_H_DNG, HC_CKFL_H_GAS,
HC_CKFL_H_BMS, HC_CKFL_H_GBP, HC_CKFL_H_SWD, HC_CKFL_H_OTH, HC_CKFL_H_NFD,
HC_CKFL_H_SLD, HC_CKFL_H_CLN
```
(API link, STATcompiler link)

Clean fuels for cooking:
```
HC_CKFL_H_CLN
```
(API link, STATcompiler link)

Solid fuels for cooking:
```
HC_CKFL_H_SLD
```
(API link, STATcompiler link)

De jure population
Place for cooking:
```
HC_CKPL_P_HSE, HC_CKPL_P_KIT, HC_CKPL_P_NKT, HC_CKPL_P_SEP, HC_CKPL_P_OUT,
HC_CKPL_P_NFD, HC_CKPL_P_OTH
```
(API link, STATcompiler link)

Cooking technology:
```
HC_CKTC_P_CFT, HC_CKTC_P_ELC, HC_CKTC_P_SOL, HC_CKTC_P_LPG, HC_CKTC_P_NAT,
HC_CKTC_P_BIO, HC_CKTC_P_LFA, HC_CKTC_P_OFT, HC_CKTC_P_LFN, HC_CKTC_P_MSF
```
(API Link, STATcompiler link)

Cooking fuel:
```
HC_CKFL_P_ELC, HC_CKFL_P_LPG, HC_CKFL_P_KER, HC_CKFL_P_COL, HC_CKFL_P_CHR,
HC_CKFL_P_WOD, HC_CKFL_P_STR, HC_CKFL_P_AGR, HC_CKFL_P_DNG, HC_CKFL_P_GAS,
```

```
HC_CKFL_P_BMS, HC_CKFL_P_GBP, HC_CKFL_P_SWD, HC_CKFL_P_OTH, HC_CKFL_P_NFD,
HC_CKFL_P_SLD, HC_CKFL_P_CLN
```
([API link](), [STATcompiler link]())

Clean fuels for cooking:
```
HC_CKFL_P_CLN
```
([API link](), [STATcompiler link]())

Solid fuels for cooking:
```
HC_CKFL_P_SLD
```
([API link](), [STATcompiler link]())

SDG indicator 1.4.1d and 7.1.1: Proportion of population with access to electricity
SDG Indicator 7.1.2: Proportion of population with primary reliance on clean fuels and technology
WHO 100 Core Health Indicators: Population with primary reliance on clean fuels and technology
MICS6 Indicator TC.15: Primary reliance on clean fuels and technologies for cooking

Lighting Fuels and Technologies

Percent distribution of households and de jure population by lighting fuel or technology

Definition

1) Percent distribution of households and de jure population by main lighting fuel or technology.
2) Percent of households and de jure population primarily relying on clean fuels and technologies for lighting

Coverage:
>   Population base:
>   a)   Households (HR file)
>   b)   De jure household population (HR file or PR file)
>   Time period: Current status at time of survey

Numerators:
1) Number of households and de jure population by main lighting fuel or technology type (hv262)
2) Number of households and de jure population relying on clean fuels and technologies for lighting (hv262 in 1:5)

Denominators:
a)   Number of households
b)   Number of de jure population (hv012 – see *Calculation*)

Variables: HR file, PR file.
hv012   Number of de jure members (if using HR file)
hv102   Usual resident (if using PR file)
hv262   Lighting fuel or technology

Calculation

Percent distribution of de jure population can be calculated using the HR file and simply weighting the data by the sample weight (hv005/1000000) multiplied by the number of de jure household members (hv012). Alternatively, the PR file can be used instead, selecting the de jure members (hv102 = 1) and weighting just by the sample weight (hv005/1000000).

Notes and Considerations

Clean fuels and technologies for lighting includes electricity, solar lantern, rechargeable flashlight/torch/lantern, battery powered flashlight/torch/lantern, and biogas lamp

Changes over Time

Collection of information on lighting fuels and technologies began in DHS-8.

Resources

DHS-8 Tabulation plan: Table 2.3 and Table 2.4

API Indicator IDs:
De jure population
Lighting fuel or technology:
```
HC_LTFL_P_CFT, HC_LTFL_P_ELC, HC_LTFL_P_SOL, HC_LTFL_P_REC, HC_LTFL_P_BAT,
HC_LTFL_P_BIO, HC_LTFL_P_GDS, HC_LTFL_P_KER, HC_LTFL_P_CHR, HC_LTFL_P_WOD,
HC_LTFL_P_STR, HC_LTFL_P_AGR, HC_LTFL_P_DNG, HC_LTFL_P_OIL, HC_LTFL_P_CDL,
HC_LTFL_P_OTH, HC_LTFL_P_NON
```
(API link, STATcompiler link)

Clean fuels and technologies:
```
HC_LTFL_P_CFT
```
(API link, STATcompiler link)

MICS6 Indicator TC.17 Primary reliance on clean fuels and technologies for lighting

Primary Reliance on Clean Fuels and Technologies for Cooking, Heating and Lighting

Percentage of de jure population relying on clean fuels and technologies for cooking, percentage relying on solid fuels for cooking, percentage relying on clean fuel and technologies for space heating, percentage relying on clean fuel and technologies for lighting, and percentage relying on clean fuels and technologies for cooking, space heating, and lighting

Definition

1) Percentage of de jure population primarily relying on clean fuels and technologies for cooking
2) Percentage of de jure population primarily relying on solid fuels for cooking
3) Percentage of de jure population primarily relying on clean fuels and technologies for space heating
4) Percentage of de jure population primarily relying on clean fuels and technologies for lighting
5) Percentage of de jure population primarily relying on clean fuels and technologies for cooking, space heating, and lighting

Coverage:

Population base:
De jure household population (HR file or PR file)

Time period: Current status at time of survey

Numerators:
1) Number of de jure population relying on clean fuels and technologies for cooking (hv226 in 1:6)
2) Number of de jure population relying on solid fuels for cooking (hv226 in 9:17)
3) Number of de jure population relying on clean fuels and technologies for space heating (hv261 in 1:6)
4) Number of de jure population relying on clean fuels and technologies for lighting (hv262 in 1:5)
5) Number of de jure population relying on clean fuels and technologies for cooking, space heating, and lighting (hv226 in 1:6,95 & (hv261 in 1:6 or hv259 = 95) & hv262 in 1:5,95)

Denominators:
a) Number of de jure household population who report cooking in the house (hv222 in 1:17,96)
b) Number of de jure household population who report cooking in the house (hv222 in 1:17,96)
c) Number of de jure household population who report use of space heating (hv259 in 1:6,96)
d) Number of de jure household population who report use of space lighting (hv262 in 1:14,96)
e) Number of de jure population (hv012 – see *Calculation*)

Variables: HR file, PR file.
hv012	Number of de jure members (if using HR file)
hv102	Usual resident (if using PR file)
hv222	Type of cookstove
hv226	Type of cooking fuel
hv240	Presence of chimney for cooking technology

hv259	Heating technology
hv260	Presence of chimney for heating technology
hv261	Heating fuel
hv262	Lighting fuel or technology

Calculation

Percent distribution of de jure population can be calculated using the HR file and simply weighting the data by the sample weight (hv005/1000000) multiplied by the number of de jure household members (hv012). Alternatively, the PR file can be used instead, selecting the de jure members (hv102 = 1) and weighting just by the sample weight (hv005/1000000).

Handling of Missing Values

Population with missing information are included as separate categories.

Notes and Considerations

Clean fuels and technologies for cooking include stoves/cookers using electricity, liquefied petroleum gas (LPG)/natural gas/biogas, solar, and alcohol/ethanol.

Solid fuels include coal/lignite, charcoal, wood, straw/shrub/grass, agricultural crops, animal dung/waste, processed biomass (pellets) or woodchips, garbage/plastic, and sawdust.

Clean heating fuels and technologies for space heating include central heating, electricity, LPG/natural gas/biogas, solar air heater, and alcohol/ethanol.

Clean fuels and technologies for lighting includes electricity, solar lantern, rechargeable flashlight/torch/lantern, battery powered flashlight/torch/lantern, and biogas lamp

In order to calculate SDG indicator 7.1.2, persons living in households that report no cooking, no space heating, or no lighting are not excluded from the numerator.

Changes over Time

Presentation of these indicators began in DHS-8.

Resources

DHS-8 Tabulation plan: Table 2.4

API Indicator IDs:
`HC_CLFT_P_CFC, HC_CLFT_P_SFC, HC_CLFT_P_CFH, HC_CLFT_P_CFL, HC_CLFT_P_CFA`
(API link, STATcompiler link)

SDG 1.4.1e) Access to clean fuels and technologies
SDG 7.1.2 Proportion of population with primary reliance on clean fuels and technology

MICS6 Indicator TC.18 Primary reliance on clean fuels and technologies for cooking, space heating and lighting

Smoking in Home

Percent distribution by frequency of smoking in the home

Definition

Percent distribution by frequency of smoking in the home, according to residence.

Coverage:
  Population base:
  a) Households (HR file)
  b) De jure household population (HR file or PR file)
  Time period: Current status at time of survey

Numerator: Number of households and de jure population by frequency of smoking in the home (hv252)

Denominators:
a) Number of households
b) Number of de jure population (hv012 – see *Calculation*)

Variables: HR file, PR file.
hv012   Number of de jure members (if using HR file)
hv102   Usual resident (if using PR file)
hv252   Frequency household members smoke inside the house
hv005   Household sample weight

Calculation

Percent distribution of de jure population can be calculated using the HR file and simply weighting the data by the sample weight (hv005/1000000) multiplied by the number of de jure household members (hv012). Alternatively, the PR file can be used instead, selecting the de jure members (hv102 = 1) and weighting just by the sample weight (hv005/1000000).

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households and population with missing information are included as separate categories.

Notes and Considerations

Percent distribution adds up to 100 percent.

Changes over Time

Collection of information on the frequency of smoking in the home began in DHS-VI.

Resources

DHS-8 Tabulation plan: Table 2.1

API Indicator IDs:
`HC_SMKH_H_DLY, HC_SMKH_H_WLY, HC_SMKH_H_MLY, HC_SMKH_H_LES, HC_SMKH_H_NEV,`
`HC_SMKH_H_DKM`
([API link](#), [STATcompiler link](#))

Household Possessions

Percentage of households possessing various household effects, means of transport, ownership of agricultural land, and ownership of livestock/farm animals

Definition

1) Percentage of households possessing various household effects.
2) Percentage of households possessing various means of transport.
3) Percentage of households owning agricultural land.
4) Percentage of households owning livestock or farm animals.

Coverage:
> Population base: Households (HR file)
> Time period: Current status at time of survey

Numerators:
1) Number of households possessing various household effects:
   a) Radio (hv207 = 1)
   b) Television (hv208 = 1)
   c) Mobile phone (hv243a = 1)
   d) Non-mobile telephone (hv221 = 1)
   e) Computer (hv243e = 1)
   f) Refrigerator (hv209 = 1)
2) Number of households possessing various means of transport:
   a) Bicycle (hv210 = 1)
   b) Animal drawn cart (hv243c = 1)
   c) Motorcycle/scooter (hv211 = 1)
   d) Car/truck (hv212 = 1)
   e) Boat with a motor (hv243d = 1)
3) Number of households owning agricultural land (hv244 = 1)
4) Number of households owning livestock or farm animals (hv246 = 1)

Denominator: Number of households

Variables: HR file.

hv207	Has radio
hv208	Has television
hv209	Has refrigerator
hv210	Has bicycle
hv211	Has motorcycle/scooter
hv212	Has car/truck
hv221	Has telephone (land-line)
hv243a	Has mobile telephone
hv243c	Has animal-drawn cart
hv243d	Has boat with a motor

hv243e   Has a computer
hv244   Owns land usable for agriculture
hv246   Owns livestock, herds or farm animals
hv005   Household sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households with missing information are excluded from the numerator but included in the denominator.

Notes and Considerations

Farm animals include cows, bulls, other cattle, horses, donkey, mules, goats, sheep, and chickens or other poultry. Surveys may also include additional animals such as rabbits, pigs, camels, or other animals.

Resources

DHS-8 Tabulation plan: Table 2.5

API Indicator IDs:
```
HC_HEFF_H_RDO, HC_HEFF_H_TLV, HC_HEFF_H_MPH, HC_HEFF_H_NPH, HC_HEFF_H_FRG,
HC_TRNS_H_BIK, HC_TRNS_H_CRT, HC_TRNS_H_SCT, HC_TRNS_H_CAR, HC_TRNS_H_BTM,
HC_AGON_H_LND, HC_AGON_H_ANM
```
(API link, STATcompiler link)

MICS6 Indicator SR.4: Households with a radio
MICS6 Indicator SR.5: Households with a television
MICS6 Indicator SR.6: Households with a telephone (fixed line or mobile phone)
MICS6 Indicator SR.7: Households with a computer

Wealth Quintiles

Percent distribution of the de jure population by wealth quintiles and the Gini coefficient

Definition

Percent distribution of the de jure population by wealth quintiles and the Gini coefficient.

Coverage:
    Population base: De jure population (HR file)
    Time period: Current status at time of survey

Numerators:
1) Number of de jure population in each quintile (hv270)
2) Gini coefficient of wealth index (hv271 – see *Calculation*)

Denominator: Number of de jure population (hv012)

Variables: HR file.

hv012	Number of de jure members
hv270	Wealth index combined
hv271	Wealth index factor score combined
hv005	Household sample weight

Calculation

For the percent distribution, numerator divided by denominator multiplied by 100.

For the Gini coefficient, the Notes and Considerations below provide a description of the Gini coefficient.

The calculation of the Gini coefficient can be performed in a number of ways. For simplicity and practicality, The DHS Program calculates the Gini coefficient with the Brown Formula shown below:

$$G = |1 - \sum_{k=1}^{n}(X_k - X_{k-1})(Y_k + Y_{k-1})|$$

G: Gini coefficient
X_k: cumulative proportion of the population variable, for k = 1,...,n, with $X_0 = 0$, $X_n = 1$
Y_k: cumulative proportion of the wealth variable, for k = 1,...,n, with $Y_0 = 0$, $Y_n = 1$
and n = 100 in the DHS implementation.

To implement this, the following steps are used for each background characteristic:
1) Calculate the minimum (*min*) and maximum (*max*) wealth index score for the characteristic (national, urban/rural, or region). Note that *min* and *max* can be negative for specific characteristics, but at the national level *min* should be negative and *max* should be positive.

2) Calculate the wealth group k for each household as

$$k = int\left((n-1) \times \frac{hv271 - min}{max - min}\right) + 1$$

where n=100. This will result in groups 1 to 100.

3) Tally the population for each group k

$$pop_k = \sum sample\ weight \times number\ of\ household\ members$$

where *sample weight* = hv005/1000000 and *number of de jure household members* = hv012.

4) Tally the relative wealth score for each group k by adding the weighted difference in wealth index score and minimum wealth index score for the background characteristics

$$wealth_k = \sum sample\ weight \times (hv271 - min)$$

5) Calculate cumulative population groups by accumulating the populations in each group k where k = 1 to 100 and cum.pop$_0$ = 0

$$cum.pop_k = cum.pop_{k-1} + pop_k$$

6) Calculate cumulative wealth groups by accumulating the relative wealth in each group k where k = 1 to 100 and cum.wealth$_0$ = 0

$$cum.wealth_k = cum.wealth_{k-1} + wealth_k$$

7) Convert cumulative populations into cumulative proportions of population in each group k where k = 1 to 100

$$prop.pop_k = cum.pop_k / cum.pop_{100}$$

cum.pop$_{100}$ is the total population for the characteristic as calculated in step 5, and prop.pop$_{100}$ will thus be 1, and prop.pop$_0$ = 0.

8) Convert cumulative wealth into cumulative proportions of wealth in each group k where k = 1 to 100

$$prop.wealth_k = cum.wealth_k / cum.wealth_{100}$$

cum.wealth$_{100}$ is the total relative wealth for the characteristic as calculated in step 6, and prop.wealth$_{100}$ will thus be 1, and prop.wealth$_0$ = 0.

9) Apply the formula given above to calculate the Gini coefficient (G), where k = 1 to 100.

$$G = abs(1 - \sum_{k=1}^{100} ((prop.pop_k - prop.pop_{k-1}) \times (prop.wealth_k + prop.wealth_{k-1})))$$

Handling of Missing Values

There are no missing data for the wealth index factor score.

Notes and Considerations

In addition to standard background characteristics, most of the results in the survey reports are shown by wealth quintiles, an indicator of the economic status of households. Although surveys under The DHS Program do not collect data on consumption or income, they do collect detailed information on dwelling and household characteristics and access to a variety of consumer goods and services, and assets, which together are used as a measure of economic status. The wealth index is a measure that has been used in many DHS and other country-level surveys to indicate inequalities in household characteristics, in the use of health and other services, and in health outcomes. The resulting wealth index is an indicator of the level of wealth that is consistent with expenditure and income measures. The wealth index is constructed using household asset data via principal components analysis.
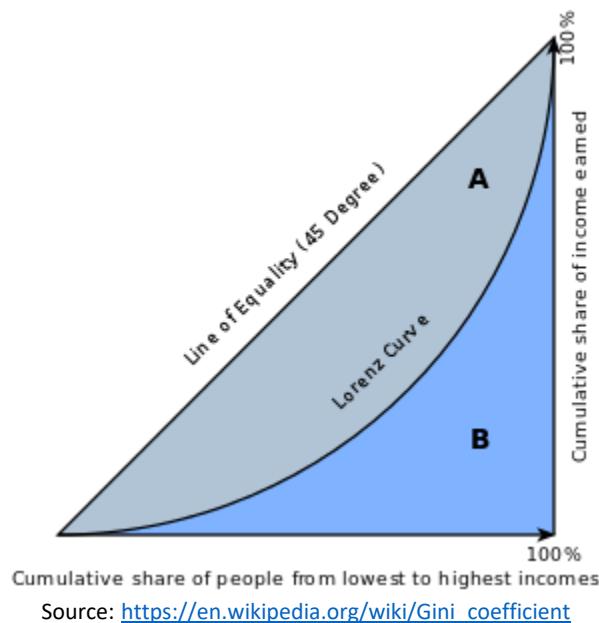
In its current form, which takes better account of urban-rural differences in the scores and indicators of wealth, the wealth index is created in three steps. In the first step, a subset of indicators common to both urban and rural areas is used to create wealth scores for households in both areas. Categorical variables to be used are transformed into separate dichotomous (0-1) indicators, as are groupings of certain discrete variables such as numbers of different types of animals. These variables and those that are continuous are then analyzed using principal components analysis to produce a common factor score for each household. In a second step, separate factor scores are produced for households in urban and in rural areas using area-specific indicators. The third step combines the separate area-specific factor scores to produce a nationally applicable combined wealth index by adjusting the area-specific score through regression on the common factor scores. This three-step procedure permits greater adaptability of the wealth index in both urban and rural areas. The resulting combined wealth index has a mean of zero and a standard deviation of one, and once it is obtained, national-level wealth quintiles are obtained by assigning the household score to each de jure household member, ranking each person in the population by their score and then dividing the ranking into five equal parts, from quintile one (lowest-poorest) to quintile five (highest-wealthiest), each having approximately 20% of the population.

DHS-8 standard Table 2.6 shows the distribution across the five wealth quintiles of the population of urban and rural areas and in each region. These distributions indicate the degree to which wealth is evenly (or unevenly) distributed by geographic areas. The distribution of households by quintiles is not exactly 20 percent due to the fact that members of the households, not households, were divided into quintiles.

Also included in DHS-8 standard Table 2.6 is the Gini coefficient, which indicates the level of concentration of wealth, 0 being an equal distribution and 1 a totally unequal distribution. In other words, if every person in the country owned the same amount of wealth, the Gini coefficient would be 0. If one person in the country owned all of the wealth, then the Gini coefficient would be 1. In a country with a Gini coefficient of 0.2, wealth is fairly evenly distributed across the population. On the other hand, in a country with a Gini coefficient of 0.8, the top 10 percent of wealthiest people own much more

wealth than the lowest 10 percent. A Gini coefficient that increases over time in a country indicates that wealth is becoming more concentrated, and disparities between the richest and poorest are increasing.

The Gini coefficient is calculated as a ratio of the areas on the Lorenz curve diagram (see figure below). If the area between the line of perfect equality and Lorenz curve is A, and the area underneath the Lorenz curve is B, then the Gini coefficient is A/(A+B). This ratio is expressed as a percentage or as the numerical equivalent of that percentage, which is always a number between 0 and 1. As wealth becomes more concentrated, the Lorenz curve moves down and to the right, area A increases as a proportion of A+B, and the Gini coefficient gets higher (closer to 1).

Source: https://en.wikipedia.org/wiki/Gini_coefficient

Because of its nature, smaller areas are more likely to have lower values of the Gini coefficient because they are more likely to be homogeneous than larger areas. Thus, the value of the coefficient in each region is often lower than the value of the nation as a whole.

Changes over Time

The method of calculating the wealth quintiles has gone through several iterations. Initially the national wealth index score was calculated directly using a single principal components analysis (Rutstein and Johnson, 2004). In 2008 the calculation method was changed to produce separate urban and rural wealth scores and then use a regression equation to map these to a combined national wealth index score (Rutstein, 2008).

References

Rutstein, S.O. and K. Johnson. 2004. *The DHS wealth index*. DHS Comparative Reports No. 6. Calverton, Maryland, USA: ORC Macro. https://dhsprogram.com/publications/publication-cr6-comparative-reports.cfm

Rutstein, S.O. 2008. *The DHS wealth index: Approaches for rural and urban areas*. DHS Working Papers No. 60. Calverton, Maryland, USA: Macro International.
https://dhsprogram.com/publications/publication-wp60-working-papers.cfm

Rutstein, S. O. and S. Staveteig. 2014. *Making the Demographic and Health Surveys Wealth Index comparable*. DHS Methodological Reports No. 9. Rockville, Maryland, USA: ICF International.
https://dhsprogram.com/publications/publication-mr9-methodological-reports.cfm

Resources

DHS-8 Tabulation plan: Table 2.6

API Indicator IDs:
HC_WIXQ_P_LOW, HC_WIXQ_P_2ND, HC_WIXQ_P_MID, HC_WIXQ_P_4TH, HC_WIXQ_P_HGH, HC_WIXQ_P_GNI
(API link, STATcompiler link)

Household Population by Age, Sex, and Residence

Percent distribution of the de facto household population by different age groupings, according to sex and residence.

Definition

Percent distribution of the de facto household population by:
1) Five-year age groups
2) Dependency age groups (0-14, 15-64, 65+)
3) Child and adult population (0-17, 18+)

Percentage of the de facto household population:
4) That are adolescents (age 10-19)

According to sex and residence.

Coverage:

> Population base: De facto household population (PR file)
> Time period: Current status at time of survey

Numerators:

Number of de facto persons (hv103 = 1) by age groupings:
1) Five-year age groups: 0-4, 5-9, …, 75-79, 80+ (int(hv105/5))
2) Dependency age groups: 0-14, 15-64, 65+ (hv105 in 0:14, hv105 in 15:64, hv105 in 65:97)
3) Child and adult population: 0-17, 18+ (hv105 in 0:17, hv105 in 18:97)
4) Adolescents: 10-19 (hv105 in 10:19)

Denominators: Number of de facto persons (hv103 = 1)

Variables: PR file.
hv103   Slept last night
hv105   Age of household members
hv005   Household sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Persons with "don't know" responses or missing information for age are included as separate categories in the percent distributions. Persons with missing information on sex are excluded from the sex specific disaggregation but included in the total for both sexes.

Notes and Considerations

Percent distributions add up to 100 percent.

Changes over Time

Inclusion of dependency age groups, child and adult populations, and adolescents in the standard tabulation were introduced in DHS-7.

Resources

DHS-8 Tabulation plan: Table 2.7

API Indicator IDs:
Five-year groups:
```
HC_AGEG_P_004, HC_AGEG_P_059, HC_AGEG_P_104, HC_AGEG_P_159, HC_AGEG_P_204,
HC_AGEG_P_259, HC_AGEG_P_304, HC_AGEG_P_359, HC_AGEG_P_404, HC_AGEG_P_459,
HC_AGEG_P_504, HC_AGEG_P_559, HC_AGEG_P_604, HC_AGEG_P_659, HC_AGEG_P_704,
HC_AGEG_P_759, HC_AGEG_P_80P, HC_AGEG_P_DKM
```
(API link, STATcompiler link)

Age groupings:
```
HC_AGEG_P_014, HC_AGEG_P_154, HC_AGEG_P_65P,
HC_AGEG_P_017, HC_AGEG_P_18P, HC_AGEG_P_109
```
(API link, STATcompiler link)

Household Composition

Percent distribution of households by sex of head of household and by household size, mean size of households, and percentage of households with children under age 18 who are orphans or not living with a biological parent

Definition

1) Percent distribution of households by sex of head of household.
2) Percent distribution of households by household size.
3) Mean size of households.
4) Percentage of households with children under age 18 who are orphans or not living with a biological parent.

Coverage:

   Population base: Households (HR file & PR file)

   Time period: Current status at time of survey

Numerators:

1) Number of households by sex of head of household (hv219)
2) Number of households by number of usual members (hv012)
3) Number of usual household members (hv012)
4) Number of households with:
  a) Double orphans under age 18 (sum of d_orphan > 0)
  b) Single orphans under age 18 (sum of s_orphan > 0)
  c) Children under age 18 not living with a biological parent (sum of foster_child > 0)
  d) Orphans and/or children under age 18 not living with a biological parent (sum of d_orphan + sum of s_orphan + sum of foster_child > 0)

See *Calculation* below for construction of the working variables above.

Denominator: Number of households

Variables: HR file, PR file.

hv012	Number of de jure members
hv102	Usual resident
hv105	Age of household members
hv111	Mother alive
hv112	Mother's line number
hv113	Father alive
hv114	Father's line number
hv219	Sex of head of household
hv005	Household sample weight

Calculation

Percent distributions: Numerator divided by denominator, multiplied by 100.

Mean: Numerator divided by denominator.

Percentage of households with orphans or children not living with a biological parent: Using the PR file, create binary (0/1) variables for de jure children under age 18 (hv105 in 0:17 & hv102 = 1) who are:

a) Double orphans under age 18: Both parents are no longer alive (d_orphan = (hv111 = 0 & hv113 = 0)).
b) Single orphans under age 18: Only one parent is no longer alive (s_orphan = ((hv111 = 0 & hv113 ≠ 0) or (hv111 ≠ 0 & hv113 = 0))).
c) Children under age 18 not living with a biological parent: Whose parents are both either not listed in the household roster or are not usual members of the household. This will require merging the mother's and the father's residency status (hv102) from a copy of the PR file, based on the mother and father's line numbers (hv112 or hv114) into the PR file, and then checking the residency status of the mother and the father, if they are listed in the household roster (foster_child = ((hv112 in 0,99 or hv102(mother) <> 1) & (hv114 in 0,99 or hv102(father) <> 1))).
d) Orphans and/or children under age 18 not living with a biological parent (any of d_orphan, s_orphan, and foster_child above).

After constructing these variables, aggregate counts of these variables at the household level (collapse in Stata, aggregate in SPSS), and then merge the aggregated variables into the HR file. Finally, the numerators for each group of orphans and children not living with a biological parent are:

a) Double orphans under age 18 (sum of d_orphan > 0)
b) Single orphans under age 18 (sum of s_orphan > 0)
c) Children under age 18 not living with a biological parent (sum of foster_child > 0)
d) Orphans and/or children under age 18 not living with a biological parent (sum of d_orphan + sum of s_orphan + sum of foster_child > 0).

And the final indicators are numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households and population with missing information are included as separate categories.

Notes and Considerations

Children not living with a biological parent are those under age 18 living in households with neither their mother nor their father present.

Changes over Time

Prior to DHS-7, children under age 18 not living with a biological parent were incorrectly termed foster children. The term "foster children" refers to care by family other than a children's own family, but DHS does not capture this information. In many cases, children who are not living with a biological parent are living with other relations; this qualifies as kinship care not formal foster care.

In some circumstances a small number of households will report zero usual members and the only persons listed in the household roster are de facto residents who stayed in the household the night before the survey. This may happen with households occupied at the time of listing but not by the time of the interview, or with vacation homes that are only used on an occasional basis.

Percent distributions add up to 100 percent.

References

https://bettercarenetwork.org/sites/default/files/Guidelines%20for%20the%20Alternative%20Care%20of%20Children%20-%20English.pdf

Resources

DHS-8 Tabulation plan: Table 2.8
API Indicator IDs:
```
HC_HHHD_H_MAL, HC_HHHD_H_FEM, HC_MEMB_H_0MM, HC_MEMB_H_1MM, HC_MEMB_H_2MM,
HC_MEMB_H_3MM, HC_MEMB_H_4MM, HC_MEMB_H_5MM, HC_MEMB_H_6MM, HC_MEMB_H_7MM,
HC_MEMB_H_8MM, HC_MEMB_H_9MM, HC_MEMB_H_MNM, HC_ORPH_H_DBL, HC_ORPH_H_SNG,
HC_ORPH_H_FOS, HC_ORPH_H_FOR
```
(API link, STATcompiler link)

Children's Living Arrangements and Orphanhood

Percent distribution of de jure children, children not living with a biological parent, and children with one or both parents dead

Definition

1) Percent distribution of de jure children under age 18 by living arrangements.
2) Percentage of de jure children under age 18 not living with a biological parent.
3) Percentage of de jure children under age 18 with one or both parents dead.

Coverage:

Population base: De jure children under age 18 (PR file)

Time period: Current status at time of survey

Numerators:
1) Number of children under age 18 by living arrangement and survival status of parents:
   a) Living with both parents (with_mother & with_father)
   b) Living with mother (with_mother), but not with father:
      - father alive (father_alive & not with_father)
      - father dead (not father_alive)
   c) Living with father (with_father), but not with mother:
      - mother alive (mother_alive & not with_mother)
      - mother dead (not mother_alive)
   d) Not living with either parent (not with_mother & not with_father):
      - both alive (mother_alive & father_alive)
      - only mother alive (mother_alive & not father_alive)
      - only father alive (not mother_alive & father_alive)
      - both dead (not mother_alive & not father_alive)
2) Number of children under age 18 not living with a biological parent (group d above)
3) Number of children under age 18 with both parents dead (hv111 = 0 and hv113 = 0)
See *Calculation* below for construction of the working variables above.

Denominator: Number of de jure children under age 18 (hv102 = 1 and hv105 < 18)

Variables: PR file.

hv102	Usual resident
hv104	Sex of household member
hv105	Age of household members
hv111	Mother alive
hv112	Mother's line number
hv113	Father alive
hv114	Father's line number

Calculation

To construct the working variables needed for these indicators, first merge hv102 for the mother from a copy of the PR file into the main PR file based on the mother's line number (hv112) if the mother is listed in the household roster. Similarly merge hv102 for the father from a copy of the PR file into the main PR file based on the father's line number (hv114) if the father is listed in the household roster. Then the following working variables needed in the calculation of the living arrangements indicators can be constructed:

3) mother_alive = (hv111 = 1)
4) with_mother = (hv112 in 1:hv009 & hv102(mother) = 1)
5) father_alive = (hv113 = 1)
6) with_father = (hv114 in 1:hv009 & hv102(father) = 1)

The indicators are calculated as numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Children with missing information are included in a separate category in the percent distribution.

Notes and Considerations

Percent distribution adds up to 100 percent.

References

Mishra, V. and S. Bignami-Van Assche. 2008. *Orphans and vulnerable children in high HIV-prevalence countries in sub-Saharan Africa*. DHS Analytical Studies No. 15. Calverton, Maryland, USA: Macro International. https://dhsprogram.com/publications/publication-AS15-Analytical-Studies.cfm

Rutstein, S. O. 2008. *Finding the missing maternal and paternal orphans*. Calverton, Maryland, USA: Macro International. https://dhsprogram.com/publications/publication-od53-other-documents.cfm

Resources

DHS-8 Tabulation plan: Table 2.9

API Indicator IDs:
```
HC_LVAR_C_BTH, HC_LVAR_C_MFA, HC_LVAR_C_MFD, HC_LVAR_C_FMA, HC_LVAR_C_FMD,
HC_LVAR_C_NBA, HC_LVAR_C_NMA, HC_LVAR_C_NFA, HC_LVAR_C_NBD, HC_LVAR_C_NMS,
HC_LVAR_C_NBP, HC_LVAR_C_P1D
```
(API link, STATcompiler link)

MICS6 Indicator SR.18: Children's living arrangements
MICS6 Indicator SR.19: Prevalence of children with one or both children dead

Birth Registration

Percentage of de jure children whose births are registered with civil authorities

Definition

1) Percentage of de jure children under age 5 whose births are registered with civil authorities and who had a birth certificate.
2) Percentage of de jure children under age 5 whose births are registered with civil authorities and who did not have a birth certificate.
3) Percentage of de jure children under age 5 whose births are registered with civil authorities.

Coverage:
   Population base: De jure children under age 5 (PR file)
   Time period: 5 years preceding the survey

Numerators:
1) Number of de jure children under age 5 whose births are registered and who had a birth certificate (hv140 = 1)
2) Number of de jure children under age 5 whose births are registered and who did not have a birth certificate (hv140 = 2)
3) Number of de jure children under age 5 whose births are registered (hv140 in 1:2)

Denominator: Number of de jure children under age 5 (hv102 = 1 & hv105 in 0:4)

Variables: PR file.
hv102   Usual resident
hv105   Age of household members
hv140   Member has a birth certificate
hv005   Household sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Children with missing information on birth registration are excluded from the numerators but included in the denominator.

References

Stone, L.F., A. Olgiati, and S. Duryea, 2006. *The Under-Registration of Births in Latin America*. Inter-American Development Bank.

Resources

DHS-8 Tabulation plan: Table 2.10

API Indicator IDs:
`CP_BREG_C_CRT, CP_BREG_C_NCT, CP_BREG_C_REG`
([API link](), [STATcompiler link]())

SDG indicator 16.9.1: Proportion of children under 5 years of age whose births have been registered with a civil authority, by age
WHO 100 Core Health Indicators: Birth registration
MICS6 Indicator PR.1: Birth registration

Educational Attainment of Household Members

Percent distribution of the de facto female and male household population age 6 and over by highest level of schooling attended or completed

Definition

Percent distribution of the de facto female and male household population age 6 and over by highest level of schooling attended or completed.

Coverage:

Population base: De facto female and male household members age 6 and over (PR file)

Time period: Current status at time of survey

Numerator: Number of de facto females or males age 6 and over distributed by level of schooling attended or completed (hv109, hv103 = 1 & hv105 in 6:99)

Denominator: Number of de facto females or males age 6 and over (hv103 = 1 & hv105 in 6:99)

Variables: PR file.

hv103	Slept last night
hv104	Sex of household member
hv105	Age of household members
hv109	Educational attainment
hv005	Household sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data and "don't know" responses are grouped into a separate category in the percent distribution.

Notes and Considerations

Years of education considered for completion of each level of education vary from country to country and may change over time within country. Education levels are also country-specific. Respondents are asked the highest level of schooling <u>attended</u> and the highest grade <u>completed</u> at that level.

Resources

DHS-8 Tabulation plan: Tables 2.11.1 and 2.11.2

API Indicator IDs:

Women:

`ED_EDAT_W_NED, ED_EDAT_W_SPR, ED_EDAT_W_CPR, ED_EDAT_W_SSC, ED_EDAT_W_CSC, ED_EDAT_W_HGH, ED_EDAT_W_DKM, ED_EDAT_W_PRI, ED_EDAT_W_SEC`

([API link](), [STATcompiler link]())

Men:

`ED_EDAT_M_NED, ED_EDAT_M_SPR, ED_EDAT_M_CPR, ED_EDAT_M_SSC, ED_EDAT_M_CSC, ED_EDAT_M_HGH, ED_EDAT_M_DKM, ED_EDAT_M_PRI, ED_EDAT_M_SEC`

([API link](), [STATcompiler link]())

Median years of education completed

Definition

Median years of education for the de facto female and male household population age 6 and over.

Population base: De facto female and male household members age 6 and over (PR file)

Time period: Current status at time of survey

Numerator: Number of de facto females or males age 6 who attended or completed any school according to the number of years completed (hv108 if hv103 = 1 & hv105 in 6:99 & hv108 in 0:96)

Denominator: Number of de facto females or males age 6 and over (hv103 = 1 & hv105 in 6:99 & hv108 in 0:96)

Variables: PR file.

hv103	Slept last night
hv104	Sex of household member
hv105	Age of household members
hv108	Education completed in single years
hv005	Household sample weight

Calculation

Medians are calculated from cumulated single-year percent distributions (see *Numerator and Denominator* above) of completed years of schooling. The median is linearly interpolated between the years of completed schooling that occur before and after a cumulative 50 percent:

$$\textbf{median} = m_i + \frac{0.5 - p_i}{p_{i+1} - p_i}$$

Example

The table below shows the cumulative (weighted) percentage of women age 15-19 by completed years of schooling. We look for two successive cumulative percentages that bracket 50%. We find that 41.6% of women age 15-19 have completed 6 years of schooling and 54.6% completed 7 years of schooling. We find the median by interpolating between the two numbers of completed years.

Completed years of education	Frequency	Percentage of de facto females age 15-19	Cumulative percentage of de facto females age 15-19
0	375	18.6	18.6
1	8	0.4	19.0
2	17	0.8	19.8
3	40	2.0	21.8
4	67	3.3	25.2
5	115	5.7	30.9
6	**217**	**10.8**	**41.6**
7	**262**	**13.0**	**54.6**
8	357	17.7	72.3
9	226	11.2	83.5
10	172	8.5	92.0
11	93	4.6	96.6
12	66	3.3	99.9
13	2	0.1	100.0

$$\text{median} = 6 + \frac{(50.0 - 41.6)}{(54.6 - 41.6)}$$

$$\text{median} = 6.6$$

Handling of Missing Values

Missing data and "don't know" responses for the highest level of education attended or the highest grade completed are excluded from the median calculation.

References

Filmer, D., and L. Pritchett. 1999. "The effect of household wealth on educational attainment: evidence from 35 countries." *Population and development review* 25(1): 85-120.

Resources

DHS-8 Tabulation plan: Tables 2.11.1 and 2.11.2

API Indicator IDs:
ED_EDUC_W_MYR, ED_EDUC_M_MYR
(API link, STATcompiler link)

School Attendance Ratios

Net attendance ratios (NAR) and gross attendance ratios (GAR) for the de facto household population by sex and level of schooling, and the Gender Parity Index (GPI)

Definition

Primary school net attendance ratio (NAR) for:
1) De facto male household population.
2) De facto female household population.
3) De facto household population of both sexes.

Secondary school net attendance ratio (NAR) for:
4) De facto male household population.
5) De facto female household population.
6) De facto household population of both sexes.

Primary school gross attendance ratio (GAR) for:
7) De facto male household population.
8) De facto female household population.
9) De facto household population of both sexes.

Secondary school gross attendance ratio (GAR) for:
10) De facto male household population.
11) De facto female household population.
12) De facto household population of both sexes.

Gender parity indices for:
13) Net attendance ratio for primary school.
14) Net attendance ratio for secondary school.
15) Gross attendance ratio for primary school.
16) Gross attendance ratio for secondary school.

Coverage:

Population base: De facto school age population

Time period: Current status at time of survey

Numerators:

Primary school NAR:
1) Number of de facto male population attending primary school
   (hv103 = 1 & hv104 = 1 & age_schl in A:B & hv122 = 1)
2) Number of de facto female population attending primary school
   (hv103 = 1 & hv104 = 2 & age_schl in A:B & hv122 = 1)
3) Number of de facto total of both sexes population attending primary school
   (hv103 = 1 & age_schl in A:B & hv122 = 1)
Secondary school NAR:

4) Number of de facto male population attending secondary school
(hv103 = 1 & hv104 = 1 & age_schl in C:D & hv122 = 2)
5) Number of de facto female population attending secondary school
(hv103 = 1 & hv104 = 2 & age_schl in C:D & hv122 = 2)
6) Number of de facto total population of both sexes attending secondary school
(hv103 = 1 & age_schl in C:D & hv122 = 2)
Primary school GAR:
7) Number of de facto male population attending primary school
(hv103 = 1 & hv104 = 1 & hv122 = 1)
8) Number of de facto female population attending primary school
(hv103 = 1 & hv104 = 2 & hv122 = 1)
9) Number of de facto total of both sexes population attending primary school
(hv103 = 1 & hv122 = 1)
Secondary school GAR:
10) Number of de facto male population attending secondary school
(hv103 = 1 & hv104 = 1 & hv122 = 2)
11) Number of de facto female population attending secondary school
(hv103 = 1 & hv104 = 2 & hv122 = 2)
12) Number of de facto total population of both sexes attending secondary school
(hv103 = 1 & hv122 = 2)

Denominators:
Primary school:
a) Number of de facto primary school age male population
b) Number of de facto primary school age female population
c) Number of de facto primary school age total population of both sexes
Secondary school:
d) Number of de facto secondary school age male population
e) Number of de facto secondary school age female population
f) Number of de facto secondary school age total population of both sexes
Denominators for 7-12 are the same as denominators 1-6, respectively

See *Calculation* for the method used to calculate primary school age and secondary school age population (age_schl in A:B or C:D).

Variables: PR file.
hv008   Date of interview (CMC)
hv103   Slept last night
hv104   Sex of household member
hv105   Age of household members
hv122   Educational level during current school year
hv005   Household sample weight

Calculation

To calculate the primary school age and secondary school age population, first the standard age groups for primary and secondary school in the particular country are established, for example, as 6-11 and 12-

17 respectively. Sources for establishing the age range include the national Ministry of Education and the UNESCO Institute for Statistics database. Additionally, the month of the start of the academic year (m_acadyr) is also established. As the survey may take place at any point in the academic year and a child's age may have changed since the start of the academic year, the age of the person at the start of the academic year is estimated. To do this, first the century month code of the start of the academic year is calculated as:

```
cmc_acadyr = ((hv007 -1900)*12+m_acadyr) if m_acadyr >= hv006
cmc_acadyr = ((hv007-1-1900)*12+m_acadyr) if m_acadyr < hv006
```

To calculate the age at the start of the school year a century month code of date of birth (cmcdob) is needed for all persons age 5-24 using one of two approaches is used:
Merge the birth history data for b3 from the BR file onto the PR file using cluster (hv001/v001), household (hv002/v002), and line number in the household roster (hvidx/b16). If the person is listed in the birth history of any women (BR file), the century month code (CMC) of the date of birth of the person (b3) is used as cmcdob.

If the CMC date of birth of the person is not known, a century month code for the date of birth is randomly imputed using a uniform distribution between the possible bounds of the date of birth, calculated as the CMC date of interview minus 12 times the age in years as a maximum and 11 months earlier as a minimum:

```
max_cmcdob = hv008 - hv105*12
min_cmcdob = max_cmcdob - 11
cmcdob = random(min_cmcdob, max_cmcdob)
```

The age at the start of the academic year is then calculated by subtracting the CMC date of birth from the CMC date of start of academic year as:

```
age_schl = int( (cmc_acadyr - cmcdob) / 12)
```

The age at the start of the academic year (age_schl) is then used to determine the primary and secondary school age populations used in the numerators for the NARs and the denominators for both the NARs and the GARs.

The NARs and GARs are then calculated by dividing the numerators by the denominators and multiplying by 100.

The Gender Parity Indices are calculated by dividing the NAR or GAR for females by the corresponding NAR or GAR for males.

Handling of Missing Values

Population with missing information for age are assumed to be outside the age range of 5-24. Population with missing information for sex are excluded from the sex-specific numerators and denominators but included in the total (both sexes) numerators and denominators. Population with missing information or "don't know" responses for level of education are excluded from the numerators.

Notes and Considerations

NAR for primary school is the percentage of the primary-school age (A-B years) population that is attending primary school. The NAR for secondary school is the percentage of the secondary-school age (C-D years) population that is attending secondary school. By definition, the NAR cannot exceed 100.0.

The GAR for primary school is the total number of primary school students, expressed as a percentage of the official primary-school-age population. The GAR for secondary school is the total number of secondary school students, expressed as a percentage of the official secondary-school-age population. If there are significant numbers of overage and underage students at a given level of schooling, the GAR can exceed 100.0.

The Gender Parity Index for primary school is the ratio of the primary school NAR (GAR) for females to the NAR (GAR) for males. The Gender Parity Index for secondary school is the ratio of the secondary school NAR (GAR) for females to the NAR (GAR) for males.

References

Langsten, R. 2017. "School fee abolition and changes in education indicators." *International Journal of Educational Development* 53: 163-175.

UNESCO Institute for Statistics database (http://data.uis.unesco.org/Index.aspx?DataSetCode=edulit_ds)

Resources

DHS-8 Tabulation plan: Table 2.12

API Indicator IDs:
```
ED_NARP_M_MAL, ED_NARP_W_FEM, ED_NARP_B_BTH, ED_NARP_B_GPI,
ED_GARP_M_MAL, ED_GARP_W_FEM, ED_GARP_B_BTH, ED_GARP_B_GPI,
ED_NARS_M_MAL, ED_NARS_W_FEM, ED_NARS_B_BTH, ED_NARS_B_GPI,
ED_GARS_M_MAL, ED_GARS_W_FEM, ED_GARS_B_BTH, ED_GARS_B_GPI
```
(API link, STATcompiler link)

MICS6 Indicator LN.5a: Net attendance ratio: Among primary school age
MICS6 Indicator LN.5b: Net attendance ratio: Among lower secondary school age
MICS6 Indicator LN.5c: Net attendance ratio: Among upper secondary school age
MICS6 Indicator LN.11a: Education Parity Indices (Gender)

Participation Rate in Organized Learning

Percent distribution of children one year younger than the official primary school entry age at the beginning of the school year by attendance at an early childhood education program or primary school, and the adjusted net attendance ratio (NAR)

Definition

Percent distribution of children one year younger than the official primary school entry age who are attending an early childhood education program or primary school

Numerator:
1) Number of de facto children age [5] at the beginning of the school year (hv103 = 1 & hv105 = 5) who were:
   a) Attending an early childhood education program (hv121 = 1 & hv122 = 0)
   b) Attending primary school (hv122 = 1)
   c) Neither attending an early childhood education program nor primary school (hv121 = 0)
2) Number of de facto children age [5] at the beginning of the school year who were attending an early childhood education program or primary school (hv103 = 1 & hv105 = 5 & hv121 = 1 & (hv122 = 0 or hv122 = 1))

Denominator: Number of de facto children age [5] at the beginning of the school year (hv103 = 1 & hv105 = 5)

Variables: PR file.
hv103   Slept last night
hv105   Age of household members
hv121   Attended school during the current school year
hv122   Educational level during current school year
hv005   Household sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data and "don't know" responses are grouped into a separate category in the percent distribution.

Notes and Considerations

Collection of this information began in DHS-8. The age for this indicator is country-specific. The age at the start of the school year is calculated based on the start date of the school year which is country-specific.

Resources

DHS-8 Tabulation plan: Table 2.13

API Indicator IDs:
`ED_EEDP_C_ECE, ED_EEDP_C_PRM, ED_EEDP_C_NON, ED_EEDP_C_NAR`
([API link](#), [STATcompiler link](#))

SDG 4.2.2 Participation rate in organized learning (one year before the official primary entry age)
MICS6 Indicator LN.1 Attendance to early childhood education
MICS6 Indicator LN.2 Participation rate in organised learning (one year before the official primary entry age) (adjusted)

3) Respondents' Characteristics

This chapter provides a description of the situation of respondents of reproductive age in the country. This information is useful for understanding the context of the reproductive and health status of women and men. Percent distributions of various demographic and socioeconomic characteristics are shown for the full sample. The main background characteristics that will be used in subsequent chapters on reproduction and health are age at the time of the survey, marital status, broad education levels, urban/rural residence, region, and the wealth quintile to which respondents belong. In addition, information is provided on employment and work status, literacy, exposure to mass media, and internet usage.

This chapter also covers some adult health issues including health insurance coverage and tobacco use.

Background Characteristics of Respondents

Percent distribution of women and men by background characteristics

Definition

Percent distribution of women and men age 15-49 by background characteristics.

Coverage:
>   Population base: Women and men age 15-49 (IR file, MR file)
>   Time period: Current status at time of survey

Numerators: Number of women (or men) age 15-49 by background characteristics (women: v013, v176, v130, v131, v502, v024, v025, v106, v190; men: mv013, mv176, mv130, mv131, mv502, mv024, mv025, mv106, mv190)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.

v005	Women's sample weight
v013	Age in 5-year groups
v176	Currently/formerly/never in union
v130	Religion
v131	Ethnicity
v502	Currently/formerly/never in union
v024	Region
v025	Type of place of residence
v106	Highest educational level attained
v190	Wealth index
mv005	Men's sample weight
mv013	Age in 5-year groups (men)
mv176	Currently/formerly/never in union (men)
mv130	Religion (men)
mv131	Ethnicity (men)
mv502	Currently/formerly/never in union (men)
mv024	Region (men)
mv025	Type of place of residence (men)
mv106	Highest educational level attained (men)
mv190	Wealth index (men)

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing values or "don't know" responses are shown separately in the percent distributions.

Notes and Considerations

This indicator provides a summary of the background characteristics of women and men in the population and in the survey. Data are typically presented weighted but with the unweighted survey denominator also shown. Standard background characteristics include age, self-reported health status, religion, ethnicity, marital status, residence, subnational region, education, wealth quintile.

Percent distributions for each background characteristic add up to 100 percent.

Changes over Time

Self-reported health status was not reported prior to DHS-8 when it was added to the questionnaire.

Resources

DHS-8 Tabulation plan: Table 3.1

API Indicator IDs:
SV_BACK_W_PCW, SV_BACK_M_PCM
(API link, STATcompiler link)

Educational Attainment of Women and Men

Percent distribution of women and men by highest level of schooling attended or completed

Definition

Percent distribution of women and men age 15-49 by highest level of schooling attended or completed.

Coverage:

> Population base: Women and men age 15-49 (IR file, MR file)
>
> Time period: Current status at time of survey

Numerators: Number of women (or men) age 15-49 by highest level of schooling attended or completed (women: v149; men: mv149)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.

v149	Educational attainment (women)
v005	Women's sample weight
mv149	Educational attainment (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data and "don't know" responses are grouped into a separate category in the percent distribution.

Notes and Considerations

Years of education considered for completion of each level of education vary from country to country and may change over time within country. Education levels are also country-specific. Respondents are asked the highest level of schooling <u>attended</u> and the highest grade <u>completed</u> at that level.

References

Gardner, Robert. 1998. *Education.* DHS Comparative Studies No. 29. Calverton, Maryland: Macro International Inc. https://www.dhsprogram.com/publications/publication-CS29-Comparative-Reports.cfm

Resources

DHS-8 Tabulation plan: Tables 3.2.1 and 3.2.2

API Indicator IDs:
Women:
`ED_EDUC_W_NED, ED_EDUC_W_SPR, ED_EDUC_W_CPR, ED_EDUC_W_SSC, ED_EDUC_W_CSC, ED_EDUC_W_HGH, ED_EDUC_W_DKM, ED_EDUC_W_PRI, ED_EDUC_W_SEH`
([API link](), [STATcompiler link]())

Men:
`ED_EDUC_M_NED, ED_EDUC_M_SPR, ED_EDUC_M_CPR ED_EDUC_M_SSC, ED_EDUC_M_CSC, ED_EDUC_M_HGH, ED_EDUC_M_DKM, ED_EDUC_M_PRI, ED_EDUC_M_SEH`
([API link](), [STATcompiler link]())

Median years of education completed

Definition

Median years of education for women and men age 15-49.

Coverage:

Population base: Women and men age 15-49 (IR file, MR file)

Time period: Current status at time of survey

Numerators: Number of years of women (or men) age 15-49 by median years completed (women: v133; men: mv133)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.

v133	Education in single years (women)
v005	Women's sample weight
mv133	Education in single years (men)
mv005	Men's sample weight

Calculation

Medians are calculated from cumulated single-year percent distributions (see *Numerator and Denominator* above) of completed years of schooling. The median is linearly interpolated between the years of completed schooling that occur before and after a cumulative 50 percent (see example below) and reference *Median Calculations* in *Chapter 1*.

Link

$$\textbf{median} = m_i + \frac{(0.5 - p_i)}{(p_{i+1} - p_i)}$$

Example

The table below shows the cumulative (weighted) percentage of women age 15-49 by completed years of schooling. We look for two successive cumulative percentages that bracket 50%. We find that 44% of women age 15-49 have completed 5 years of schooling and 54% completed 6 years of schooling. We find the median by interpolating between the two numbers of completed years.

Completed years of education	Frequency	Percent of women age 15-49	Cumulative percent of women age 15-49
0	3205	13.1	13.1
1	631	2.6	15.6
2	1160	4.7	20.3
3	1696	6.9	27.3
4	1867	7.6	34.9
5	**2234**	**9.1**	**44.0**
6	**2495**	**10.2**	**54.1**
7	2905	11.8	65.9
8	2511	10.2	76.2
9	1273	5.2	81.3
10	1502	6.1	87.5
11	748	3.1	90.5

median = 5 + (50.0 - 44.0) / (54.1 - 44.0)
median = 5.6

Handling of Missing Values

Missing data and "don't know" responses for the highest level of education attended or the highest grade completed are excluded from the median calculation.

References

Oya, C., and J. Sender. "Divorced, separated, and widowed women workers in rural Mozambique." *Feminist Economics* 15, no. 2 (2009): 1-31. https://doi.org/10.1080/13545700902729516

Resources

DHS-8 Tabulation plan: Tables 3.2.1 and 3.2.2

API Indicator IDs:
ED_EDUC_W_MYR, ED_EDUC_M_MYR
(API link, STATcompiler link)

Literacy

Percent distribution of women and men by level of schooling attended and level of literacy, and percentage literate

Definition

1) Percent distribution of women and men age 15-49 by level of schooling attended and level of literacy.
2) Percentage of women and men age 15-49 who are literate.

Coverage:

       Population base: Women (or men) age 15-49 (IR file, MR file)

       Time period: Current status at time of survey

Numerators:

1) Number of women (or men) age 15-49 by level of schooling attended and level of literacy:
   a) Higher than secondary education (women: v106 = 3; men: mv106)
   No schooling, primary or secondary schooling and:
   b) Can read a whole sentence (women: v155 = 2; men: mv155 = 2)
   c) Can read part of a sentence (women: v155 = 1; men: mv155 = 1)
   d) Cannot read at all (women: v155 = 0; men: mv155 = 0)
   e) No card with required language (women: v155 = 3; men: mv155 = 3)
   f) Blind or visually impaired (women: v155 = 4; men: mv155 = 4)
2) Number of women (or men) age 15-49 literate (women: v106 = 3 or v155 in 1,2; men: mv106 = 3 or mv155 in 1,2)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.

v106	Highest educational level (women)
v155	Literacy (women)
v005	Women's sample weight
mv106	Highest educational level (men)
mv155	Literacy (men)
mv005	Men's sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing values on level of education or ability to read a sentence are presented in a separate category in the percent distribution.

Notes and Considerations

Literate here is defined as women and men who attended schooling higher than the secondary level or who can read a whole sentence or part of a sentence.

Categories for percent distribution are mutually exclusive and exhaustive. Percent distribution adds up to 100 percent. The question on the ability of the respondent to read a sentence are not asked to women and men with higher than secondary education.

Changes over Time

In DHS-VI and earlier surveys the question on the ability of the respondent to read a sentence was not asked to women and men with secondary education or higher than secondary. Thus estimates from earlier surveys may overestimate literacy relative to DHS-7 and DHS-8 surveys. Care should be taken in interpreting trends.

References

Gardner, R. 1998. *Education.* DHS Comparative Studies No. 29. Calverton, Maryland: Macro International Inc. https://www.dhsprogram.com/publications/publication-CS29-Comparative-Reports.cfm

Resources

DHS-8 Tabulation plan: Tables 3.3.1 and 3.3.2

API Indicator IDs:
Women:
`ED_LITR_W_SCH, ED_LITR_W_RDW, ED_LITR_W_RDP, ED_LITR_W_NRD, ED_LITR_W_NCD,`
`ED_LITR_W_BLD, ED_LITR_W_MIS, ED_LITR_W_LIT`
(API link, STATcompiler link)

Men:
`ED_LITR_M_SCH, ED_LITR_M_RDW, ED_LITR_M_RDP, ED_LITR_M_NRD, ED_LITR_M_NCD,`
`ED_LITR_M_BLD, ED_LITR_M_MIS, ED_LITR_M_LIT`
(API link, STATcompiler link)

MICS6 Indicator SR.2: Literacy rate (age 15-24 years)
Note that this indicator is limited to 15-24 years and assumes that women or men with secondary education are literate, while the DHS indicator does not make that assumption.

Exposure to Mass Media

Percentage of women and men exposed to specific media on a weekly basis

Definition

Percentage of women and men age 15-49 who are exposed to specific media on a weekly basis.

Coverage:
   Population base: Women and men age 15-49 (IR file, MR file)
   Time period: Current status at time of survey

Numerator:
Number of women (or men) age 15-49 who are exposed to specific media on a weekly basis:
1) Reads a newspaper at least once a week (women: v157 in 2,3; men: mv157 in 2,3)
2) Watches television at least once a week (women: v159 in 2,3; men: mv159 in 2,3)
3) Listens to radio at least once a week (women: v158 in 2,3; men: mv158 in 2,3)
4) Accesses all three media at least once a week (women: v157 in 2,3 & v158 in 2,3 & v159 in 2,3; men: mv157 in 2,3 & mv158 in 2,3 & mv159 in 2,3)
5) Accesses none of the three media at least once a week (women: v157 ≠ 2,3 & v158 ≠ 2,3 & v159 ≠ 2,3; men: mv157 ≠ 2,3 & mv158 ≠ 2,3 & mv159 ≠ 2,3)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.
v157	Frequency of reading newspaper or magazine (women)
v158	Frequency of listening to radio (women)
v159	Frequency of watching television (women)
v005	Women's sample weight
mv157	Frequency of reading newspaper or magazine (men)
mv158	Frequency of listening to radio (men)
mv159	Frequency of watching television (men)
mv005	Men's sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing values are excluded from the numerators but included in the denominator.

References

Westoff, C. F. and A. Bankole. 1997. *Mass Media and Reproductive Behavior in Africa*. DHS Analytical Reports No. 2. Calverton, Maryland, USA: Macro International

https://dhsprogram.com/publications/publication-ar2-analytical-studies.cfm

Resources

DHS-8 Tabulation plan: Tables 3.4.1 and 3.4.2

API Indicator IDs:
Women: `ED_MDIA_W_NWS, ED_MDIA_W_TLV, ED_MDIA_W_RDO, ED_MDIA_W_3MD, ED_MDIA_W_N3M`
([API link](), [STATcompiler link]())

Men: `ED_MDIA_M_NWS, ED_MDIA_M_TLV, ED_MDIA_M_RDO, ED_MDIA_M_3MD, ED_MDIA_M_N3M`
([API link](), [STATcompiler link]())

MICS6 Indicator SR.3: Exposure to mass media

Internet Usage

Percentage of women and men who have ever used the internet, percentage who have used the internet in the past 12 months, and among women and men who have used the internet in the past 12 months, percent distribution by frequency of internet use in the past month

Definition

1) Percentage of women and men age 15-49 who have ever used the internet.
2) Percentage of women and men age 15-49 who have used the internet in the past 12 months.
3) Among women and men age 15-49 who have used the internet in the past 12 months, percent distribution by frequency of internet use in the past month.

Coverage:

Population base: Women and men age 15-49 (IR file, MR file)

Time periods: Lifetime of respondent, 12 months preceding the survey, and month preceding the interview

Numerators:

1) Number of women (or men) age 15-49 who have ever used the internet (women: v171a in 1:3; men: mv171a in 1:3)
2) Number of women age (or men) 15-49 who have used the internet in the past 12 months (women: v171a = 1; men: mv171a = 1)
3) Among women (or men) age 15-49 who have used the internet in the past 12 months (women: v171a = 1; men: mv171a = 1), number of women by frequency of internet use in the month preceding the survey:
   a) Almost every day (women: v171b = 3; men: mv171b = 3)
   b) At least once a week (women: v171b = 2; men: mv171b = 2)
   c) Less than once a week (women: v171b = 1; men: mv171b = 1)
   d) Not in the past month (women: v171b = 0; men: mv171b = 0)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.

v171a	Use of internet (women)
v171b	Frequency of using internet last month (women)
v005	Women's sample weight
mv171a	Use of internet (men)
mv171b	Frequency of using internet last month (men)
mv005	Men's sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing data and "don't know" responses for use of the internet and when are treated as not having used the internet and not in the preceding 12 months. Missing data and "Don't know" responses on frequency of use in the month preceding the survey are presented in a separate category in the percent distribution.

Notes and Considerations

This indicator may be used to report on SDG Indicator 17.8.1: Proportion of individuals using the Internet. Note that this indicator is not available for all ages and that the time period used is 12 months preceding the interview, not 3 months.

Percent distribution adds up to 100 percent.

Changes over Time

DHS-VI and earlier surveys did not collect data on internet use.

Resources

DHS-8 Tabulation plan: Tables 3.5.1 and 3.5.2

API Indicator IDs:
Women:
CO_INUS_W_EVU, CO_INUS_W_U12, CO_INUS_W_DAY, CO_INUS_W_WEK, CO_INUS_W_LES, CO_INUS_W_NON
(API link, STATcompiler link)

Men:
CO_INUS_M_EVU, CO_INUS_M_U12, CO_INUS_M_DAY, CO_INUS_M_WEK, CO_INUS_M_LES, CO_INUS_M_NON
(API link, STATcompiler link)

SDG Indicator 17.8.1: Proportion of individuals using the Internet

MICS6 Indicator SR.12: Use of Internet
Note that this indicator is not available for all ages and that the time period used in DHS is 12 months preceding the interview, not 3 months.

Employment and Occupation

Percent distribution of women and men by employment status

Definition

Percent distribution of women and men age 15-49 by whether currently employed, employed in the 12 months preceding the survey but not currently, or not employed in the 12 months preceding the survey.

Coverage:

    Population base: Women and men age 15-49 (IR file, MR file)
    Time period: 12 months preceding the survey

Numerators:

1) Number of women (or men) age 15-49 by employment status:
2) Currently employed (women: v731 in 2,3; men: mv731 in 2,3)
3) Employed in the 12 months preceding the survey but not currently (women v731 = 1; men: mv731 = 1)
4) Not employed in the 12 months preceding the survey (women v731 = 0; men: mv731 = 0)
5) Employment status missing or unknown (women v731 in 8,9; men: mv731 in 8,9)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.

v731   Respondent worked in last 12 months (women)
v005   Women's sample weight
mv731   Respondent worked in last 12 months (men)
mv005   Men's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data and "don't know" responses are reported in a separate category in the percent distribution.

Notes and Considerations

"Currently employed" is defined as having done work in the past 7 days. Includes persons who did not work in the past 7 days but who are regularly employed and were absent from work for leave, illness, vacation, or any other such reason.

Percent distribution adds up to 100 percent.

Resources

DHS-8 Tabulation plan: Tables 3.6.1 and 3.6.2

API Indicator IDs:

Women: `EM_EMPL_W_EMC, EM_EMPL_W_ENC, EM_EMPL_W_N12, EM_EMPL_W_DKM` ([API link](), [STATcompiler link]())

Men: `EM_EMPL_M_EMC, EM_EMPL_M_ENC, EM_EMPL_M_N12, EM_EMPL_M_DKM` ([API link](), [STATcompiler link]())

Percent distribution of women and men age 15-49 employed in the 12 months preceding the survey by occupation

Definition

Percent distribution of women and men age 15-49 employed in the 12 months preceding the survey by occupation.

Coverage:

Population base: Women and men age 15-49 employed (IR file, MR file)

Time period: 12 months preceding the survey

Numerators:

Number of women (or men) age 15-49 in the 12 months preceding the survey employed by occupation group:
1) Professional, technical or managerial (women: v717 = 1; men: mv717 = 1)
2) Clerical (women: v717 = 2; men: mv717 = 2)
3) Sales and services (women: v717 in 3,7; men: mv717 in 3,7)
4) Skilled manual (women: v717 = 8; men: mv717 = 8)
5) Unskilled manual (women: v717 = 9; men: mv717 = 9)
6) Domestic service (women: v717 = 6; men: mv717 = 6)
7) Agriculture (women: v717 in 4,5; men: mv717 in 4,5)
8) Missing or don't know (women: v717 in 96:99; men: mv717 in 96:99)

Denominator: Number of women (or men) age 15-49 employed (women: v731 in 1:3; men: mv731 in 1:3)

Variables: IR file, MR file.

v717	Respondent's occupation (women)
v005	Women's sample weight
mv717	Respondent's occupation (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing or "don't know" responses for whether employed in the 12 months preceding the survey are excluded from the numerators and denominator. Missing or "don't know" responses for occupation are included in a separate category in the percent distribution.

Notes and Considerations

Coding of occupations in most surveys follows a coding scheme based on the ILO International Standard Classification of Occupations (ISCO), however the exact coding scheme used can be survey specific.

Changes over Time

In some prior surveys the domestic service category may have been grouped with the sales and services category.

References

ILO. 2008. International Standard Classification of Occupations (ISCO)
http://www.ilo.org/public/english/bureau/stat/isco/isco08/

Resources

DHS-8 Tabulation plan: Tables 3.7.1 and 3.7.2

API Indicator IDs:
Women:
```
EM_OCCP_W_PRO, EM_OCCP_W_CLR, EM_OCCP_W_SAL, EM_OCCP_W_MNS, EM_OCCP_W_MNU,
EM_OCCP_W_DOM, EM_OCCP_W_AGR, EM_OCCP_W_OTH, EM_OCCP_W_DKM
```
(API link, STATcompiler link)

Men:
```
EM_OCCP_M_PRO, EM_OCCP_M_CLR, EM_OCCP_M_SAL, EM_OCCP_M_MNS, EM_OCCP_M_MNU,
EM_OCCP_M_DOM, EM_OCCP_M_AGR, EM_OCCP_M_OTH, EM_OCCP_M_DKM
```
(API link, STATcompiler link)

Percent distribution of women employed by type of earnings, type of employer, and continuity of employment

Definition

Percent distribution of women age 15-49 employed in the 12 months preceding the survey by:
1) Type of earnings.
2) Type of employer.
3) Continuity of employment.

Coverage:

Population base: Women age 15-49 employed (IR file)

Time period: 12 months preceding the survey

Numerators:

1) Number of women age 15-49 employed in the 12 months preceding the survey (v731 in 1:3) by type of earnings: Cash only, cash and in-kind, in-kind only, not paid, missing (v741 in 1,2,3,0,9)
2) Number of women age 15-49 employed in the 12 months preceding the survey (v731 in 1:3) by type of employer: Employed by family member, employed by non-family member, self-employed, missing (v719 in 1,2,3,9)
3) Number of women age 15-49 employed in the 12 months preceding the survey (v731 in 1:3) by continuity of employment: All year, seasonal, occasional, missing (v732 in 1,2,3,9)

Denominator: Number of women age 15-49 employed in the 12 months preceding the survey (v731 in 1:3)

Variables: IR file.

v717	Respondent's occupation (grouped)
v719	Respondent works for family, others, self
v731	Respondent worked in last 12 months
v732	Respondent employed all year/seasonal
v741	Type of earnings from respondent's work
v005	Women's sample weight

Calculation

Numerator divided by denominator multiplied by 100.

Handling of Missing Values

Missing values or "don't know" responses are presented in separate categories in each percent distribution.

Notes and Considerations

Percent distributions add up to 100 percent.

Indicators are typically shown separately for agricultural (v717 = 4,5) and nonagricultural work (v717 in 1:9)

Resources

DHS-8 Tabulation plan: Table 3.8

API Indicator IDs:
```
EM_EMPT_W_CSH, EM_EMPT_W_CAK, EM_EMPT_W_KND, EM_EMPT_W_NPD, EM_EMPT_W_CMS,
EM_EMPT_W_FAM, EM_EMPT_W_NFM, EM_EMPT_W_SEM, EM_EMPT_W_EMS, EM_EMPT_W_AYR,
EM_EMPT_W_SES, EM_EMPT_W_OCC, EM_EMPT_W_TMS
```
(API link, STATcompiler link)

Health Insurance Coverage

Percentage of women and men with specific types of health insurance coverage, and percentage with any health insurance

Definition

1) Percentage of women and men age 15-49 with specific types of health insurance coverage.
2) Percentage of women and men age 15-49 with any health insurance.

Coverage:

       Population base: Women and men age 15-49 (IR file, MR file)

       Time period: Current status at time of survey

Numerators:
1) Number of women (or men) age 15-49 with specific types of health insurance coverage:
   a) Social security (women: v481c = 1; men: mv481c = 1)
   b) Other employer-based insurance (women: v481b = 1; men: mv481b = 1)
   c) Mutual Health Organization or community-based insurance (women: v481a = 1; men: mv481a = 1)
   d) Privately purchased commercial insurance (women: v481d = 1; men: mv481d = 1)
   e) Other (women: any of v481e–h, x = 1; men: any of mv481e–h, x = 1)
   f) None (women: v81a-h,x ≠ 1; men: mv81a-h,x ≠ 1)
2) Number of women (or men) age 15-49 with any health insurance (any of v481a–h, x = 1; men: any of mv481a–h, x = 1)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.

v481a	Health insurance type: mutual/community organization (women)
v481b	Health insurance type: provided by employer (women)
v481c	Health insurance type: social security (women)
v481d	Health insurance type: private/commercially purchased (women)
v481e	Health insurance type: CS (women)
v481f	Health insurance type: CS (women)
v481g	Health insurance type: CS (women)
v481h	Health insurance type: CS (women)
v481x	Health insurance type: other (women)
v005	Women's sample weight
mv481a	Health insurance type: mutual/community organization (men)
mv481b	Health insurance type: provided by employer (men)
mv481c	Health insurance type: social security (men)
mv481d	Health insurance type: private/commercially purchased (men)
mv481e	Health insurance type: CS (men)
mv481f	Health insurance type: CS (men)
mv481g	Health insurance type: CS (men)

mv481h	Health insurance type: CS (men)
mv481x	Health insurance type: other (men)
mv005	Men's sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing values and "don't know" responses are excluded from the numerators but included in the denominator.

Notes and Considerations

Types of health insurance available vary from country to country and may change over time.

Changes over Time

DHS-VI and earlier surveys did not report the percentage of women or men age 15-49 with any health insurance.

References

Wang, W., G. Temsah, and L Mallick. 2014. Health Insurance Coverage and Its Impact on Maternal Health Care Utilization in Low- and Middle-Income Countries. DHS Analytical Studies No. 45. Rockville, Maryland, USA: ICF International. https://dhsprogram.com/publications/publication-as45-analytical-studies.cfm

Resources

DHS-8 Tabulation plan: Tables 3.9.1 and 3.9.2

API Indicator IDs:
Women:
`AH_HINS_W_SOS, AH_HINS_W_EBI, AH_HINS_W_MUT, AH_HINS_W_PRV, AH_HINS_W_OTH, AH_HINS_W_NON`
(API link, STATcompiler link)

Men:
`AH_HINS_M_SOS, AH_HINS_M_EBI, AH_HINS_M_MUT, AH_HINS_M_PRV, AH_HINS_M_OTH, AH_HINS_M_NON`
(API link, STATcompiler link)

MICS6 Indicator EQ.2a: Health insurance coverage

Tobacco Use

Percentage of women and men who smoke various tobacco products

Definition

Percentage of women and men age 15-49 who smoke various tobacco products:
1) Cigarettes
2) Other types of tobacco
3) Any type of tobacco

Coverage:

      Population base: Women and men age 15-49 (IR file, MR file)

      Time period: Current status at time of survey

Numerators:

Number of women (or men) age 15-49 who smoke various tobacco products:
1) Cigarettes (women: v463aa in 1,2 or v463e = 1; men: any of mv464a – c in 1:888 or any of mv484a – c in 1:888)
2) Other types of tobacco (women: v463b = 1 or v463f = 1 or v463g = 1; men: any of mv464d – g in 1:888 or any of mv484d - g in 1:888)
3) Any type of tobacco (women: v463aa in 1,2 or v463b = 1 or v463e = 1 or v463f = 1 or v463g = 1; men: any of mv464a - g in 1:888 or mv484a – g in 1:888)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.

v463aa	Frequency smokes cigarettes (women)
v463b	Smokes pipe full of tobacco (women)
v463e	Smokes kreteks (women)
v463f	Smokes cigars, cheroots or cigarillos (women)
v463g	Smokes water pipe (women)
v005	Women's sample weight
mv463aa	Frequency currently smokes tobacco (men)
mv464a	On average respondent smokes daily: manufactured cigarettes (men)
mv464b	On average respondent smokes daily: hand rolled cigarettes (men)
mv464c	On average respondent smokes daily: kreteks (men)
mv464d	On average respondent smokes daily: pipes full of tobacco (men)
mv464e	On average respondent smokes daily: cigars, cheroots, cigarillos (men)
mv464f	On average respondent smokes daily: water pipe sessions (men)
mv464g	On average respondent smokes daily: others (men)
mv484a	On average respondent smokes weekly: manufactured cigarettes (men)
mv484b	On average respondent smokes weekly: hand rolled cigarettes (men)
mv484c	On average respondent smokes weekly: kreteks (men)
mv484d	On average respondent smokes weekly: pipes full of tobacco (men)
mv484e	On average respondent smokes weekly: cigars, cheroots, cigarillos (men)

mv484f	On average respondent smokes weekly: water pipe sessions (men)
mv484g	On average respondent smokes weekly: others (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data on whether smoked each type of tobacco are assumed to be non-use of the type of tobacco and are excluded from the numerator, but included in the denominator.

Notes and Considerations

Smoking cigarettes includes smoking manufactured cigarettes, hand-rolled cigarettes and kreteks.

Changes over Time

DHS-VI and earlier surveys asked less detailed questions about current smoking status, forms of tobacco smoked, and daily/weekly frequency of smoking tobacco.

DHS-VI and earlier surveys also reported smoking tobacco in pipes separately from other tobacco, which included smokeless tobacco.

References

Ansara, D.L., F. Arnold, S. Kishor, J. Hsia, and R. Kaufmann. 2013. Tobacco Use by Men and Women in 49 Countries with Demographic and Health Surveys. DHS Comparative Reports No. 31. Calverton, Maryland, USA: ICF International. https://dhsprogram.com/publications/publication-cr31-comparative-reports.cfm

Global Adult Tobacco Survey Collaborative Group. 2011. Tobacco Questions for Surveys: A Subset of Key Questions from the Global Adult Tobacco Survey (GATS), 2nd Edition. Atlanta, GA: Centers for Disease Control and Prevention. https://apps.who.int/iris/handle/10665/87331

Resources

DHS-8 Tabulation plan: Tables 3.10.1 and 3.10.2

API Indicator IDs:
Women:
AH_TOBC_W_CIG, AH_TOBC_W_PIP, AH_TOBC_W_OTH, AH_TOBC_W_NON
(API link, STATcompiler link)

Men:

```
AH_TOBC_M_CIG, AH_TOBC_M_PIP, AH_TOBC_M_OTH, AH_TOBC_M_NON
```
([API link](), [STATcompiler link]())

MICS6 Indicator SR.14a: Use of tobacco

Percent distribution of men by smoking frequency

Definition

Percent distribution of men age 15-49 by smoking frequency:
1) Daily smoker
2) Occasional smoker
3) Non-smoker

Coverage:

Population base: Men age 15-49 (MR file)

Time period: Current status at time of survey

Numerators:

Number of men age 15-49 who smoke various tobacco products:
1) Daily smoker (mv463aa = 1)
2) Occasional smoker (mv463aa = 2)
3) Non-smoker (mv463aa = 0)

Denominator: Number of men age 15-49

Variables: IR file, MR file.

mv463aa   Frequency currently smokes tobacco (men)
mv005   Men's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data for the frequency of smoking is presented in a separate category in the percent distribution.

References

Global Adult Tobacco Survey Collaborative Group. 2011. Tobacco Questions for Surveys: A Subset of Key Questions from the Global Adult Tobacco Survey (GATS), 2nd Edition. Atlanta, GA: Centers for Disease Control and Prevention. https://apps.who.int/iris/handle/10665/87331

Resources

DHS-8 Tabulation plan: Table 3.10.2

API Indicator IDs:
Men:

```
AH_TOBC_M_DLY, AH_TOBC_M_OCC, AH_TOBC_M_NON
```
([API link](), [STATcompiler link]())

Average number of cigarettes smoked per day

Definition

Among men age 15-49 who smoke cigarettes daily, percent distribution by average number of cigarettes smoked per day.

Coverage:
>Population base: Men age 15-49 (MR file)
>Time period: Current status at time of survey

Numerator: Number of men age 15-49 who smoke cigarettes daily by number of cigarettes smoked (<5, 5-9, 10-14, 15-24, 25+) (mv464a + mv464b + mv464c – see *Calculation*)

Denominator: Number of men age 15-49 who smoke cigarettes daily (mv484a + mv484b + mv484c > 0 – see Calculation)

Variables: MR file.
mv463aa   Frequency smokes cigarettes
mv464a   On average respondent smokes daily: manufactured cigarettes
mv464b   On average respondent smokes daily: hand rolled cigarettes
mv464c   On average respondent smokes daily: kreteks
mv005   Men's sample weight

Calculation

Numerators: The total number of cigarettes smoked daily is calculated by adding mv484a + mv484b + mv484c, treating any special codes such as 888 (not every day) as zero cigarettes. The total number of cigarettes is then grouped into the categories (<5, 5-9, 10-14, 15-24, 25+).

Denominator: Men are counted in the denominator if the total number of cigarettes smoked daily calculated above is greater than zero.

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing data on the number of cigarettes of each type is treated as zero cigarettes of that type.

Changes over Time

DHS-VI and earlier surveys asked men who had said that they currently smoked cigarettes the number of cigarettes they had smoked in the past 24 hours and reported that response, instead of the average number of cigarettes smoked per day.

References

Global Adult Tobacco Survey Collaborative Group. 2011. Tobacco Questions for Surveys: A Subset of Key Questions from the Global Adult Tobacco Survey (GATS), 2nd Edition. Atlanta, GA: Centers for Disease Control and Prevention. https://apps.who.int/iris/handle/10665/87331

Resources

DHS-8 Tabulation plan: 3.11

API Indicator IDs:
Women:
AH_CIGA_W_04C, AH_CIGA_W_59C, AH_CIGA_W_14C, AH_CIGA_W_24C, AH_CIGA_W_25C
(API link, STATcompiler link)

Men:
AH_CIGA_M_04C, AH_CIGA_M_59C, AH_CIGA_M_14C, AH_CIGA_M_24C, AH_CIGA_M_25C
(API link, STATcompiler link)

Percentage of women and men age 15-49 who currently use smokeless tobacco, according to type of tobacco product, and percentage who use any type of tobacco

Definition

Percentage of women and men age 15-49 who currently use smokeless tobacco, according to type of smokeless tobacco product, and percentage who use any type of tobacco.

Coverage:
    Population base: Women and men age 15-49 (IR file, MR file)
    Time period: Current status at time of survey

Numerators:
1) Number of women (or men) age 15-49 who currently use smokeless tobacco, according to type of tobacco product:
    a) Snuff, by mouth (women: v463h = 1; men: mv464h in 1:888 or mv484h in 1:888)
    b) Snuff, by nose (women: v463d = 1; men: mv464i in 1:888 or mv484i in 1:888)
    c) Chewing tobacco (women: v463c = 1; men: mv464j in 1:888 or mv484j in 1:888)
    d) Betel quid with tobacco (women: v463i = 1; men: mv464k in 1:888 or mv484k in 1:888)
    e) Other type of smokeless tobacco (women: other smokeless tobacco in v463 series = 1; men: mv464l in 1:888 or mv484l in 1:888)
    f) Any type of smokeless tobacco (women: any of v463h, d, c, i, or other = 1; men: any of m464h – i = 1 or any of mv484h – i = 1)
2) Number of women (or men) age 15-49 who use any type of tobacco (women: v463aa in 1,2 or v463ab in 1,2; men: mv463aa in 1,2 or mv463ab in 1,2)

Denominator: All women (or men) age 15-49

Variables: IR file, MR file.
v463aa	Frequency smokes cigarettes (women)
v463ab	Frequency currently uses other type of tobacco (women)
v463c	Chews tobacco (women)
v463d	Snuff by nose (women)
v463h	Snuff by mouth (women)
v463i	Chews betel quid with tobacco (women)
v005	Women's sample weight
mv463aa	Frequency currently smokes tobacco (men)
mv463ab	Frequency currently uses smokeless tobacco (men)
mv464h	On average respondent uses daily: snuff by mouth (men)
mv464i	On average respondent uses daily: snuff by nose (men)
mv464j	On average respondent uses daily: chewing tobacco (men)
mv464k	On average respondent uses daily: betel quid with tobacco (men)
mv464l	On average respondent uses daily: any other (men)
mv484h	On average respondent uses weekly: snuff by mouth (men)
mv484i	On average respondent uses weekly: snuff by nose (men)
mv484j	On average respondent uses weekly: chewing tobacco (men)
mv484k	On average respondent uses weekly: betel quid with tobacco (men)

mv484l   On average respondent uses weekly: any other (men)
mv005   Men's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data on use of types of smokeless tobacco are treated as non-use of that type of tobacco and are excluded from the numerators.

Notes and Considerations

The indicators include women and men who use smokeless tobacco daily or occasionally (less than daily).

The indicator for use of any type of tobacco includes all types of smokeless tobacco listed above plus cigarettes, kreteks, pipes, cigars, cheroots, cigarillos, water pipes, and any other types of tobacco use included in the survey.

Changes over Time

DHS-VI and earlier surveys asked less detailed questions about current use of smokeless tobacco, forms of smokeless tobacco smoked, and daily/weekly frequency of consumption of smokeless tobacco.

DHS-VI and earlier surveys did not separately report smokeless tobacco.

References

Ansara, D.L., F. Arnold, S. Kishor, J. Hsia, and R. Kaufmann. 2013. *Tobacco Use by Men and Women in 49 Countries with Demographic and Health Surveys.* DHS Comparative Reports No. 31. Calverton, Maryland, USA: ICF International. https://dhsprogram.com/publications/publication-cr31-comparative-reports.cfm

Global Adult Tobacco Survey Collaborative Group. 2011. *Tobacco Questions for Surveys: A Subset of Key Questions from the Global Adult Tobacco Survey (GATS), 2nd Edition.* Atlanta, GA: Centers for Disease Control and Prevention. https://apps.who.int/iris/handle/10665/87331

Resources

DHS-8 Tabulation plan: Table 3.12

API Indicator IDs:
Women:
`AH_TOBU_W_SNM, AH_TOBU_W_SNN, AH_TOBU_W_CHW, AH_TOBU_W_BTQ, AH_TOBU_W_ASM, AH_TOBU_W_ATB`
(API link, STATcompiler link)

Men:
`AH_TOBU_M_SNM, AH_TOBU_M_SNN, AH_TOBU_M_CHW, AH_TOBU_M_BTQ, AH_TOBU_M_OSM,`
`AH_TOBU_M_ASM, AH_TOBU_M_ATB`
([API link](#), [STATcompiler link](#))

Alcohol consumption

Percentage of women and men who consumed alcohol in the last one month and among those that consumed alcohol in the last one month, percent distribution of frequency of drinking

Definition

1) Percentage of women and men age 15-49 who consumed alcohol in the last one month and among those that consumed alcohol in the last one month
2) Percent distribution of frequency of drinking

Coverage:
Population base: Women and men age 15-49 (IR file, MR file)
Time period: Last one month preceding the survey

Numerators:
1) Number of women (or men) age 15-49 who consumed alcohol in the past one month (women: v485a in 1:31, 95; men: mv485a in 1:31, 95)
2) Number of women (or men) age 15-49 who consume alcohol in the past one month at various frequencies:
   a) Every day/almost daily (women: v485a in 25:31, 95; men: mv485a in 25:31, 95)
   b) 1-5 days in the past month (women: v485a in 1:5; men: mv485a in 1:5)
   c) 6-10 in the past month (women: v485a in 6:10; men: mv485a in 6:10)
   d) 11-24 in the past month (women: v485a in 11:24; men: mv485a in 11:24)

Denominators:
a) All women (or men) age 15-49
b) Number of women (or men) age 15-49 who consumed alcohol in the past one month (women: v485a in 1:31, 95; men: mv485a in 1:31, 95)

Variables: IR file, MR file.
v485a   Frequency of consumption of alcohol (women)
v005   Women's sample weight
mv485a   Frequency of consumption of alcohol (men)
mv005   Men's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data on consumption of alcohol is treated as non-use and is excluded from the numerator.

Notes and Considerations

One drink of alcohol corresponds to one can or bottle of beer, one glass of wine, one shot of spirits, or one cup of a local alcoholic beverage.

Changes over Time

Prior to DHS-8, alcohol consumption questions were not standardly included in all surveys although many surveys did ask questions on alcohol. In early DHS-8 some surveys may have collected data with an earlier version of the questionnaire where these questions are slightly altered from the now standard questions on alcohol consumption.

Resources

DHS-8 Tabulation plan: Table 3.14.1, 3.14.2

API Indicator IDs:
Women:
AH_ALCO_W_DK1, AH_ALCO_W_DK2, AH_ALCO_W_DK3, AH_ALCO_W_DK4, AH_ALCO_W_DK5, AH_ALCO_W_DK6
(API link, STATcompiler link)

Men:
AH_ALCO_M_DK1, AH_ALCO_M_DK2, AH_ALCO_M_DK3, AH_ALCO_M_DK4, AH_ALCO_M_DK5, AH_ALCO_M_DK6
(API link, STATcompiler link)

Among women and men who have consumed alcohol in the last one month, percent distribution of usual number of drinks consumed on days when alcohol was consumed

Definition

Percent distribution of women and men age 15-49 who consumed alcohol in the last one month by the average number of drinks

Coverage:

Population base: Women and men age 15-49 (IR file, MR file)

Time period: Last one month preceding the survey

Numerator: Number of women (or men) age 15-49 consumed alcohol in the past one month by the average number of drinks consumed on days when alcohol was consumed:
1) Less than one (women: v485b<1; men: mv485b>1)
2) One (women: v485b = 1; men: mv485b = 1)
3) Two (women: v485b = 2; men: mv485b = 2)
4) Three (women: v485b = 3; men: mv485b = 3)
5) Four (women: v485b = 4; men: mv485b = 4)
6) Five (women: v485b = 5; men: mv485b = 5)
7) Six or more (women: v485b in 6:39 or 40; men: mv485b in 6:39 or 40)

Denominator: Number of women (or men) age 15-49 who consumed alcohol in the past one month (women: v485a = 1:31, 95; men: mv486a = 1:31, 95)

Variables: IR file, MR file.
v485b	Number of drinks per day (women)
v005	Women's sample weight
mv485b	Number of drinks per day (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data on consumption of alcohol is treated as non-use and is excluded from the numerator.

Notes and Considerations

One drink of alcohol corresponds to one can or bottle of beer, one glass of wine, one shot of spirits, or one cup of a local alcoholic beverage. Respondents who reported they drank a few sips of an alcoholic drink were recorded as having consumed less than one standard drink.

Changes over Time

Prior to DHS-8, alcohol consumption questions were not standardly included in all surveys although many surveys did ask questions on alcohol.

Resources

DHS-8 Tabulation plan: Table 3.15.1, 3.15.2

API Indicator IDs:
Women:
`AH_ALCO_W_DK1, AH_ALCO_W_DK2, AH_ALCO_W_DK3, AH_ALCO_W_DK4, AH_ALCO_W_DK5, AH_ALCO_W_DK6`
(API link, STATcompiler link)

Men:
`AH_ALCO_M_DK1, AH_ALCO_M_DK2, AH_ALCO_M_DK3, AH_ALCO_M_DK4, AH_ALCO_M_DK5, AH_ALCO_M_DK6`
(API link, STATcompiler link)

Migration

Percent distribution of women and men by residence at birth

Definition

Percent distribution of women and men age 15-49 by residence at birth

Coverage:
    Population base: Women and men age 15-49 (IR file, MR file)
    Time period: Lifetime of the respondent and the last five years preceding the survey

Numerators:
1) Number of women (or men) age 15-49 who were born in their current place of residence (women: v104 = 95 and v172 ≠ 96; men: mv104 = 95 and mv172 ≠ 96)
2) Number of women (or men) age 15-49 who were born in the country but outside of their current place of residence (women: v104 ≠ 95:99 and v172 ≠ 96; men: mv104 ≠ 95:99 and mv172 ≠ 96)
3) Number of women (or men) age 15-49 who were born outside the country (women: v172 = 96; men: mv172 = 96)

Denominator: Women (or men) age 15-49 who are not visitors (women: v104 ≠ 96; men: mv104 ≠ 96)

Variables: IR file, MR file.
v135   Usual resident or visitor (women)
v172   Province/State of birth (women)
v104   Years lived in current place of residence (women)
v005   Women's sample weight
mv135   Usual resident or visitor (men)
mv172   Province/State of birth (men)
mv104   Years lived in current place of residence (men)
mv005   Men's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Respondents with missing data on residence at birth are excluded from the numerator.

Notes and Considerations

Respondents who are visitors in the household are excluded.

Changes over Time

Prior to DHS-8, migration questions were not standardly included in all surveys although many surveys did ask questions on migration.

Resources

DHS-8 Tabulation plan: Table 3.16.1 and 3.16.2

API Indicator IDs
Women:
`AH_BTHP_W_ALW, AH_BTHP_W_IMG, AH_BTHP_W_EMG`
([API link](), [STATcompiler link]())

Men:
`AH_BTHP_M_ALW, AH_BTHP_M_IMG, AH_BTHP_M_EMG`
([API link](), [STATcompiler link]())

Percent distribution of women and men who have moved to their current place of residence in the last 5 years by type of migration

Definition

Percent distribution of women and men age 15-49 who have moved to their current place of residence in the last 5 years by type of migration

Coverage:

       Population base: Women and men age 15-49 (IR file, MR file)

       Time period: Lifetime of the respondent and the last five years preceding the survey

Numerator:

1) Number of women (or men) age 15-49 who moved to their current place of residence in the last five years (women: v104 in 0:4; men: mv104 in 0:4)
2) Number of women (or men) age 15-49 who moved to their current place of residence in the last five years (women: v104 in 0:4; men: mv104 in 0:4) by type of migration:
   a) Urban to urban (women: v102 = 1 and v105 in 0:2; men: mv102 = 1 and mv105 in 0:2)
   b) Urban to rural (women: v102 = 1 and v105 = 3; men: mv102 = 1 and mv105 = 3)
   c) Rural to urban (women: v102 = 2 and v105 in 0:2; men: mv102 = 2 and mv105 in 0:2)
   d) Rural to rural (women: v102 = 2 and v105 = 3; men: mv102 = 2 and mv105 = 3)

Denominator: Women (or men) age 15-49 who were born outside of their current place of residence (women: v104 ≠ 95:99; men: mv104 ≠ 95:99)

Variables: IR file, MR file.

v102	Type of place of residence (women)
v104	Years lived in current place of residence (women)
v105	Type of place of previous residence (women)
v005	Women's sample weight
mv102	Type of place of residence (men)
mv104	Years lived in current place of residence (men)
mv105	Type of place of previous residence (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Respondents with missing data on residence at birth or previous residence excluded from the numerator.

Notes and Considerations

Respondents who are visitors are excluded. The previous place of residence is the place the respondent moved from just before moving to the current place of residence.

Changes over Time

Prior to DHS-8, migration questions were not standardly included in all surveys although many surveys did ask questions on migration.

Resources

DHS-8 Tabulation plan: Table 3.17

API Indicator IDs:
Women:
AH_RMIG_W_MIG, AH_MIGT_W_UTU, AH_MIGT_W_UTR, AH_MIGT_W_RTU, AH_MIGT_W_RTR
([API link](#), [STATcompiler link](#))

Men:
AH_RMIG_M_MIG, AH_MIGT_M_UTU, AH_MIGT_M_UTR, AH_MIGT_M_RTU, AH_MIGT_M_RTR
([API link](#), [STATcompiler link](#))

Among women and men born outside of their current place of residence, the percent who moved to their current place of residence in the last 5 years, the percent distribution of type of migration, and the percent distribution of the reason for migration

Definition

Among women and men age 15-49 who were born outside of their current place of residence, the percent who moved to their current place of residence in the last five years and the percent distribution of type of migration

Coverage:

Population base: Women and men age 15-49 (IR file, MR file)

Time period: Lifetime of the respondent and the last five years preceding the survey

Numerator:

Number of women (or men) age 15-49 who moved to their current place of residence in the last five years (women: v104 in 0:4; men: mv104 in 0:4) by type of migration:
1) Employment (women: v175 = 1; men: mv175 = 1)
2) Education/training (women: v175 = 2; men: mv175 = 2)
3) Marriage formation (women: v175 = 3; men: mv175 = 3)
4) Family reunification/other family related reasons (women: v175 = 4; men: mv175 = 4)
5) Forced displacement (women: v175 = 5; men: mv17 = 5)
6) Other (women: v175 = 96; men: mv175 = 96)

Denominator: Women (or men) age 15-49 who were born outside of their current place of residence (women: v104 ≠ 95:99; men: mv104 ≠ 95:99)

Variables: IR file, MR file.

v104	Years lived in current place of residence (women)
v105	Type of place of previous residence (women)
v175	Reason for moving to current place of residence (women)
v005	Women's sample weight
mv104	Years lived in current place of residence (men)
mv105	Type of place of previous residence (men)
mv175	Reason for moving to current place of residence (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Respondents with missing data on residence at birth, previous residence, or reason for migration are excluded from the numerator.

Notes and Considerations

Respondents who are visitors are excluded. The previous place of residence is the place the respondent moved from just before moving to the current place of residence.

Changes over Time

Prior to DHS-8, migration questions were not standardly included in all surveys although many surveys did ask questions on migration.

Resources

DHS-8 Tabulation plan: Table 3.18.1, 3.18.2

API Indicator IDs:
Women
Reason for migration:
```
AH_MIGR_W_EMP, AH_MIGR_W_EDU, AH_MIGR_W_MAR, AH_MIGR_W_FAM, AH_MIGR_W_DIS,
AH_MIGR_W_OTH
```
([API link](#), [STATcompiler link](#))

Men:
```
AH_MIGR_M_EMP, AH_MIGR_M_EDU, AH_MIGR_M_MAR, AH_MIGR_M_FAM, AH_MIGR_M_DIS,
AH_MIGR_M_OTH
```
([API link](#), [STATcompiler link](#))

4) Marriage and Sexual Activity

This chapter addresses current marital status, age at first marriage, and age at sexual initiation. Marriage is a primary indication of the exposure of women to the risk of pregnancy and, therefore, is important for the understanding of fertility. Populations in which age at marriage is low tend to be populations with early childbearing and high fertility. For this reason, there is an interest in trends in age at marriage. The chapter also includes information on age at first sexual intercourse, which in some countries is a more direct measure of the beginning of exposure to pregnancy and the level of exposure.

Current Marital Status

Percent distribution by current marital status

Definition

Percentage of women and men according to current status of marriage or cohabitation.

Coverage:
Population base: Women and men age 15-49 (IR file, MR file)
Time period: Current status at time of survey

Numerators:
Number of women (or men) who are currently:
1) Never married nor lived with a man/woman as if married (women: v501 = 0; men: mv501 = 0)
2) Married (women: v501 = 1; men: mv501 = 1)
3) Not married but living with a man/woman as if married (women: v501 = 2; men: mv501 = 2)
4) Widowed from a marriage or union and not remarried or not living with a man/woman as if married (women: v501 = 3; men: mv501 = 3)
5) Divorced from a legal or formal marriage and not remarried or living with a man/woman as if married (women: v501 = 4; men: mv501 = 4)
6) Separated from a marriage or consensual union (women: v501 = 5; men: mv501 = 5)
7) Married or living in a union (women: v501 = 1,2; men: mv501 = 1,2)

Denominator: Number of women age 15-49 or number of men (age range varies by survey)

Variables: IR file, MR file.
v501   Currently/formerly/never in union (women)
v005   Woman's individual sample weight
awfactt   All women factor (only needed with ever-married samples)
mv501   Currently/formerly/never in union (men)
mv005   Man's individual sample weight
amfactt   All men factor (only needed with ever-married samples)

Calculation

Numerators are divided by the denominator and multiplied by 100. In ever-married samples, the denominator is adjusted by the all women (or men) factors.

Handling of Missing Values

Not applicable—Marital status is not allowed to have missing values.

Notes and Considerations

Percentages add up to 100 percent.

The definition of an informal union may vary between countries. No proof of marital status is requested during interview; categorization is done by the respondent.

The percent of women or men currently in union is obtained as a sum of legal and informal (living together as if married) unions (numerators 2 and 3 above).

References

Wang, W., S. Staveteig, R. Winter, and C. Allen. 2017. *Women's Marital Status, Contraceptive Use, and Unmet Need in Sub-Saharan Africa, Latin America, and the Caribbean*. DHS Comparative Reports No. 44. Rockville, Maryland, USA: ICF
https://dhsprogram.com/publications/publication-CR44-Comparative-Reports.cfm

Resources

DHS-8 Tabulation plan: Table 4.1

API Indicator IDs:
Women:
```
MA_MSTA_W_NMA, MA_MSTA_W_MAR, MA_MSTA_W_LTG, MA_MSTA_W_WID, MA_MSTA_W_DIV,
MA_MSTA_W_SEP, MA_MSTA_W_UNI
```

Men:
```
MA_MSTA_M_NMA, MA_MSTA_M_MAR, MA_MSTA_M_LTG, MA_MSTA_M_WID, MA_MSTA_M_DIV,
MA_MSTA_M_SEP, MA_MSTA_M_UNI
```
(API link, STATcompiler link)

MICS6 Indicator PR.5: Young people age 15-19 years currently married or in union

Marriage Registration

Percentage of in-union women whose current marriage or union is registered, percentage whose current marriage or union is registered and who have any documentation recognizing the marriage/union, and percentage whose current marriage or union is registered and who have a marriage certificate

Definition

1) Percentage of currently married women age 15-49 whose current marriage is registered with the civil authorities
2) Percentage of currently married women age 15-49 whose current marriage or union is registered and who have any documentation recognizing the marriage/union
3) Percentage of currently married women age 15-49 whose current marriage is registered with the civil authorities and have a marriage certificate

Coverage:

Population base: Currently married women (v502 = 1) (IR file)

Time period: Current status at time of survey

Numerators:

1) Number of currently married women (v502 = 1) whose current marriage is registered with civil authority (v542 = 1 or v544 = 1)
2) Number of currently married women (v502 = 1) whose current marriage is registered (v542 = 1 or v544 = 1) and who have any documentation recognizing the marriage (v543a = 1 or v543b = 1 or v543c = 1 or v543d = 1)
3) Number of currently married women (v502 = 1) whose current marriage is registered with civil authority (v542 = 1 or v544 = 1) and have a marriage certificate (v543a = 1 or v543b = 1)

Denominator:

Number of currently married women (v502 = 1)

Variables: IR file.

v502	Currently/formerly/never in union
v505	Number of co-wives
v542	Has a marriage certificate for current marriage/union
v543a	Marriage certificate from church, mosque or other religious institution
v543b	Marriage certificate from civil authority
v543c	Other document from religious institution
v543d	Other document from civil authority
v544	Current marriage ever registered with civil authority
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)

Calculation

For each definition numerators are divided by the denominator and multiplied by 100. In ever-married samples, the denominator is adjusted by the all women factors.

Handling of Missing Values

Marital status is not allowed to have missing values. Women who are unsure or don't know if their marriage is registered or if they have a certificate are excluded from the numerator but included in the denominator.

Notes and Considerations

Percentages add up to 100 percent.

Currently married women include women who are living with a man as if married.

Changes over Time

These indicators were not reported prior to DHS-8.

Resources

DHS-8 Tabulation plan: Table 4.2

API Indicator IDs:
MA_MREG_REG, MA_MREG_RMC
(API link, STATcompiler link)

Number of Co-Wives and Number of Wives

Percent distribution of currently married women by number of co-wives

Definition

1) Percentage of currently married women (women who are either married or who are living with a man as if married), by the number of other wives that her partner has.
2) Percentage of currently married women (women who are either married or who are living with a man as if married) with one or more co-wives.

Coverage:

Population base: Currently married women (v502 = 1) (IR file)

Time period: Current status at time of survey

Numerators:

1) Number of currently married women (v502 = 1), by number of other wives (v505) of her current partner
2) Number of currently married women, with one or more co-wives (v502 = 1 and v505 > 0)

Denominator: Number of currently married women (v502 = 1)

Variables: IR file.

v502	Currently/formerly/never in union
v505	Number of co-wives
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)

Calculation

For each number of co-wives, numerators are divided by the denominator and multiplied by 100. In ever-married samples, the denominator is adjusted by the all women factors.

Handling of Missing Values

If number of co-wives is unknown by respondent or missing, respondent is excluded from numerator and may be presented in the table as a separate column for unknown or missing number of co-wives.

Notes and Considerations

Percentages add up to 100 percent.

Questions on number of co-wives are normally only asked in countries where polygyny is practiced, primarily in sub-Saharan Africa.

References

Smith-Greenaway, E., and J. Trinitapoli. 2014. "Polygynous contexts, family structure, and infant mortality in sub-Saharan Africa." *Demography* 51(2): 341-366.
https://link.springer.com/article/10.1007%2Fs13524-013-0262-9

Resources

DHS-8 Tabulation plan: Table 4.3.1

API Indicator IDs:
MA_CWIV_W_0WV, MA_CWIV_W_1WV, MA_CWIV_W_2PW
(API link, STATcompiler link)

MICS6 Indicator PR.6: Polygyny

Percent distribution of currently married men by number of wives

Definition

Percentage of men who are either married or who are living with a woman as if married, by the number of wives.

mv502	Currently/formerly/never in union
mv505	Number of wives
mv005	Man's individual sample weight
amfactt	All man factor (only needed with ever-married samples)

Calculation

For each number of wives, numerators are divided by the denominator and multiplied by 100. In ever-married samples, the denominator is adjusted by the all man factors.

Handling of Missing Values

If number of wives is unknown by respondent or missing, respondent is excluded from the numerator and may be presented in the table as a separate column for unknown or missing number of wives.

Notes and Considerations

Percentages add up to 100 percent.

Questions on number of wives are normally only asked in countries where polygyny is practiced, primarily in sub-Saharan Africa.

References

Reniers, G., and S. Watkins. 2010. "Polygyny and the spread of HIV in Sub Saharan Africa: a case of benign concurrency." AIDS (London, England) 24(2): 299. https://journals.lww.com/aidsonline/fulltext/2010/01030/Polygyny_and_the_spread_of_HIV_in_sub_Saharan.16.aspx

Resources

DHS-8 Tabulation plan: Table 4.3.2

API Indicator IDs:
`MA_WIVE_M_1WV, MA_WIVE_M_2PW`
([API link](#), [STATcompiler link](#))

MICS6 Indicator PR.6: Polygyny

Age at First Marriage

Percentage first married by specific exact ages

Definition

1) Percentage of women and men who were first married or lived with a spouse or consensual partner by specific exact ages.
2) Percentage of women and men never married.

Coverage:

Population base: Women and men age 15-49 (IR file, MR file)

Time period: Lifetime of the respondent

Numerators:

1) Number of women (or men) whose first marriage or consensual union occurred before they attained the specified age group (15, 18, 20, 22, 25) (women: v511 < specified age; men: mv511 < specified age)
2) Number of women (or men) who have never married or lived in union (women: v502 = 0; men: mv502 = 0)

Denominator: Number of women (or men) age 15-49, including those who have never been married or lived with a man/woman as if married. This denominator may need to be restricted (see *Notes and Considerations* below).

Variables: IR file, MR file.

v502	Currently/formerly/never in union (women)
v511	Age at first marriage or union (women)
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)
mv502	Currently/formerly/never in union (men)
mv511	Age at first marriage or union (men)
mv005	Man's individual sample weight
amfactt	All men factor (only needed with ever-married samples)

Calculation

Age at first marriage or first union (women: v511; men: mv511): Difference between date when a woman (or man) began living with first spouse or partner and date of birth of woman (or man) in completed single years.

Numerators: Number of women (or men) married by specific exact ages (15, 18, 20, 22, 25) includes women (or men) first in a marriage or lived with a man/woman as if married before earlier specific ages, e.g. the number of women (or men) who married before age 18 includes those who married before age 15. Women (or men) who have never married nor lived with a man/woman as if married are included in a separate category.

Denominator: Number of women (or men) of all marital statuses. In ever-married samples, the denominator is adjusted by the all women (or all men) factors. Denominator for cohort must exclude women who have not yet reached the oldest age of the specific age category (see *Notes and Considerations* below).

Numerators are divided by the overall denominator and multiplied by 100.

Handling of Missing Values

Not applicable—birth dates of women and men and ages at first marriage were imputed if missing.

Notes and Considerations

Percentages are not calculated for the age at first marriage categories by cohorts of women or men where the youngest member of the cohort has not yet completed the oldest age of the category. For example, percentages for the cohort of women or men 15-19 at the time of the survey will not be calculated for age categories 18, 20, 22, and 25 because some women (or men) who have never been married are still below those ages and could still marry or start to live with a man/woman as if married before reaching those age categories.

References

Koski, A., S. Clark, and A. Nandi. 2017. "Has Child Marriage Declined in sub-Saharan Africa? An Analysis of Trends in 31 Countries." Population and Development Review 43(1): 7-29. https://onlinelibrary.wiley.com/doi/full/10.1111/padr.12035

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Resources

DHS-8 Tabulation plan: Table 4.4

API Indicator IDs:
Women:
MA_MBAG_W_B15, MA_MBAG_W_B18, MA_MBAG_W_B20, MA_MBAG_W_B22, MA_MBAG_W_B25, MA_MBAG_W_NMA

Men:
MA_MBAG_M_B15, MA_MBAG_M_B18, MA_MBAG_M_B20, MA_MBAG_M_B22, MA_MBAG_M_B25, MA_MBAG_M_NMA
(API link, STATcompiler link)

SDG Indicator 5.3.1: Proportion of women aged 20-24 years who were married or in a union before age 15 and before age 18
WHO 100 Core Health Indicators: Early marriage
MICS6 Indicator PR.4a: Child marriage – before age 15
MICS6 Indicator PR.4b: Child marriage – before age 18

Median age at first marriage

Definition

Median age in years when women and men first lived with spouse or partner as if married.

Coverage:

Population base: Women and men of all marital statuses (IR file, MR file)

Time period: Lifetime of the respondent

Median: Median for completed time periods

Variables: IR file, MR file.

v502	Currently/formerly/never in union (women)
v511	Age at first cohabitation (women)
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)
mv502	Currently/formerly/never in union (men)
mv511	Age at first cohabitation (men)
mv005	Man's individual sample weight
amfactt	All men factor (only needed with ever-married samples)

Calculation

Medians are calculated from cumulated single-year percent distributions (see *Numerator and Denominator* below) of age at first marriage or consensual union (see *Age at First Marriage* indicator). Median is linearly interpolated between the single-year percent distributions that occur at the ages before and after 50 percent of the women (or men) had married for the first time or begun living with a man/woman as if married. (See *Median Calculations* in *Chapter 1*).

Numerators: Number of women (or men) who were married or started living with a man/woman as if married at single year of age categories. Women (or men) who have never been married or lived with a man/woman as if married (women: v502 = 0; men: mv502 = 0) are included in a separate category at the tail of the distribution. In ever-married samples, the all women (or all men) factor is tallied in the category of women (or men) who have never been married or lived with a man/woman as if married.

Denominator: Number of women (or men) of all marital statuses. Numerator divided by the denominator, multiplied by 100. In ever-married samples, the denominator is adjusted by the all women (or all men) factors.

Handling of Missing Values

Not applicable—Dates of birth and age at first marriage or consensual union were imputed if missing.
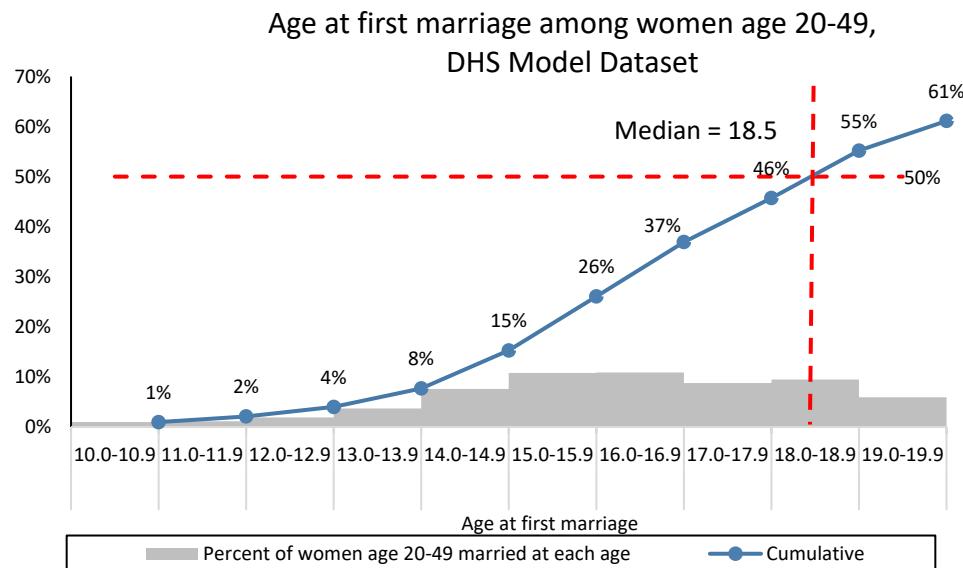
Notes and Considerations

Age at first marriage (women: v511; men: v511) is the difference between the respondent's birth date and date they began living with first spouse or partner and is truncated to years. This age is taken as including up to next completed year of age. For example, the cumulated percentage for women or men with a difference of 19 years (between birth date and date began living with spouse) actually includes all women or men below 20 years of age at first marriage.

Since the median is based on all women or men, including those who have never been married or lived with a man/woman as if married, there may not be a median for younger cohorts of women or men (since fewer than 50 percent of the cohort may have been married or lived with a man/woman as if married). Medians are omitted for women or men whose current age interval includes or precedes the median age at first sex.

Example

For example, the figure below shows the cumulative (weighted) percentage of women age 20-49 who were first married at specific ages. We look for two successive cumulative percentages that bracket 50%. We find that 46% of women age 20-49 were first married at 17 (by 18th birthday) and 55% at age 18 (by 19th birthday). Because we know that cumulatively, 50% of women age 20-49 must occur between the 18th birthday and the 19th birthday, we know the median age is 18. To be more precise we interpolate between 18.0 and 19.0. The interpolation between these two points reveals a median of 18.5 or the age at which 50% of women age 20-49 experienced their first union or cohabitation is 18.5.

Age at first marriage among women age 20-49,
DHS Model Dataset

Mathematically, this is equivalent to calculating an interpolated median between the completed ages 17 and 18 and adding one to the result.

References

MacQuarrie, K. L.D., L. Mallick, and C. Allen. 2017. *Sexual and Reproductive Health in Early and Later Adolescence: DHS Data on Youth Age 10-19.* DHS Comparative Reports No. 45. Rockville, Maryland, USA: ICF. https://dhsprogram.com/publications/publication-CR45-Comparative-Reports.cfm

Resources

DHS-8 Tabulation plan: Tables 4.4, 4.5

API Indicator IDs:
MA_AAFM_W_M2A, MA_AAFM_W_M2B, MA_AAFM_M_M2A, MA_AAFM_M_M2B
(API link, STATcompiler link)

Age at First Sexual Intercourse

Percentage who had first sexual intercourse by specific exact ages

Definition

1) Percentage of women and men who first had sexual intercourse before attaining the specific exact ages.
2) Percentage of women and men who never had sexual intercourse.

Coverage:
>   Population base: Women and men age 15-49 (IR file, MR file)
>   Time period: Lifetime of the respondent

Numerators:
1) Number of women (or men) who had their first sexual intercourse before they attained the specific age (women: v531 < specific age; men: mv531 < specific age)
2) Number of women (or men) who never had sexual intercourse (women: v531 = 0; men: mv531 = 0)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.

v531	Age at first sexual intercourse (imputed) (women)
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)
mv531	Age at first sexual intercourse (imputed) (men)
mv005	Man's individual sample weight
amfactt	All men factor (only needed with ever-married samples)

Calculation

Age at first sexual intercourse: Reported by woman or man as age in completed years or when they first had sex. This age is imputed for those who reported the age at first sex was the same as their age at first union.

Numerators: Number of women (or men) who first had sexual intercourse below the specific exact ages (15, 18, 20, 22, 25) includes women (or men) who first had sexual intercourse before earlier specific ages, e.g. the number of women (or men) who first had sexual intercourse before age 18 includes those who had sexual intercourse before age 15. Women (or men) who have never had sexual intercourse are included in a separate category.

Denominator: Number of women (or men) of all marital statuses. Numerator for each specified age divided by the denominator, multiplied by 100. In ever-married samples, denominators are adjusted by the all women (or all men) factors. This denominator may need to be restricted (see *Notes and Considerations* below).

Handling of Missing Values

Women or men with unknown and missing ages at first sexual intercourse are excluded from the numerators but included in the denominator. Women or men whose imputed age at sex is inconsistent (women: v531=97; men: v531=97) are excluded from the numerators but included in the denominator.

Notes and Considerations

When presenting this indicator by age groups, percentages for the specified age at first sexual intercourse are not calculated for those groups of age where the youngest member of the age group has not yet reached that specified age. For example, percentages for women 20–24 at the time of the survey will not be calculated for the specified age 22, or 25 because the cohort is truncated and some women or men who have never had intercourse are still below those ages and could still have their first intercourse within the age group categories.

In many ever-married samples, age at first sexual intercourse was not asked. In the other ever-married surveys, never-married women or men are assumed not to have had sexual intercourse, and their all women or men factor is tallied in the category for never had sexual intercourse.

Changes over Time

Some rounds of DHS included a category 96 for age at first union (women: v525=96; men: mv525=96) for when the woman or man began living with their spouse or consensual partner. In the DHS standard recode variable v531 (or mv531 for men) (age at first sex (imputed)) this response has been converted to the age at first union in completed years.

Resources

DHS-8 Tabulation plan: Table 4.6

API Indicator IDs:
Women:
`SX_SBAG_W_B15, SX_SBAG_W_B18, SX_SBAG_W_B20, SX_SBAG_W_B22, SX_SBAG_W_B25, SX_SBAG_W_NSX`

Men:
`SX_SBAG_M_B15, SX_SBAG_M_B18, SX_SBAG_M_B20, SX_SBAG_M_B22, SX_SBAG_M_B25, SX_SBAG_M_NSX`
([API link](), [STATcompiler link]())

MICS6 Indicator TM.24 – Sex before age 15 among young people
MICS6 Indicator TM.25 – Young people who have never had sex

Median age at first sexual intercourse

Definition

Median age in years at first sexual intercourse.

Coverage:
       Population base: Women and men of all marital statuses. (IR file, MR file)
       Time period: Lifetime of the respondent

Median: Median for completed time periods

Variables: IR file, MR file.
v531	Age at first sexual intercourse (imputed) (women)
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)
mv531	Age at first sexual intercourse (imputed) (men)
mv005	Man's individual sample weight
amfactt	All men factor (only needed with ever-married samples)

Calculation

Medians are calculated from cumulated single-year percent distributions (see *Numerator and Denominator* of *Age at First Sexual Intercourse.* Median is linearly interpolated between the single-year percent distributions that occur at the ages before and after 50 percent of the women (or men) had sexual intercourse for the first time. (See *Median Calculations* in *Chapter 1*).

Numerators: Number of women (or men) within single year of age categories of age at first sexual intercourse (women: v531; men: mv531). Women (or men) who have never had sexual intercourse are included in a separate category at the tail of the distribution. In ever-married samples, the all women (or all men) factor is tallied in the category of women (or men) who have never been married or lived with a man/woman as if married.

Denominator: Number of women (or men) of all marital statuses. Numerator divided by the denominator, multiplied by 100. In ever-married samples the denominator is adjusted by the all women (or all men) factors.

Handling of Missing Values

Women and men with unknown and missing ages at first sexual intercourse are excluded from both the denominator and the numerators. Women and men with inconsistent ages at first sexual intercourse (women: v531=97; men: mv531=97) or who did not know their age at first sex (women: v531=98; men: mv531=98) are excluded from the numerator but included in the denominator.

Notes and Considerations

The reported age at first sexual intercourse is in completed years (e.g., women reporting 19 years of age at first sexual intercourse includes all women who had their first sexual intercourse under 20 years of age).

Since the median is based on all women or men, including those who never had sexual intercourse, there may not be a median for younger cohorts of women or men (since fewer than 50 percent of the cohort may have had sexual intercourse). Medians are omitted for women or men whose current age interval includes or precedes the median age at first sex.
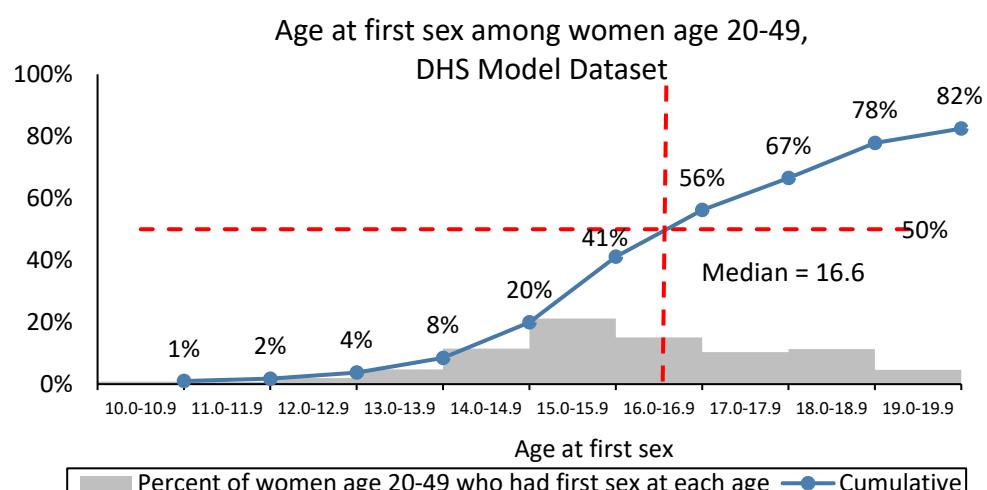
In most of the ever-married DHS surveys, age at first sexual intercourse was not asked. In the ever-married surveys that included questions on age at first sexual intercourse, never-married women or men are assumed not to have had sexual intercourse.

Changes over Time

Some rounds of DHS included a category 96 for age at first union (women: v525=96; men: mv525=96) for when the woman or man began living with her/his first spouse or consensual partner. In the DHS standard recode variables v531/mv531 (age at first sex (imputed)) this response has been converted to the age at first union in completed years.

Example

For example, the figure below shows the cumulative (weighted) percentage of women age 20-49 who reported having first had sex at specific ages. We look for two successive cumulative percentages that bracket 50%. We find that 41% of women age 20-49 had experienced their sexual debut at 15 (by 16th birthday) and 56% at age 16 (by 17th birthday). Because we know that cumulatively, 50% of women age 20-49 had sex between the 16th birthday and the 17th birthday, we know the median age is 16. To be more precise we interpolate between 16.0 and 17.0. The interpolation between these two points reveals a median of 16.6 or the age at which 50% of women age 20-49 experienced first sex is 16.6.

Age at first sex among women age 20-49, DHS Model Dataset

Mathematically, this is equivalent to calculating an interpolated median between the completed ages 17 and 18 and adding one to the result.

References

MacQuarrie, K. L.D., L. Mallick, and C. Allen. 2017. *Sexual and Reproductive Health in Early and Later Adolescence: DHS Data on Youth Age 10-19*. DHS Comparative Reports No. 45. Rockville, Maryland, USA: ICF. https://dhsprogram.com/publications/publication-CR45-Comparative-Reports.cfm

Resources

DHS-8 Tabulation plan: Tables 4.6, 4.7

API Indicator IDs:
SX_AAFS_W_M2A, SX_AAFS_W_M2B, SX_AAFS_M_M2A, SX_AAFS_M_M2B
(API link, STATcompiler link)

Percent distribution of recent sexual activity by timing of last sexual intercourse

Definition

Percentage of women and men by timing of recent sexual activity.

Numerator: Number of women (or men) who:
1) Were sexually active in the four weeks preceding the survey (women: v528 <= 28; men: mv528<=28)
2) Were sexually active in the last year preceding the survey, excluding women who were sexually active in the last 4 weeks (women: v527 <= 311 & >128; men: mv527 <= 311 & >128)
3) Were sexually active one or more years preceding the survey (women: v527 >= 401; men: mv527 >= 401)
4) Have never had sexual intercourse (women: v531 = 0; men: v531 = 0)

Denominator: Number of women or men age 15-49

Variables: IR file, MR file.

v531	Age at first sexual intercourse (imputed) (women)
v527	Time since last sex (women)
v528	Time since last sex (days) (women)
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)
mv531	Age at first sexual intercourse (imputed) (men)
mv527	Time since last sex (men)
mv528	Time since last sex (days) (men)
mv528	Time since last sex (days) (men)
amfactt	All men factor (only needed with ever-married samples)

Calculation

Numerators are divided by the denominator and multiplied by 100. In ever-married samples, the denominator is adjusted by the all woman (or man) factors.

Handling of Missing Values

Women and men with inconsistent, unknown, or missing timing since last sexual intercourse (women: v527 in 997:999; men: mv527 in 997:999) are excluded from the numerator but included in the denominator.

Notes and Considerations

Percentages add up to 100 percent.

Resources

DHS-8 Tabulation plan: Table 4.8.1 and 4.8.2

API Indicator IDs:
SX_LSEX_W_4WK, SX_LSEX_W_1YR, SX_LSEX_W_1PY, SX_LSEX_W_NSX, SX_LSEX_M_4WK,
SX_LSEX_M_1YR, SX_LSEX_M_1PY, SX_LSEX_M_NSX
(API link, STATcompiler link)

5) Fertility

In DHS surveys, information is collected on current, past, and cumulative fertility. Drawing on the birth history information collected in the survey, the chapter begins with a description of current fertility. This is followed by a description of differentials in fertility by background characteristics. Then, attention is focused on trends in fertility, which permits an examination of changes in age-specific fertility rates by time periods going back 20 years from the time of the survey.

The chapter also presents information on the cumulative fertility of female respondents in terms of the mean number of children ever born and the mean number of surviving children to women classified by five-year age groups.

The chapter also presents information on birth intervals for births in the five years preceding the survey, age at first birth for five-year age groups of women and information on teenage pregnancy and motherhood by single year of age for youngest survey respondents, i.e., women age 15-19. These data are important because they indicate the beginning of a woman's reproductive life.

Notes and Considerations

Birth/Pregnancy History

The indicators related to current fertility are calculated from the DHS birth history:

7) A full birth history is a complete list of all children the woman has ever given birth to including their date of birth, sex, survival status, age (if alive), and age at death (if died). This is the form of birth history found in the majority of DHS surveys. Birth histories include all live births, including children who later died, but omit stillbirths, miscarriages or abortions. Birth histories are collected in chronological order from first to last.

8) A truncated birth history is a list of all births since a particular date, typically for the five years preceding the survey. Truncated birth histories are used in many of the Malaria Indicator Surveys and are collected in reverse chronological order. Truncated birth histories may demonstrate different characteristics than a full birth history as births in the particular time period may be omitted, transferred out of the time period, transferred into the time period.

9) A pregnancy history is a complete list of all pregnancies the woman has ever had, including all live births, stillbirths, miscarriages and abortions. Pregnancy histories have been used in surveys in countries of the Commonwealth of Independent States, as well as Nepal, Philippines, Vietnam, and in some special surveys such as the Afghanistan Mortality Survey, and the Ghana Maternal Health Surveys. In DHS-8, pregnancy histories are used in all DHS surveys in place of birth histories. In surveys using pregnancy histories, the birth history is extracted from the full pregnancy history and is found in the b* series variables. The full pregnancy history is also available in the recode files for these surveys, typically in an s2* series of variables in older surveys and in a p* series for DHS-8 surveys.

Current Fertility

Age-Specific Fertility Rate (ASFR)

Definition

Age-Specific Fertility Fate (ASFR): Based on Age-Period Rates

Coverage:

Population base: Women age 15-49 years in seven five-year age groups (15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49 years) (IR file)

Time period: Three years preceding the survey

Numerator: Number of births that occurred in a period (typically the 1-36 months before the survey) to women in the age group at the time of the birth (v008 - b3 in 1:36) (BR file)

Denominator: Number of women-years of exposure in the same period (1-36 months before the survey) of women in the age group (IR file)

Variables: BR file, IR file.

b3	CMC date of birth of child
v011	CMC date of birth of respondent
v008	CMC date of interview
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)

Calculation

The age-specific fertility rate is calculated as the quotient of the numerator divided by the denominator for each age group, multiplied by 1000. The result is an average rate over the 36-month period, expressed as an annual rate per 1000 women.

Numerator: Births are tabulated according to period of birth and the age of mother at the time of the birth:

Period of birth: The period of birth is calculated as the difference in months between the date of interview and the date of birth, both in century-month code format (CMC). Births are included in the tabulation if they occur 1-36 months before the survey (v008 - b3 in 1:36).

Age of mother at the time of the birth: The difference in months between the date of birth of the child and the date of birth of the mother both in CMC. The difference is then divided by 60 and truncated to whole numbers to form the age groups (agegroup = int((b3 - v011) /60)). Note that age group 15-19 is classified as age group 3 here, not age group 1. Births are tabulated by age group.

Denominator: Women-years of exposure are calculated as the sum of the number of months exposed in the five-year age group during the time period divided by 12. A woman can contribute exposure to several age groups in the period, depending on the length of the period. For periods exceeding five years a woman can contribute to more than two age groups. For a period of three years or five years a woman will contribute to no more than two five-year age groups during the 36- or 59-month period. The description below assumes a period of 1-36 months preceding the survey, and that a woman contributes to at most two age groups, described here as the higher age group and the lower age group:

Higher age group: A woman's age at the end of the period determines the higher age group. The higher age group is calculated by subtracting the women's date of birth from the date of interview minus one (in CMC), dividing the difference by 60 and truncating to a whole number (agegroup = int((v008-1-v011)/60). The -1 is to ignore the month of interview and use just the 36 months prior to but not including the month of interview.

The number of months spent in the higher age group is the difference in months between her age at the end of the period of exposure (date of interview less one month) and the lower age limit of the age group plus one month (exposure = v008 - 1 - v011 - agegroup*60 + 1). As the -1 and the +1 cancel out this can be simplified to (exposure = v008 - v011 - agegroup*60). If the number of months in the age group exceeds 36 then the exposure is truncated to 36 for the period (exposure = 36 if exposure > 36). If the number of months in the age group is less than the duration of the time period (36 months), then the woman contributes exposure to both the higher age group and the next lower age group (agegroup-1).

Lower age group: The contribution to the lower age group is 36 less the number of months of exposure in the higher age group. If the number of months in the higher age group is greater than the duration of the time period (i.e., >36 months), then the exposure in the higher group is the duration of the period (36 months) and the exposure in the lower age group is zero.

Tabulation: Each woman is tallied twice, once according to her higher age group accumulating the exposure she contributes to that group and once in the lower age group accumulating lower age group exposure. For ever-married samples, the exposure is adjusted to represent all women by multiplying the exposure by the woman's "all women factor" (awfactt), which is derived from the proportion of women ever-married from the persons data file (PR file). See the section on *All Women Factors* for details on their calculation. The total exposure in each age group is then the sum of the exposure in each age group from the first and second tallying.

Examples

Example 1: A woman interviewed in December 2017, born in May 1986. Her CMC date of interview is 12*(2017 - 1900) + 12 = 1416. The CMC of the date of the end of the period of exposure is 1416 - 1 = 1415. Her CMC date of birth is 12*(1986 - 1900) + 5 = 1037. Her age in months at the end of the period is 1415 - 1037 = 378. The age group at the end of the period is 378/60 = 6.3, truncated to 6. This represents age group 30-34 years (30 = 6*5 years interval). The number of months in this age group is 378 - 6*60 + 1 = 19 months. Since this is less than the total number of months during the period (36 months), she contributed 19 months to age group 30-34 during the period and 36 - 19 = 17 months to the age group 25-29 during the period.

Example 2: A woman interviewed in December 2017, born in March 1983. Her CMC date of interview is 12*(2017 - 1900) + 12 = 1416. The date of the end of the period of exposure is 1416 - 1 = 1415. Her CMC date of birth is 12*(1983 - 1900) + 3 = 999. Her age in months at the end of the period is 1415 - 999 = 416. The age group at the end of the period is 416/60 = 6.93, truncated to 6. This represents age group 30-34 years (30 = 6*5 years interval). The number of months in this age group is 416 - 6*60 + 1 = 57 months. Since the number of months in this age group is greater than 36 months, she contributed 36 months of exposure to age group 30-34 during the period and no exposure to the next lower age group during the period.

Handling of Missing Values

The total number of children to which a woman has given birth is recorded obligatorily by the interviewer; no unknown numbers of children are allowed. There are three values involved in the calculation of ASFR, interview date, birth date of woman and birth dates of children. The interview date is always known from fieldwork dates. If missing or unknown, the birth dates of interviewed women and her children are imputed before formation of the standard recode file. See *Date Variables* in *Chapter 1*.

Notes and Considerations

The Age-Specific Fertility Rate (ASFR) is also known as the Age-Period Fertility Rate. The ASFR is typically calculated for the three years that precede the date of the survey and is presented as an annual rate.

The ASFR for women in the age group 15-19 is also known as the Adolescent Birth Rate (ABR).

Births to women at ages less than 15 years or more than 49 years at the time of the birth are not included in the calculation of these ASFRs, however births to girls age 10-14 at the time of birth are included in the calculation of the ASFR 10-14.

Births in the month of interview are excluded. This exclusion is because this month does not represent a full month but is censored by the date of interview.

A three-year (36 month) time period is taken for calculating current ASFR. This period is a compromise between the need for recency and reduction of sampling variation. This time period was selected during the World Fertility Survey, when sample sizes were on average about 5,000 women. For comparability over time and across surveys, this period has been maintained by The DHS Program.

No adjustment is made for truncation by age. Women who are at most 49 years at the time of interview were 48 years the year before and 47 years two years before. The reason no adjustment is made is that the tiny probability of women age 48 and 49 years of age giving birth in the three years preceding the survey outweighs the complication of adjusting by single years of age.

In line with general DHS policy, no adjustment is made for possible omission or date misreporting of the dates of birth of children or misreporting of the date of birth of the woman.

For ever-married samples, it is assumed that never-married women have not had any births. Only the denominator of the rates is adjusted to estimate the number of all women exposed in the age group.

References

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Resources

R package DHS.rates: Calculate Key DHS Indicators: https://CRAN.R-project.org/package=DHS.rates

DHS-8 Tabulation plan: Table 5.1

API Indicator IDs:
FE_FRTR_W_A15, FE_FRTR_W_A20, FE_FRTR_W_A25, FE_FRTR_W_A30,
FE_FRTR_W_A35, FE_FRTR_W_A40, FE_FRTR_W_A45
(API link, STATcompiler link)

SDG Indicator 3.7.2: Adolescent birth rate (15-19)
WHO 100 Core Health Indicators: Adolescent birth rate (15-19)
MICS6 Indicator TM.1: Adolescent birth rate (ASFR 15-19)

Age-Specific Fertility Rate (ASFR) 10-14

Definition

Age-Specific Fertility Rate (ASFR) for age group 10-14: Based on Age-Period Rates

Coverage:
Population base: All girls age 10-14 years during the time period (IR file)
Time period: Three years preceding the survey

Numerator: Number of births that occurred in a period (typically the 1-36 months or 1-60 months before the survey) to girls in the age group 10-14 at the time of the birth (v008 - b3 in 1:36 [or 60]) (BR file)

Denominator: Number of years of exposure in the same period of girls in the age group 10-14 (IR file)

Variables: BR file, IR file.
b3	CMC date of birth of child
v011	CMC date of birth of respondent
v008	CMC date of interview
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)

Calculation

The ASFR 10-14 is calculated as the quotient of the numerator divided by the denominator for each age group, multiplied by 1000. The result is an average rate over the 36- or 59-month period, expressed as an annual rate per 1000 women. The age-specific fertility rate for age group 10-14 is calculated in a similar manner to the ASFRs for age groups between 15 and 49, but with adjustments to both numerator and denominator to avoid biases as girls age 10-14 are not typically interviewed in DHS surveys, and the ASFR 10-14 is based on retrospective data for women age 15-19.

Numerator: Births are tabulated according to period of birth and the age of mother at the time of the birth, and are adjusted for truncation of reports:
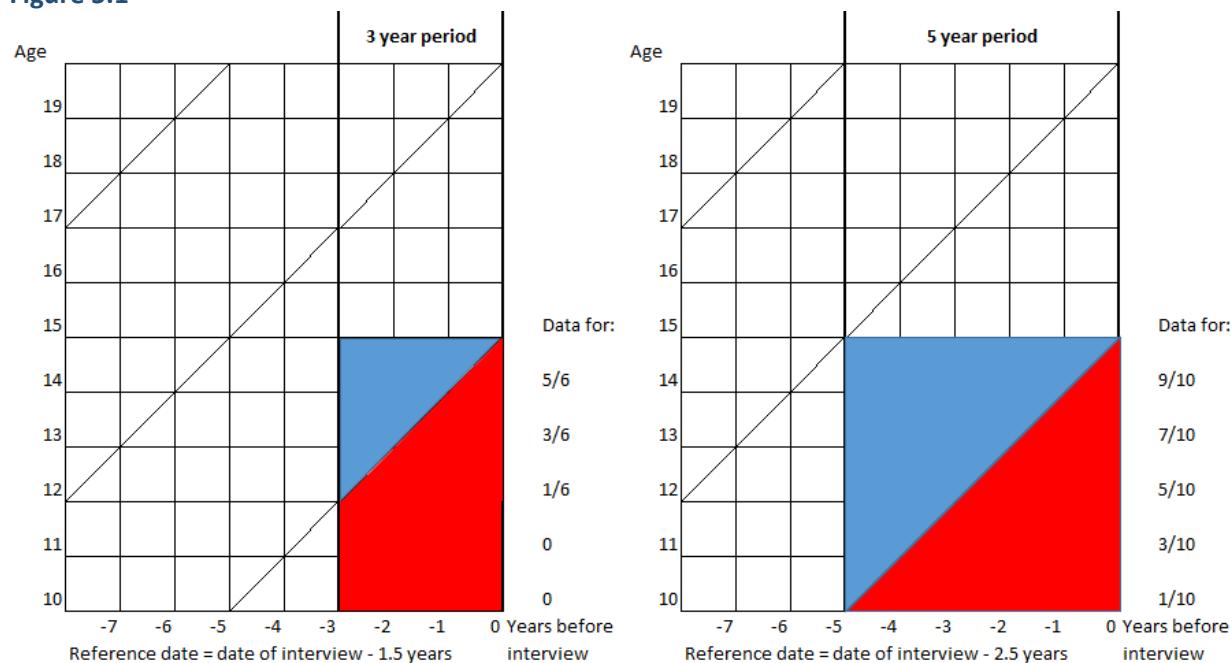
> Period of birth: The period of birth is calculated as the difference in months between the date of interview and the date of birth, both in century-month code format (CMC). Births are included in the tabulation if they occur 1-36 months before the survey (v008 - b3 in 1:36 [or 60]).

> Age of mother at the time of the birth: The difference in months between the date of birth of the child and the date of birth of the mother both in CMC. The difference is then divided by 12 and truncated to whole numbers to form single year age groups (singleage = int((b3 - v011) /12). Births are tabulated by single year age group for ages 10-14. Note that the use of single year age groups is different than the five-year age groups used for ASFRs for ages 15 to 49.

> Adjustment of number of births due to truncation of reports: Figure 5.1 below shows the reports available for the calculation of ASFR 10-14 (in blue) and the data not available due to truncation (in red) for both a three-year period and a five-year period immediately preceding

the survey. For a three-year (36-month) period, for age 14 data are reported for 5/6 of the births and exposure, for age 13 for 3/6, and for age 12 for 1/6. For ages 11 and 10 no data are reported. The births for ages 12-14 are thus adjusted by the inverse of these proportions – 6/5 for age 14, 6/3 for age 13, and 6/1 for age 12. For ages 11 and 10, the assumption is that there are no births in these age groups (in total over more than 200 DHS surveys there were 9 births reported at age 11 and 1 birth at age 10 in the five years preceding the survey). For a five-year (60-month) period similar adjustments of 10/9, 10/7, 10/5, 10/3, 10/1 are made for ages 14, 13, 12, 11, and 10 respectively. After adjusting the births, the total births in each single age is summed to produce an aggregate for the age group 10-14.

Figure 5.1

Denominator: Person-years of exposure are calculated as the sum of the number of months exposed in each single-year age group for ages 10-14 during the time period, adjusted for truncation of reports (see below), divided by 12. A girl can contribute exposure to several single year ages in the period, depending on the length of the period, and may contribute to x+1 single year ages for a period covering x years.

Oldest age: A girl's age at the end of the period determines the oldest age. The oldest age is calculated by subtracting the girl's date of birth from the date of interview minus one (in CMC), dividing the difference by 12 and truncating to a whole number (singleage = int((v008-1-v011)/12). The -1 is to ignore the month of interview and use just the 36 (or 60) months prior to but not including the month of interview.

The number of months spent in the oldest age is the difference in months between her age in months at the end of the period of exposure (date of interview less one month) and the lower age limit in months of the age group plus one month (exposure = v008 - 1 - v011 - singleage*12 + 1). As the -1 and the +1 cancel out this can be simplified to (exposure = v008 - v011 - singleage*12). The remaining exposure (to be covered by other ages) is 36 or 60 minus the exposure.

Other ages: Starting one year before the oldest age, the contribution of exposure to other ages is the minimum of either 12 months or the remaining exposure in months. After tallying the exposure for a single year age, the remaining exposure is reduced by the amount contributed, the single year age is reduced by one year and the tallying repeated for the next lower age until the remaining exposure is 0 or the age is outside of 10-14.

Tabulation: Each girl is tallied once per single year age for each age she was exposed for in the period, accumulating the exposure she contributes to that age. For ever-married samples, the exposure is adjusted to represent all girls by multiplying the exposure by the "all women factor" (awfactt), which is derived from the proportion of women ever-married from the persons data file (PR file). See the section on *All Women Factors* for details on their calculation in *Chapter 1*. The total exposure in the age group 10-14 is then the sum of the exposure in each single age adjusted for truncation of reports (see below).

Adjustment of years of exposure due to truncation of reports: As for the births, similar adjustments are made for the exposure. For a 36-month period the exposure for ages 12-14 are thus adjusted by the inverse of these proportions – 6/5 for age 14, 6/3 for age 13, and 6/1 for age 12. After adjusting the exposure, the total exposure in each single age is summed to produce an aggregate for the age group 12-14. As no exposure is collected for ages 11 and 10, the assumption is that the exposure per single year age for ages 10 and 11 is the same as the average for ages 12-14, and so the exposure is multiplied by 5/3 to produce an estimate of exposure for ages 10-14. For a 60-month period, similar adjustments of 10/9, 10/7, 10/5, 10/3, 10/1 are made to the single year exposure for ages 14, 13, 12, 11, and 10 respectively before summing the total exposure for ages 10-14.

Examples

Example 1: A woman interviewed in December 2017, born in September 2002. Her CMC date of interview is 12*(2017 - 1900) + 12 = 1416. The date of the end of the period of exposure is 1416 - 1 = 1415. Her CMC date of birth is 12*(2002 - 1900) + 9 = 1233. Her age in months at the end of the period is 1415 - 1233 = 182. The single age group at the end of the period is 182/12 = 15.17, truncated to 15. The number of months in this age group is 182 - 15*12 + 1 = 3 months. For the oldest age group (15) she would contribute 3 months, however, age 15 is outside the age group range of 10-14, so no tallying is done for this age group. The remaining exposure in the 36-month period would be 36 – 3 = 33 months. For the next age younger group (14) she contributes the minimum of the remaining exposure (33 months) or 12 months, so thus contributes 12 months and the remaining exposure becomes 21 months. For age 13 she again contributes 12 months, and the remaining exposure becomes 9 months. For age 12 she contributes just the remaining exposure (9 months) to this age in the period.

Summary of exposure for example 1:

Age	Exposure	Remaining exposure	Tallying
15	3	33	No tallying as too old
14	12	21	12 months at age 14
13	12	9	12 months at age 13
12	9	0	9 months at age 12

Example of adjustments for births and exposure for three-year period:

Age	Births	Exposure	Adjustment	Births adjusted	Exposure adjusted
12	1	450	6/1	6	2700
13	8	1500	6/3	16	3000
14	20	2500	6/5	24	3000
Sum for 12-14				46	8700
Sum for 10-14			5/3 for exposure only	46	14500
ASFR 10-14			Births/Exposure		.003

Handling of Missing Values

The total number of children to whom a woman has given birth is recorded obligatorily by the interviewer; no unknown numbers of children are allowed. There are three values involved in the calculation of ASFR, interview date, birth date of woman and birth dates of children. The interview date is always known from fieldwork dates. If missing or unknown, the birth dates of interviewed women and her children are imputed before formation of the standard recode file. See *Date Variables* in *Chapter 1*.

Notes and Considerations

The ASFR 10-14 is typically calculated for the three years that precede the date of the survey and is presented as an annual rate.

Births to women while age 15 or higher are not included in the calculation of the ASFR 10-14, however, births to girls age 10-14 at the time of birth are included in the calculation of the ASFR 10-14.

Births in the month of interview are excluded. This exclusion is because this month does not represent a full month but is censored by the date of interview.

In line with general DHS policy, no adjustment is made for possible omission or date misreporting of the dates of birth of children or misreporting of the date of birth of the woman.

For ever-married samples, it is assumed that never-married women have not had any births. Only the denominator of the rates is adjusted to estimate the number of all women exposed in the age group.

References

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Resources

DHS-8 Tabulation plan: Table 5.1

API Indicator ID:
FE_FRTR_W_A10
(API link, STATcompiler link)

SDG Indicator 3.7.2: Adolescent birth rate (10-14)
WHO 100 Core Health Indicators: Adolescent birth rate (10-14)

Trends in Age-Specific Fertility Rates

Definition

Age-Specific Fertility Rate (ASFR) for five-year periods preceding the survey: Based on Age-Period Rates

Coverage:
> Population base: Women age 15-49 (IR file)
> Time period: Five-year (or four-year) periods preceding the survey

Calculation

The calculation of ASFRs for trends is the same as the calculation of current ASFRs, except that they are calculated for either five-year periods preceding the survey (1-60, 61-120, 121-180 and 181-240 months before the interview date) or four-year periods (1-48, 49-96, 97-144, 145-192, and 193-240 months before the interview date).

Handling of Missing Values

See *Handling of Missing Values* for *Age-Specific Fertility Rates (ASFR)*.

Notes and Considerations

Since the time periods are five years or less in duration, the calculation of women-years of exposure is the same as that for current age-specific fertility rates with the total duration within each period per woman of 60 (or 48) months for five-year (or four-year) periods, respectively.

For five-year time periods, the following ASFRs will be truncated:

Period	Age Group
0-4 years	45-49
5-9	40-44
10-14	35-39
15-19	30-34

For four-year time periods, the following ASFRs will be truncated:

Period	Age Group
0-3 years	45-49
4-7	40-44, 45-49
8-11	35-39, 40-44
12-15	35-39
16-19	30-34, 35-39

The four-year period is used where birth displacement at five years of age is thought to be important.

Resources

DHS-8 Tabulation plan: Table 5.3.1 and 5.3.2

API Indicator IDs:
`FE_FRTT_W_A15, FE_FRTT_W_A20, FE_FRTT_W_A25, FE_FRTT_W_A30, FE_FRTT_W_A35, FE_FRTT_W_A40, FE_FRTT_W_A45`
([API link](), [STATcompiler link]())

Total Fertility Rate (TFR)

Definition

The total fertility rate (TFR) is an age-period fertility rate for a synthetic cohort of women. It measures the average number of births a group of women would have by the time they reach age 50 if they were to give birth at the current age-specific fertility rates. The TFR is expressed as the average number of births per woman. Unless otherwise specified, the TFR is for all women.

Coverage:
> Population base: Women age 15-49 (IR file)
> Time period: Three years preceding the survey, excluding the month of interview (1-36 months before the survey)

Calculation

The TFR is the sum of the *Age-Specific Fertility Rate (ASFR)* for all women multiplied by five. The ASFRs are those for the seven five-year age groups from 15-19 to 45-49.

Handling of Missing Values

See *Handling of Missing Values* for *Age-Specific Fertility Rates (ASFR)*.

Notes and Considerations

The TFR for women age 15-44 is sometimes presented in DHS reports as a variant. It uses the ASFRs from the 6 five-year age groups from 15-19 to 40-44.

The TFR is presented only for women age 15-49 and does not include the ASFR for girls age 10-14, which is generally negligible.

References

See *References* for *Age-Specific Fertility Rates (ASFR)*.

Resources

DHS-8 Tabulation plan: Tables 5.1 and 5.2

API Indicator ID:
FE_FRTR_W_TFR
(API link, STATcompiler link)

WHO 100 Core Health Indicators: Total fertility rate

General Fertility Rate (GFR)

Definition

The general fertility rate (GFR) is the average number of children currently being born to women of reproductive age in the period, typically 1-36 months preceding the survey, expressed per 1,000 women age 15-44

Coverage:

      Population base: Women age 15-44 during the time period (IR file)

      Time period: Three years preceding the survey excluding the month of interview (1-36 months)

Numerator: Total number of births in the period (v008 - b3 in 1:36) (BR file)

Denominator: Total number of women-years of exposure during period (IR file)

Variables: BR file, IR file.

b3	CMC date of birth of child
v011	CMC date of birth of respondent
v008	CMC date of interview
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)

Calculation

Numerator: The total of all births in the period to all women age 15-49, irrespective of their age at the time of birth (v008 - b3 in 1:36).

Denominator: The sum of the women-years of exposure over the five-year age groups from 15-19 to 40-44 tabulated as for the age-specific fertility rates.

GFR is the numerator divided by the denominator, multiplied by 1000.

Handling of Missing Values

See *Handling of Missing Values* for *Age-Specific Fertility Rates (ASFR)*.

Notes and Considerations

All births in the period are counted including births to women age 45-49 and births to women before they reached age 15. The exposure is limited to women age 15-44 and does not count the exposure for women age 45-49 in the denominator. In the literature the denominator for the general fertility rate is women of reproductive age and this is sometimes based on women age 15-44 and other times women age 15-49. The DHS Program uses a denominator based on women age 15-44 as was used in the World Fertility Survey.

For ever-married samples, all women factors are applied in the tabulation of the denominators, as for the age-specific fertility rates.

References

See *References* for *Age-Specific Fertility Rates (ASFR)*.

Resources

DHS-8 Tabulation plan: Table 5.1

API Indicator ID:
FE_FRTR_W_GFR
(API link, STATcompiler link)

Crude Birth Rate (CBR)

Definition

The crude birth rate (CBR) is the annual average number of births per thousand of the whole population

Coverage:
> Population base: All women age 15-49 (IR file)
> Time period: Three years preceding the survey, excluding the month of interview (1-36 months)

Numerator: Total number of births in the three years preceding the survey (v008 - b3 in 1:36) (BR file)

Denominator: Total number of person-years of exposure during the three years preceding the survey (PR file)

Variables: PR file.

hv103	Stayed in the household the previous night (de facto)
hv104	Sex of household member
hv105	Age of household member
hv005	Household sample weight

Calculation

The crude birth rate is calculated by summing the product of the current age-specific fertility rates and the proportion of women in the specific age group out of the total de facto population based on the household members (PR) file:

$$\Sigma \left(ASFR_i \times \left(\frac{Women_{ih}}{Population_{tot}} \right) \right)$$

See *Age-Specific Fertility Rate (ASFR)* for the calculation of the ASFRs.

For the proportion of women in the specific age group out of the total de facto population:

Numerator: From the household members (PR) file, the number of women who slept in the household the night before the interview tabulated by five-year age group (according to age reported in the household schedule) for groups 15-19 to 45-49.

Denominator: From the household survey, the total number of people of both sexes and all ages who slept in the household the night before the interview.

Handling of Missing Values

Sex of household member is always assigned. It may be possible that in early DHS surveys sex had missing values. In that case the household member was included in the denominator, but not the numerator.

Women with unknown age are assumed to be outside the 15-49 year range; thus they are not tabulated for numerators. People of either sex with unknown age are included in the denominators.

Notes and Considerations

Nominally the calculation of the crude birth rate is just the number of births in the period based on the BR file divided by the total de facto population based on the PR file, however, because there is some level of non-response to the women's questionnaire the number of births would be an underestimate relative to the population, and thus would bias downwards the crude birth rate. To avoid this problem, the calculation instead takes each of the age-specific fertility rates (ASFRs) for women age 15-19 to age 45-49, each of which has women as the denominator, and multiplies each of the ASFRs by the proportion of women in the age group compared to the total de facto population, and sums these products, as follows:

$$
\begin{aligned}
CBR \quad &= \Sigma \left(\frac{Births}{Population_{tot}} \right) \\
&= \Sigma \left(\left(\frac{Births_i}{Women_{iw}} \right) * \left(\frac{Women_{ih}}{Population_{tot}} \right) \right) \\
&= \Sigma \left(\quad ASFR_i \quad * \left(\frac{Women_{ih}}{Population_{tot}} \right) \right)
\end{aligned}
$$

where i is the age group from 15-19 to 45-49, $Women_{iw}$ is the number of women-years of exposure in age group i from the women's questionnaire data (IR file), and $Women_{ih}$ is the count of women in age group i from the household population (PR file).

Assumptions: Due to the lack of birth dates for the household population, the proportion of women in each age group at the time of the survey is assumed to be the same as the proportion at the midpoint of the time period.

References

See *References* for *Age-Specific Fertility Rates (ASFR)*.

Resources

DHS-8 Tabulation plan: Table 5.1

API Indicator ID:
FE_FRTR_W_CBR
(API link, STATcompiler link)

Percentage currently pregnant

Definition

Percentage of women age 15-49 years who report themselves as pregnant at the time of interview expressed as a percentage.

Numerator: Number of women age 15-49 who report themselves pregnant at the time of interview (v213 = 1)

Denominator: Number of women age 15-49

Variables: IR file.

v213	Currently pregnant
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)

Calculation

Numerator divided by denominator, multiplied by 100. In ever-married samples, the denominator is adjusted by the all women factor.

Handling of Missing Values

Women with missing and "don't know" responses are considered not pregnant. Women who do not know or are unsure whether they are pregnant or women with missing data on whether pregnant are excluded from the numerator but are included in the denominator.

Notes and Considerations

The percentage of women currently pregnant is underreported because women who are in their early stage of pregnancy may not yet know if they are pregnant and because some women may not want to declare that they are pregnant. In ever-married samples, never-married women are assumed not to be pregnant.

Resources

DHS-8 Tabulation plan: Table 5.2

API Indicator ID:
FE_FRTY_W_PRG
(API link, STATcompiler link)

Completed Fertility

Mean number of children ever born to women age 40-49

Definition

Mean number of all children, both surviving and dead, born to women age 40-49.

Coverage:
>   Population base: Women age 40-49 (IR file)
>   Time period: Current status at time of survey

Numerator: Number of all children ever born (v201) to women age 40-49 (v012 in 40:49)

Denominator: Number of women age 40-49 in the sample (v012 in 40:49)

Variables: IR file.
v201   Number of children ever born
v012   Age in single years
v005   Woman's individual sample weight
awfactt   All women factor (only needed with ever-married samples)

Calculation

Numerator divided by denominator multiplied by 100. In ever-married samples, the denominator is adjusted by the all women factor.

Handling of Missing Values

Not applicable—Number of children ever born is not allowed to have missing values.

Notes and Considerations

The mean number of children ever born to women age 40-49 provides an estimate of completed fertility that can be compared with current total fertility to indicate fertility change. In ever-married samples, never-married women are assumed to have never given birth.

Resources

DHS-8 Tabulation plan: Table 5.2

API Indicator ID:
FE_FRTY_W_MNC
(API link, STATcompiler link)

Children Ever Born and Living

Percent distribution by number of children ever born

Definition

Percentage of women age 15-49 with specified number of children ever born.

Coverage:

Population base: All women age 15-49; Currently married women age 15-49, including women formally married or living in a consensual union (v502 = 1) (IR file)

Time period: Current status at time of survey

Numerator: Number of women age 15-49 who in their lives have given birth to the specified number of children (v201)

Denominator:
a) Number of women age 15-49
b) Number of currently married women (v502 = 1) age 15-49

Variables: IR file.

v201	Number of children ever born
v502	Currently/formerly/never in union
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)

Calculation

For each specified number of children, numerator divided by the denominator multiplied by 100. In ever-married samples, the denominator is adjusted by the all women factor.

Handling of Missing Values

Not applicable—Number of children and marital status are not allowed to have missing values.

Notes and Considerations

Percentages add up to 100 percent.

Resources

DHS-8 Tabulation plan: Table 5.4

API Indicator IDs:

```
FE_CEBA_W_CH0, FE_CEBA_W_CH1, FE_CEBA_W_CH2, FE_CEBA_W_CH3, FE_CEBA_W_CH4,
FE_CEBA_W_CH5, FE_CEBA_W_CH6, FE_CEBA_W_CH7, FE_CEBA_W_CH8, FE_CEBA_W_CH9,
FE_CEBA_W_C10
```
([API link](), [STATcompiler link]())

Mean number of children ever born and mean number of living children

Definition

Mean number of all children, both surviving and dead, and living children to all women in the sample.

Numerators:
1) Mean number of children ever born: Sum of number of children surviving and dead at the time of the survey who were given birth by women in the sample (v201)
2) Mean number of living children: Sum of number of children alive at the time of the survey who were given birth by women in the sample (v218)

Denominator:
a) Number of women age 15-49
b) Number of currently married women (v502 = 1) age 15-49

Variables: IR file.

v201	Number of children ever born
v218	Number of living children
v502	Currently/formerly/never in union
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)

Calculation

Numerator divided by denominator. In ever-married samples, the denominator is adjusted by the all women factor.

Handling of Missing Values

Not applicable—Number of children and marital status of women and children's survival status are not allowed to have missing values.

Notes and Considerations

Expressed to two decimal places. The mean number of children ever born and mean number of living children can be used to understand fertility change over time.

The mean number of children ever born and mean number of living children by age group can also be used as inputs for indirect estimation of infant and under five mortality rates. The DHS Program produces direct estimates of infant and under five mortality rates (see *Early Childhood Mortality Rates*) rather than indirect estimates but presents these indicators to facilitate other data users' analyses.

References

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Resources

DHS-8 Tabulation plan: Table 5.4

API Indicator IDs:
FE_CEBA_W_MNC, FE_CEBA_W_MNL
(API link, STATcompiler link)

Birth Intervals

Percent distribution by months since preceding birth

Definition

Percentage of non-first births in the five years preceding the survey by number of months since the preceding birth.

Coverage:

> Population base: All second- and higher-order births in the time period (BR file or KR file)
> Time period: Five years preceding the survey (0-59 months)

Numerator: Number of births whose interval with the preceding birth (b11) is within the specified grouped number of months (7-17, 18-23, 24-35, 36-47, 48-59, 60+)

Denominator: Total number of births

Variables: BR file or KR file.

bord	Birth order
b0	Twin
b11	Preceding birth interval
b19	Months since birth of child (DHS-7)
v005	Woman's individual sample weight

Calculation

Covered births: Children both surviving and dead who have a difference between the date of interview and their birth date of 0-59 months (see *Notes and Considerations*), excluding first-born children and their twins, i.e. excluding birth_order = 1, where birth_order is calculated as follows:

birth_order = bord
if (b0 > 1) birth_order = bord - b0 + 1

Preceding birth interval: (b11) Difference between birth date of child and birth date of preceding child grouped into the groups 7-17, 18-23, 24-35, 36-47, 48-59, and 60+ months. For children of multiple births, the birth date of the preceding child is the number of months since the end of the preceding pregnancy that ended in a live birth.

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Not applicable—Birth dates of children are imputed if missing; therefore birth dates do not have missing values.

Notes and Considerations

Percentages add up to 100 percent.

First-order births (and their twins) are excluded from both numerators and denominators.

Births in the month of interview are included and births 60 months before the interview are excluded.

Changes over Time

The calculation of months since birth has changed in DHS-7 compared to prior rounds of DHS. In DHS-7 recode files b19 provides months since birth for both living and dead children calculated from the date of birth in days. In prior rounds of The DHS Program, months since birth were calculated based on the date of birth in months as v008-b3. The selection for births in the five years preceding the survey is based on b19 < 60 or, in datasets without b19, v008-b3 < 60.

Similarly, the calculation of the length of the preceding birth interval (b11) also changed in DHS-7 and is now calculated as the difference in the century day code (CDC) for the date of birth (b18) for the index child and the preceding child, in days, divided by 30.4375 to convert to months. In prior rounds of The DHS Program, the preceding birth interval was just the difference in the CMC date of birth of the index child and the preceding child. Overall the preceding birth interval will be a month shorter in roughly half of the cases using the DHS-7 calculation rather than the prior method.

For more information on the changes in the calculation of age of children, months since birth, and the preceding birth interval, see *Age of Children* in Chapter 1.

Resources

DHS-8 Tabulation plan: Table 5.5

API Indicator IDs:
FE_BINT_C_I07, FE_BINT_C_I18, FE_BINT_C_I24, FE_BINT_C_I36, FE_BINT_C_I48, FE_BINT_C_I60
(API link, STATcompiler link)

Median number of months since preceding birth

Definition

Median number of months since the preceding birth for non-first births in the five years preceding the survey.

Population base: All second- and higher-order births in the time period (BR file or KR file)
Time period: Five years (0-59 months) preceding the survey (b19 < 60)

Median: Interpolated retrospective median

Variables: BR file or KR file.
bord   Birth order
b0   Twin
b11   Preceding birth interval
b19   Months since birth of child
v005   Woman's individual sample weight

Calculation

Numerators: Preceding birth interval (b11) in single months. The preceding birth interval is the difference between birth date of child and birth date of preceding child in months. For children of multiple births, the birth date of the preceding child is the number of months since the end of the preceding pregnancy that ended in a live birth.

Denominator: Children both surviving and dead who were born 0-59 months prior to the interview (b19 < 60 – see *Changes over Time*), excluding first-born children and their twins (see *Percent distribution by months since preceding birth*).

Numerator for each single month category divided by the denominator, multiplied by 100.

Median is calculated from single month percent distributions of durations of preceding birth intervals. Median is linearly interpolated between the duration month values by which 50 percent or more of the preceding intervals were closed by a birth.

Example: If the cumulative distribution up to and including the category 21 months is 49.3% and up to and including 22 months is 50.7% then the median is 21 + ((50.0 - 49.3) / (50.7 - 49.3)) +1 = 22.5 months. The +1 is an adjustment as the category 21 months is not exactly 21 months but up to, but not including 22 months (see *Notes and Considerations*).

Handling of Missing Values

Not applicable—Birth dates of children are imputed if missing; therefore, birth dates do not have missing values.

Notes and Considerations

First-order births (and their twins) are excluded from calculation.

Births in the month of interview are included and births 60 or more months before the interview are excluded.

Since the difference in the index child's and previous child's birth dates are truncated to completed months, the difference between them is taken as including up to the next completed month (cumulated percentage for a birth interval with a difference of 21 months actually includes all preceding birth intervals below 22 months). Therefore, an adjustment is made to the interpolated median by increasing the interpolated value by one month as shown in the example above.

Changes over Time

See *Changes over Time* for *Percent distribution by months since preceding birth*.

Resources

DHS-8 Tabulation plan: Table 5.5

API Indicator ID:
FE_BINT_C_MED
(API link, STATcompiler link)

Postpartum Exposure: Amenorrhea, Abstinence, and Insusceptibility

Percentage of live births and stillbirths for which mothers are postpartum amenorrheic, abstaining from sexual intercourse and insusceptible to pregnancy

Definition

1) Percentage of live births and stillbirths in the 3 years preceding the survey for which the mothers are postpartum amenorrheic.
2) Percentage of live births and stillbirths in the 3 years preceding the survey for which the mothers are postpartum abstaining from sexual intercourse.
3) Percentage of live births and stillbirths in the 3 years preceding the survey for which the mothers are insusceptible to pregnancy.

Coverage:

> Population base: All live births and stillbirths within the time period preceding the survey (NR file)

> Time period: Current status at the time of the survey (interview date) for births within the three years (0-35 months) preceding the survey

Numerators:

1) Number of live births and stillbirths at specified times before the survey for which the mother is postpartum amenorrheic (i.e., her menstrual period has not resumed since the birth, and she is not currently pregnant) (m6 = 96 & v213 ≠ 1)
2) Number of live births and stillbirths at specified times before the survey for which the mother is postpartum abstaining (i.e., mother has not resumed sexual intercourse since the birth) (m8 = 96)
3) Number of live births and stillbirths at specified times before the survey for which the mother is either postpartum amenorrheic or abstaining ((m6 = 96 & v213 ≠ 1) or m8 = 96)

Denominator: Number of live births and stillbirths at specified times (typically three years) preceding the survey (b19 < 36)

Variables: NR file.
p0	Twin
p3	CMC date of birth
p19	Months since birth
m6	Duration of amenorrhea (96 = still amenorrheic)
m8	Duration of abstinence (96 = still abstaining)
v005	Woman's individual sample weight

Calculation

Live births and stillbirths:
For the purposes of analysis of DHS data, a live birth is a pregnancy outcome that resulted in a live born child including children who cried, breathed, or moved, but later died, irrespective of the duration of

pregnancy. A stillbirth is defined as any pregnancy of 28 weeks or more or 7 or more months duration that resulted in an outcome other than a live birth.

Numerators:
Number of last births where the mother is amenorrheic since the birth (m6=96) and the mother is not currently pregnant (v213≠1). For last birth, amenorrhea status is from the mother's report of her status at the time of the interview. For all other births, the mother is assumed not to be amenorrheic since the birth. Includes live births and stillbirths for which mothers are either still amenorrheic or still abstaining (or both) following birth

Number of last births where the mother has abstained from sexual intercourse since the birth (m8=96). For last birth, abstinence status is from the mother's report of her status at the time of the interview. For all other births, the mother is assumed not to have been abstaining since the birth.

Number of last births where the mother is either amenorrheic or has abstained from sexual intercourse since the birth (m6=96 or m8=96). For last birth, insusceptibility is from the mother's report of her amenorrhea and sexual abstinence status at the time of the interview. For all other births, the mother is assumed not to have been insusceptible since the birth.

Births are grouped by two-month intervals before the survey, as determined by difference in interview date and birth date (p19).

Denominator: Number of all births in the three years preceding the survey (p19 < 36), including last and prior births, grouped by two-month intervals before survey (int(p19/2)), as determined by difference in interview date and birth date.

Percentages: Numerators are divided by the denominator and multiplied by 100.

Handling of Missing Values

Birth dates were imputed if missing. Dates of interview are not allowed to have missing data.
Women with missing reports of amenorrhea or sexual abstinence are considered to be not amenorrheic or not abstaining, respectively.

Notes and Considerations

Only the last of multiple births are considered (caseid ≠ caseid[_n-1] or p3 ≠ p3[_n-1]). The other births are ignored in both numerators and denominator. Births of both living and dead children are included. Survival status is ignored.

Changes over Time

The calculation of the number of months since the birth changed in DHS-7 compared to prior rounds of The DHS Program. This indicator uses the variable b19 (months since birth) calculated using the full date of birth of the child and the full date of interview, while in earlier rounds of The DHS Program, the number of months since birth was calculated using the century month code of the date of birth and the century month code of the date of interview as v008 - b3. See *Age of Children* in Chapter 1 for more

information. The main effect for this indicator is that the number of months since the birth is roughly half a month shorter on average than presented in prior rounds of The DHS Program, so care should be taken when comparing results between surveys.

The calculation of this indicator further changed in DHS-8 to include both live births and stillbirths.

Resources

DHS-8 Tabulation plan: Table 5.6

API Indicator IDs:
`FE_PPIS_W_AMN, FE_PPIS_W_ABS, FE_PPIS_W_INS`
([API link](), [STATcompiler link]())

Median and mean durations of postpartum amenorrhea, abstinence, and insusceptibility

Definition

1) Median number of months of postpartum amenorrhea.
2) Median number of months of postpartum abstinence.
3) Median number of months of postpartum insusceptibility.

4) Mean number of months of postpartum amenorrhea.
5) Mean number of months of postpartum abstinence.
6) Mean number of months of postpartum insusceptibility.

Coverage:

Population base: All births within the time period (0-35 months) preceding the survey (NR file)

Time period: Current status at the time of survey

Numerators:

1) Number of births at specified times before the survey for which the mother is postpartum amenorrheic (i.e., her menstrual period has not resumed since the birth, and she is not currently pregnant) (m6 = 96 & v213 ≠ 1)
2) Number of births at specified times before the survey for which the mother is postpartum abstaining (i.e., mother has not resumed sexual intercourse since the birth) (m8 = 96)
3) Number of births at specified times before the survey for which the mother is either postpartum amenorrheic or abstaining (m6 = 96 or m8 = 96)

Denominator: Number of births at specified times in the three years preceding the survey (p19 < 36)

Variables: NR file.

p0	Twin
p3	CMC date of birth
p19	Months since birth
m6	Duration of amenorrhea (96 = still amenorrheic)
m8	Duration of abstinence (96 = still abstaining)
v005	Woman's individual sample weight

Calculation

Utilize the numerators and denominators calculated for the *Percentage of live births and stillbirths for which mothers are postpartum amenorrheic, abstaining from sexual intercourse and insusceptible to pregnancy*, by time since birth, as given above. Numerators and denominators are each smoothed by a three-group moving average. For example, the value of the numerator and denominators for births that occurred 4-5 months before the interview is the average of groups 2-3, 4-5, and 6-7 months. Groups < 2 months and 34-35 months are not smoothed. Smoothed proportions are calculated by dividing the smoothed numerator values by the smoothed denominator values of each two-month group.

Median

Beginning with the lowest time-since-birth group, each group is examined to see whether the proportion amenorrheic, abstaining, or insusceptible is less than 0.5. Value of median is determined by linear interpolation of percentage of first group below 0.5 and previous group percentage using the following formula:

$$\textbf{median} = \ m_{i-1} + \frac{(p_{i-1}-0.5)}{(p_{i-1}-p_i)} * (w_i)$$

where p_i is the proportion amenorrheic, abstaining, or insusceptible for the first group, where the proportion is below 0.5, p_{i-1} is the proportion amenorrheic, abstaining, or insusceptible for the preceding group, m_{i-1} is the midpoint value for the preceding group, and w_i is the time width of the group taken as the difference between the midpoint value of the current group and the preceding group.

Prior to DHS-7: In The DHS Program rounds prior to DHS-7, for all groups except the first, the midpoint values are one-half month above the lower limit. This midpoint value comes about because the time since birth is calculated as the difference between birth dates and date of interview that are accurate for month only (day of month is not ascertained), and month 0 effectively contains on average only half a month's births.

For example, if the date of interview were April 2018, the interview could have occurred at any time during the month, from the 1st to the 30th. The same holds true for a birth that occurred in January 2018, at any time between the 1st and the 31st of the month. Thus, the difference in time between the date of birth and the date of interview could be between 60 days and 120 days. Assuming a constant distribution by day of month for interviews and for births, the midpoint is 90 days or three months, which is the value of the difference in the century-month codes of the dates. The midpoint value for the group of the difference of 2 months and 3 months together is therefore 2.5.

The first group is special. The value of the previous group is assumed to be 100 percent since all women are assumed to be amenorrheic and abstaining on the day of birth. Moreover, births that occur in the month of interview can only come before the date of interview, rather than on any day of the month of interview. Based on simulations, 0.75 is chosen as the midpoint value for the group < 2 months (i.e., 0-1). The midpoint of the previous group is 0 (day of interview).

DHS-7 and later: The midpoint values are at the midpoints of the range as the difference between the births dates and date of interview are accurate to the day, and month 0 now contains a full month of births.

Using the example above, if the date of interview were April 2018, the interview could have occurred at any time during the month, from the 1st to the 30th. The same holds true for a birth that occurred in January 2018, at any time between the 1st and the 31st of the month. With the day of interview known, and the day of birth known, or imputed, it is possible to calculate the exact age of the child to the day and the age would be between 2.0 months and just less than 4.0 months and would be either 2 month or 3 months when truncated. Similarly, a child born in February 2018 would either be 1 or 2 months old. Combining all date combinations together, a child categorized as 2 months old would on average be 2.5 month, and a child categorized as 3 months old would on average be 3.5 months old. The midpoint value for the group of the difference of 2 months and 3 months together is therefore 3.0.

In DHS-7, the first group is still special, and the value of the previous group is still assumed to be 100 percent since all women are assumed to be amenorrheic and abstaining on the day of birth. However, because births in the month 0 group now come from births in the month of interview and in the preceding month, the midpoint of the month 0 group is 0.5 and the month 1 group is 1.5, so for the group 0-1 months, the midpoint is 1.0.

Example:

	DHS-7				Rounds prior to DHS-7		
Group	**Pi**	**Midpoint**	**Width**	**Group**	**Pi**	**Midpoint**	**Width**
<2	0.88	1.0	1.0	<2	0.90	0.75	0.75
2–3	0.67	3.0	2.0	2–3	0.70	2.5	1.75
4–5	0.52	5.0	2.0	4–5	0.55	4.5	2.00
6–7	0.40	7.0	2.0	6–7	0.43	6.5	2.00

Note that the proportions in age each group are not the same between the DHS-7 approach and the prior approach as the calculation of months since birth has changed in DHS-7 to provide a more accurate estimate, thus requiring the change in the method of calculating the median.

DHS-7 and later: $\textbf{median duration} = 5.0 + \frac{(0.52-0.50)}{(0.52-0.40)} * (7.0 - 5.0) = 5.33\ months$

Prior to DHS-7: $\textbf{median duration} = 4.5 + \frac{(0.55-0.50)}{(0.55-0.43)} * (6.5 - 4.5) = 5.33\ months$

Note also that due to a number of factors including the different calculation of the age groups, and the application of the three-month moving average, the actual calculations are unlikely to result in exactly the same estimates (as the example does) from the two approaches, but they should be quite close. In general, the DHS-7 approach is a more accurate estimate.

Mean

The mean duration is the accumulation over all groups of the proportions amenorrheic, abstaining, or insusceptible (p_i) multiplied by the width of the time-since-birth group (w_i).

$$\textbf{mean duration} = \Sigma\, p_i * w_i$$

The calculation of the mean is also affected by the change in approach in the calculation of the time-since-birth groups, which will result in slightly different proportions in each group, and a change in the width of the first two groups.

Handling of Missing Values

Birth dates were imputed if missing. Dates of interview are not allowed to have missing data.

Women with missing reports of amenorrhea or sexual abstinence are considered to be not amenorrheic or not abstaining, respectively.

Notes and Considerations

Medians and means are based on current status of mothers of the births. The distributions of the proportions of births by month of birth of the child are analogous to the l_x column of the synthetic life table. The basic assumption is that there has been no change in the proportions amenorrheic, abstaining, and insusceptible over time so that proportions that are calculated from births with small times since birth are the same as those of births that occurred earlier, when those earlier births had those durations. For the short period of 36 months, this assumption is very likely to be approximately correct. The proportions are assumed to be 1 at the time of birth and to decrease monotonically with time since birth. The time at which the proportions decline to 0.5 is taken as the median. The mean is taken similarly from the l_x column of the life table, which in this case is the series of proportions by time since birth. Because the sum of proportions equals 1, there is no need to divide the sum of the proportions times the width of the interval.

Because of the relatively small number of births in each month before the interview, the months are first grouped and then smoothed to reduce random fluctuations due to sampling variance.

Mean

Truncated Mean: Because of the limitation to births that occurred within the three years preceding the survey, the mean is truncated if there are mothers who are amenorrheic or abstaining longer than three years after their last birth. It is very unlikely that the proportions are more than negligible after 35 months since birth, except for those women who are not really postpartum amenorrheic or abstaining (more likely for older women whose postpartum amenorrhea blended into menopause or whose postpartum sexual abstinence blended into terminal abstinence). Therefore, it is felt that the truncated mean is very close to the full mean.

The measures are based on all births that occurred within the three years preceding the interview, including last and other births, surviving or not.

Decisions on Alternatives

Current status medians and means are used instead of measures based on the recall of durations because of the severe heaping (digit preference) on multiples of 3 and 6 months in the recall data.

In the current calculation of median and mean durations, a woman can contribute more than once if she had more than one birth in the three years preceding the survey. An alternative calculation would be to base the medians and means on women rather than births. In this alternative, each woman is represented only once, which is equivalent to durations based on only the last birth. Estimates of durations based on last births (open interval durations) are thought to overestimate average durations of amenorrhea and abstinence since they almost always exceed those based on recall after other births (closed interval durations).

Changes over Time

As described above under the median calculation the change in the calculation of time since birth required changes in the calculation of the current status median from the proportions amenorrheic,

abstaining or insusceptible. See *Age of Children* in Chapter 1 for more information on the change in the calculation of time since birth.

In DHS-8 the calculation of this indicator was changed to include amenorrhea, postpartum abstinence, and insusceptibility following live births and stillbirths.

Resources

DHS-8 Tabulation plan: Tables 5.6 and 5.7

API Indicator IDs:
FE_PPIS_W_MDA, FE_PPIS_W_MDB, FE_PPIS_W_MDI, E_PPIS_W_MNA, FE_PPIS_W_MNB, FE_PPIS_W_MNI
(API link, STATcompiler link)

Age at Menarche

Percentage of women whose first menstruation occurred by specific exact ages, percentage who have never menstruated, and mean age at menarche

Definition

1) Percentage of women age 15-49 first menstruation occurred by specific exact ages
2) Percentage of women age 15-49 who have never menstruated
3) Mean age at menarche

Coverage:

Population base: All women age 15-49 (IR file)

Time period: Current status at the time of survey

Numerator:

1) Percentage of women age 15-49 whose first menstruation occurred by specific exact ages (v249)
2) Percentage of women age 15-49 who have never menstruated (v249 = 96)
3) Mean age at menarche

Denominator: All women age 30-49

Variables: IR file.
v249   Age at first menstrual period
v005   Woman's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with inconsistent or missing values and "don't know" on age at first menstrual period are calculated in their own category.

Changes over Time

This was not reported prior to DHS-8.

Resources

DHS-8 Tabulation plan: Table 5.8

API Indicator IDs:
```
FE_MENA_W_M10, FE_MENA_W_M11, FE_MENA_W_M12, FE_MENA_W_M13, FE_MENA_W_M14,
FE_MENA_W_M15, FE_MENA_W_MNV, FE_MENA_W_MDK, FE_MENA_W_MAM
```

(API link, STATcompiler link)

Menopause

Percentage of women who are menopausal

Definition

Percentage of women age 30-49 who are menopausal.

Coverage:

Population base: Women age 30-49 (IR file)

Time period: Current status at the time of survey

Numerator:

Number of women whose last menstruation occurred six or more months before the survey (v226 in 6:399) or before the last birth (v226 = 995):
1) who have had a hysterectomy (v226 = survey specific code)
2) who declare that they are menopausal (v226 = 994)
3) who never menstruated (v226 = 996).

Excludes women who are currently pregnant or have postpartum amenorrhea (v213 = 1 or v405 = 1).

Denominator: Women age 30-49 (v012 in 30:49)

Variables: IR file.

v012	Age in single years
v213	Currently pregnant
v226	Time since last period in months
v405	Currently amenorrheic
v005	Woman's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with inconsistent or missing values and "don't know" on time since last menstrual period are not considered menopausal.

Notes and Considerations

Since the purpose of the statistic is to measure biological non-exposure to the risk of pregnancy, which increases with age, women who had a hysterectomy and who never had a period are included, as well as those who are truly menopausal. The lack of a period for six months (not postpartum) is taken as a prime indication of menopause in older women.

Resources

DHS-8 Tabulation plan: Table 5.9

API Indicator IDs:
FE_MENO_W_PCT
([API link](), [STATcompiler link]())

Age at First Birth

Percentage of women who gave birth by specific exact ages and percentage who never had a live birth

Definition

1) Percentages of women age 15-49 who had a first birth by specific exact ages.
2) Percentage of women age 15-49 who have never had a live birth.

Coverage:

      Population base: All women age 15-49 (IR file)

      Time period: Current status at time of survey

Numerator:

1) Number of women whose first birth was before specific exact ages (v212 < specific age)
2) Number of women who have never gave birth (v201 = 0)

Denominator: Total number of women age 15-49 including those without a birth

Variables: IR file.

v201	Number of children ever born
v212	Age at first birth
v005	Woman's individual sample weight

Calculation

Age at first birth (v212) is the difference between the birth date of the first-born child and birth date of the woman (in CMC format) grouped into categories of age at first birth in years.

Numerators: Number of women who gave birth by specific exact ages (15, 18, 20, 22, 25) includes women who gave birth before earlier specific ages, e.g. the number of women who gave birth before age 18 includes those who gave birth before age 15. Number of women with no births (v201 = 0) are included in a separate category.

Denominator: Number of all women, irrespective of marital status or whether they ever had a birth. Ever-married sample denominators are adjusted by the all women factors.

Numerator for each exact age category are divided by the denominator, multiplied by 100.

Handling of Missing Values

Not applicable—Birth dates of children and women are imputed if missing; therefore, birth dates do not have missing values.

Notes and Considerations

Percentages are not calculated for the exact ages at first birth categories by cohorts of women where the youngest member of the cohort has not yet reached the exact age of the category. For example, percentages for the cohort of women age 20-24 at the time of the survey will not be calculated for exact age categories 22 and 25 because some women without births are still in or below the exact ages and could still have first births before the specific age.

Resources

DHS-8 Tabulation plan: Table 5.10
API Indicator IDs:
`FE_BBAG_W_A15, FE_BBAG_W_A18, FE_BBAG_W_A20, FE_BBAG_W_A22, FE_BBAG_W_A25, FE_BBAG_W_NEV`
([API link](#), [STATcompiler link](#))

MICS6 Indicator TM.2: Early childbearing

Median age at first birth

Definition

Median age in years at birth of the first child.

Coverage:

Population base: Women age 15-49 (IR file)

Time period: Current status at time of survey

Median: Median for completed time periods

Variables: IR file.

v201   Number of children ever born
v212   Age at first birth
v005   Woman's individual sample weight

Calculation

Age at first birth: Difference between birth date of first-born child and birth date of woman (in CMC format), truncated to single years of age (v212).

Numerators: Number of women within single age group categories. Women with no births (v201 = 0) are included in a separate category at the tail of the distribution.

Denominator: Number of women, irrespective of marital status or whether they ever had a birth. Ever-married sample denominators are adjusted by the all women factors.

Numerator for each single age group category are divided by the denominator, multiplied by.

Medians are calculated from cumulated single year of age percent distributions of age at first birth. Median is linearly interpolated between the age values by which 50 percent or more of the women had a first birth. See *Median Calculations* in *Chapter 1*.

Handling of Missing Values

Not applicable—Birth dates of children are imputed if missing; therefore birth dates do not have missing values.

Notes and Considerations

Since the difference in mother's and child's birth dates are truncated to years, difference between them is taken as including up to next completed year of age (cumulated percentage for women with a difference of 19 years includes all women below 20 years of age at first birth). Therefore an adjustment is made to the interpolated median by increasing the interpolated value by one year.

Since the median is based on all women including those without a birth, there may not be a median for younger cohorts of women (since fewer than 50 percent of the cohort may have had a birth).

Resources

DHS-8 Tabulation plan: Tables 5.10 and 5.11

API Indicator IDs:
FE_AAFB_W_M20, FE_AAFB_W_M25
(API link, STATcompiler link)

Teenage Pregnancy and Motherhood

Percentage of women age 15-19 who have ever had a live birth, percentage who have ever had a pregnancy loss, percentage who are currently pregnant, and percentage who have ever been pregnant

Definition

1) Percentage of women age 15-19 who have had a live birth.
2) Percentage of women age 15-19 who have ever had a pregnancy loss.
3) Percentage of women age 15-19 who are currently pregnant.
4) Percentage of women age 15-19 who have ever been pregnant..

Coverage:

Population base: All women age 15-19 (IR file)

Time period: Current status at time of survey

Numerators:

1) Number of women age 15-19 (v013 = 1) who are mothers: Number of women who have had a birth (v201 > 0)
2) Number of women age 15-19 (v013 = 1) who have ever had a pregnancy loss (v245 > 0)
3) Number of women age 15-19 (v013 = 1) who are currently pregnant (v213 = 1)
4) Number of women age 15-19 (v013 = 1) who have ever been pregnant (v201 > 0 or v245 > 0 or v213 = 1)

Denominator: All women age 15-19 (v013 = 1)

Variables: IR file.

v013	Age in five year groups
v201	Number of children ever born
v213	Currently pregnant
v245	Pregnancy losses
v005	Woman's individual sample weight

Calculation

Percentage of women who have begun childbearing is the sum of the percentage who are mothers and the percentage who are pregnant with their first child.

Numerator divided by the denominator, multiplied by 100.

Denominator is the number of women of all marital statuses. Ever-married samples denominators are adjusted by the all women factors.

Handling of Missing Values

Women who have missing data for current pregnancy or are unsure whether they are pregnant are considered not pregnant at the time of interview.

Resources

DHS-8 Tabulation plan: Table 5.12
API Indicator IDs:
FE_TNPG_W_LVB, FE_TNPG_W_PRG, FE_TNPG_W_CBR
(API link, STATcompiler link)

Sexual and Reproductive Health before Age 15

Among women and men age 15-19, percentage who initiated sexual intercourse before age 15, percentage who married before age 15, percentage who had a live birth/fathered a live birth before age 15, and percentage of women who have ever been pregnant before age 15

Definition

Among women and men age 15-19:
1) percentage who initiated sexual intercourse before age 15
2) percentage who married before age 15
3) percentage who had a live birth/fathered a live birth before age 15
4) percentage of women who have ever been pregnant before age 15

Coverage:

Population base: All women and women age 15-19 (IR file, MR file)

Time period: Current status at time of survey

Numerators:

Among women and men age 15-19 (women: v013 = 1; men: mv013 = 1)
1) Number who initiated sexual intercourse before age 15 (women: v531 <15; men: mv531 < 15)
2) Number who married before age 15 (women: v511 <15; men: mv511 < 15)
3) Number who had a live birth/fathered a live birth before age 15 (women: v212 < 15; mv212 < 15)
4) Number of women who have ever been pregnant before age 15 (p3(v246) – v011 < 180)

Denominator: Number of women (or men) age 15-19 (women: v013 = 1; men: mv103 = 1)

Variables: IR file, MR file.

v013	Age in five year groups
p3	Date of end of pregnancy (CMC)
v246	Entries in pregnancy history
v511	Age at first cohabitation
v531	Age at first sex (imputed)
v005	Woman's individual sample weight
mv013	Age in five year groups (men)
mv511	Age at first cohabitation (men)
mv531	Age at first sex (imputed) (men)
mv005	Man's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Changes over Time

These indicators were not reported prior to DHS-8.

Resources

DHS-8 Tabulation plan: Table 5.13

API Indicator IDs:
Women:
FE_TNBH_W_SEX, FE_TNBH_W_MAR, FE_TNBH_W_BTH, FE_TNBH_W_PRG
(API link, STATcompiler link)

Men:
FE_TNBH_M_SEX, FE_TNBH_M_MAR, FE_TNBH_M_BTH
(API link, STATcompiler link)

Pregnancy Loss

Percent distribution of pregnancies ending in the 3 years preceding the survey by type of outcome

Definition

Percentage of pregnancies ending in the 3 years preceding the survey ending in a:
1) live birth
2) stillbirth
3) miscarriage
4) induced abortion

Coverage:

Population base: All women age (GR file)

Time period: Current status at time of survey

Numerators:

Number of pregnancies ending in the 3 years preceding the survey (p19 < 36) ending in a:
1) Live birth (p32 = 1)
2) Stillbirth (p32 = 2)
3) Miscarriage (p32 = 3)
4) Induced abortion (p32 = 4)

Denominator: Number of pregnancies that ended in the 3 years preceding the survey (p19 < 36)

Variables: GR file.

p19	Months since pregnancy outcome
p32	Pregnancy outcome reclassified
v005	Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Changes over Time

These indicators were not reported prior to DHS-8.

Resources

DHS-8 Tabulation plan: Table 5.14

API Indicator IDs:
`FE_PRGO_W_POL,FE_PRGO_W_POS,FE_PRGO_W_POM,FE_PRGO_W_POA`
(API link, STATcompiler link)

Abortion

Age-Specific Abortion Rate (ASAR)

Definition

Age-Specific Abortion Fate (ASAR): Based on Age-Period Rates.

Coverage:

> Population base: Women age 15-49 years in seven five-year age groups (15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49 years) (IR file)
>
> Time period: Three years preceding the survey

Numerators: Number of induced abortions that occurred in a period (typically the 1-36 months before the survey) to women in the age group at the time of the induced abortion (v008 - p3 in 1:36 & p32 = 4) (GR file)

Denominator: Number of women-years of exposure in the same period (1-36 months before the survey) of women in the age group (IR file)

Variables: IR file.

p3	CMC date of end of pregnancy
p32	Pregnancy outcome reclassified
v011	CMC date of birth of respondent
v008	CMC date of interview
v005	Woman's individual sample weight

Calculation

The age-specific abortion rate is calculated as the quotient of the numerator divided by the denominator for each age group, multiplied by 1000. The result is an average rate over the 36-month period, expressed as an annual rate per 1000 women.

Numerator: Induced abortions are tabulated according to period of the date of the induced abortion and the age of mother at the time of the date of the induced abortion:

> Period of induced abortion: The period of the induced abortion is calculated as the difference in months between the date of interview and the date of the induced abortion, both in century-month code format (CMC). Induced abortions are included in the tabulation if they occur 1-36 months before the survey (v008 - p3 in 1:36).
>
> Age of mother at the time of the induced abortion: The difference in months between the date of the induced abortion and the date of birth of the mother both in CMC. The difference is then divided by 60 and truncated to whole numbers to form the age groups (agegroup = int((p3 - v011) /60)). Note that age group 15-19 is classified as age group 3 here, not age group 1. Induced abortions are tabulated by age group.

Denominator: Women-years of exposure are calculated as the sum of the number of months exposed in the five-year age group during the time period divided by 12. A woman can contribute exposure to several age groups in the period, depending on the length of the period. For periods exceeding five years a woman can contribute to more than two age groups. For a period of three years or five years a woman will contribute to no more than two five-year age groups during the 36- or 59-month period. The description below assumes a period of 1-36 months preceding the survey, and that a woman contributes to at most two age groups, described here as the higher age group and the lower age group:

Higher age group: A woman's age at the end of the period determines the higher age group. The higher age group is calculated by subtracting the women's date of birth from the date of interview minus one (in CMC), dividing the difference by 60 and truncating to a whole number (agegroup = int((v008-1-v011)/60). The -1 is to ignore the month of interview and use just the 36 months prior to but not including the month of interview.

The number of months spent in the higher age group is the difference in months between her age at the end of the period of exposure (date of interview less one month) and the lower age limit of the age group plus one month (exposure = v008 - 1 - v011 - agegroup*60 + 1). As the -1 and the +1 cancel out this can be simplified to (exposure = v008 - v011 - agegroup*60). If the number of months in the age group exceeds 36 then the exposure is truncated to 36 for the period (exposure = 36 if exposure > 36). If the number of months in the age group is less than the duration of the time period (36 months), then the woman contributes exposure to both the higher age group and the next lower age group (agegroup-1).

Lower age group: The contribution to the lower age group is 36 less the number of months of exposure in the higher age group. If the number of months in the higher age group is greater than the duration of the time period (i.e., >36 months), then the exposure in the higher group is the duration of the period (36 months) and the exposure in the lower age group is zero.

Tabulation: Each woman is tallied twice, once according to her higher age group accumulating the exposure she contributes to that group and once in the lower age group accumulating lower age group exposure. For ever-married samples, the exposure is adjusted to represent all women by multiplying the exposure by the woman's "all women factor" (awfactt), which is derived from the proportion of women ever-married from the persons data file (PR file). See the section on *All Women Factors* for details on their calculation. The total exposure in each age group is then the sum of the exposure in each age group from the first and second tallying.

Examples

Example 1: A woman interviewed in September 2022, born in May 1991. Her CMC date of interview is 12*(2022 - 1900) + 9 = 1473. The CMC of the date of the end of the period of exposure is 1473 - 1 = 1472. Her CMC date of birth is 12*(1991 - 1900) + 5 = 1097. Her age in months at the end of the period is 1472 - 1097 = 375. The age group at the end of the period is 375/60 = 6.25, truncated to 6. This represents age group 30-34 years (30 = 6*5 years interval). The number of months in this age group is 375 - 6*60 + 1 = 16 months. Since this is less than the total number of months during the period (36 months), she contributed 16 months to age group 30-34 during the period and 36 - 16 = 20 months to the age group 25-29 during the period.

Example 2: A woman interviewed in September 2022, born in March 1998. Her CMC date of interview is 12*(2022 - 1900) + 9 = 1473. The date of the end of the period of exposure is 1473 - 1 = 1472. Her CMC date of birth is 12*(1998 - 1900) + 3 = 1179. Her age in months at the end of the period is 1472 - 1179 = 293. The age group at the end of the period is 293/60 = 4.88, truncated to 4. This represents age group 20-24 years (20 = 4*5 years interval). The number of months in this age group is 293 - 4*60 + 1 = 54 months. Since the number of months in this age group is greater than 36 months, she contributed 36 months of exposure to age group 20-24 during the period and no exposure to the next lower age group during the period.

Handling of Missing Values

The total number of pregnancies that a woman has had is recorded obligatorily by the interviewer; no unknown numbers of pregnancies are allowed. There are three values involved in the calculation of ASAR, interview date, birth date of woman and dates of induced abortions. The interview date is always known from fieldwork dates. If missing or unknown, the birth date of the interviewed women and the dates of the end of her pregnancies are imputed before formation of the standard recode file. See *Date Variables* in *Chapter 1*.

Notes and Considerations

Induced abortions to women at ages less than 15 years or more than 49 years at the time of the abortion are not included in the calculation of these ASARs.

Induced abortions in the month of interview are excluded. This exclusion is because this month does not represent a full month but is censored by the date of interview.

A three-year (36 month) time period is taken for calculating current ASAR. This period is a compromise between the need for recency and reduction of sampling variation.

No adjustment is made for truncation by age. Women who are at most 49 years at the time of interview were 48 years the year before and 47 years two years before. The reason no adjustment is made is that the tiny probability of women age 48 and 49 years of age having an induced abortion in the three years preceding the survey outweighs the complication of adjusting by single years of age.

In line with general DHS policy, no adjustment is made for possible omission or date misreporting of the dates of induced abortions or misreporting of the date of birth of the woman.

For ever-married samples, it is assumed that never-married women have not had any induced abortions. Only the denominator of the rates is adjusted to estimate the number of all women exposed in the age group.

The calculation of the ASARs is completely analogous to the calculation of Age Specific Fertility Rates described earlier in this chapter.

Changes over Time

These indicators were not typically reported prior in most surveys prior to DHS-8, but have been reported in some surveys prior to DHS-8 that included full pregnancy histories

References

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Westoff, Charles F. 2005. Recent trends in abortion and contraception in 12 countries. DHS Analytical Studies No. 8. Calverton, Maryland, USA: ORC Macro. http://dhsprogram.com/pubs/pdf/AS8/AS8.pdf.

Resources

DHS-8 Tabulation plan: Table 5.15

API Indicator IDs:
```
FE_ABRT_W_A15, FE_ABRT_W_A20, FE_ABRT_W_A25, FE_ABRT_W_A30,
FE_ABRT_W_A35, FE_ABRT_W_A40, FE_ABRT_W_A45
```
(API link, STATcompiler link)

Age-Specific Abortion Rate (ASAR) 10-14

Definition

Age-Specific Abortion Rate (ASAR) for age group 10-14: Based on Age-Period Rates.

Coverage:

Population base: All girls age 10-14 years during the time period (IR file)

Time period: Three years preceding the survey

Numerator: Number of induced abortions that occurred in a period (typically the 1-36 months or 1-60 months before the survey) to girls in the age group 10-14 at the time of the induced abortion (v008 - p3 in 1:36 [or 60] & p32 = 4) (GR file)

Denominator: Number of years of exposure in the same period of girls in the age group 10-14 (IR file)

Variables: GR file, IR file.

p3	CMC date of end of pregnancy
p32	Pregnancy outcome reclassified
v011	CMC date of birth of respondent
v008	CMC date of interview
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)

Calculation

The ASAR 10-14 is calculated as the quotient of the numerator divided by the denominator for each age group, multiplied by 1000. The result is an average rate over the 36- or 59-month period, expressed as an annual rate per 1000 women. The age-specific abortion rate for age group 10-14 is calculated in a similar manner to the ASARs for age groups between 15 and 49, but with adjustments to both numerator and denominator to avoid biases as girls age 10-14 are not typically interviewed in DHS surveys, and the ASAR 10-14 is based on retrospective data for women age 15-19.

Numerator: Induced abortions are tabulated according to period of the induced abortion and the age of mother at the time of the induced abortion, and are adjusted for truncation of reports:

Period of induced abortion: The period of the induced abortion is calculated as the difference in months between the date of interview and the date of the induced abortion, both in century-month code format (CMC). Induced abortions are included in the tabulation if they occur 1-36 months before the survey (v008 - p3 in 1:36 [or 60] & p32 = 4).

Age of mother at the time of the induced abortion: The difference in months between the date of the induced abortion and the date of birth of the mother both in CMC. The difference is then divided by 12 and truncated to whole numbers to form single year age groups (singleage = int((p3 - v011) /12). Induced abortions are tabulated by single year age group for ages 10-14. Note that the use of single year age groups is different than the five-year age groups used for ASARs for ages 15 to 49.

Adjustment of number of induced abortions due to truncation of reports: The adjustment for the ASAR 10-14 is exactly the same as the adjustment used for the Age Specific Fertility Rate 10-14 (see Figure 5.1 above). This figure shows the reports available for the calculation of ASAR 10-14 (in blue) and the data not available due to truncation (in red) for both a three-year period and a five-year period immediately preceding the survey. For a three-year (36-month) period, for age 14 data are reported for 5/6 of the induced abortions and exposure, for age 13 for 3/6, and for age 12 for 1/6. For ages 11 and 10 no data are reported. The induced abortions for ages 12-14 are thus adjusted by the inverse of these proportions – 6/5 for age 14, 6/3 for age 13, and 6/1 for age 12. For ages 11 and 10, the assumption is that there are no induced abortions in these age groups. For a five-year (60-month) period similar adjustments of 10/9, 10/7, 10/5, 10/3, 10/1 are made for ages 14, 13, 12, 11, and 10 respectively. After adjusting the number of induced abortions, the total induced abortions in each single age is summed to produce an aggregate for the age group 10-14.

Denominator: Person-years of exposure are calculated as the sum of the number of months exposed in each single-year age group for ages 10-14 during the time period, adjusted for truncation of reports (see below), divided by 12. A girl can contribute exposure to several single year ages in the period, depending on the length of the period, and may contribute to x+1 single year ages for a period covering x years.

Oldest age: A girl's age at the end of the period determines the oldest age. The oldest age is calculated by subtracting the girl's date of birth from the date of interview minus one (in CMC), dividing the difference by 12 and truncating to a whole number (singleage = int((v008-1-v011)/12). The -1 is to ignore the month of interview and use just the 36 (or 60) months prior to but not including the month of interview.

The number of months spent in the oldest age is the difference in months between her age in months at the end of the period of exposure (date of interview less one month) and the lower age limit in months of the age group plus one month (exposure = v008 - 1 - v011 - singleage*12 + 1). As the -1 and the +1 cancel out this can be simplified to (exposure = v008 - v011 - singleage*12). The remaining exposure (to be covered by other ages) is 36 or 60 minus the exposure.

Other ages: Starting one year before the oldest age, the contribution of exposure to other ages is the minimum of either 12 months or the remaining exposure in months. After tallying the exposure for a single year age, the remaining exposure is reduced by the amount contributed, the single year age is reduced by one year and the tallying repeated for the next lower age until the remaining exposure is 0 or the age is outside of 10-14.

Tabulation: Each girl is tallied once per single year age for each age she was exposed for in the period, accumulating the exposure she contributes to that age. For ever-married samples, the exposure is adjusted to represent all girls by multiplying the exposure by the "all women factor" (awfactt), which is derived from the proportion of women ever-married from the persons data file (PR file). See the section on *All Women Factors* for details on their calculation in *Chapter 1*. The total exposure in the age group 10-14 is then the sum of the exposure in each single age adjusted for truncation of reports (see below).

Adjustment of years of exposure due to truncation of reports: As for the induced abortions, similar adjustments are made for the exposure. For a 36-month period the exposure for ages 12-14 are thus adjusted by the inverse of these proportions – 6/5 for age 14, 6/3 for age 13, and 6/1 for age 12. After adjusting the exposure, the total exposure in each single age is summed to produce an aggregate for the age group 12-14. As no exposure is collected for ages 11 and 10, the assumption is that the exposure per single year age for ages 10 and 11 is the same as the average for ages 12-14, and so the exposure is multiplied by 5/3 to produce an estimate of exposure for ages 10-14. For a 60-month period, similar adjustments of 10/9, 10/7, 10/5, 10/3, 10/1 are made to the single year exposure for ages 14, 13, 12, 11, and 10 respectively before summing the total exposure for ages 10-14.

Examples

Example 1: A woman interviewed in September 2022, born in June 2007. Her CMC date of interview is 12*(2022 - 1900) + 9 = 1473. The date of the end of the period of exposure is 1473 - 1 = 1472. Her CMC date of birth is 12*(2007 - 1900) + 6 = 1290. Her age in months at the end of the period is 1472 - 1290 = 182. The single age group at the end of the period is 182/12 = 15.17, truncated to 15. The number of months in this age group is 182 - 15*12 + 1 = 3 months. For the oldest age group (15) she would contribute 3 months, however, age 15 is outside the age group range of 10-14, so no tallying is done for this age group. The remaining exposure in the 36-month period would be 36 – 3 = 33 months. For the next age younger group (14) she contributes the minimum of the remaining exposure (33 months) or 12 months, so thus contributes 12 months and the remaining exposure becomes 21 months. For age 13 she again contributes 12 months, and the remaining exposure becomes 9 months. For age 12 she contributes just the remaining exposure (9 months) to this age in the period.

Summary of exposure for example 1:

Age	Exposure	Remaining exposure	Tallying
15	3	33	No tallying as too old
14	12	21	12 months at age 14
13	12	9	12 months at age 13
12	9	0	9 months at age 12

Example of adjustments for induced abortions and exposure for three-year period:

Age	Abortions	Exposure	Adjustment	Abortions adjusted	Exposure adjusted
12	1	450	6/1	6	2700
13	4	1500	6/3	8	3000
14	10	2500	6/5	12	3000
Sum for 12-14				26	8700
Sum for 10-14			5/3 for exposure only	26	14500
ASAR 10-14		Abortions/	Exposure	=	.0018

Handling of Missing Values

The total number of pregnancies a woman has had is recorded obligatorily by the interviewer; no unknown numbers of induced abortions are allowed. There are three values involved in the calculation of ASAR, interview date, birth date of woman and dates of induced abortions. The interview date is always known from fieldwork dates. If missing or unknown, the birth dates of interviewed women and the dates of her induced abortions are imputed before formation of the standard recode file. See *Date Variables* in *Chapter 1*.

Notes and Considerations

The ASAR 10-14 is typically calculated for the three years that precede the date of the survey and is presented as an annual rate.

Induced abortions to women while age 15 or higher are not included in the calculation of the ASAR 10-14, however, induced abortions to girls age 10-14 at the time of the induced abortion are included in the calculation of the ASAR 10-14.

Induced abortions in the month of interview are excluded. This exclusion is because this month does not represent a full month but is censored by the date of interview.

In line with general DHS policy, no adjustment is made for possible omission or date misreporting of the dates of induced abortions or misreporting of the date of birth of the woman.

For ever-married samples, it is assumed that never-married women have not had any induced abortions. Only the denominator of the rates is adjusted to estimate the number of all women exposed in the age group.

References

See *References* for *Age-Specific Abortion Rates (ASAR)*.

Resources

DHS-8 Tabulation plan: Table 5.15

API Indicator ID:
FE_ABRT_W_A10
([API link](#), [STATcompiler link](#))

Total Abortion Rate (TAR)

Definition

The total abortion rate (TAR) is an age-period abortion rate for a synthetic cohort of women. It measures the average number of induced abortions a group of women would have by the time they reach age 50 if they were to have induced abortions at the current age-specific abortion rates. The TAR is expressed as the average number of induced abortions per woman. Unless otherwise specified, the TAR is for all women.

Coverage:
Population base: Women age 15-49 (IR file)
Time period: Three years preceding the survey, excluding the month of interview (1-36 months before the survey)

Calculation

The TAR is the sum of the *Age-Specific Fertility Rate (ASFR)* for all women multiplied by five. The ASARs are those for the seven five-year age groups from 15-19 to 45-49.

Handling of Missing Values

See *Handling of Missing Values* for *Age-Specific Abortion Rates (ASAR)*.

Notes and Considerations

The TAR is presented only for women age 15-49 and does not include abortions outside the age range of 15-49 years.

References

See *References* for *Age-Specific Abortion Rates (ASAR).*

Resources

DHS-8 Tabulation plan: Table 5.15

API Indicator ID:
FE_ABRT_W_TAR
([API link](#), [STATcompiler link](#))

General Abortion Rate (GAR)

Definition

The general abortion rate (GAR) is the average number of induced abortions currently occurring to women of reproductive age in the period, typically 1-36 months preceding the survey, expressed per 1,000 women age 15-44.

Coverage:
      Population base: All women 15-44 years of age during the period (IR file)
      Time period: Three years preceding the survey excluding the month of interview (1-36 months)

Numerator: Total number of induced abortions in the period (v008 - p3 in 1:36 & p32 = 4) (GR file)

Denominator: Total number of women-years of exposure during period (IR file)

Variables: GR file, IR file.

p3	CMC date of end of pregnancy
p32	Pregnancy outcome reclassified
v011	CMC date of birth of respondent
v008	CMC date of interview
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)

Calculation

Numerator: The total of all induced abortions in the period to all women age 15-49, irrespective of their age at the time of the abortion (v008 - p3 in 1:36).

Denominator: The sum of the women-years of exposure over the five-year age groups from 15-19 to 40-44 tabulated as for the age-specific fertility rates.

GAR is the numerator divided by the denominator, multiplied by 1000.

Handling of Missing Values

See *Handling of Missing Values* for *Age-Specific Abortion Rates (ASAR)*.

Notes and Considerations

All induced abortions in the period are counted including induced abortions to women age 45-49 and induced abortions to women before they reached age 15. The exposure is limited to women age 15-44 and does not count the exposure for women age 45-49 in the denominator.

For ever-married samples, all women factors are applied in the tabulation of the denominators, as for the age-specific fertility rates.

References

See *References* for *Age-Specific Abortion Rates (ASAR)*.

Resources

DHS-8 Tabulation plan: Table 5.15

API Indicator ID:
FE_ABRT_W_GAR
([API link](#), [STATcompiler link](#))

6) Fertility Preferences

This chapter addresses three questions that allow an assessment of the need for contraception. Does the respondent want more children? If so, how long would she prefer to wait before the next child? If she could start afresh, how many children in all would she want? Two further issues are examined. To what extent do unwanted or mistimed pregnancies occur? What effect would the prevention of such pregnancies have on the fertility rates? Bearing in mind that the underlying rationale of most family planning programs is to give couples the freedom and ability to bear the number of children they want and to achieve the spacing of births they prefer, the importance of this chapter is obvious.

Interpretation of data on fertility preferences has always been the subject of controversy. Survey questions have been criticized on the grounds that answers are misleading because: a) they reflect unformed, ephemeral views, which are held with weak intensity and little conviction; and b) they do not take into account the effect of social pressures or the attitudes of other family members, particularly the husband, who may exert a major influence on reproductive decisions. The first objection has greater force in non-contracepting societies where the idea of conscious reproductive choice may still be alien; preference data from these settings should be interpreted with caution. In societies with moderate to high levels of contraceptive use, greater interpretive weight can be attached to the findings. The second objection is correct in principle. In practice, however, its importance is doubtful; for instance, the evidence from surveys in which both husbands and wives are interviewed suggests that there is no radical difference between the views of the two sexes.

The inclusion of women who are currently pregnant complicates the measurement of views on future childbearing. For these women, the question on desire for more children is rephrased to refer to desire for another child after the one that they are expecting. To take into account the way in which the preference variable is defined for pregnant women, the results are classified by number of living children, including the current pregnancy as equivalent to a living child.

Fertility Preferences

Percent distribution by desire for children

Definition

Percentage of currently married women and men according to their desire for children:
1) Wants to have a/another child soon
2) Wants to have a/another child later
3) Wants to have a/another child, but undecided when
4) Undecided whether wants a/another child
5) Wants no more children
6) Sterilized
7) Declared infecund

Coverage:

Population base: Currently married women, currently married men (IR file, MR file)
Time period: Current status at time of survey

Numerators:

Number of currently married or in union women (v502 = 1) or men (mv502 = 1) who:
1) Want to have a/another child soon, defined as within two years (women: v605 = 1; men: mv605 = 1)
2) Want to have a/another child later, defined as after two or more years (women: v605 = 2; men: mv605 = 2)
3) Want to have a/another child, but undecided when (women: v605 = 3; men: mv605 = 3)
4) Are undecided whether want another child (women: v605 = 4; men (mv605 = 4)
5) Want no more children (women: v605 = 5; men: mv605 = 5)
6) Are sterilized: woman or partner (women: v605 = 6; men: mv605 = 6)
7) Declared they are infecund or cannot become pregnant (women: v605 = 7; men: mv605 = 7)

Denominator: All currently married or in union women (v502 = 1) or men (mv502 = 1)

Variables: IR file, MR file.

v605	Desire for more children (women)
v502	Currently/formerly/never in union (women)
v005	Woman's individual sample weight
mv605	Desire for more children (men)
mv502	Currently/formerly/never in union (men)
mv005	Man's individual sample weight

Calculation

Numerators are divided by the denominator and multiplied by 100.

Handling of Missing Values

Missing information on whether a woman or man wants a/another child, or on the time to wait for a/another child for those who want a/another child, is excluded from the numerators, but included in the denominator. Missing data are usually presented in an eighth category to complete the percent distribution.

Notes and Considerations

Percentages add up to 100 percent.

Desire for children is typically presented by number of living children as desire for children typically decreases with increasing numbers of living children. The number of living children also includes any current pregnancy in the count of living children.

Data may also be presented for all women or men rather than currently married women or men. In most surveys data are only available for women or men who have ever had sexual intercourse and women or men who have never had sexual intercourse (v525 = 0; mv525 = 0) are categorized separately as such. In some surveys, particularly ever married samples, the data on desire for more children are only collected for currently married or in union women or men.

Resources

DHS-8 Tabulation plan: Table 6.1

API Indicator IDs:
Women:
PR_DESC_W_ASN, PR_DESC_W_ALT, PR_DESC_W_AUN, PR_DESC_W_UND, PR_DESC_W_WNM, PR_DESC_W_STR, PR_DESC_W_INF

Men:
PR_DESC_M_ASN, PR_DESC_M_ALT, PR_DESC_M_AUN, PR_DESC_M_UND, PR_DESC_M_WNM, PR_DESC_M_STR, PR_DESC_M_INF
(API link, STATcompiler link)

Desire to Limit Childbearing

Percentage who want no more children

Definition

Percentage of currently married or in union women and men who declare that they want no more children.

Coverage:
  Population base: Currently married women, or currently married men (IR file, MR file)
  Time period: Current status at time of survey

Numerator:
Number of currently married or in union women or men (women: v502 = 1; men: mv502 = 1) who state that they want no more children (women: v605 = 5; men: mv605 = 5) or
  - women: who are sterilized or whose partner is sterilized (women: v605 = 6)
  - men: who are sterilized or who state in response to the question about desire for children that their wife has been sterilized (mv605 = 6)

Denominator: All currently married or in union women or men (women: v502 = 1; men: mv502 = 1)

Variables: IR file, MR file.
v605   Desire for more children (women)
v502   Currently/formerly/never in union (women)
v005   Woman's individual sample weight
mv605   Desire for more children (men)
mv502   Currently/formerly/never in union (men)
mv005   Man's individual sample weight

Calculation

Numerators are divided by the denominator and multiplied by 100.

Handling of Missing Values

Missing information on whether a woman or man wants no more children is excluded from the numerator but included in the denominator.

Notes and Considerations

Desire to limit childbearing is typically presented by number of living children as desire for children typically decreases with increasing numbers of children. The number of living children presented in DHS tables also includes any current pregnancy in the count of living children. Women who have been sterilized or whose husband has been sterilized are considered to want no more children.

Men are not asked about their current use of contraception. Men are asked if they or their partner used anything to avoid or prevent a pregnancy the last time they had sex. Only if something was used to avoid pregnancy, the method was recorded. If men or their partner were sterilized at the last time they had sex, it assumed here that they have no desire for more children. It is possible that some men or their partners have been sterilized since the last time they had sex, but those men are still asked about their desire for children.

Resources

DHS-8 Tabulation plan: Tables 6.2.1 and 6.2.2

API Indicator IDs:
Women:
PR_DESL_W_WNM

Men:
PR_DESL_M_WNM
(API link, STATcompiler link)

Ideal Number of Children

Percent distribution by ideal number of children

Definition

Percentage of women and men who declare, that if they could go back to the time when they did not have any children and could choose exactly the number of children to have in their whole life, a specific number of children.

Coverage:
 Population base: All women or men (IR file, MR file)
 Time period: Current status at time of survey

Numerators: Number of women (or men) who state that their ideal number of children is 0, 1, 2, 3, 4, 5, 6 or more, or give a non-numeric response (women: v613 = 0, 1, 2, 3, 4, 5, 6-90, 96-99, respectively; men: mv613 = 0,1,2,3,4,5,6-90, 96-99)

Denominator: All women (or men) age 15-49

Variables: IR file, MR file.

v613	Desire for more children (women)
v005	Woman's individual sample weight
mv613	Desire for more children (men)
mv005	Man's individual sample weight

Calculation

Numerators are divided by the denominator and multiplied by 100.

Handling of Missing Values

Missing information on ideal number of children is considered as a non-numeric response and is included in that category of numerator and is in the denominator for all categories.

Notes and Considerations

The ideal number of children is defined as the number of children that a woman or man would have if they could go back to the time when they did not have any children and could choose exactly the number of children to have in their whole life. The ideal number of children reported has been shown to be affected by the actual number of living children and so the ideal number of children is typically presented by number of living children. The number of living children presented in DHS tables also includes any current pregnancy in the count of living children.

Resources

DHS-8 Tabulation plan: Table 6.3

API Indicator IDs:

Women:
PR_IDLC_W_ID0, PR_IDLC_W_ID1, PR_IDLC_W_ID2, PR_IDLC_W_ID3, PR_IDLC_W_ID4,
PR_IDLC_W_ID5, PR_IDLC_W_ID6, PR_IDLC_W_IDN

Men:
PR_IDLC_M_ID0, PR_IDLC_M_ID1, PR_IDLC_M_ID2, PR_IDLC_M_ID3, PR_IDLC_M_ID4,
PR_IDLC_M_ID5, PR_IDLC_M_ID6, PR_IDLC_M_IDN
(API link, STATcompiler link)

Mean ideal number of children

Definition

Mean ideal number of children for all women and men or for currently married or in union women or men.

Coverage:
Population base: All women (or men) or currently married or in union women (or men) (IR file, MR file)
Time period: Current status at time of survey

Numerator: Sum of the ideal number of children (women: v613; men: mv613), excluding non-numeric responses to the ideal number of children (women: v613 <= 90; men: mv613 <= 90)

Denominator:
a) Number of women (or men) age 15-49
b) Currently married women (v502 = 1) or men (mv502 = 1)

Variables: IR file, MR file.
v613   Ideal number of children (women)
v005   Woman's individual sample weight
mv613   Ideal number of children (men)
mv005   Man's individual sample weight

Calculation

Numerator is divided by the denominator.

Handling of Missing Values

Missing information on ideal number of children is excluded from both the numerator and denominator.

Notes and Considerations

The ideal number of children is defined as the number of children that a woman or man would have if they could go back to the time when they did not have any children and could choose exactly the number of children to have in their whole life. The ideal number of children reported has been shown to be affected by the actual number of living children and so the ideal number of children is typically presented by number of living children. The number of living children presented in DHS tables also includes any current pregnancy in the count of living children.

Resources

DHS-8 Tabulation plan: Tables 6.3 and 6.4

API Indicator IDs:
Women:
PR_IDLC_W_MNA, PR_MIDL_W_MNA, PR_IDLC_W_MNM

Men:
PR_IDLC_M_MNA, PR_IDLC_M_MNM, PR_IDLC_M_M5A
([API link](), [STATcompiler link]())

Fertility Planning

Percent distribution of live births and current pregnancies to women in the 3 years preceding the survey by planning status of the pregnancy and percent distribution of all pregnancy outcomes to women in the 3 years preceding the survey by planning status of the pregnancy

Definition

1) Percent distribution of live births and current pregnancies to women age 15-49 in the 3 years preceding the survey by planning status of the birth – wanted then, wanted later or not wanted at all.
2) Precent distribution of pregnancy outcomes to women age 15-49 in the 3 years preceding the survey, including current pregnancies, by planning status of the birth – wanted then, wanted later or not wanted at all.

Coverage:

> Population base: All pregnancy outcomes in the three years preceding the survey to all women (KR file), including current pregnancy (IR file)
> Time period: Pregnancy outcomes in the three years preceding the survey, including current pregnancy (v213 = 1)

Numerators: Live births (m10) and current pregnancies (v225) in the three years preceding the survey according to planning status of the birth:
1) wanted then (m10 = 1 or v225 = 1),
2) wanted later (m10 = 2 or v225 = 2),
3) not wanted at all (m10 = 3 or v225 = 3)

Denominator: Births in the three years preceding the survey, including current pregnancy (v213 = 1)

Variables: KR file, IR file.
m10	Wanted pregnancy when became pregnant
v225	Current pregnancy wanted
v213	Currently pregnant
v005	Woman's individual sample weight

Calculation

Numerators are divided by the denominator.

Handling of Missing Values

Missing information on the planning status of a pregnancy outcome or the current pregnancy is excluded from the numerators but included in the denominator.

Notes and Considerations

The fertility planning status is tabulated by birth order and mother's age at birth. For the births in the preceding three years the birth order is the order of births, with twins counting as the same birth order: order = bord; if b0 > 1 then order = bord - b0 + 1. For the current pregnancy, the birth order is the order of the next birth (v201 + 1), and the mother's age at birth is the age she would be at the time of delivery: agegroup = int((v008 + 9 - v214 - v011) / 60) - 2.

A pregnancy outcome refers to a miscarriage, abortion, live birth or stillbirth. Some pregnancies produce multiple outcomes, for example in the case of twins. Each pregnancy outcome is counted individually. Therefore, a pregnancy will be counted more than once if it produces multiple births (live births or stillbirths). Current pregnancies, miscarriages, and abortions are always counted as one pregnancy outcome.

Resources

DHS-8 Tabulation plan: Tables 6.5

API Indicator IDs:
PR_PLST_W_THN, PR_PLST_W_LAT, PR_PLST_W_NOM
(API link, STATcompiler link)

Wanted Fertility

Wanted fertility rates

Definition

Age-Specific Wanted Fertility Rate (ASWFR) and Total Wanted Fertility Rate (TWFR): Based on Age-Period Rates

Coverage:
>   Population base: All women age 15-49 years in seven five-year age groups (15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49 years) (IR file)
>   Time period: Three years preceding the survey

Numerator: Number of wanted births that occurred in a period (typically the 1-36 months before the survey) to women in the age group at the time of the birth (v008 - b3 in 1:36) (BR file)

Denominator: Number of women-years of exposure in the same period (1-36 months before the survey) of women in the age group (IR file)

Calculation

The age-specific wanted fertility rates (ASFWRs) is calculated as the quotient of the numerator divided by the denominator for each age group, multiplied by 1000. The ASWFRs are an average rate over the 36-month period, expressed as an annual rate per 1000 women.

The total wanted fertility rate (TWFR) is the sum of the seven age-specific wanted fertility rates multiplied by five and divided by 1000.

Numerator: Births are tabulated according to period of birth, age of mother at the time of the birth, and wantedness of the birth.

>   Period of birth: The period of birth is calculated as the difference in months between the date of interview and the date of birth, both in century month code format (CDC). Births are included in the tabulation if they occur 1 to 36 months before the survey (v008 - b3 in 1:36).

>   Age of mother at the time of the birth: The difference in months between the date of birth of the child and the date of birth of the mother, both in CMC. The difference is then divided by 60 and truncated to whole numbers to form the age groups (agegroup = int((b3 - v011) /60)). Note that age group 15-19 is classified as age group 3 here, not age group 1. Births are tabulated by age group.

>   Wantedness: A birth is considered wanted if the number of living children at the time of conception of the birth is less than the ideal number of children as reported by the respondent. Special responses such "don't know" (98), "up to God" (95), or other non-numeric responses (96) for the ideal number of children are assumed to be a high ideal number of children and are

included in the numerator (number of living children at the time of conception < v613, if v613 <= 98).

For the calculation of the time of conception, nine months are subtracted from the date of birth. A preceding child is considered living at the time of conception if it was born before the date of conception and a) is living at the time of the survey or b) died at or before the date of conception (calculations based on century month codes). The date of death of preceding children who died is calculated by adding the age at death in months to the child's birth date in century month code. If a child's age at death is reported in years, then the child is assumed to have died at ages 6 months higher than the number of years (30 months for children who died at 2 years of age, 42 months for children who died at 3 years of age, etc.).

Variables: BR file.
b3	CMC date of birth of child
b5	Child is alive
b6	Age at death
b7	Age at death (imputed)
v613	Ideal number of children
v011	CMC date of birth of respondent
v008	CMC date of interview
v005	Woman's individual sample weight

Denominator: Women-years of exposure are calculated as the sum of the number of months exposed in the five-year age group during the time period divided by 12. A woman can contribute exposure to several age groups in the period, depending on the length of the period. For periods exceeding five years a woman can contribute to more than two age groups. For a period of three years or five years a women will contribute to no more than two five-year age groups during the 36- or 59-month period. The description below assumes a period of 1-36 months preceding the survey, and that a woman contributes to at most two age groups, described here as the higher age group and the lower age group:

Higher age group: A woman's age at the end of the period determines the higher age group. The higher age group is calculated by subtracting the women's date of birth from the date of interview minus one (in CMC), dividing the difference by 60 and truncating to a whole number (agegroup = int((v008-1-v011)/60). The -1 is to ignore the month of interview and use just the 36 months prior to but not including the month of interview.

The number of months spent in the higher age group is the difference in months between her age at the end of the period of exposure (date of interview less one month) and the lower age limit of the age group plus one month (exposure = v008-1-v011 - agegroup*60 + 1). As the -1 and the +1 cancel out this can be simplified to (exposure = v008-v011 - agegroup*60). If the number of months in the age group exceeds 36 then the exposure is truncated to 36 for the period (exposure = 36 if exposure > 36). If the number of months in the age group is less than the duration of the time period (36 months), then the woman contributes exposure to both the higher age group and the next lower age group (agegroup-1).

Lower age group: The contribution to the lower age group is 36 less the number of months of exposure in the higher age group. If the number of months in the higher age group is greater than or equal to the duration of the time period (i.e., >=36 months), then the exposure in the

higher group is the duration of the period (36 months) and the exposure in the lower age group is zero.

Tabulation: Each woman is tallied twice, once according to her higher age group accumulating the exposure she contributes to that group and once in the lower age group accumulating lower age group exposure. For samples of ever-married women, the exposure is adjusted to represent all women by multiplying the exposure by the woman's "all women factor" (awfactt), which is derived from the proportion of women ever-married from the persons data file (PR file). See the section on *All Women Factors* for details on their calculation. The total exposure in each age group is then the sum of the exposure in each age group from the first and second tallying.

Variables: IR file.

v011	CMC date of birth of respondent
v008	CMC date of interview
v005	Woman's individual sample weight
awfactt	All women factor (only needed with ever-married samples)

See the *Age-Specific Fertility Rates (ASFRs)* for examples of the calculation of the denominators.

Handling of Missing Values

The total number of children to which a woman has given birth is recorded obligatorily by the interviewer; no unknown numbers of children are allowed. There are six values involved in the calculation of ASWFR: interview date, birth date of woman, birth dates of children, survival of children, ages at death of dead children, and ideal number of children. The interview date is always known from fieldwork dates. If missing or unknown, the birth dates of interviewed women and her children are imputed before the formation of the standard recode file. For dead children with missing age at death, the age at death in months is imputed in the standard recode dataset, using a hot deck technique based on birth order. See *Date Variables* in *Chapter 1*.

For ideal number of children, non-numeric and "don't know" responses are considered to be high numbers, so that all births are considered wanted. Births to women with missing information on ideal number of children are considered as unwanted.

Notes and Considerations

The calculation of age-specific and total wanted fertility rates is the same as age-specific and total fertility rates with the addition of the classification of births to wanted or unwanted at the time of conception.

Births to women younger than 15 years or older than 49 years at the time of the birth are not included.

Births in the month of interview are excluded. This exclusion is because this month does not represent a full month but is censored by the date of interview.

A three-year (36 month) time period is taken for calculating current AFSR. This period is a compromise between the need for recency and reduction of sampling variation. This time period was selected during

the World Fertility Survey, when sample sizes were on average about 5,000 women. For comparability over time and across surveys, this period has been maintained by The DHS Program.

No adjustment is made for truncation by age. Women who are at most 49 years at the time of interview were 48 years the year before and 47 years two years before the interview. The reason no adjustment is made is that the tiny probability of women age 48 and 49 years of age giving birth in the three years preceding the survey outweighs the complication of adjusting by single years of age.

In line with general DHS policy, no adjustment is made for possible omission or date misreporting of the dates of birth of children or misreporting of the date of birth of the woman.

For samples of ever-married women, it is assumed that never-married women have not had any births. Only the denominator of the rates is adjusted to estimate the number of all women.

References

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Resources

DHS-8 Tabulation plan: Table 6.6

API Indicator IDs:
`PR_WTFR_W_WFR`
(API link, STATcompiler link)

7) Family Planning

This chapter begins with an assessment of respondent knowledge of different contraceptive methods before moving on to a consideration of current practice of family planning methods. For users of rhythm (periodic abstinence), standard days method, and all women, knowledge of the ovulatory cycle is examined; while for those relying on sterilization, the timing of method adoption is assessed. Special attention is focused on source of contraception, informed choice, discontinuation rates and reasons for discontinuation, unmet need for family planning, and intention to use in the future. The chapter concludes with tabulations on exposure to media coverage on the topic of family planning and on contact with family planning providers.

Knowledge of Contraceptive Methods

Percentage who know of any method, any modern method, any traditional method and specific methods; mean number of methods known

Definition

1) Percentage of women and men who know specific methods.
2) Percentage of women and men who know of any method.
3) Percentage of women and men who know any modern method.
4) Percentage of women and men who know any traditional method.
5) Mean number of methods known.

Coverage:

Population base: All women (or men) age 15-49 (IR file, MR file)
Time period: Lifetime of woman (or man) interviewed

Numerators:

Number of women (or men) within each population base who:
1) **Specific methods:** know (or have heard) of the specific method, whether through a spontaneous response or after describing the method
2) **Any method:** know of at least one specific method, including self-reported other methods (v304_1 to v304_20 = 1 [or 2])
3) **Modern methods:** know at least one of the following methods:
   a) Female sterilization (tubal ligation, laparotomy, voluntary surgical contraception for women) (v304_6 = 1 [or 2])
   b) Male sterilization (vasectomy, voluntary surgical contraception for men) (v304_7 = 1 [or 2])
   c) The contraceptive pill (oral contraceptives) (v304_1 = 1 [or 2])
   d) Intrauterine contraceptive device (IUD) (v304_2 = 1 [or 2])
   e) Injectables (Depo-Provera) (v304_3 = 1 [or 2])
   f) Implants (Norplant) (v304_11 = 1 [or 2])
   g) Male condom (prophylactic, rubber) female condom (v304_5 = 1 [or 2])
   h) Female condom (v304_14 = 1 [or 2])
   i) Diaphragm (v304_4 = 1 [or 2])
   j) Contraceptive foam and contraceptive jelly female condom (v304_15 = 1 [or 2])
   k) Lactational amenorrhea method (LAM) (v304_13 = 1 [or 2])
   l) Standard days method (SDM) (v304_18 = 1 [or 2])
   m) Emergency contraception (double dose of contraceptive pill twice in 24 hours for two days) and specific dosage "emergency pills" (v304_16 = 1 [or 2])
   n) Country-specific modern methods and other modern contraceptive methods respondent mentioned (including cervical cap, contraceptive sponge, and others) (v304_17 = 1 [or 2]), but does NOT include abortion, menstrual regulation
4) **Traditional methods:** know at least one of the following methods:
   a) Periodic abstinence (rhythm, calendar method) (v304_8 = 1 [or 2])
   b) Withdrawal (coitus interruptus) (v304_9 = 1 [or 2])

c) Country-specific traditional methods of proven effectiveness, and folk methods including locally described methods and/or spiritual methods of unproven effectiveness, such as herbs, amulets, gris-gris, etc. (v304_10 = 1 [or 2])
5) **Mean number of methods:** Sum of the number of methods known for women (or men) in the population base

a) All women
b) Currently married women (v502 = 1)
c) Sexually active unmarried women: Includes women who are not currently married or in a consensual union (single, divorced, widowed, and separated) and who had sexual intercourse within the last 30 days (v502 ≠ 1 & v528 <= 30)
d) All men age 15 -49 (mv012 in 15:49)
e) Currently married men (mv502 = 1)
f) Sexually active unmarried men: Includes men who are not currently married or in a consensual union (single, divorced, widowed, and separated) and who had sexual intercourse within the last 30 days (mv502 ≠ 1 & mv528 <= 30)

Variables: IR file, MR file.

v304_1 to _20	Knows method (women)
v005	Woman's individual sample weight
mv304_1 to _20	Knows method (men)
mv005	Man's individual sample weight

Calculation

Within each coverage category, the numerator divided by the denominator, expressed as a percentage. For the mean number of methods known, within each coverage category, the numerator (5 above) is divided by the denominator.

Handling of Missing Values

Coverage categorization: Women with unknown or missing marital status are considered never-married. Missing value in sexual activity is treated as had sexual relations (non-virgin). Missing value in time since last intercourse is treated as greater than 30 days, i.e., not sexually active.

Numerators: Treated as does not know method for individual methods and grouped methods.

Denominators: All women/men in coverage category included, even if missing values on all methods.

Notes and Considerations

Breastfeeding, prolonged breastfeeding, and prolonged abstinence are not considered contraceptive methods in themselves. The lactational amenorrhea method is based on three criteria: Woman is amenorrheic since last birth; last birth occurred within six months; woman is exclusively or predominately breastfeeding. In the DHS description of LAM, the following wording is used: "Up to six months after childbirth, before the menstrual period has returned, women use a method requiring

frequent breastfeeding day and night." This description varies from the official LAM criteria by not including exclusive or predominant breastfeeding (which is based on whether or not the child received complementary liquids and foods), substituting frequency of breastfeeding (it is not a requirement that frequent night-time feeding occurs), and by not including the criterion that the woman knows that another form of contraception is necessary. The DHS description may therefore include women who say yes even though they had never heard of the term LAM or of programs that instruct in the method, thus overestimating knowledge and ever use. Note that the exact description of LAM used when probing for knowledge of LAM has changed from round to round of DHS.

Changes over Time

The list of specific methods and their categorization has changed.

In DHS I and II surveys, modern methods included pill, IUD, injection, vaginal methods, condom, female sterilization, and male sterilization. The vaginal methods were included in a single group: diaphragm, foam and jelly. Traditional methods included periodic abstinence (of any kind), withdrawal and all respondent- mentioned other methods.

In DHS III surveys, modern methods included pill, IUD, injection, vaginal methods, condom, female sterilization, male sterilization, and implants. Traditional methods included periodic abstinence or rhythm method (of any kind), withdrawal, and lactational amenorrhea. Folk methods included respondent-mentioned other methods and were categorized separately from traditional methods.

In DHS IV surveys, modern methods included female sterilization, male sterilization, pill, IUD, injection, implants, diaphragm (separately from other vaginal methods), foam or jelly, male condom and female condom, LAM, and emergency contraception. Traditional methods included periodic abstinence or rhythm method (of any kind), and withdrawal. Folk methods included respondent-mentioned other methods and were categorized separately from traditional methods. Note diaphragm was separated from the vaginal methods foam or jelly. Also note that LAM was reclassified as a modern method in DHS IV.

In DHS V surveys, the same list of modern and traditional methods used in DHS IV also applied, but the description of LAM used in the DHS IV questionnaire was removed, and respondents needed to explicitly mention LAM. DHS VI surveys also used the same list of methods as DHS V surveys. In DHS-7 surveys, standard days method was added as a modern method, diaphragm and foam or jelly were removed, and the probe for LAM was reinstated with the current wording.

In early rounds of DHS, traditional and folk methods were tabulated separately, but in later rounds traditional and folk methods have been grouped together under the heading traditional methods.

In the early rounds of DHS, both spontaneous (v304_x = 1) and probed (v304_x = 2) knowledge of contraceptive methods was recorded, but in DHS IV surveys and later rounds no differentiation of knowledge is recorded.

Note that individual surveys may have included different methods in the list of contraceptive methods, and may have categorized certain methods, such as LAM, differently.

References

Fabic, M.S., and Y Choi. 2013. "Assessing the Quality of Data Regarding Use of the Lactational Amenorrhea Method." *Studies in Family Planning* 44(2):205-21. https://doi.org/10.1111/j.1728-4465.2013.00353.x

Resources

DHS-8 Tabulation plan: Tables 7.1 and 7.2

API Indicator IDs:
Any method:
```
FP_KMTA_W_ANY, FP_KMTM_W_ANY, FP_KMTU_W_ANY, FP_KMET_W_ANY
FP_KMTA_M_ANY, FP_KMTM_M_ANY, FP_KMTU_M_ANY, FP_KMET_M_ANY
```
(API link, STATcompiler link)

Modern method:
```
FP_KMTA_W_MOD, FP_KMTM_W_MOD, FP_KMTU_W_MOD, FP_KMET_W_MOD
FP_KMTA_M_MOD, FP_KMTM_M_MOD, FP_KMTU_M_MOD, FP_KMET_M_MOD
```
(API link, STATcompiler link)

Traditional method (including folk method):
```
FP_KMTA_W_TFK, FP_KMTM_W_TFK, FP_KMTU_W_TFK,
FP_KMTA_M_TFK, FP_KMTM_M_TFK, FP_KMTU_M_TFK
```
(API link, STATcompiler link)

Traditional method (excluding folk method):
```
FP_KMTA_W_TRA, FP_KMTM_W_TRA, FP_KMTU_W_TRA,
FP_KMTA_M_TRA, FP_KMTM_M_TRA, FP_KMTU_M_TRA
```
(API link, STATcompiler link)

Individual methods (women):
```
FP_KMTA_W_FST, FP_KMTM_W_FST, FP_KMTU_W_FST,
FP_KMTA_W_MST, FP_KMTM_W_MST, FP_KMTU_W_MST,
FP_KMTA_W_PIL, FP_KMTM_W_PIL, FP_KMTU_W_PIL,
FP_KMTA_W_IUD, FP_KMTM_W_IUD, FP_KMTU_W_IUD,
FP_KMTA_W_INJ, FP_KMTM_W_INJ, FP_KMTU_W_INJ,
FP_KMTA_W_DFJ, FP_KMTM_W_DFJ, FP_KMTU_W_DFJ,
FP_KMTA_W_IMP, FP_KMTM_W_IMP, FP_KMTU_W_IMP,
FP_KMTA_W_MCN, FP_KMTM_W_MCN, FP_KMTU_W_MCN,
FP_KMTA_W_FCN, FP_KMTM_W_FCN, FP_KMTU_W_FCN,
FP_KMTA_W_LAM, FP_KMTM_W_LAM, FP_KMTU_W_LAM,
FP_KMTA_W_EMC, FP_KMTM_W_EMC, FP_KMTU_W_EMC,
FP_KMTA_W_DIA, FP_KMTM_W_DIA, FP_KMTU_W_DIA,
FP_KMTA_W_FOM, FP_KMTM_W_FOM, FP_KMTU_W_FOM,
FP_KMTA_W_MPL, FP_KMTM_W_MPL, FP_KMTU_W_MPL,
FP_KMTA_W_STD, FP_KMTM_W_STD, FP_KMTU_W_STD,
FP_KMTA_W_OMD, FP_KMTM_W_OMD, FP_KMTU_W_OMD,
FP_KMTA_W_RHY, FP_KMTM_W_RHY, FP_KMTU_W_RHY,
FP_KMTA_W_WTH, FP_KMTM_W_WTH, FP_KMTU_W_WTH,
FP_KMTA_W_LTA, FP_KMTM_W_LTA, FP_KMTU_W_LTA,
FP_KMTA_W_BRF, FP_KMTM_W_BRF, FP_KMTU_W_BRF,
FP_KMTA_W_OTR, FP_KMTM_W_OTR, FP_KMTU_W_OTR,
FP_KMTA_W_FLK, FP_KMTM_W_FLK, FP_KMTU_W_FLK
```

Individual methods (men):
```
FP_KMTA_M_FST,  FP_KMTM_M_FST,  FP_KMTU_M_FST,
FP_KMTA_M_MST,  FP_KMTM_M_MST,  FP_KMTU_M_MST,
FP_KMTA_M_PIL,  FP_KMTM_M_PIL,  FP_KMTU_M_PIL,
FP_KMTA_M_IUD,  FP_KMTM_M_IUD,  FP_KMTU_M_IUD,
FP_KMTA_M_INJ,  FP_KMTM_M_INJ,  FP_KMTU_M_INJ,
FP_KMTA_M_DFJ,  FP_KMTM_M_DFJ,  FP_KMTU_M_DFJ,
FP_KMTA_M_IMP,  FP_KMTM_M_IMP,  FP_KMTU_M_IMP,
FP_KMTA_M_MCN,  FP_KMTM_M_MCN,  FP_KMTU_M_MCN,
FP_KMTA_M_FCN,  FP_KMTM_M_FCN,  FP_KMTU_M_FCN,
FP_KMTA_M_LAM,  FP_KMTM_M_LAM,  FP_KMTU_M_LAM,
FP_KMTA_M_EMC,  FP_KMTM_M_EMC,  FP_KMTU_M_EMC,
FP_KMTA_M_DIA,  FP_KMTM_M_DIA,  FP_KMTU_M_DIA,
FP_KMTA_M_FOM,  FP_KMTM_M_FOM,  FP_KMTU_M_FOM,
FP_KMTA_M_MPL,  FP_KMTM_M_MPL,  FP_KMTU_M_MPL,
FP_KMTA_M_STD,  FP_KMTM_M_STD,  FP_KMTU_M_STD,
FP_KMTA_M_OMD,  FP_KMTM_M_OMD,  FP_KMTU_M_OMD,
FP_KMTA_M_RHY,  FP_KMTM_M_RHY,  FP_KMTU_M_RHY,
FP_KMTA_M_WTH,  FP_KMTM_M_WTH,  FP_KMTU_M_WTH,
FP_KMTA_M_LTA,  FP_KMTM_M_LTA,  FP_KMTU_M_LTA,
FP_KMTA_M_BRF,  FP_KMTM_M_BRF,  FP_KMTU_M_BRF,
FP_KMTA_M_OTR,  FP_KMTM_M_OTR,  FP_KMTU_M_OTR,
FP_KMTA_M_FLK,  FP_KMTM_M_FLK,  FP_KMTU_M_FLK
```

Ever Use of Contraceptive Methods

Percentage who ever used any method, any modern method, any traditional method and specific methods (legacy indicator)

Definition

1) Percentage of women and men who ever used specific methods
2) Percentage of women and men who ever used any method
3) Percentage of women and men who ever used any modern method
4) Percentage of women and men who ever used any traditional method

Coverage:

> Population base: All women (or men) age 15-49 (IR file, MR file)
> Time period: Lifetime of woman (or man) interviewed

Numerators:

Number of women (or men) within each population base who:

1) **Specific methods:** have used the method (women or men who do not know a method are not asked about its use and are assumed not to have used it)
2) **Any method:** have used at least one specific method, including self-reported other methods (v305_1 to v305_20 = 1 [or 2])
3) **Modern methods:** have used at least one of the following methods:
   a) Female sterilization (tubal ligation, laparotomy, voluntary surgical contraception for women) (v305_6 = 1 [or 2])
   b) Male sterilization (vasectomy, voluntary surgical contraception for men) (v305_7 = 1 [or 2])
   c) The contraceptive pill (oral contraceptives) (v305_1 = 1 [or 2])
   d) Intrauterine contraceptive device (IUD) (v305_2 = 1 [or 2])
   e) Injectables (Depo-Provera) (v305_3 = 1 [or 2])
   f) Implants (Norplant) (v305_11 = 1 [or 2])
   g) Male condom (prophylactic, rubber) female condom (v305_5 = 1 [or 2])
   h) Female condom (v305_14 = 1 [or 2])
   i) Diaphragm (v305_4 = 1 [or 2])
   j) Contraceptive foam and contraceptive jelly female condom (v305_15 = 1 [or 2])
   k) Lactational amenorrhea method (LAM) (v305_13 = 1 [or 2])
   l) Standard days method (SDM) (v305_18 = 1 [or 2])
   m) Emergency contraception (double dose of contraceptive pill twice in 24 hours for two days) and specific dosage "emergency pills" (v305_16 = 1 [or 2])
   n) Country-specific modern methods and other modern contraceptive methods respondent mentioned (including cervical cap, contraceptive sponge, and others) (v305_17 = 1 [or 2]), but does NOT include abortion, menstrual regulation
4) **Traditional methods:** have used at least one of the following methods:
   a) Periodic abstinence (rhythm, calendar method) (v305_8 = 1 [or 2])
   b) Withdrawal (coitus interruptus) (v305_9 = 1 [or 2])
   c) Country-specific traditional methods of proven effectiveness, and folk methods including locally described methods and/or spiritual methods of unproven effectiveness, such as herbs, amulets, gris-gris, etc. (v305_10 = 1 [or 2])

Denominators:

Numbers of women (or men) in each population base:

a) All women
b) Currently married women (v502 = 1)
c) Sexually active unmarried women: Includes women who are not currently married or in a consensual union (single, divorced, widowed, and separated) and who had sexual intercourse within the last 30 days (v502 ≠ 1 & v528 <= 30)
d) All men between ages 15 and 49 years (mv012 in 15-49)
e) Currently married men (mv502 = 1)
f) Sexually active unmarried men: Includes men who are not currently married or in a consensual union (single, divorced, widowed, and separated) and who had sexual intercourse within the last 30 days (mv502 ≠ 1 & mv528 <= 30)

Variables: IR file, MR file.

v305_1 to _20	Ever used method (women)
v502	Currently/formerly/never in union (women)
v528	Time since last sex (in days) (women)
v005	Woman's individual sample weight
mv012	Respondent's current age (men)
mv305_1 to _20	Ever used method (men)
mv502	Currently/formerly/never in union (men)
mv528	Time since last sex (in days) (men)
mv005	Man's individual sample weight

Calculation

Within each coverage category, the numerator divided by the denominator, expressed as a percentage.

Handling of Missing Values

Population Bases: Women with unknown or missing marital status are considered never-married. Missing value in sexual activity is treated as had sexual relations (non-virgin). Missing value in time since last intercourse is treated as greater than 30 days, i.e., not sexually active.

Numerators: Treated as has not used method for individual methods and grouped methods.

Denominators: All women/men in coverage category included, even if missing values on all methods.

Notes and Considerations

See *Notes and Considerations* for *Knowledge of Contraceptive Methods*.

Changes over Time

The list of specific methods and their categorization has changed. See *Changes over Time* for *Knowledge of Contraceptive Methods*.

Ever use of contraceptive methods is no longer reported in most DHS survey reports since around 2008.

Resources

API Indicator IDs:
Any method:
```
FP_EVUA_W_ANY, FP_EVUM_W_ANY, FP_EVUU_W_ANY
FP_EVUA_M_ANY, FP_EVUM_M_ANY, FP_EVUU_M_ANY
```
([API link](#), [STATcompiler link](#))

Modern method:
```
FP_EVUA_W_MOD, FP_EVUM_W_MOD, FP_EVUU_W_MOD
FP_EVUA_M_MOD, FP_EVUM_M_MOD, FP_EVUU_M_MOD
```
([API link](#), [STATcompiler link](#))

Traditional method (including folk method):
```
FP_EVUA_W_TFK, FP_EVUM_W_TFK, FP_EVUU_W_TFK
FP_EVUA_M_TFK, FP_EVUM_M_TFK, FP_EVUU_M_TFK
```
([API link](#), [STATcompiler link](#))

Traditional method (excluding folk method):
```
FP_EVUA_W_TRA, FP_EVUM_W_TRA, FP_EVUU_W_TRA
FP_EVUA_M_TRA, FP_EVUM_M_TRA, FP_EVUU_M_TRA
```
([API link](#), [STATcompiler link](#))

Individual methods (women):
```
FP_EVUA_W_FST, FP_EVUM_W_FST, FP_EVUU_W_FST,
FP_EVUA_W_MST, FP_EVUM_W_MST, FP_EVUU_W_MST,
FP_EVUA_W_PIL, FP_EVUM_W_PIL, FP_EVUU_W_PIL,
FP_EVUA_W_IUD, FP_EVUM_W_IUD, FP_EVUU_W_IUD,
FP_EVUA_W_INJ, FP_EVUM_W_INJ, FP_EVUU_W_INJ,
FP_EVUA_W_DFJ, FP_EVUM_W_DFJ, FP_EVUU_W_DFJ,
FP_EVUA_W_IMP, FP_EVUM_W_IMP, FP_EVUU_W_IMP,
FP_EVUA_W_MCN, FP_EVUM_W_MCN, FP_EVUU_W_MCN,
FP_EVUA_W_FCN, FP_EVUM_W_FCN, FP_EVUU_W_FCN,
FP_EVUA_W_LAM, FP_EVUM_W_LAM, FP_EVUU_W_LAM,
FP_EVUA_W_EMC, FP_EVUM_W_EMC, FP_EVUU_W_EMC,
FP_EVUA_W_DIA, FP_EVUM_W_DIA, FP_EVUU_W_DIA,
FP_EVUA_W_FOM, FP_EVUM_W_FOM, FP_EVUU_W_FOM,
FP_EVUA_W_MPL, FP_EVUM_W_MPL, FP_EVUU_W_MPL,
FP_EVUA_W_STD, FP_EVUM_W_STD, FP_EVUU_W_STD,
FP_EVUA_W_OMD, FP_EVUM_W_OMD, FP_EVUU_W_OMD,
FP_EVUA_W_RHY, FP_EVUM_W_RHY, FP_EVUU_W_RHY,
FP_EVUA_W_WTH, FP_EVUM_W_WTH, FP_EVUU_W_WTH,
FP_EVUA_W_LTA, FP_EVUM_W_LTA, FP_EVUU_W_LTA,
FP_EVUA_W_BRF, FP_EVUM_W_BRF, FP_EVUU_W_BRF,
FP_EVUA_W_OTR, FP_EVUM_W_OTR, FP_EVUU_W_OTR,
FP_EVUA_W_FLK, FP_EVUM_W_FLK, FP_EVUU_W_FLK
```

Individual methods (men):
```
FP_EVUA_M_FST, FP_EVUM_M_FST, FP_EVUU_M_FST,
FP_EVUA_M_MST, FP_EVUM_M_MST, FP_EVUU_M_MST,
FP_EVUA_M_PIL, FP_EVUM_M_PIL, FP_EVUU_M_PIL,
FP_EVUA_M_IUD, FP_EVUM_M_IUD, FP_EVUU_M_IUD,
FP_EVUA_M_INJ, FP_EVUM_M_INJ, FP_EVUU_M_INJ,
```

```
FP_EVUA_M_DFJ,  FP_EVUM_M_DFJ,  FP_EVUU_M_DFJ,
FP_EVUA_M_IMP,  FP_EVUM_M_IMP,  FP_EVUU_M_IMP,
FP_EVUA_M_MCN,  FP_EVUM_M_MCN,  FP_EVUU_M_MCN,
FP_EVUA_M_FCN,  FP_EVUM_M_FCN,  FP_EVUU_M_FCN,
FP_EVUA_M_LAM,  FP_EVUM_M_LAM,  FP_EVUU_M_LAM,
FP_EVUA_M_EMC,  FP_EVUM_M_EMC,  FP_EVUU_M_EMC,
FP_EVUA_M_DIA,  FP_EVUM_M_DIA,  FP_EVUU_M_DIA,
FP_EVUA_M_FOM,  FP_EVUM_M_FOM,  FP_EVUU_M_FOM,
FP_EVUA_M_MPL,  FP_EVUM_M_MPL,  FP_EVUU_M_MPL,
FP_EVUA_M_STD,  FP_EVUM_M_STD,  FP_EVUU_M_STD,
FP_EVUA_M_OMD,  FP_EVUM_M_OMD,  FP_EVUU_M_OMD,
FP_EVUA_M_RHY,  FP_EVUM_M_RHY,  FP_EVUU_M_RHY,
FP_EVUA_M_WTH,  FP_EVUM_M_WTH,  FP_EVUU_M_WTH,
FP_EVUA_M_LTA,  FP_EVUM_M_LTA,  FP_EVUU_M_LTA,
FP_EVUA_M_BRF,  FP_EVUM_M_BRF,  FP_EVUU_M_BRF,
FP_EVUA_M_OTR,  FP_EVUM_M_OTR,  FP_EVUU_M_OTR,
FP_EVUA_M_FLK,  FP_EVUM_M_FLK,  FP_EVUU_M_FLK
```

Current Use of Contraceptive Methods

Percentage of women who currently use any method, any modern method, any traditional method and specific methods

Definition

1) Percentage of women who currently use specific methods
2) Percentage of women who currently use any method
3) Percentage of women who currently use any modern method
4) Percentage of women who currently use any traditional method
5) Percentage of women who are not currently using any method

The percentage of currently married women who currently use any method of contraception is called the contraceptive prevalence rate (CPR).

Coverage:

Population base: **All women (IR file)**
Time period: **Current use is defined by the respondent**

Numerators:

Number of women within each base population who:
1) **Specific methods:** currently use the specific method (v312 = x), after being asked whether they or their partner are currently doing something or using any method to delay or avoid getting pregnant. Women who say they are pregnant are coded as not currently using any method
2) **Any method:** use any method of contraception (v313 ≠ 0)
3) **Modern methods:** use one of the following methods (v313 = 3):
   a) Female sterilization (tubal ligation, laparotomy, voluntary surgical contraception for women) (v312 = 6)
   b) Male sterilization (vasectomy, voluntary surgical contraception for men) (v312 = 7)
   c) The contraceptive pill (oral contraceptives) (v312 = 1)
   d) Intrauterine contraceptive device (IUD) (v312 = 2)
   e) Injectables (Depo-Provera) (v312 = 3)
   f) Implants (Norplant) (v312 = 11)
   g) Female condom (v312 = 14)
   h) Male condom (prophylactic, rubber) (v312 = 5)
   i) Emergency contraception (v312 = 16)
   j) Lactational amenorrhea method (LAM) (v312 = 13)
   k) Standard days method (SDM) (v312 = 18)
   l) Country-specific modern methods and respondent-mentioned other modern contraceptive methods (including cervical cap, contraceptive sponge, and others), but does NOT include abortions and menstrual regulation
4) **Traditional methods:** currently use one of the following methods (v313 = 1 or 2):
   a) Periodic abstinence (rhythm, calendar method) (v312 = 8)
   b) Withdrawal (coitus interruptus) (v312 = 9)
   c) Country-specific traditional methods of proven effectiveness, folk methods (locally described methods and spiritual methods of unproven effectiveness, such as herbs, amulets, gris-gris,

etc.). In the later rounds of the DHS program, both traditional methods and folk methods have been grouped under the heading traditional methods

a) All women
b) Currently married (v502 = 1)
c) Sexually active unmarried women: Includes women who are not currently married or in a consensual union (single, divorced, widowed, and separated) and who had sexual intercourse within the last 30 days (v502 ≠ 1 & v528 <= 30)

Variables: IR file.

v312	Current contraceptive method
v313	Current use by method type
v502	Currently/formerly/never in union
v528	Time since last sex (in days)
v005	Woman's individual sample weight

Calculation

Within each coverage category, the numerator divided by the denominator, expressed as a percentage.

Handling of Missing Values

Population bases: Women with unknown or missing marital status are considered never-married. Missing value in sexual activity treated as had sexual relations. Missing value in time since last intercourse treated as greater than 30 days (not sexually active).

Numerators: Treated as does not use method for individual methods and grouped methods.

Denominators: All women in coverage category included, even if missing values on current use of methods.

Notes and Considerations

Breastfeeding, prolonged breastfeeding, and prolonged abstinence are NOT contraceptive methods in themselves. The lactational amenorrhea method is based on three criteria: Woman is amenorrheic since last birth; last birth occurred within six months; woman is exclusively or predominately breastfeeding. In the DHS description of LAM only the following is used: "Up to six months after childbirth, before the menstrual period has not returned, women use a method requiring frequent breastfeeding day and night." This description varies from the official LAM criteria by not including exclusive or predominant breastfeeding (which is based on whether or not the child received complementary liquids and foods), substituting frequency of breastfeeding (it is not a requirement that frequent night-time feeding occurs) and by not including the criterion that the woman knows that another form of contraception is necessary. The DHS description may therefore include women who say yes even though they had never heard of the term LAM or of programs that instruct in the method, thus overestimating knowledge and ever use.

Each respondent defines current use of contraception. While some methods such as sterilization, pill, IUD, injectables, implants, and LAM involve continuous protection, other methods are coital-specific, requiring use during intercourse, such as condoms, vaginal methods, periodic abstinence, SDM and withdrawal. Current use for coital-specific methods is a difficult concept since it may mean use at last intercourse, which could have been a long time before the interview or intention to use at next intercourse.

The following two groups are included in the current use of contraception tables for all women, but are excluded from the tables for currently married or in union women and the sexually active unmarried women:

10) Unmarried sexually inactive women—includes women who are not currently married or in a consensual union (single, divorced, widowed and separated) and who had sexual intercourse at least once in their lives but not within the last 30 days.

11) Unmarried women who never had sexual intercourse—includes women who are not currently married or in a consensual union (single, divorced, widowed and separated) and who never had sexual intercourse.

Changes over Time

The list of specific methods and their categorization has changed.

In DHS I and II surveys, modern methods included pill, IUD, injection, vaginal methods, condom, female sterilization, and male sterilization. The vaginal methods included in a single group diaphragm, foam and jelly. Traditional methods included periodic abstinence (of any kind), withdrawal, and all respondent-mentioned other methods.

In DHS III surveys, modern methods included pill, IUD, injection, vaginal methods, condom, female sterilization, male sterilization, and implants. Traditional methods included periodic abstinence (of any kind), withdrawal and lactational amenorrhea. Folk methods included respondent-mentioned other methods and were categorized separately from traditional methods.

In DHS IV surveys, emergency contraception was added to the list of contraceptive methods in the contraceptive table but was not included as a separate method for current use (included in "others"). The DHS IV and following questionnaires allowed for more than one method to be currently used. For specific methods, the following hierarchy is used to tabulate current use, selecting only the highest method in the list: female sterilization, male sterilization, intrauterine contraceptive device (IUD), contraceptive injection, contraceptive implants (Norplant), contraceptive pill, condoms, emergency contraception, standard day method (SDM), vaginal methods (foam, jelly, suppository), lactational amenorrhea method (LAM), periodic abstinence, withdrawal, other methods. Note that in DHS IV and DHS V priority was given to the contraceptive pill before IUD, injectables and implants.

In DHS VI the category for other methods was separated into other modern methods and other traditional methods. In DHS-7 emergency contraception and standard days method are explicitly listed in the coding categories for current use of contraception diaphragm and foam or jelly were removed.

In earlier rounds of DHS through DHS V, women who declared that they ever used female sterilization were directly coded as currently using female sterilization. Following the removal of the questions on ever use of contraceptive methods in DHS VI this automated coding no longer applies.

References

Fabic, M.S., and Y. Choi. 2013. "Assessing the Quality of Data Regarding Use of the Lactational Amenorrhea Method." *Studies in Family Planning 44(2):205-21.* https://doi.org/10.1111/j.1728-4465.2013.00353.x

United Nations, Department of Economic and Social Affairs, Population Division. 2015. *Trends in Contraceptive Use Worldwide 2015* (ST/ESA/SER.A/349). http://www.un.org/en/development/desa/population/publications/family/contraceptive-infochart-2015.shtml

Wang, W., S. Staveteig, R. Winter, and C. Allen. 2017. *Women's marital status, contraceptive use, and unmet need in Sub-Saharan Africa, Latin America, and the Caribbean.* DHS Comparative Report No. 44. Rockville, Maryland, USA: ICF. https://dhsprogram.com/publications/publication-CR44-Comparative-Reports.cfm

Resources

DHS-8 Tabulation plan: Tables 7.3, 7.4.1, 7.4.2, and 15.14

DHS Family Planning Topics page: https://www.dhsprogram.com/topics/Family-Planning.cfm

DHS Indicator Snapshot: Contraceptive Prevalence: https://www.youtube.com/watch?v=hf9s6wdHqfw

API Indicator IDs:
Any method:
`FP_CUSA_W_ANY, FP_CUSM_W_ANY, FP_CUSU_W_ANY`
(API link, STATcompiler link)

Modern method:
`FP_CUSA_W_MOD, FP_CUSM_W_MOD, FP_CUSU_W_MOD`
(API link, STATcompiler link)

Traditional method (including folk method):
`FP_CUSA_W_TFK, FP_CUSM_W_TFK, FP_CUSU_W_TFK`
(API link, STATcompiler link)

Traditional method (excluding folk method):
`FP_CUSA_W_TRA, FP_CUSM_W_TRA, FP_CUSU_W_TRA`
(API link, STATcompiler link)

Individual methods (women):
`FP_CUSA_W_FST, FP_CUSM_W_FST, FP_CUSU_W_FST,`
`FP_CUSA_W_MST, FP_CUSM_W_MST, FP_CUSU_W_MST,`
`FP_CUSA_W_PIL, FP_CUSM_W_PIL, FP_CUSU_W_PIL,`

```
FP_CUSA_W_IUD,  FP_CUSM_W_IUD,  FP_CUSU_W_IUD,
FP_CUSA_W_INJ,  FP_CUSM_W_INJ,  FP_CUSU_W_INJ,
FP_CUSA_W_DFJ,  FP_CUSM_W_DFJ,  FP_CUSU_W_DFJ,
FP_CUSA_W_IMP,  FP_CUSM_W_IMP,  FP_CUSU_W_IMP,
FP_CUSA_W_MCN,  FP_CUSM_W_MCN,  FP_CUSU_W_MCN,
FP_CUSA_W_FCN,  FP_CUSM_W_FCN,  FP_CUSU_W_FCN,
FP_CUSA_W_LAM,  FP_CUSM_W_LAM,  FP_CUSU_W_LAM,
FP_CUSA_W_EMC,  FP_CUSM_W_EMC,  FP_CUSU_W_EMC,
FP_CUSA_W_DIA,  FP_CUSM_W_DIA,  FP_CUSU_W_DIA,
FP_CUSA_W_FOM,  FP_CUSM_W_FOM,  FP_CUSU_W_FOM,
FP_CUSA_W_MPL,  FP_CUSM_W_MPL,  FP_CUSU_W_MPL,
FP_CUSA_W_STD,  FP_CUSM_W_STD,  FP_CUSU_W_STD,
FP_CUSA_W_OMD,  FP_CUSM_W_OMD,  FP_CUSU_W_OMD,
FP_CUSA_W_RHY,  FP_CUSM_W_RHY,  FP_CUSU_W_RHY,
FP_CUSA_W_WTH,  FP_CUSM_W_WTH,  FP_CUSU_W_WTH,
FP_CUSA_W_LTA,  FP_CUSM_W_LTA,  FP_CUSU_W_LTA,
FP_CUSA_W_BRF,  FP_CUSM_W_BRF,  FP_CUSU_W_BRF,
FP_CUSA_W_OTR,  FP_CUSM_W_OTR,  FP_CUSU_W_OTR,
FP_CUSA_W_FLK,  FP_CUSM_W_FLK,  FP_CUSU_W_FLK,
FP_CUSA_W_TFK,  FP_CUSM_W_TFK,  FP_CUSU_W_TFK
```

WHO 100 Core Health Indicators: Contraceptive Prevalence Rate
MICS6 Indicator TM.3: Contraceptive Prevalence Rate
FP2020 Core Indicator 2: Contraceptive prevalence rate, modern methods (mCPR, all women)

Knowledge of the Fertile Period

Percent distribution of women, by knowledge of the fertile period during the ovulatory cycle

Definition

Percent distribution of women, by knowledge of the fertile period during the ovulatory cycle.

Coverage:
> Population base: **All women (IR file)**
> Time period: **Current as defined by the respondent**

Numerators:
Number of women in each base population by category of knowledge of the fertile period:
1) Just before her menstrual period begins (v217 = 4)
2) During her menstrual period (v217 = 1)
3) Right after her menstrual period has ended (v217 = 2)
4) Halfway between two menstrual periods (v217 = 3)
5) Other (v217 = 6)
6) No specific time (v217 = 5)
7) Don't know (v217 = 8)
8) Missing (v217 = 9)

Denominators:
a) All women
b) Women who currently use periodic abstinence (rhythm method) (v312 = 8)
c) Women who currently use the standard days method (SDM) (v312 = 18)

Variables: IR file.
v217   Knowledge of ovulatory cycle
v312   Current contraceptive method
v005   Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100. Categories add to 100 percent total.

Handling of Missing Values

Women who did not know or have a missing value for knowledge of the fertile period are included as separate categories in the distribution.

Changes over Time

In prior rounds of DHS, these indicators have been presented for non-current users of periodic abstinence as well as current users of periodic abstinence. In DHS-7 the population base for users of standard days method was added.

References

Institute for Reproductive Health. 2013. *Fertility Awareness across the Life Course: A comprehensive literature review*. FAM Project. Washington, DC. Institute for Reproductive Health, Georgetown University. http://irh.org/resource-library/a-comprehensive-literature-review-fertility-awareness-across-the-life-course/

Resources

DHS-8 Tabulation plan: Table 7.8

API Indicator IDs:
`FP_KFTP_W_BEF, FP_KFTP_W_DUR, FP_KFTP_W_AFT, FP_KFTP_W_HLF, FP_KFTP_W_OTH, FP_KFTP_W_NON, FP_KFTP_W_DKN, FP_KFTP_W_MIS`
(API link, STATcompiler link)

Percentage of women with correct knowledge of the fertile period during the ovulatory cycle

Definition

Percentage of women with correct knowledge of the fertile period during the ovulatory cycle, by age groups.

Numerator: Number of women with correct knowledge of the fertile period (v217 = 3) in each age category. Correct knowledge of fertile period is defined as "halfway between two menstrual periods".

Denominator: Number of women in each age group (v013)

Variables: IR file.
v013	Age in 5-year groups
v217	Knowledge of ovulatory cycle
v005	Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Women who did not know or have a missing value for knowledge of the fertile period are excluded from the numerator but included in the denominators.

Resources

DHS-8 Tabulation plan: Table 7.9

API Indicator IDs:
`FP_KFTP_W_HLF`
([API link](#), [STATcompiler link](#))

Timing of Sterilization

Percent distribution of women sterilized by specific age groups

Definition

Percent distribution of sterilized women who had contraceptive sterilization in the specified age groups.

Coverage:
> Population base: All women who have had a contraceptive sterilization (IR file)
> Time period: Current status at the time of the survey

Numerator: Number of women whose contraceptive sterilization occurred in the time they were in the specified age groups (v320 = <25, 25-29, 30-34, 35-39, 40-44, 45-49)

Denominator: Total number of women who have had contraceptive sterilization (v312 = 6)

Variables: IR file.
v312   Current contraceptive method
v320   Age at sterilization
v005   Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Women with missing values for age at sterilization are imputed in the data file.

Notes and Considerations

Percent distribution adds up to 100 percent.

Resources

DHS-8 Tabulation plan: Table 7.5

API Indicator IDs:
`FP_ASTR_W_A20, FP_ASTR_W_A25, FP_ASTR_W_A30, FP_ASTR_W_A35, FP_ASTR_W_A40, FP_ASTR_W_A45`
(API link, STATcompiler link)

Median age at sterilization

Definition

Median age in years when women had contraceptive sterilization operation.

Coverage:
>   Population base: All women who have had a contraceptive sterilization (v312 = 6) at less than 40 years of age (v320 < 5) (IR file)
>   Time period: Current status at the time of the survey

Median: Median for completed time periods

Variables: IR file.

v011	Date of birth
v312	Current contraceptive method
v317	Date of start of use of method
v320	Age at sterilization
v005	Woman's individual sample weight

Calculation

Age at sterilization is the difference between date of sterilization operation and birth date of woman, truncated to single years of age ((v317 - v011) / 12).

Medians are calculated from cumulated single year of age percent distributions of age at sterilization. Median is linearly interpolated between the age values by which 50 percent or more of the women had been sterilized truncate.

Since the difference between the date of sterilization and the respondent's birth date is truncated to years, the difference is taken as including up to next completed year of age (the cumulated percentage for women with a difference of 29 years actually includes all women below 30 years of age at sterilization). Therefore, an adjustment is made to the interpolated median by increasing the interpolated value by one year. See *Median Calculations* in *Chapter 1*.

Handling of Missing Values

Women with missing values for age at sterilization are imputed in the data file See *Date Variables* in *Chapter 1*.

Notes and Considerations

Women who were sterilized at age 40 years or over are excluded from the calculation of the median to minimize problems of censoring.

Since the median is based only on women who have been sterilized by the time of the survey, the median age is not calculated for periods of time of sterilization 10 years and more before the survey

because of censoring (the oldest possible age in the data set would be 39 years at ten years prior and less for earlier time periods).

Resources

DHS-8 Tabulation plan: Table 7.5

API Indicator IDs:
FP_ASTR_W_MED
([API link](#), [STATcompiler link](#))

Use of DMPA-SC/Sayana Press

Percentage of current injectable users using DMPA-SC/Sayana Press, and among women using DMPA-SC/Sayana Press, percent distribution by the person administering the injection the last time

Definition

1) Percentage of current injectable users using DMPA-SC/Sayana Press
2) Among women using DMPA-SC/Sayana Press, percent distribution by the person administering the injection the last time

Coverage:
      Population base: **All women (IR file)**
      Time period: **Current status at time of survey**

Numerator:
1) Number of women who are currently using the DMPA-SC/Sayana Press injectable (v3a11 = 1)
2) Number of women who are currently using the DMPA-SC/Sayana Press injectable (v3a11 = 1), by person who injected it last time: self, healthcare provider, or unsure (v3a12)

Denominator:
a) Number of women who are currently using an injectable (v312 = 3)
b) Number of women who are currently using the DMPA-SC/Sayana Press injectable (v3a11 = 1)

Variables: IR file.
v312	Current contraceptive method
v3a11	Type of injectable based on picture observation
v312	Person who injected last time
v005	Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Women who do not know what kind of injectable they have used are included in the denominator of women who are currently using an injectable, but not included in the numerator of women currently using a DMPA-SC/Sayana Press.

Women who did not know who injected the DMPA-SC/Sayana Press or with missing values for most recent source are included as a separate category.

Notes and Considerations

Percentages of who injected the DMPA-SC/Sayana Press add up to 100 percent.

Women who report currently using an injectable form of contraception are shown two pictures to identify which kind of injectable they have. One picture is of the DMPA-SC/Sayana Press and the other is of a needle and syringe. Women are counted as having used DMPA-SC/Sayana Press if they identify that their injectable resembles the picture of the DMPA-SC/Sayana Press.

Changes over Time

This indicator was not reported prior to DHS-8.

Resources

DHS-8 Tabulation plan: Table 7.6

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Use of Emergency Contraception

Percentage of women who used emergency contraception in the last 12 months

Definition

Percentage of women who used emergency contraception in the last 12 months.

Coverage:
> Population base: All women (IR file)
> Time period: 12 months prior to the survey

Numerator:
Number of women who report their current contraceptive method is emergency contraception (v312 = 16), or they have used emergency contraception in the past 12 months (v3a13 = 1), or reported using emergency contraception in their contraceptive calendar in the last 12 months (a "9" in any of the 12 months preceding the interview in vcal_1)

Denominator: Number of women age 15-49

Variables: IR file.
v312	Current contraceptive method
v3a13	Used emergency contraception in past 12 months
vcal_1	Calendar (method use, non-use and pregnancies)
v005	Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Women who are unsure or do not know are excluded from the numerator but included in the denominator.

Changes over Time

This indicator was not reported prior to DHS-8.

Resources

DHS-8 Tabulation plan: Table 7.7

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Source of Contraception

Percent distribution of current users of modern methods, by most recent source of method

Definition

Percent distribution of current users of modern methods, by most recent source of method.

Coverage:
> Population base: All women who use a modern method of contraception except for the lactational amenorrhea method (LAM) (IR file)
> Time period: Current status at time of survey

Numerator: Number of women, by most recent source of contraception (v326)

Denominator: Number of women who currently use a modern method of contraception, excluding LAM (v313 = 3 & v312 ≠ 13)

Variables: IR file.

v312	Current contraceptive method
v313	Current use by method type
v326	Last source for current users
v005	Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Women who did not know or with missing values for most recent source are included as a separate category.

Notes and Considerations

Percentages add up to 100 percent.

Modern methods include female sterilization, male sterilization, pill, IUD, injectables, implants, male condom, female condom, emergency contraception, and SDM.

Resources

DHS-8 Tabulation plan: Table 7.10

API Indicator IDs:

Public sources:
`FP_SRCM_W_PUB, FP_SRCM_W_GHS, FP_SRCM_W_GHC, FP_SRCM_W_GFP, FP_SRCM_W_GMB, FP_SRCM_W_GFW, FP_SRCM_W_GOT`
([API link](#), [STATcompiler link](#))

Private sources:
`FP_SRCM_W_PRV, FP_SRCM_W_PHS, FP_SRCM_W_PPH, FP_SRCM_W_PDR, FP_SRCM_W_PMB, FP_SRCM_W_PFW, FP_SRCM_W_POT`
([API link](#), [STATcompiler link](#))

Other sources:
`FP_SRCM_W_OSR, FP_SRCM_W_SHP, FP_SRCM_W_CHH, FP_SRCM_W_FRR, FP_SRCM_W_OTH, FP_SRCM_W_DKM, FP_SRCM_W_MIS`
([API link](#), [STATcompiler link](#))

Use of Social Marketing Brand Pill and Condom

Percentage of women currently using oral contraceptives or condoms who use a specific socially marketed brand

Definition

1) Percentage of women currently using oral contraceptives who use a specific socially marketed brand.
2) Percentage of women currently using male condoms who use a specific socially marketed brand.

Coverage:

Population base: Women who are currently using oral contraceptive (pills) or male condoms (IR file)

Time period: Current status at time of survey

Numerators:

1) Number of women age 15-49 who are currently using a socially marketed brand of oral contraceptive pills (v323 = survey-specific code(s))
2) Number of women who are currently using a socially marketed brand of male condoms (v323a = survey-specific code(s))

Denominators:

a) Number of women who are currently using oral contraceptive (pills) (v312 = 1)
b) Number of women who are currently using male condoms (v312 = 5)

Variables: IR file.

v312	Current contraceptive method
v323	Brand of pill used
v323a	Brand of condom used
v005	Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Women who did not know or have a missing value for the brand of oral contraceptive or condom are excluded from the numerator (assumed not using a social marketing brand) but included in the denominator.

Notes and Considerations

Social marketing brands of oral contraceptives (pills) or condoms are specific to each country. Information on the brand of condom is provided by the women, not their partner.

Changes over Time

The social marketing brands are likely to change over time, and the coding of specific brands may change from survey to survey within a country.

Resources

DHS-8 Tabulation plan: Table 7.11

API Indicator IDs:
`FP_SOCM_W_PIL, FP_SOCM_W_CON`
([API link](#), [STATcompiler link](#))

Informed Choice

Percentage of current users of selected contraceptive methods who were informed about side effects or problems of the method used, what to do if they experienced side effects or problems, and who were informed of other methods of contraception that could be used

Definition

1) Percentage of current users of selected contraceptive methods who were informed about side effects or problems of the method used.
2) Percentage of current users of selected contraceptive methods who were informed of what to do if they experienced side effects or problems with the method used.
3) Percentage of current users of selected contraceptive methods who were informed of other methods of contraception that could be used.
4) Percentage of current users of selected contraceptive methods who were informed of all three (Method Information Index).
5) Percentage who were informed that they could switch to another method if they wanted to or needed to

Coverage:

Population base: Women who started the last episode of use of select modern contraceptive methods (female sterilization, pill, IUD, injectables, and implants) within the 5 years preceding the survey

Time period: 5 years preceding the survey

Numerators:

Number of women who say they were informed at the start of the current episode of use of the method about:
1) Side effects or problems of the method used (v3a02 = 1 or v3a03 = 1)
2) What to do if they experienced side effects or problems with the method used (v3a04 = 1)
3) Other methods of contraception that could be used (v3a05=1 or v3a06=1)
4) All three ((v3a02 = 1 or v3a03 = 1) & (v3a04 = 1) & (v3a05=1 or v3a06=1))
5) Switching to another method if they wanted to or needed to (v3a14)

Denominator: For 1-4, number of women who started the last episode of use of select modern contraceptive methods (female sterilization, pill, IUD, injectables, and implants) within the 5 years preceding the survey (v312 in 1:3,6,11 & (v008 - v317 < 60)). For 5, number of women who started the last episode of use of select modern contraceptive methods (pill, IUD, injectables, and implants) within the 5 years preceding the survey (v312 in 1:3,11 & (v008 - v317 < 60)).

Variables: IR file.

v3a02	Told about side effects
v3a03	Told about side effects by health or family planning worker
v3a04	Told how to deal with side effects
v3a05	Told about other family planning methods

v3a06	Told about other family planning methods by health or family planning worker
v3a14	Could switch method if needed or wanted to
v008	Date of interview
v312	Current contraceptive method
v317	Date of start of use of method (CMC)
v005	Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Women who did not know whether they were informed are considered not informed. Women with missing values on whether they were informed are excluded from the numerators but included in the denominators.

Notes and Considerations

Informed choice is a necessary part of family planning programs. Family planning providers should inform all method users of the potential side effects and what they should do if they encounter any of the effects. This information both assists the user in coping with side effects and decreases unnecessary discontinuation of temporary methods. Users of temporary methods should also be informed of the choices they have with respect to other methods. Informed choice should be analyzed by type of method and type of provider in order to improve policy and program practices.

Women who report female sterilization as their current method are not asked if they were informed that they could switch methods.

Changes over Time

In earlier rounds of DHS, an additional indicator was included on whether users were informed that sterilization is permanent. The question on method switching is new in DHS-8.

References

USAID Data For Impact. *Method Information Index*. https://www.data4impactproject.org/prh/family-planning/method-choice/method-information-index/

FP2020 Core Indicators. https://www.data4impactproject.org/prh/family-planning/method-choice/method-information-index/

Resources

DHS-8 Tabulation plan: Table 7.12

API Indicator IDs:
FP_ICHC_W_SID, FP_ICHC_W_WDO, FP_ICHC_W_HFP
([API link](), [STATcompiler link]())

FP2020 Core Indicator 14: Method information index

Contraceptive Discontinuation

First-year contraceptive discontinuation rates

Definition

Among women who experienced episode of contraceptive use within the 5 years preceding the survey, percentage of episodes discontinued within 12 months by reason for discontinuation, according to specific method.

The discontinuation rates are based on episodes of use of particular methods. An individual woman may contribute more than one episode to the calculation. The calculation procedure is based on life table methods.

Coverage:
> Population base: Contraceptive use episodes of all interviewed women who used a contraceptive method in the 5 years preceding the survey (IR file)
> Time period: Method use in the 3-62 months preceding the survey

Discontinuation rate: Users who discontinue using a contraceptive method within 12 months of beginning use during a specific episode of use. Users who switch to another method are considered to have discontinued the previous method at the time of switching.

Exposure: Duration of use of a specific method within one episode of use. Exposure begins with initial month of use and ends with discontinuation or with the month of interview if method was still being used at the time of the interview.

Variables: IR file.
vcal_1	Calendar (method use, non-use and pregnancies)
vcal_2	Calendar (reasons for discontinuation)
v018	Row of month of interview
v019	Length of calendar
v005	Woman's individual sample weight

Calculation

In the DHS standard recode file, the data for contraceptive discontinuation rates come from the reproductive calendar (vcal). The reproductive calendar in the questionnaire consists of two or more columns of boxes, where each box represents a specific calendar month. The reproductive calendar usually begins with the first month of the fifth calendar year before the date of the start of fieldwork. For example, if the fieldwork began in July 2018, the calendar would start in January 2013. In the first column, episodes of use of contraception are indicated by placing a method code in the boxes that correspond to the calendar months when used. Pregnancies, births, and non-live birth terminations are also represented in this column by placing the corresponding codes in the appropriate months. Months with codes "0" are those in which the woman did not use contraception, was not pregnant, did not give birth, or did not have a fetal loss or stillbirth. In the second column, the reason for contraceptive discontinuation is noted in the box that corresponds to the last month of use.

In the standard recode file, the reproductive calendar is represented by character strings of fixed length. Each position within the character string represents a calendar month with the first position in the string representing the most recent point in time, and the last representing the beginning of the calendar (e.g. January 2013. Thus the third position from the end may represent March 2013, while the fifth position from the end represents May 2013. To calculate the durations of the episodes of use, each position is examined in chronological order (starting at the end of the string and moving towards the beginning) for a contraceptive code. The first code following a position without that code indicates the start of a new episode of use. The last position (e.g. January 2013) is ignored in this examination, since a code in that position may represent an episode of use that began before the calendar start date. The number of continuous positions with the same contraceptive code indicates the number of months of use in the episode. An episode ends if the following month does not have the same contraceptive code (a discontinuation) or corresponds to the month of interview (a censored duration). The episodes are then tabulated by duration and reasons for ending for each contraceptive method and for all methods combined. Standard life table calculations are then applied to the terminations to calculate months of exposure and number of discontinuations by month of episode. The cumulative proportion that discontinued by 12 months is taken as the 12-month discontinuation rate. See the Contraceptive Calendar Tutorial at https://www.dhsprogram.com/data/Calendar-Tutorial/index.cfm for a description of the calendar, how the data are stored and how to analyze the calendar data, and videos on Completing the Contraceptive Calendar and the Data Structure of the Contraceptive Calendar.

The discontinuation rate is categorized by reason for discontinuation, which is noted in the second column of the reproductive calendar in the box that corresponds to the month of discontinuation. Discontinuation, by reason of contraceptive failure, is given if the woman became pregnant while using contraception. In this case, the box in the first column corresponding to the month following the termination should include a "P" for pregnancy or a "T" for pregnancy termination (very unlikely to occur). Discontinuation to switch to another method is determined if the box for the month following the discontinuation of the specific method contains another contraceptive method. Discontinuation for switching is also indicated by a code in the second calendar column that indicates that the woman wanted a more effective method, and that the new method began within two months of discontinuation (i.e., only one month with a '0', indicating no contraceptive use, between episodes of use). Discontinuation of a method, by reason of desire to become pregnant, is indicated in column 2 by the appropriate code.

The life table calculated for the contraceptive discontinuation rates is a true multiple decrement table producing net discontinuation rates. In formulas, the monthly rate of discontinuation, q_{ij}, where i is the number of months since the start of the episode and j is the reason for discontinuation, is calculated by dividing the number of episodes discontinued in month i, d_{ij}, by the total number of episodes that reached duration, i.e.:

$$q_{ij} = \frac{d_{ij}}{e_i} \text{ (and } q_i = \frac{d_i}{e_i} \text{ for "any reasons" combined).}$$

and the cumulative probability of <u>not</u> discontinuing at each month i for reason j is:

$$l_{ij} = l_{i-1j} - \left(l_{i-1,any} * q_{ij}\right)$$

where any is "any reasons" combined and $l_{0j} = 1$ and $l_{0,any} = 1$.

The cumulative probability of discontinuing by 12 months duration for reason j is:

$$Q_{12j} = 1 - l_{12j}$$

Note that this is mathematically equivalent to the cumulative probability of discontinuing by 12 months duration for any reasons given as:

$$Q_{12,any} = 1 - \prod_{i=1}^{12} (1 - q_{i,any})$$

Example:

Using the DHS-VI Model Datasets, we first sum each month of exposure in the period of interest (3 to 62 months preceding the survey) according to the duration of use of the method in that month. Late entries will first enter the table at the duration of use when they entered the period of interest. In the month of discontinuation of the method, the discontinuations are tallied according to the reason for discontinuation. The "Any reason" column is the sum of the individual reasons for discontinuation. The "Switched to another method" column is tallied separately from the reasons for discontinuation.

Duration of use	Method failure	Desire to become pregnant	Other fertility related reasons	Side effects/ health concerns	Wanted more effective method	Other method related reasons	Other reasons	**Any reason**	Switched to another method	**Exposure**
1	0.887530	2.329931	0.000000	18.885184	7.936933	1.547109	10.400709	41.987396	3.789610	2,631.94
2	1.041063	1.140181	0.291982	9.595957	0.737800	1.203585	0.809309	14.819877	1.475600	2,534.74
3	6.722316	9.828108	0.399263	59.663155	8.163438	3.252900	3.729920	91.759100	15.687751	2,496.58
4	1.584460	0.000000	1.982117	21.353032	1.219110	7.822816	2.456574	36.418109	5.191382	2,331.74
5	5.999001	1.686366	1.172808	4.998823	3.576653	0.799367	0.809309	19.042327	4.672285	2,205.84
6	6.367820	19.024693	0.000000	43.431689	6.550592	11.890163	8.981334	96.246291	25.541805	2,119.36
7	0.903114	10.711671	0.000000	10.925789	3.527042	0.000000	0.394817	26.462433	5.166854	1,954.98
8	3.610944	4.739678	0.000000	9.301247	0.000000	1.202538	16.878426	35.732833	3.565578	1,883.74
9	0.000000	14.390345	1.092375	28.412269	8.904068	0.257330	11.521093	64.577480	31.959763	1,802.60
10	1.315005	9.698899	1.147836	17.394270	1.827615	0.903114	2.339794	34.626533	9.736157	1,697.47
11	4.868782	7.380097	2.320644	5.824226	1.827615	1.547109	3.353669	27.122142	2.636924	1,613.89
12	2.672211	15.977691	2.616564	12.536034	6.412058	6.683679	13.131727	60.029964	17.138133	1,545.51

We now convert the counts of discontinuations and the months of exposure into monthly rates of discontinuation (q_{ij}) by dividing the discontinuation columns by the exposure column, as below:

Duration of use	Method failure	Desire to become pregnant	Other fertility related reasons	Side effects/ health concerns	Wanted more effective method	Other method related reasons	Other reasons	Any reason	Switched to another method
1	0.000337	0.000885	0.000000	0.007175	0.003016	0.000588	0.003952	0.015953	0.001440
2	0.000411	0.000450	0.000115	0.003786	0.000291	0.000475	0.000319	0.005847	0.000582
3	0.002693	0.003937	0.000160	0.023898	0.003270	0.001303	0.001494	0.036754	0.006284
4	0.000680	0.000000	0.000850	0.009158	0.000523	0.003355	0.001054	0.015618	0.002226
5	0.002720	0.000765	0.000532	0.002266	0.001621	0.000362	0.000367	0.008633	0.002118
6	0.003005	0.008977	0.000000	0.020493	0.003091	0.005610	0.004238	0.045413	0.012052
7	0.000462	0.005479	0.000000	0.005589	0.001804	0.000000	0.000202	0.013536	0.002643
8	0.001917	0.002516	0.000000	0.004938	0.000000	0.000638	0.008960	0.018969	0.001893
9	0.000000	0.007983	0.000606	0.015762	0.004940	0.000143	0.006391	0.035825	0.017730
10	0.000775	0.005714	0.000676	0.010247	0.001077	0.000532	0.001378	0.020399	0.005736
11	0.003017	0.004573	0.001438	0.003609	0.001132	0.000959	0.002078	0.016805	0.001634
12	0.001729	0.010338	0.001693	0.008111	0.004149	0.004325	0.008497	0.038841	0.011089

Next we convert the monthly discontinuation rates into the cumulative probabilities of not discontinuing at each month, using the formula $l_{ij} = l_{i-1j} - (l_{i-1,any} * q_{ij})$, where $l_{0j} = 1$ and $l_{0,any} = 1$. To carry out these calculations, first calculate $l_{1,any}$, then $l_{2,any}$, etc. for "any reason", and then calculate l_{1j}, l_{2j}, etc. for each separate reason for discontinuation j.

Duration of use	Method failure	Desire to become pregnant	Other fertility related reasons	Side effects/ health concerns	Wanted more effective method	Other method related reasons	Other reasons	Any reason $(l_{i,any})$	Switched to another method
0	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
1	0.999663	0.999115	1.000000	0.992825	0.996984	0.999412	0.996048	0.984047	0.998560
2	0.999259	0.998672	0.999887	0.989099	0.996698	0.998945	0.995734	0.978294	0.997987
3	0.996624	0.994821	0.999730	0.965720	0.993499	0.997670	0.994273	0.942337	0.991840
4	0.995984	0.994821	0.998929	0.957091	0.993006	0.994509	0.993280	0.927620	0.989742
5	0.993461	0.994112	0.998436	0.954988	0.991502	0.994173	0.992939	0.919612	0.987777
6	0.990698	0.985857	0.998436	0.936143	0.988660	0.989013	0.989042	0.877850	0.976694
7	0.990293	0.981047	0.998436	0.931237	0.987076	0.989013	0.988865	0.865967	0.974374
8	0.988633	0.978868	0.998436	0.926961	0.987076	0.988461	0.981106	0.849541	0.972735
9	0.988633	0.972086	0.997921	0.913571	0.982880	0.988339	0.975676	0.819106	0.957673
10	0.987998	0.967406	0.997367	0.905177	0.981998	0.987903	0.974547	0.802397	0.952975
11	0.985578	0.963737	0.996213	0.902282	0.981089	0.987134	0.972880	0.788913	0.951664
12	0.984214	0.955581	0.994878	0.895883	0.977816	0.983723	0.966177	0.758270	0.942916

Finally, the 12 month discontinuation rates are simply 1 minus the rates of continuing at 12 months:

	Method failure	Desire to become pregnant	Other fertility related reasons	Side effects/ health concerns	Wanted more effective method	Other method related reasons	Other reasons	**Any reason**	Switched to another method
12	0.015786	0.044419	0.005122	0.104117	0.022184	0.016277	0.033823	0.241730	0.057084

Or, as percentages:

	Method failure	Desire to become pregnant	Other fertility related reasons	Side effects/ health concerns	Wanted more effective method	Other method related reasons	Other reasons	**Any reason**	Switched to another method
12	1.6	4.4	0.5	10.4	2.2	1.6	3.4	24.2	5.7

Handling of Missing Values

Use of contraception is generally not allowed to be missing in any month in the calendar. In the few surveys where it is missing, these are treated as months of non-use of contraception. Missing and unknown reasons for discontinuation are treated as "Other" reasons.

Notes and Considerations

The life table calculated is a true multiple decrement table producing net discontinuation rates. The various reasons for discontinuation are treated as competing risks, and the monthly probabilities of discontinuation are additive across the reasons for discontinuation. In the DHS tables, only episodes that began within the calendar period and ended three months before the interview are included. Episodes that began before the beginning of the calendar are excluded. Episodes that ended in the month of interview or the two months prior are treated as censored at three months before the interview rather than terminated afterwards to avoid bias due to unrecognized pregnancies.

For methods that are not followed by another method or a pregnancy, it is assumed that the method episode started on average in the middle of the first month of use and ended in the middle of the month after the last noted month of use. If the month following the last noted method indicates a pregnancy or a different method, then it is assumed that the episode ended on average in the middle of that following month. Thus, the duration of exposure is taken as the difference between the month of first use and the month of last use (i.e., equal to the number of months during that episode with a notation for the method).

It is worth noting that different assumptions can be made to the calculation of the at risk component of the life table for contraceptive discontinuation. These assumptions are related to the fact that contraceptive information is usually collected using a calendar that collects information on use in calendar months, whereas the life table refers to actual months of use. One consequence of this approach is that censored observations actually contribute a full month of exposure in the last month of observation included in the analysis rather than half a month of exposure. In many life table analyses the number at risk is often taken as the number continuing to the month minus half of the censored observations. For the calculation of discontinuation rates The DHS Program assumes that all observations are at risk for the full month, rather than excluding half the censored observations.

Methods that have less than 125 months of exposure (unweighted) in the first month of the life table are not shown because of large sampling variance, and methods that have 125-249 months of exposure

(unweighted) are shown in parentheses to caution the reader that estimates of the discontinuation rates are based on small sample sizes.

The reasons for discontinuation are exclusive categories, and as the discontinuation rates are net rates the discontinuation rates by reason sum to the total discontinuation rates for any reason. The discontinuation rates for switching to another method are calculated separately and are not exclusive of other reasons.

A woman is considered to have switched to another method if she used a different method in the month following discontinuation or if she gave "wanted a more effective method" as the reason for discontinuation and started another method within two months of discontinuation.

Changes over Time

The list of specific methods and their categorization has changed.

In DHS I and II surveys, modern methods included pill, IUD, injection, vaginal methods, condom, female sterilization, and male sterilization. The vaginal methods included in a single group diaphragm, foam, and jelly. Traditional methods included periodic abstinence (of any kind), withdrawal, and all respondent- mentioned other methods.

In DHS III surveys, modern methods included pill, IUD, injection, vaginal methods, condom, female sterilization, male sterilization, and implants. Traditional methods included periodic abstinence (of any kind), withdrawal, and lactational amenorrhea. Folk methods included respondent-mentioned other methods and were categorized separately from traditional methods.

In DHS IV surveys, emergency contraception was added to the list of contraceptive methods but is not included as a separate method for current use (i.e., included in "other"). The questionnaire allowed for more than one method to be currently used but restricted the calendar to only one code (method) in each box according to the following hierarchy: female sterilization, male sterilization, contraceptive pill, intrauterine contraceptive device (IUD), contraceptive injection, contraceptive implants (Norplant), condoms, diaphragm, form or jelly, lactational amenorrhea method (LAM), periodic abstinence, withdrawal, and other methods.

In DHS VI surveys, other modern method and other traditional methods were added to the list. Pill was moved after implants in the methods hierarchy. In DHS-7 surveys, emergency contraception and standard days method (SDM) are listed as separate methods; diaphragm and foam or jelly are included in "other modern method".

References

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Polis, C.B., S.E.K. Bradley, A. Bankole, T. Onda, T. Croft, S. Singh. 2016. *Contraceptive Failure Rates in the Developing World: An Analysis of Demographic and Health Survey Data in 43 Countries*. New York: Guttmacher Institute. https://www.guttmacher.org/report/contraceptive-failure-rates-in-developing-world

Resources

DHS-8 Tabulation plan: Table 7.13

API Indicator IDs:
`FP_DISR_W_PRG, FP_DISR_W_DES, FP_DISR_W_FRT, FP_DISR_W_SID, FP_DISR_W_WME, FP_DISR_W_MET, FP_DISR_W_OTH, FP_DISR_W_ANY, FP_DISR_W_SWH`
(API link, STATcompiler link)

DHS Contraceptive Calendar Tutorial: https://www.dhsprogram.com/data/Calendar-Tutorial/index.cfm
DHS Contraceptive Calendar Tutorial Video Part 1: Completing the Contraceptive Calendar
https://www.youtube.com/watch?v=_7V6S5IjnZc
DHS Contraceptive Calendar Tutorial Video Part 2: Data Structure of the Contraceptive Calendar
https://www.youtube.com/watch?v=T2pS8IM0jyU

Measure Evaluation. Online Course: Multiple-Decrement Life Tables.
https://www.measureevaluation.org/resources/training/online-courses-and-resources/non-certificate-courses-and-mini-tutorials/multiple-decrement-life-tables

FP2020 Core Indicator 18a: Contraceptive Discontinuation Rate
FP2020 Core Indicator 18b: Contraceptive Method Switching

Percent distribution of discontinued episodes of contraceptive use in the 5 years preceding the survey by reason for discontinuation

Definition

Percent distribution of discontinued episodes of contraceptive use in the 5 years preceding the survey, by reason for discontinuation, according to specific method.

Calculation

In the DHS standard recode file, the data for contraceptive discontinuation rates come from the reproductive calendar. The reproductive calendar in the questionnaire consists of two or more columns of boxes where each box represents a specific calendar month. The reproductive calendar usually begins with the first month of the fifth calendar year before the date of the start of fieldwork. For example, if the fieldwork began in July 2018, the calendar would start in January 2013. In the first column, episodes of use of contraception are indicated by placing a method code in the boxes that correspond to the calendar months when used. Pregnancies, births, and non-live birth terminations are also represented in this column by placing the corresponding codes in the appropriate months. Months with no codes are those in which the woman did not use contraception, was not pregnant, did not give birth or did not have a fetal loss or stillbirth. In the second column, the reason for contraceptive discontinuation is noted in the box that corresponds to the month of discontinuation.

In the standard recode file, the reproductive calendar is represented by character strings of fixed length. Each position within the character string represents a calendar month with the first position in the string representing the most recent point in time, and the last representing the beginning of the calendar (e.g. January 2013. Thus, the third position from the end may represent March 2013, while the fifth position from the end represents May 2013. Each position is examined in chronological order for a contraceptive code starting in the 59 month before the interview (position = v018 + 59) and moving towards the beginning. The first code following a month without that code indicates the start of a new episode of use. Subsequent positions are examined until a different code is found. An episode of use ends if the

following month does not have the same contraceptive code (a discontinuation). The episodes are then tabulated by reason for discontinuation for each type of contraceptive method and for all methods combined. The reason for discontinuation is noted in the second column of the reproductive calendar in the box that corresponds to the month of discontinuation.

See the Contraceptive Calendar Tutorial at https://www.dhsprogram.com/data/Calendar-Tutorial/index.cfm for a description of the calendar, how the data are stored and how to analyze the calendar data, and particularly Example 5 - Reasons for discontinuation in the last five years by method at https://www.dhsprogram.com/data/Calendar-Tutorial/index.cfm#example5.

Handling of Missing Values

Use of contraception is generally not allowed to be missing in any month in the calendar. In the few surveys where it is missing, these are treated as months of non-use of contraception. Missing and unknown reasons for discontinuation are treated as "Other" reasons.

Notes and Considerations

The distributions, by reason for discontinuation, are based on episodes of use of particular methods. An individual woman may contribute more than one episode to the calculation.

The distribution of reasons for discontinuation is a little different than that obtained in the calculation of discontinuation rates. In the distribution, all discontinuations in the five years preceding the survey are included, whereas in the calculation of the discontinuation rates, only those that ended within the first 12 months of use are included. Also, censored episodes are not included in the rate calculations.

Methods that have less than 25 discontinued episodes (unweighted) are not shown because of large sampling variance.

Changes over Time

The list of specific methods and their categorization has changed.

In DHS I and II surveys, modern methods included pill, IUD, injection, vaginal methods, condom, female sterilization, and male sterilization. The vaginal methods included in a single group diaphragm, foam, and jelly. Traditional methods included periodic abstinence (of any kind), withdrawal, and all respondent- mentioned other methods.

In DHS III surveys, modern methods included pill, IUD, injection, vaginal methods, condom, female sterilization, male sterilization, and implants. Traditional methods included periodic abstinence (of any kind), withdrawal, and lactational amenorrhea. Folk methods included respondent-mentioned other methods and were categorized separately from traditional methods.

In DHS IV surveys, emergency contraception was added to the list of contraceptive methods but is not included as a separate method for current use (i.e., included in "other"). The questionnaire allowed for more than one method to be currently used but restricted the calendar to only one code (method) in each box according to the following hierarchy: female sterilization, male sterilization, contraceptive pill,

intrauterine contraceptive device (IUD), contraceptive injection, contraceptive implants (Norplant), condoms, diaphragm, form or jelly, lactational amenorrhea method (LAM), periodic abstinence, withdrawal, and other methods.

In DHS VI surveys, other modern method and other traditional methods were added to the list. Pill was moved after implants in the methods hierarchy. In DHS-7 surveys, emergency contraception and standard days method (SDM) are listed as separate methods; diaphragm and foam or jelly are included in "other modern method".

References

DHS Contraceptive Calendar Tutorial. Example 5 - Reasons for discontinuation in the last five years by method. https://www.dhsprogram.com/data/Calendar-Tutorial/index.cfm#example5

Resources

DHS-8 Tabulation plan: Table 7.14

API Indicator IDs:
```
FP_RDIS_W_PRG, FP_RDIS_W_DES, FP_RDIS_W_DIS, FP_RDIS_W_WME, FP_RDIS_W_SID,
FP_RDIS_W_ACC, FP_RDIS_W_CST, FP_RDIS_W_INC, FP_RDIS_W_FAT, FP_RDIS_W_DIF,
FP_RDIS_W_INF, FP_RDIS_W_SEP, FP_RDIS_W_OTH, FP_RDIS_W_DKN, FP_RDIS_W_MIS
```
(API link, STATcompiler link)

DHS Contraceptive Calendar Tutorial: https://www.dhsprogram.com/data/Calendar-Tutorial/index.cfm
DHS Contraceptive Calendar Tutorial Video Part 1: Completing the Contraceptive Calendar
https://www.youtube.com/watch?v=_7V6S5IjnZc
DHS Contraceptive Calendar Tutorial Video Part 2: Data Structure of the Contraceptive Calendar
https://www.youtube.com/watch?v=T2pS8IM0jyU

Need and Demand for Family Planning

Percentage of women with unmet need for family planning, met need for family planning, total demand for family planning by whether for spacing, limiting, and total, and the percentage of the demand for family planning that is satisfied

Definition

Percentage of currently married women, all women, and sexually active unmarried women with:
1) unmet need for family planning,
2) met need for family planning,
3) total demand for family planning by whether for spacing, limiting, and total
4) total demand for family planning that is satisfied
5) total demand for family planning that is satisfied by modern methods

Coverage:
>   Population base: **All women (IR file)**
>   Time period: **Current status at time of survey**

Numerators:
1) **Unmet need for contraception:** Number of women who are not using a method of contraception and are:
    a) For spacing (v626a = 1):
        - fecund and say they want to wait two or more years for their next birth;
        - fecund and are unsure whether they want another child;
        - fecund, want another child, but are unsure when to have the birth;
        - pregnant and wanted current pregnancy later; or
        - postpartum amenorrheic and wanted last birth later
    b) For limiting (v626a = 2):
        - fecund and do not want any more children;
        - pregnant and did not want current pregnancy; or
        - postpartum amenorrheic and did not want the last birth
    c) Total unmet need: Number of women with an unmet need for family planning for spacing or limiting (v626a = 1 or v626a = 2)

2) **Met need for contraception:** Number of women who are using a method of contraception and are
    a) For spacing (v626a = 3):
        - not considered to be limiting (see below)
    b) For limiting (v626a = 4):
        - want no more children;
        - are sterilized; or
        - say they cannot get pregnant when asked about the desire for future children
    c) Total met need (v626a = 3 or v626a = 4): Number of women with met need for spacing or limiting

3) **Total demand for contraception:** Number of women who have a met need or unmet need:

a) For spacing (v626a = 1 or v626a = 3)
b) For limiting (v626a = 2 or v626a = 4)
c) Total (v626a in 1, 2, 3, 4)

4) **Demand satisfied:** Number of women who are using any contraceptive method (v626a in 3,4)

5) **Demand satisfied by modern methods:** Number of women who are using any modern contraceptive method including female sterilization, male sterilization, pill, IUD, injectables, implants, male condom, female condom, emergency contraception, standard days method (SDM), lactational amenorrhea method (LAM), or other modern methods (v313 = 3)

Denominators:
Unmet need, met need, and total demand indicators:
a) All women
b) Currently married women (v502 = 1)
c) Sexually active unmarried women – including women who are not currently married or in a consensual union (single, divorced, widowed, and separated) and who had sexual intercourse within the last 30 days (v502 ≠ 1 & v528 in 0:30)

Demand satisfied indicators:
a) All women
b) Currently married women (v502 = 1)
c) Sexually active unmarried women – including women who are not currently married or in a consensual union (single, divorced, widowed, and separated) and who had sexual intercourse within the last 30 days (v502 ≠ 1 & v528 in 0:30) that have either unmet need for family planning or met need for family planning (v626a in 1, 2, 3, 4)

Variables: IR file.
v626a   Unmet need for contraception (Definition 3)
v313   Current use by method type
v502   Currently/formerly/never in union
v528   Time since last sex (in days)
v005   Woman's individual sample weight

Calculation

Unmet need, met need, and total demand indicators:

Numerator divided by the denominator, multiplied by 100.

The calculation of numerators for the met and unmet need indicators first takes into account a woman's contraceptive status. Women who are using contraception are considered to have a met need for family planning.

For women who are not using contraception, the determination of the need for family planning involves several additional steps. Nonusers are separated into those who are currently married and those who are not married but who are sexually active. An unmarried woman is considered to be sexually active if

the woman had sexual intercourse within 30 days prior to the survey. Unmarried women who are not sexually active are considered not to be exposed to the risk of pregnancy and, therefore, have no need for family planning.

To assign need status to married and sexually active unmarried nonusers, these women are separated into two groups: (1) those who are pregnant or postpartum amenorrheic and (2) those who are not pregnant or postpartum amenorrheic. Women are considered to be postpartum amenorrheic if their period had not returned since their last live birth (for DHS 8, last pregnancy) in the two-year period prior to the survey.

Married and sexually active unmarried nonusers who are not pregnant or postpartum amenorrheic are further separated into those who are considered fecund and those who are infecund. Women are classified as infecund if they fall into any of the following categories:
- married 5+ years, had no children (for DHS 8, no pregnancy) in the past 5 years and never used contraception;
- responded "can't get pregnant" to question on desire for future children;
- responded "menopausal/hysterectomy" on reason for not using contraception;
- response to time since last period is > 6 months and not postpartum amenorrheic (0-59 months);
- response to time since last period is "menopausal/hysterectomy" or "never menstruated"; or
- response to time since last period is "last period was before last birth" and last birth was 5+ years ago (for DHS 8, "last period was before last pregnancy" and last pregnancy was 5+ years ago).

Infecund women have no need for family planning. Other women who have no need include married or sexually active unmarried women who are not using contraception and are:
- pregnant and wanted the current pregnancy;
- postpartum amenorrheic and wanted their last birth (for DHS 8, last pregnancy); or
- fecund and want another child within 2 years.
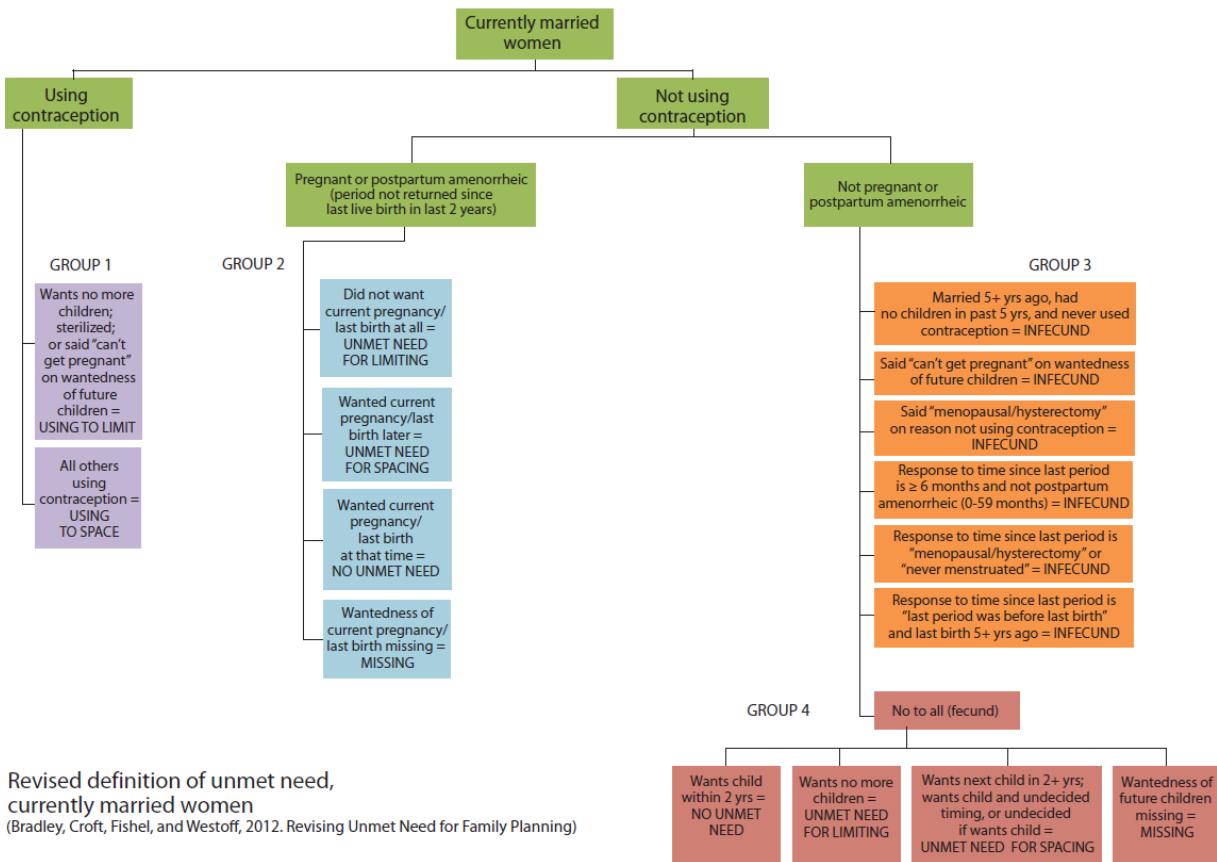
Married and sexually active unmarried nonusers have unmet need for spacing if they are:
- pregnant and wanted the pregnancy later;
- postpartum amenorrheic and wanted their last birth later (for DHS 8, last pregnancy); or
- fecund and want the next child in 2+ years, want another child but are undecided on the timing or are undecided if they want another child.

Married and sexually active unmarried nonusers have an unmet need for limiting if they are:
- pregnant and did not want the current pregnancy at all;
- postpartum amenorrheic and did not want their last birth at all their last birth (for DHS 8, last pregnancy); or
- fecund and want no more children.

The calculation of unmet need for currently married women is summarized in the diagram below:

Currently married women

- **Using contraception**
- **Not using contraception**
  - **Pregnant or postpartum amenorrheic (period not returned since last live birth in last 2 years)**
  - **Not pregnant or postpartum amenorrheic**

GROUP 1

Wants no more children; sterilized; or said "can't get pregnant" on wantedness of future children = USING TO LIMIT

All others using contraception = USING TO SPACE

GROUP 2

Did not want current pregnancy/last birth at all = UNMET NEED FOR LIMITING

Wanted current pregnancy/last birth later = UNMET NEED FOR SPACING

Wanted current pregnancy/last birth at that time = NO UNMET NEED

Wantedness of current pregnancy/last birth missing = MISSING

GROUP 3

Married 5+ yrs ago, had no children in past 5 yrs, and never used contraception = INFECUND

Said "can't get pregnant" on wantedness of future children = INFECUND

Said "menopausal/hysterectomy" on reason not using contraception = INFECUND

Response to time since last period is ≥ 6 months and not postpartum amenorrheic (0-59 months) = INFECUND

Response to time since last period is "menopausal/hysterectomy" or "never menstruated" = INFECUND

Response to time since last period is "last period was before last birth" and last birth 5+ yrs ago = INFECUND

No to all (fecund)

GROUP 4

Wants child within 2 yrs = NO UNMET NEED

Wants no more children = UNMET NEED FOR LIMITING

Wants next child in 2+ yrs; wants child and undecided timing, or undecided if wants child = UNMET NEED FOR SPACING

Wantedness of future children missing = MISSING

Revised definition of unmet need, currently married women
(Bradley, Croft, Fishel, and Westoff, 2012. Revising Unmet Need for Family Planning)

Demand satisfied indicators:

Numerator divided by the denominator, multiplied by 100.

The numerator for the proportion of demand satisfied include the number of women currently using any contraceptive method while the numerator for the demand satisfied by modern methods include the number of women using any modern contraceptive method.

The denominators include those women with a met need (those using contraception irrespective whether the method is a modern method or a traditional method) and those with an unmet need for family planning.

Notes and Considerations

Details of the calculation of the unmet need variable can be found on the Unmet Need page of the DHS Program website at https://www.dhsprogram.com/topics/Unmet-Need.cfm, including survey-specific code in Stata and SPSS for the construction of v626a for surveys that do not have the variable in the dataset. The results of the change in definition are also summarized in Revising Unmet Need: In Brief at https://www.dhsprogram.com/pubs/pdf/OD63/OD63[12June2012_English].pdf

The proportion of demand satisfied by modern methods indicator corresponds to SDG indicator 3.7.1, UNAIDS indicator 5.2, and FP2020 Core Indicator 4.

Handling of Missing Values

If responses are missing on questions with respect to the wantedness of births or the current pregnancy, women are assigned a value of missing on the unmet need variable. This represents a change from the previous practice of assuming that pregnant, postpartum amenorrheic, or fecund nonusers for whom information on the wantedness of the current pregnancy/last birth was missing had an unmet need for family planning (Bradley et al. 2012).

Changes over Time

The Definition of unmet need for family planning was simplified during the DHS VI project to improve comparability over time and between surveys within the DHS Program and to facilitate comparability with data collected in other surveys including the MICS surveys undertaken in many countries with UNICEF support. Bradley et al. (2012) detail the changes involved in revising the unmet need Definition in DHS Analytical Study No. 25.

For DHS 8, the birth history was replaced by a pregnancy history, and as a result a number of changes have been made that affect the calculation of the unmet need and total demand indicators. First, the classification of whether a woman is postpartum amenorrheic is based on whether her period has returned since the last pregnancy, rather than the last birth. Second, a woman is considered infecund if her response to time since last period is "last period was before last pregnancy" and the last pregnancy was 5+ years ago (v215=995), rather than "last period was before last birth" and last birth was 5+ years ago. Third, the wantedness of the last live birth has been replaced by the wantedness of the last live birth or stillbirth (m10(1)). Fourth, the first infecundity condition above has been changed from: married 5+ years, had no children in the past 5 years and never used contraception, to: married 5+ years, had no pregnancy in the past 5 years and never used contraception. These differences should be kept I mind when comparing results from DHS-8 surveys with prior surveys. The differences are small – principally the changes reduce the level of infecundity, which increases the estimate of unmet need. In tests the difference was an increase in the estimate of unmet need of between 0.1 – 0.3 percentage points.

Several changes have occurred over time in the calculation of unmet need for family planning. Due to these changes, comparisons of unmet need and demand for family planning between surveys may not be valid if based on country reports.

References

Bradley, S.E.K., T.N. Croft, J.D. Fishel, and C. Westoff. 2012. *Revising Unmet Need for Family Planning*. DHS Analytical Studies No. 25. Calverton, Maryland, USA, ICF International. https://www.dhsprogram.com/publications/publication-AS25-Analytical-Studies.cfm

MacQuarrie, K.L.D. 2014. *Unmet need for family planning among young women: levels and trends.* DHS Comparative Reports No. 34. Rockville, Maryland, USA: ICF International. https://www.dhsprogram.com/publications/publication-CR34-Comparative-Reports.cfm

Wang, W., S. Staveteig, R. Winter, and C. Allen. 2017. *Women's Marital Status, Contraceptive Use, and Unmet Need in Sub-Saharan Africa, Latin America, and the Caribbean*. DHS Comparative Reports No. 44. Rockville, Maryland, USA: ICF. https://www.dhsprogram.com/publications/publication-CR44-Comparative-Reports.cfm

Westoff, C.F. 2012. *Unmet need for modern contraceptive methods*. DHS Analytical Studies No. 28. Calverton, Maryland, USA: ICF International. https://www.dhsprogram.com/publications/publication-AS28-Analytical-Studies.cfm

Westoff, C.F. 2006. *New estimates of unmet need and the demand for family planning*. DHS Comparative Reports No. 14. Calverton, Maryland, USA: Macro International. https://www.dhsprogram.com/publications/publication-CR14-Comparative-Reports.cfm

Westoff, C.F. 2001. *Unmet need at the end of the century*. DHS Comparative Reports No. 1. Calverton, Maryland, USA: ORC Macro. https://www.dhsprogram.com/publications/publication-CR1-Comparative-Reports.cfm

Westoff, C.F. and A. Bankole. 1995. *Unmet need: 1990-1994*. DHS Comparative Studies No. 16. Calverton, Maryland, USA: Macro International. https://www.dhsprogram.com/publications/publication-CS16-Comparative-Reports.cfm

Westoff, C.F. and L.H. Ochoa. 1991. *Unmet need and the demand for family planning.* DHS Comparative Studies No. 5. Columbia, Maryland, USA: Institute for Resource Development. https://www.dhsprogram.com/publications/publication-CS5-Comparative-Reports.cfm

UNAIDS. 2020. *Global AIDS Update.* https://www.un.org/sexualviolenceinconflict/wp-content/uploads/2020/07/report/global-aids-update-seizing-the-moment-tackling-entrenched-inequalities-to-end-epidemics/2020_global-aids-report_en.pdf

Resources

DHS-8 Tabulation plan: Tables 7.15.1 and 7.15.2

API Indicator IDs:
Currently married women:
```
FP_NADM_W_UNS, FP_NADM_W_UNL, FP_NADM_W_UNT, FP_NADM_W_MNS, FP_NADM_W_MNL,
FP_NADM_W_MNT,
FP_NADM_W_TDS, FP_NADM_W_TDL, FP_NADM_W_TDT, FP_NADM_W_PDS, FP_NADM_W_PDM
```
(API link, STATcompiler link)

All women:
```
FP_NADA_W_UNS, FP_NADA_W_UNL, FP_NADA_W_UNT, FP_NADA_W_MNS, FP_NADA_W_MNL,
FP_NADA_W_MNT,
FP_NADA_W_TDS, FP_NADA_W_TDL, FP_NADA_W_TDT, FP_NADA_W_PDS, FP_NADA_W_PDM
```
(API link, STATcompiler link)

Sexually active unmarried women:
```
FP_NADU_W_UNS, FP_NADU_W_UNL, FP_NADU_W_UNT, FP_NADU_W_MNS, FP_NADU_W_MNL,
FP_NADU_W_MNT,
FP_NADU_W_TDS, FP_NADU_W_TDL, FP_NADU_W_TDT, FP_NADU_W_PDS, FP_NADU_W_PDM
```

(API link, STATcompiler link)

SDG Indicator 3.7.1: Proportion of women of reproductive age (aged 15-49 years) who have their need for family planning satisfied with modern methods

WHO 100 Core Health Indicators: Demand for family planning satisfied with modern methods

MICS6 Indicator TM.4: Need for family planning satisfied with modern contraception

UNAIDS Indicator 5.2: Demand for family planning satisfied by modern methods

DHS Program website: Unmet Need: https://www.dhsprogram.com/topics/Unmet-Need.cfm
DHS Indicator Snapshot: Demand Satisfied by Modern Methods:
https://www.youtube.com/watch?v=RceOuLjJwKY

FP2020 Core Indicator 3: Percentage of women with an unmet need for modern methods of contraception
FP2020 Core Indicator 4: Percentage of women whose demand is satisfied with a modern method of contraception

Decision Making about Family Planning

Percent distribution of currently married women by who makes the decision to use or not use family planning, and percentage who participate in decision making about family planning

Definition

1) Percent distribution of currently married women by who makes the decision to use family planning.
2) Percentage of currently married women who participate in decision making about family planning.

Coverage:
   Population base: Currently married women (IR file)
   Time period: Current status at time of survey

Numerator:

1) Number of currently married women age 15-49 according to who makes the decision to use or not family planning (v632)
2) Number of currently married women age 15-49 who participate in the decision to use or not use family planning (v632 = 1 or v632 = 3)

Denominator: Number of currently married women who are not pregnant (v502 = 1 & v213 = 0)

Variables: IR file.
v502   Currently/formerly/never in union
v632   Decision maker for using or not using contraception
v005   Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Women with missing values are included in the someone else/other response category.

Changes over Time

In prior DHS surveys, pregnant women were not asked these questions and were therefore excluded from the tabulation. In DHS-8, all women are asked these questions, and all are included in the tabulation.

In DHS-8 decision making for using or not using family planning is reported as one indicator. In DHS-7, this was two indicators – by who was the decisionmaker among currently married women who were using family planning and among currently married women who were not using family planning. Prior to

DHS-7, there was only one indicator for decisionmaker among currently married women who were using family planning.

Resources

DHS-8 Tabulation plan: Table 7.16 and 7.17

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Pressure to Become Pregnant

Percentage of currently married women who were ever pressured by their husbands/partners or any other family member to become pregnant when they did not want to

Definition

Percent of currently married women who were ever pressured by their husbands/partners or any other family member to become pregnant when they did not want to.

Coverage:
> Population base: Currently married women (IR file)
> Time period: Current status at time of survey

Numerator: Number of currently married women age 15-49 who report being forced or pressured to become pregnant when they did not want to (v636 = 1)

Denominator: Total number of currently married women age 15-49 (v502 = 1)

Variables: IR file.
v502   Currently/formerly/never in union
v636   Husband or family member pressured respondent to become pregnant
v005   Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Women with missing values on whether they were pressured or forced to become pregnant are excluded from the numerators but included in the denominators.

Notes and Considerations

Percentages add up to 100 percent.

Changes over Time

This is a new question in DHS-8 and was not reported in prior surveys.

Resources

DHS-8 Tabulation plan: Table 7.18

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Future Use of Contraception

Percent distribution of currently married women who are not using a contraceptive method, by intention to use in the future

Definition

Percent distribution of currently married women who are not using a contraceptive method, by intention to use in the future.

Coverage:
    Population base: Currently married women who are not using contraception (IR file)
    Time period: Current status at time of survey

Numerator: Number of currently married women age 15-49 who are not currently use a method of contraception, by whether they intend to use contraception at any time in the future (v362)

Denominator: Total number of currently married women who are not currently using a method of contraception (v502 = 1 & v312 = 0)

Variables: IR file.
v219	Living children + current pregnancy
v312	Current contraceptive method
v362	Intention to use
v502	Currently/formerly/never in union
v005	Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Women who are unsure or with missing values for intention to use are included as separate categories.

Notes and Considerations

Percentages add up to 100 percent.

Typically disaggregated by number of living children including the current pregnancy (v219).

Resources

DHS-8 Tabulation plan: Table 7.19

API Indicator IDs:

```
FP_FUTU_W_INT, FP_FUTU_W_I12, FP_FUTU_W_ILT, FP_FUTU_W_IUN, FP_FUTU_W_UNS,
FP_FUTU_W_DNI, FP_FUTU_W_DKM
```
([API link](), [STATcompiler link]())

Exposure to Family Planning Messages

Percentages of all women and men who heard or saw a family planning message through radio, television, newspaper or magazine, mobile phone, social media, poster, outdoor sign, or community meeting in the past 12 months or in none of the eight media sources

Definition

Percentages of all women and men age 15-49 who heard or saw a family planning message in the past 12 months through:
1) radio,
2) television,
3) newspaper or magazine,
4) mobile phone,
5) social media,
6) poster/leaflet/brochure,
7) outdoor sign or billboard,
8) community meeting or events,
9) or in none of the eight media sources.

Coverage:
> Population base: All women (or men) (IR file, MR file)
> Time period: Current status at time of survey

Numerators:
1) Number of women (or men) age 15-49 who heard a family planning message on the radio in the past 12 months (women: v384a = 1; men: mv384a = 1)
2) Number of women (or men) age 15-49 who saw a family planning messages on television in the past 12 months (women: v384b = 1; men: mv384b = 1)
3) Number of women (or men) age 15-49 who read a family planning message in the newspaper or in a magazine in the past 12 months (women: v384c = 1; men: mv384c = 1)
4) Number of women (or men) age 15-49 who read a family planning message on mobile phone in the past 12 months (women: v384d = 1; men: mv384d = 1)
5) Number of women (or men) age 15-49 who read a family planning message on social media in the past 12 months (women: v384e = 1; men: mv384e = 1)
6) Number of women (or men) age 15-49 who read a family planning message on poster, leaflet, or brochure in the past 12 months (women: v384f = 1; men: mv384f = 1)
7) Number of women (or men) age 15-49 who read a family planning message on outdoor sign or billboard in the past 12 months (women: v384g = 1; men: mv384g = 1)
8) Number of women (or men) age 15-49 who read a family planning message at community meetings or events in the past 12 months (women: v384h = 1; men: mv384h = 1)
9) Number of women (or men) age 15-49 who did not hear a family planning message through radio, television, newspaper or magazine, mobile phone, social media, poster, outdoor sign, or community meeting in the past 12 months (women: v384a ≠ 1 & v384b ≠ 1 & v384c ≠ 1 & v384d ≠ 1 & v384e ≠ 1 & v384f ≠ 1 & v384g ≠ 1 & v384h ≠ 1; men: mv384a ≠ 1 & mv384b ≠ 1 & mv384c ≠ 1 & mv384d ≠ 1 & mv384e ≠ 1 & mv384f ≠ 1 & mv384g ≠ 1 & mv384h ≠ 1)

Denominator: Total number of women (or men) age 15-49

Variables: IR file, MR file.

v384a	Heard family planning in newspaper/magazine last few months (women)
v384b	Heard family planning on TV last few months (women)
v384c	Heard family planning in newspaper/magazine last few months (women)
v384d	Heard family planning by text messages on mobile phone (women)
v384e	Seen about family planning on social media such as Facebook, Twitter, Instagram (women)
v384f	Seen about family planning on poster, brochure (women)
v384g	Seen about family planning on outdoor sign, billboard (women)
v384h	Heard family planning at community meetings events (women)
v005	Woman's individual sample weight
mv384a	On radio heard about Family Planning in the last few months (men)
mv384b	On TV saw about Family Planning in the last few months (men)
mv384c	In newspaper read about Family Planning in the last few months (men)
mv384d	Heard family planning by text messages on mobile phone (men)
mv384e	Seen about family planning on social media such as Facebook, Twitter, Instagram (men)
mv384f	Seen about family planning on poster, brochure (men)
mv384g	Seen about family planning on outdoor sign, billboard (men)
mv384h	Heard family planning at community meetings events (men)
mv005	Man's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Women or men who are unsure or with missing values for heard, saw, or read a family planning message are considered as not hearing, seeing, or reading a message, and are excluded from numerators but included in the denominator.

Changes over Time

The reference period in the question on the exposure to family planning messages has changed over time. In DHS I and DHS II "last month" was used and this was changed to the "last few months" in later rounds of DHS.

The question on hearing of family planning by text messages on a mobile phone was added in DHS-7, and the indicator on hearing of family planning messages through none of the media was changed to reflect none of the four media rather than the three media used previously.

In DHS-8 the questions on hearing, seeing or reading family planning messages through social media, poster/leaflet/brochure, outdoor sign/billboard, or at a community meeting/event were added.

Questions also changed from asking about the "last few months" to the "last 12 months". The indicator on hearing of family planning messages through none of the media was also changed to reflect none of the eight media rather than the four media used previously.

Resources

DHS-8 Tabulation plan: Table 7.20.1, 7.20.2,

API Indicator IDs:
Women:
`FP_EFPM_W_RDO, FP_EFPM_W_TLV, FP_EFPM_W_NWS, FP_EFPM_W_NON`

Men:
`FP_EFPM_M_RDO, FP_EFPM_M_TLV, FP_EFPM_M_NWS, FP_EFPM_M_NON`
([API link](), [STATcompiler link]())

Contact of Nonusers with Family Planning Providers

Percentages of women who are not using contraception who were visited by a fieldworker who discussed family planning, who visited a health facility and discussed family planning, who visited a health facility but did not discuss family planning and who did not discuss family planning with a fieldworker or at a health facility during the 12 months preceding the survey

Definition

Percentages of all women who are not using contraception who in the last 12 months:
1) were visited by a fieldworker who discussed family planning,
2) visited a health facility and discussed family planning,
3) visited a health facility but did not discuss family planning,
4) who did not discuss family planning with a fieldworker or at a health facility

Coverage:
    Population base: All women who are not using a contraceptive method (IR file)
    Time period: 12 months preceding the survey

Numerators:
1) Number of all women age 15-49 who were visited by a fieldworker in the preceding 12 months who discussed family planning (v393a = 1)
2) Number of all women age 15-49 who visited a health facility in the preceding 12 months and who discussed family planning (v394 = 1 & v395 = 1)
3) Number of all women age 15-49 who visited a health facility in the preceding 12 months but who did not discuss family planning (v394 = 1 & v395 ≠ 1)
4) Number of all women age 15-49 who did not discuss family planning with either a field worker or at a health facility in the preceding 12 months (v393a ≠ 1 & v395 ≠ 1)

Denominator: Number of all women age 15-49 who are not using a contraceptive method (v312 = 0)

Variables: IR file.
v393a   Did fieldworker talk about family planning
v394   Visited health facility last 12 months
v395   At health facility, told of family planning
v005   Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Women who are unsure or with missing values are considered as not having been visited by a field worker or visited a health facility or having discussed family planning. These women are included in the denominator of the percentages.

Changes over Time

The wording of the questions on contact with a fieldworker or health facility staff member have differed over time. In DHS-III, the question on fieldworker contact referred specifically to a family planning worker while later phases DHS asked about contact with a fieldworker without reference to family planning specifically. The question on health facility contacts in the past 12 months also varied slightly between rounds: the DHS-III question referred to visits to a health facility for any reason while in subsequent rounds the question specifically asked about visits for care for the woman or her children.

Resources

DHS-8 Tabulation plan: Table 7.21

API Indicator IDs:
FP_NFPP_W_FPW, FP_NFPP_W_HFP, FP_NFPP_W_HNF, FP_NFPP_W_NFP
(API link, STATcompiler link)

8) Infant and Child Mortality

This chapter reports information on levels, trends, and differentials in perinatal, neonatal, post-neonatal, infant, child, and under age five years mortality. This information is relevant both to the demographic assessment of the population and to health policies and programs. Estimates of infant and child mortality may be an input into population projections, particularly if the level of adult mortality is known from another source or can be inferred with reasonable confidence. Information on mortality of children also serves the needs of health ministries by identifying sectors of the population that are at high risk.

Included in this chapter are indicators of the distribution of children and women according to fertility behavior that place children at an elevated risk of mortality (e.g., childbearing under age 18, over age 34 or after a birth interval less than 24 months). This information is useful for designing and monitoring programs to avoid high-risk behavior and to cope with elevated risks.

Notes and Considerations

Birth/pregnancy history

The indicators related to infant and child mortality are calculated from the DHS birth history or pregnancy history:
- A full birth history is a complete list of all children the woman has ever given birth to including their date of birth, sex, survival status, age (if alive), and age at death (if died). This is the form of birth history found in the majority of DHS surveys. Birth histories include all live births, including children who later died, but omit stillbirths, miscarriages, or abortions. Birth histories are collected in chronological order from first to last.
- A truncated birth history is a list of all births since a particular date, typically for the five years preceding the survey. Truncated birth histories are used in many of the Malaria Indicator Surveys and are collected in reverse chronological order. Truncated birth histories may demonstrate different characteristics than a full birth history as births in the particular time period may be omitted, transferred out of the time period, transferred into the time period.
- A pregnancy history is a complete list of all pregnancies the woman has ever had, including all live births, stillbirths, miscarriages, and abortions. Pregnancy histories have been used in earlier phases of DHS in surveys in countries of the Commonwealth of Independent States, as well as Nepal, Philippines, Vietnam, and in some special surveys such as the Afghanistan Mortality Survey, and the Ghana Maternal Health Surveys. In DHS-8, pregnancy histories are used in all DHS surveys in place of birth histories. In surveys using pregnancy histories, the birth history is extracted from the full pregnancy history and is found in the b* series variables. The full pregnancy history is also available in the recode files for these surveys, typically in an s2* series of variables in older surveys and in a p* series for DHS-8 surveys.

Methodology of DHS Mortality Rates Estimation

There are two principal categories of estimation methods for calculating infant and child mortality rates: direct and indirect. Direct methods of calculation use data on the date of birth of children, their survival status, and the dates of death or ages at death of deceased children. Indirect methods use information on survival status of children to specific cohorts of mothers, typically age cohorts or time since first birth cohorts.

The direct methods require data that are usually obtained only in specifically designed surveys with birth histories or from vital statistics systems. The indirect methods can utilize data that are commonly collected in censuses and many general surveys: the number of children ever born and the number living to women and the age or time since first birth for the women. Unlike the direct methods, the indirect methods are very dependent upon several assumptions that may or may not hold true: little or no change in fertility levels and age patterns, no change or a linear decline in mortality, and a pattern of mortality by age that conforms to known "families," basically derived from European experience. The indirect methods are problematic in a number of settings, but especially for countries affected by HIV/AIDS mortality which have different mortality patterns.

Both types of methods can suffer from errors in data. Both methods suffer, probably equally, from the omission of deceased children. Estimation of infant mortality, using direct methods, depends on the correct reporting of age at death as under or over one year. The heaping of deaths at age 12 months is common, and to the extent that it causes a transfer of deaths across the one-year boundary, infant mortality rates may be somewhat underestimated. On the other hand, under-two and under-five mortality rates are little affected by heaping. The misreporting of birth dates can also affect direct estimates, but unless the misreporting occurs much more for deceased children, mortality rates are little affected.

Estimates of indirect methods can suffer if women do not know their ages or the age of their first child. The bias that results can be even greater if age is estimated on the basis of characteristics linked directly or indirectly to mortality levels; for example, number of children ever born. Censuses and surveys not specifically designed to gather data for mortality estimation have also been shown to be very prone to suffer from omission of reports of dead children. On the other hand, there have also been some cases where both stillbirths and live births have been included in the answer to the question on children ever born, thus leading to overestimates of mortality rates. Violations of the assumptions of the indirect methods also commonly occur.

An implicit assumption of the indirect methods is that the births of a cohort of women represent the children born in a time period. Studies have shown that births to women 20–24 (and in some cases to women 25–29) have more elements of high risk of mortality than do all children born within the last five years of a survey.

Another problem with indirect methods is the location of the estimate in time. Indirect methods estimate the probability of dying on the basis of experience that can extend over many years, resulting in an average over that period. Depending on changes in fertility and trends in mortality, the methods used to place the mortality estimate in time can be more or less in error.

Because of the number of assumptions that may or may not hold, but that need to be made to use the indirect methods and the limited amount of information that they provide, DHS has chosen to use direct estimation methods. There are three variants of direct estimation methods for estimating infant mortality rates and other rates:

A **vital statistics** approach in which the numbers of deaths to children under age 12 months in a particular period are divided by the numbers of births in the same period. What is estimated is a rate of mortality but not a probability; a variation in the number of births with time will change the rate without changes in the underlying probabilities. To correct this, separation factors would need to be used, which would have to come from the other variants.

A **true cohort life table approach** in which deaths to children under age 12 months of a specific cohort of births are divided by the number of births in that cohort. This procedure gives true probabilities of death but has the drawback that all children in the cohort must have been born at least 12 months before the survey to be fully exposed to mortality, thus not taking into account the most recent experience. This requirement of full exposure becomes more limiting the higher the age segment of interest: For under-five mortality rates, only the information on children born five or more years before the survey can be utilized. Another drawback is that true cohort rates are not specific to a particular period at death, but instead relate to the date of birth of the cohort. Therefore, the effects of events that affect several cohorts at the same time, for example, a famine appears to be spread out over time.

A **synthetic cohort life table** approach in which mortality probabilities for small age segments based on real cohort mortality experience are combined into the standard age segments. This approach allows full use of the most recent data and is also specific for time periods. It is the method that the DHS has chosen to use.

In the synthetic cohort life table approach, there are still several decisions to be made:
12) The length of the individual age segments,
13) How to handle the heaping of deaths at 12 months,
14) How to handle deaths with incomplete information on age at death.

Length of the individual age segments
The information on age at death is recorded on the DHS questionnaire in days for less than 0-30 days, in months for 1-23 months, and in years for two years or higher. The DHS adopted the following age segments 0, 1-2, 3-5, 6-11, 12-23, 24-35, 36-47, 48-59 months (completed ages) for the calculation of the individual probabilities of dying. A different approach could have been to use monthly segments up to two years, or monthly segments up to five years with imputation of the number of months for deaths at 2 years and above. These approaches were more processing intensive when the DHS Program started in 1984, and studies done during the World Fertility Survey showed the difference to be negligible.

Heaping of deaths at 12 months
No adjustment for heaping on age at death at 12 months or one year is done for the rates presented in the survey reports. Because heaping is likely to come unequally from both sides of the one-year boundary and the correct number of deaths to reallocate is unknown, the rates are presented using the information as reported. Indeed, the extent of rounding up probably varies by country and within country, and in some cases all or most of the heaping may be due to reporting only whole year ages for children dying in the second year of life (rounding down or truncating age).

Deaths with incomplete information on age at death

For children with missing information, the ages at death have been assigned according to a "hot deck" technique in which the information of the child of the same birth order and form of reporting (days, months, or years), if available, that most nearly precedes in the data file is assigned to the child for whom age at death is missing. This is a quasi-random technique that preserves the variation of responses in the data set.

Neonatal Mortality Rate (NNMR), Post-Neonatal Mortality Rate (PNMR), Infant Mortality Rate (IMR), Child Mortality Rate (CMR) (Ages 1-4), Under-5 Mortality Rate (U5MR)

Definition

1) The neonatal mortality rate is the probability of a child exposed in a specific period dying before reaching the age of 1 month.
2) The post-neonatal mortality rate is the probability of a child exposed in a specific period on or after the age of 1 month but before reaching the age of 1 year, calculated as the difference between the infant mortality rate and the neonatal mortality rate.
3) The infant mortality rate is the probability of a child exposed in a specific period dying before reaching their first birthday.
4) The child mortality rate is the probability of a child exposed in a specific period dying on or after their first birthday but before reaching the age of five years.
5) The under-5 mortality rate is the probability (expressed as a rate per 1,000 live births) of a child exposed in a specific period dying before reaching the age of five years.

Coverage:

Population base: Live births to respondents (BR file)
Time period: Five-year or ten-year periods of time preceding the survey (v008-1 to v008-60 or v008-120 months), excluding the month of interview

Live birth: The complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached. (WHO, 1950 and 1992).

Numerators:

Number of deaths to live-born children during specified age range and specified time period
1) **Neonatal mortality:** Deaths at ages 0 to 30 days, including deaths reported at age zero months
2) **Post-neonatal mortality:** Deaths at ages 1 to 11 months, including deaths reported at ages 31 to 99 days, defined as the difference between the infant mortality rate and the neonatal mortality rate
3) **Infant mortality:** Deaths at ages 0 to 11 months, including deaths reported at ages 0 to 99 days
4) **Child mortality:** Deaths at ages 1 to 4 years, including deaths reported at ages 12 to 59 months
5) **Under-5 mortality:** Deaths at ages 0 to 4 years, including deaths reported at ages 0 to 59 months and 0 to 99 days

Denominator: Number of surviving children at beginning of specified age range during the specified time period
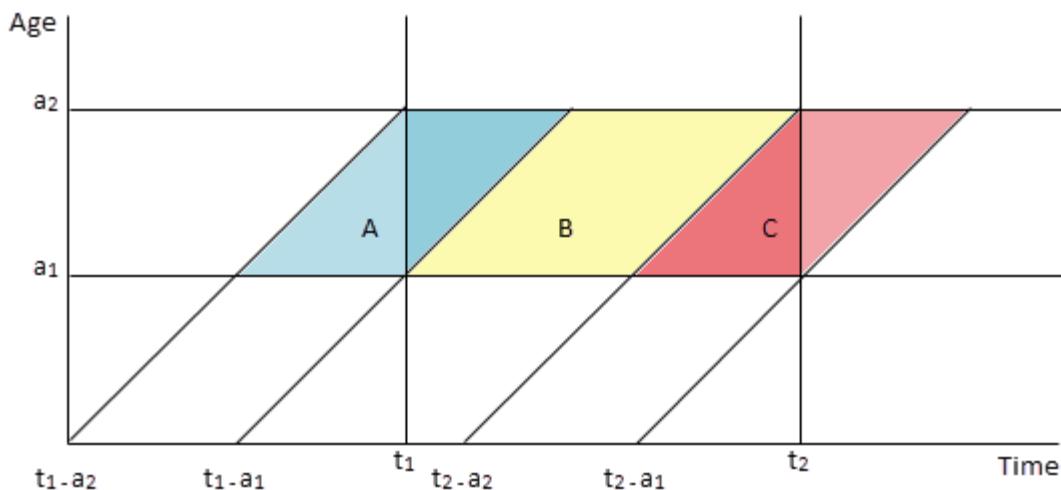
Variables: BR file.
b3   Date of birth of child (CMC)
b5   Child is alive (1 = Yes, 0 = No)
b7   Age at death in months (imputed)
v008   Date of interview (CMC)
v005   Woman's individual sample weight

Calculation

Component probabilities

Component death probabilities are first tabulated. Then the component death probabilities are combined into the mortality rates. The component death probabilities are calculated for age segments 0, 1-2, 3-5, 6-11, 12-23, 24-35, 36-47, and 48-59 months of completed age.

Each component death probability is defined by a time period and an age interval. Within these two parameters, three birth cohorts of children are included, as indicated in the figure below:

One cohort of children (cohort B) is completely included and two (cohorts A and C) are partially included in the time period. If the lower and upper limits of the age interval are given by a_1 and a_2, respectively, and the lower and upper limits of the time period are given by t_1 and t_2, respectively, then the three cohorts are defined as children born between dates:

15) $t_1 - a_2$ and $t_1 - a_1$ (cohort A),
16) $t_1 - a_1$ and $t_2 - a_2$ (cohort B), and
17) $t_2 - a_2$ and $t_2 - a_1$ (cohort C)

Cohorts A and C are only partially exposed to mortality between ages a_1 and a_2 during time period t_1 to t_2. Therefore, account needs to be taken of the partial exposure. Because of the small age intervals of the component probabilities, the assumption is made that the exposure to mortality and deaths of birth cohorts A and C are well represented by taking one-half of the total exposure and one-half of the deaths (with the exception noted below).

Time periods:

The time period used is typically five years or ten years preceding the month of interview (v008-1 to v008-60, or v008-1 to v008-120), excluding the month of interview as this would only contribute a partial month. Time periods are expressed in the form $[t_1, t_2)$, i.e. from t_1 up to but not including t_2 as follows:

0-4 years preceding the survey	$t_1 = v008-60$	$t_2 = v008$
5-9 years preceding the survey	$t_1 = v008-120$	$t_2 = v008-60$
10-14 years preceding the survey	$t_1 = v008-120$	$t_2 = v008-180$
etc.		

Age groups:

Age groups are expressed in the form $[a_1, a_2)$, i.e. from a_1 up to but not including a_2 as follows:

0	$a_1 = 0$	$a_2 = 1$
1-2	$a_1 = 1$	$a_2 = 3$
3-5	$a_1 = 3$	$a_2 = 6$
6-11	$a_1 = 6$	$a_2 = 12$
12-23	$a_1 = 12$	$a_2 = 24$
24-35	$a_1 = 24$	$a_2 = 36$
36-47	$a_1 = 36$	$a_2 = 48$
48-59	$a_1 = 48$	$a_2 = 60$

For each age group and time period the numerators and denominators are calculated.

Numerators:

A. One-half of the deaths between ages a1 and a2 to children of cohort A
   $(a_1 <= b7 < a_2 \ \& \ t_1 - a_2 <= b3 < t_1 - a_1)$, plus
B. All of deaths between ages a1 and a2 to children of cohort B
   $(a_1 <= b7 < a_2 \ \& \ t_1 - a_1 <= b3 < t_2 - a_2)$, plus
   One-half* $(a_1 <= b7 < a_2 \ \& \ t_2 - a_2 <= b3 < t_2 - a_1)$

Denominators:

A. One-half of the survivors at age a_1 of children of cohort A
   $((b5 = 1 \text{ or } a_1 <= b7) \ \& \ t_1 - a_2 <= b3 < t_1 - a_1)$, plus
B. All of the survivors at age a_1 of children of cohort B
   $((b5 = 1 \text{ or } a_1 <= b7) \ \& \ t_1 - a_1 <= b3 < t_2 - a_2)$, plus
C. One-half of the deaths between ages a1 and a2 to children of cohort C
   $((b5 = 1 \text{ or } a_1 <= b7) \ \& \ t_2 - a_2 <= b3 < t_2 - a_1)$

Component death probabilities are calculated by dividing the numerator for each age range and time period by the denominator for that age range and period.

*Special exception: For the time period that ends with the date of the survey, numerators are calculated as the sum of one-half of the deaths between ages a_1 and a_2 to children of cohort A, plus all of deaths between ages a_1 and a_2 to children of cohort B, plus all of the deaths between ages a_1 and a_2 to children of cohort C. This change is because all of the deaths reported in the survey for cohort C for this time period represent one-half of the deaths that would have occurred to the cohort between ages a_1 and a_2.

Mortality rates

Neonatal mortality rate (NNMR):
This is the component death probability for 0 months of age multiplied by 1000.

Infant mortality rate (IMR):

1) Calculate the component survival probabilities by subtracting each component death probability from one.
2) Calculate the product of the component survival probabilities for 0, 1-2, 3-5, and 6-11 months of age.
3) Subtract the product from 1 and multiply by 1000 to get the infant mortality rate.

Post neonatal mortality rate (PNMR):

Subtract the neonatal mortality rate from the infant mortality rate.

Child mortality rate (CMR):

1) Calculate the component survival probabilities by subtracting each component death probability from 1.
2) Calculate the product of the component survival probabilities for 12-23, 24-35, 36-47, and 48-59 months of age.
3) Subtract the product from 1 and multiply by 1000 to get the child mortality rate.

Under-5 mortality rate (U5MR):

1) Calculate the component survival probabilities by subtracting each component death probability from 1.
2) Calculate the product of the component survival probabilities for 0, 1-2, 3-5, 6-11, 12-23, 24-35, 36-47, and 48-59 months of age.
3) Subtract the product from 1 and multiply by 1000 to get the under-five mortality rate.

Handling of Missing Values

Five variables are used in the calculation of infant and child mortality: date of interview, date of birth of the child, survival of the child, age at death of the child, and the women's sampling weight. The date of interview is not allowed to be missing on the questionnaire. Survival status for children is also not allowed to be missing. If missing or unknown, the date of birth and age at death are imputed before the creation of the standard recode. See Croft, 1991 for the imputation procedures.

Notes and Considerations

Typically, mortality rates are calculated for five-year periods preceding the date of the survey for national estimates. To provide stability in estimates for smaller subgroups, the ten-year period before the survey is used. To calculate the component death probabilities for the ten-year period, the numerators for the 2 five-year periods are summed, as are the denominators, before dividing the numerators by the denominators.

The reliability of mortality estimates depends upon full recall of children who have died, the absence of differential displacement of birth dates of surviving and dead children, and accurate reporting of ages at death. Previous survey results have often been characterized by some heaping of age at death at exactly 12 months or 1 year of age. Because age at death is recorded in completed months or years, deaths at 12 months are classified as child rather than infant deaths. In reality, some of these deaths may have occurred before the first birthday so that their classification as child deaths tends to negatively bias infant mortality estimates and positively bias child mortality estimates. The analyst should be aware that

this may occur in DHS surveys, although the probable effect is usually modest and unlikely to bias the estimates by as much as 5 percent.

Changes over Time

In prior rounds of the DHS Program, five-year periods were used only for national estimates, and ten-year periods were used for all disaggregations of the mortality rates. In DHS-7 and later surveys, as sample sizes have increased over the years, five-year periods are also used for mortality rates disaggregated by sex and by urban/rural residence.

References

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Resources

DHS-8 Tabulation plan: Tables 8.1, 8.2, and 8.3

API Indicator IDs:
CM_ECMR_C_NNR, CM_ECMR_C_PNR, CM_ECMR_C_IMR, CM_ECMR_C_CMR, CM_ECMR_C_U5M
(API link, STATcompiler link)

SDG Indicator 3.2.1: Under-five mortality rate
SDG Indicator 3.2.2: Neonatal mortality rate
WHO 100 Core Health Indicators: Under-five mortality rate
WHO 100 Core Health Indicators: Infant mortality rate
WHO 100 Core Health Indicators: Neonatal mortality rate

MICS6 Indicator CS.1: Neonatal mortality rate
MICS6 Indicator CS.2: Post-neonatal mortality rate
MICS6 Indicator CS.3: Infant mortality rate
MICS6 Indicator CS.4: Child mortality rate
MICS6 Indicator CS.5: Under-five mortality rate

UN IGME Child Mortality Estimates
http://childmortality.org/

R package DHS.rates: Calculate Key DHS Indicators
https://CRAN.R-project.org/package=DHS.rates

Perinatal Mortality

Stillbirth rate, early neonatal mortality rate, perinatal mortality rate, and the ratio of stillbirths to early neonatal deaths

Definition

1) The stillbirth rate is the number of stillbirths divided by the number of pregnancies of seven or more months' duration (all live births plus stillbirths).
2) The early neonatal mortality rate is the number of early neonatal deaths divided by the number of pregnancies of seven or more months' duration (all live births plus stillbirths).
3) The perinatal mortality rate is the sum of the number of perinatal deaths (stillbirths and early neonatal deaths) divided by the number of pregnancies of seven or more months' duration (all live births plus stillbirths).

Coverage:

Population base: Pregnancies of seven or more months to women age 15–49 at time of survey (IR file, BR file)
Time period: Five-year period preceding the survey (v008 to v008-59)

Numerator:

1) **Stillbirth rate:** Number of fetal deaths in pregnancies of 28 weeks or more or seven or more months
2) **Early neonatal mortality:** Number of deaths of live-born children in the 0–6 days following birth
3) **Perinatal mortality:** Number of fetal deaths in pregnancies of seven or more months plus number of deaths of live-born children in the 0–6 days following birth
4) **Ratio of stillbirths to early neonatal deaths:** See numerator 1 and 2 above.

Denominator:

a) Number of pregnancies of 28 weeks or more (or seven or more months) that terminated in a fetal death plus pregnancies that ended with a live birth
b) Number of live-born children born in the time period
c) Number of pregnancies of 28 weeks or more (or seven or more months) that terminated in a fetal death plus pregnancies that ended with a live birth
d) See numerator 2 above

Variables: IR file, BR file.

DHS-7 and prior

vcal_1	Calendar
v008	Date of interview (CMC)
v018	Row (position) in calendar of month of interview
b3	Date of birth of child (CMC)
b5	Child is alive (1 = yes, 0 = no)
b7	Age at death in months (imputed)
v005	Woman's individual sample weight

DHS-8
p3   Date of end of pregnancy (CMC)
p19   Months since pregnancy outcome
p20   Duration of pregnancy
p32   Pregnancy outcome
v005   Woman's individual sample weight

Calculation

DHS-7 and earlier surveys

For DHS-7 and earlier surveys the perinatal mortality rate was calculated as the quotient of the sum of the two parts of the numerator (stillbirths plus early neonatal deaths) divided by the sum of the two parts of the denominator (stillbirths plus all live births), as follows:

Numerators:
The sum of the number of stillbirths plus the number of early neonatal deaths in the five years preceding the survey.
   a)   Number of stillbirths: From the reproductive calendar, number of pregnancies that lasted seven or more months and terminated in a fetal death in the five years preceding the survey.
        • For each position in the calendar (vcal_1) from v018 to v018+59: tally stillbirth if there is a "T" (termination) in the position followed by six "P"s (pregnancy) ("TPPPPPP").
   b)   Number of early neonatal deaths: Number of children who died at age 0–6 days after birth in the five years preceding the survey.
        • For births in the birth history tally all early neonatal deaths (b6 in 100:106) if the birth took place in the five years preceding the survey (v008 >= b3 >= v008-59).

Denominators:
The sum of the number of stillbirths plus the number of live births in the five years preceding the survey.
   a)   Number of stillbirths, given in numerator 1 above.
   b)   Number of live births in the five years preceding the survey (v008 >= b3 >= v008-59).

Perinatal mortality rate: Quotient of numerator divided by denominator multiplied by 1000.

DHS-8

In DHS-8 surveys, the perinatal mortality rate and the stillbirth rate are calculated in a conceptually similar manner to the approach used in DHS-7 but use a different source of information, namely the pregnancy history, rather than the calendar for the information related to stillbirths, with pregnancy durations reported in weeks or months, rather than just months. This also allows the counting of stillbirths from twins, either as a live birth and still birth, or twin stillbirths, and may result in a slightly higher estimate of perinatal mortality than was possible with the prior approach.

Numerator:

1) Number of stillbirths: From the pregnancy history, number of pregnancies that lasted 28 or more weeks (or seven or more months) and terminated in a fetal death in the five years preceding the survey.
   - For each pregnancy in the pregnancy history with p3 from v018 to v018+59: tally stillbirth if the pregnancy outcome was "born dead" (p32 = 2) and the duration of the pregnancy was 28 weeks or more (or 7 months or more) (p20 in 128:150,207:211).
2) Number of early neonatal deaths: Number of children who died at age 0–6 days after birth in the five years preceding the survey.
   - For births in the birth history tally all early neonatal deaths (b6 in 100:106) if the birth took place in the five years preceding the survey (v008 >= b3 >= v008-59). This part is unchanged from DHS-7.
3) Sum of numerator 1 and numerator 2.

Denominators:
4) The sum of:
   a) Number of stillbirths, as calculated in numerator 1, and
   b) Number of live births in the five years preceding the survey (v008 >= b3 >= v008-59).
5) Number of live births in the five years preceding the survey (v008 >= b3 >= v008-59).
6) Same as denominator 1.

Calculation:
1) Stillbirth rate: Quotient of numerator 1 divided by denominator 1 multiplied by 1000.
2) Early neonatal mortality rate: Quotient of numerator 2 divided by denominator 2 multiplied by 1000.
3) Perinatal mortality rate: Quotient of numerator 3 divided by denominator 3 multiplied by 1000.
4) Ratio of stillbirths to early neonatal deaths: Quotient of indicator 1 divided by indicator 2.

Handling of Missing Values

Missing values are not allowed for any of the variables that make up the rate. Age at death for children who died is imputed if unknown or missing.

Notes and Considerations

The perinatal mortality rate is defined by dividing the number of perinatal deaths (stillbirths and early neonatal deaths) by either the number of live births or by the sum of live births and stillbirths. Both definitions are prevalent in the literature. The DHS Program has chosen to report the latter.

The definition of the pregnancy duration for stillbirth in general has changed in the literature over time. Originally, it was pregnancies lasting 28 weeks that ended in a fetal death. The duration limit was subsequently lowered to 24, 22, and even 20 weeks. For the purpose of calculating perinatal mortality, however, the definition remains at 28 weeks. DHS asks and records pregnancy duration in weeks or months. The durations of pregnancy are taken as reported by the respondents and do not necessarily have a clinical basis.

In DHS-7 and earlier surveys, the number of stillbirths was estimated from the Contraceptive Calendar. See the Contraceptive Calendar Tutorial at https://www.dhsprogram.com/data/Calendar-Tutorial/index.cfm for a description of the calendar, how the data are stored and how to analyze the

calendar data, and videos on Completing the Contraceptive Calendar and the Data Structure of the Contraceptive Calendar. See particularly Example 4: Still births and perinatal mortality at https://www.dhsprogram.com/data/Calendar-Tutorial/index.cfm#example4. In DHS-8, the number of stillbirths is calculated from the pregnancy history.

Changes over Time

Earlier DHS reports prior to about 1998 used a somewhat different basis for perinatal rates. Deaths of live-born children were considered early neonatal deaths if they occurred 0 to 7 days after birth, given the large amount of heaping on day 7 and the consideration of the likelihood of rounding "in the first week of life" by interviewers to seven days, due to questionnaire coding requirements. In more recent years The DHS Program has used the stricter definition of 0 to 6 days. Also, the denominator for the rates was previously the number of live births rather than the sum of live births and stillbirths.

In DHS-7 and earlier surveys, the number of stillbirths was estimated from the Contraceptive Calendar and excluded stillbirths that were twins of live births, or pairs or triplets of stillbirths as the contraceptive calendar only allowed for a single entry in each month. In DHS-8 a pregnancy history is used, and this captures all stillbirths including those that are twins of live births or pairs or triplets of stillbirths, and thus estimates of stillbirths and perinatal mortality may be slightly higher than those reported in earlier surveys.

References

DHS Contraceptive Calendar Tutorial. Example 4 – Still births and Perinatal Mortality. https://www.dhsprogram.com/data/Calendar-Tutorial/index.cfm#example4

Resources

DHS-8 Tabulation plan: Tables 8.4

API Indicator IDs:
CM_PNMR_C_PMR
(API link, STATcompiler link)

DHS Contraceptive Calendar Tutorial: https://www.dhsprogram.com/data/Calendar-Tutorial/index.cfm
DHS Contraceptive Calendar Tutorial Video Part 1: Completing the Contraceptive Calendar
https://www.youtube.com/watch?v=_7V6S5IjnZc
DHS Contraceptive Calendar Tutorial Video Part 2: Data Structure of the Contraceptive Calendar
https://www.youtube.com/watch?v=T2pS8IM0jyU

High-Risk Fertility Behavior

Risk ratio of children in high-risk fertility behavior categories

Definition

The relative risk ratio is the ratio of children in high-risk fertility behavior categories to children not in any high-risk category.

Coverage:
  Population base: Children born to all women (BR or KR file)
  Time period: Five years preceding the survey (b19 < 60)

Numerator: Proportion dead of children born in each high-risk category

Denominator: Proportion dead of children born in non-high-risk category

Risk categories:
High-risk fertility behavior categories:
1) Children born to mothers under age 18 years (b3 - v011 < 216)
2) Children born to mothers 35 years and older (b3 - v011 >= 420)
3) Children of birth order 4 or higher (order >= 4 – see *Calculation* below)
4) Children born less than 24 months since a preceding birth (b11 < 24)

Unavoidable risk category:
5) First birth order children born to mothers between ages 18 and 34 years
   (order = 1 & b3 - v011 in 216:419)

Children not in any high-risk category:
6) Second- and third-birth-order children born to mothers between ages 18 and 34 years
   (order = 2 or 3 & b3 - v011 in 216:419)

Women who are sterilized (v312 = 6) are excluded from any high-risk category.

The high-risk categories are also combined into two-way and three-way combinations of elevated risk.

Variables: BR file.
v011	Date of birth of respondent (CMC)
b5	Child is alive (1 = yes, 0 = no)
bord	Birth order number
b0	Child is twin
b19	Age of child in months
v005	Woman's individual sample weight
v312	Current contraceptive method

Calculation

To calculate relative risk ratios by categories of high-risk due to fertility behavior, first the proportions dead for each category need to be calculated. For each risk category:

Numerator: Number of children born in the five years preceding the survey who died at any age (b19 < 60 & b5 = 0).

Denominator: Number of children born in the five years preceding the survey (b19 < 60).

Proportion dead: Numerator divided by denominator.

Then the risk ratio is calculated as a ratio of the proportions dead:
      Risk ratio numerators: Proportion dead of children born in each high-risk category.
      Risk ratio denominator: Proportion dead of children born in non-high-risk category (see *Definition* above).
      Relative risk ratios: Risk ratio numerators for each category divided by the risk ratio denominator.

Handling of Missing Values

None of the information needed to calculate relative risk ratios is allowed to have missing or unknown data. Note that age at death is not used, only survival status at the time of the survey.

Notes and Considerations

Women who are sterilized are not considered at risk and are excluded from the numerators of any of the high-risk categories.

To provide a more robust estimate of the elevated relative risk, proportions dead are used instead of period mortality rates in the calculation of relative risk, since period mortality rates have higher sampling errors. In DHS reports, risk ratios are not shown where the proportion dead is based on fewer than 25 births. Risk ratios where the proportion dead is based on 25 to 49 births are placed in parentheses to indicate large variability due to sampling.

Assumptions: It is assumed that the number of births and death rates do not vary substantially by time period within the preceding five years.

Risk ratios are presented in single high-risk categories where the births were only in one of the high-risk categories, and in multiple high-risk categories where births were in two or three of the high-risk categories. Subtotals by single category and multiple categories are also presented, and in DHS-7 onwards for individual high-risk categories irrespective of whether the birth was in a single or multiple risk categories.

Changes over Time

Originally, prior to about 1998, the denominator for the risk ratio included the unavoidable risk category of first-order births to mothers between 18 and 24 years of age.

The calculation of months since birth has changed in DHS-7 compared to prior rounds of DHS. In DHS-7 and DHS-8 recode files b19 provides months since birth for both living and dead children calculated from the date of birth in days. In prior rounds of The DHS Program, months since birth were calculated based on the date of birth in months as v008-b3. The selection for births in the five years preceding the survey is based on b19 < 60 or, in datasets without b19, v008-b3 < 60.

References

Govindasamy, P., M.K. Stewart, S.O. Rutstein, J.T. Boerma, and A.E. Sommerfelt. 1993. *High-risk birth and maternity care.* DHS Comparative Studies No. 8. Columbia, Maryland, USA: Macro International. https://www.dhsprogram.com/publications/publication-CS8-Comparative-Reports.cfm

Resources

DHS-8 Tabulation plan: Tables 8.5

API Indicator ID:
CM_HRFR_C_NON, CM_HRFR_C_FOB, CM_HRFR_C_A18, CM_HRFR_C_A34, CM_HRFR_C_B24,
CM_HRFR_C_BO3, CM_HRFR_C_SNG, CM_HRFR_C_A1B, CM_HRFR_C_A2B, CM_HRFR_C_ABO,
CM_HRFR_C_A3B, CM_HRFR_C_BIO, CM_HRFR_C_MLT, CM_HRFR_C_ANY
(API link, STATcompiler link)

Percentage of births in high-risk fertility behavior categories

Definition

Percentage of children born in the five years preceding the survey by category of elevated risk of mortality.

Coverage:
> Population base: Children born to all women (BR or KR file)
> Time period: Births in the five years preceding the survey (b19 < 60)

Numerator: Number of births in each risk category for children born in the five years preceding the survey

Risk categories:
High-risk fertility behavior categories:
1) Children born to mothers under age 18 years (b3 - v011 < 216)
2) Children born to mothers 35 years and older (b3 - v011 >= 420)
3) Children of birth order 4 or higher (order >= 4 – see *Calculation* below)
4) Children born less than 24 months since a preceding birth (b11 < 24)

Unavoidable high-risk category:
5) First birth order children born to mothers between ages 18 and 34 years
   (order = 1 & b3 - v011 in 216:419)

Children not in any high-risk category:
6) Second- and third-birth-order children born to mothers between ages 18 and 34 years
   (order = 2, 3 & b3 - v011 in 216:419)

The high-risk categories are also combined into two-way and three-way combinations of elevated risk.

Denominator: Number of children born in the five years preceding the survey (b19 < 60)

Variables: BR file.
v011	Date of birth of respondent (CMC)
bord	Birth order number
b0	Child is twin
b19	Age of child in months
v005	Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

None of the information needed to calculate the high-risk categories is allowed to have missing or unknown data.

Notes and Considerations

Percentages are presented in single high-risk categories where the births were only in one of the high-risk categories, and in multiple high-risk categories where births were in two or three of the high-risk categories. Subtotals by single category and multiple categories are also presented, and in DHS-7 onwards for individual high-risk categories irrespective of whether the birth was in a single or in multiple risk categories.

Changes over Time

The calculation of months since birth has changed in DHS-7 compared to prior rounds of DHS. In DHS-7 and DHS-8 recode files b19 provides months since birth for both living and dead children calculated from the date of birth in days. In prior rounds of The DHS Program, months since birth were calculated based on the date of birth in months as v008-b3. The selection for births in the five years preceding the survey is based on b19 < 60 or, in datasets without b19, v008-b3 < 60.

Resources

DHS-8 Tabulation plan: Tables 8.5

API Indicator IDs:
CM_HRFB_C_NON, CM_HRFB_C_FOB, CM_HRFB_C_A18, CM_HRFB_C_A34, CM_HRFB_C_B24, CM_HRFB_C_BO3, CM_HRFB_C_SNG, CM_HRFB_C_A1B, CM_HRFB_C_A2B, CM_HRFB_C_ABO, CM_HRFB_C_A3B, CM_HRFB_C_BIO, CM_HRFB_C_MLT, CM_HRFB_C_ANY
([API link](#), [STATcompiler link](#))

Percentage of currently married women in high-risk fertility behavior categories

Definition

Percentage of women currently married or in union by category of risk if they were to conceive a child at the time of the survey.

Coverage:
>   Population base: Women currently married or in union (v502 = 1) (IR file)
>   Time period: Current status at time of survey

Numerator: Number of currently married women in each risk category

Risk categories:
High-risk fertility behavior categories:
1) Women under age 17 years and 3 months (v008 - v011 < 207)
2) Women over age 34 years and 2 months (v008 - v011 > 410)
3) Women who have given birth to 3 or more children (v201 >= 3)
4) Women whose last birth was less than 15 months ago (v222 < 15)

Unavoidable high-risk category:
5) Women who have never given birth (v201 = 0) and are between 17 years and 3 months of age and 34 years and 2 months of age (v008 - v011 in 207:410)

Women not in any high-risk category:
6) Women who have given birth to one or two children (v201 = 1 or 2) and are between 17 years and 3 months of age and 34 years and 2 months of age (v008 - v011 in 207:410). Women who are sterilized (v312 = 6) are also included in this category and are removed from any of the above high-risk categories.

Women are assigned to risk categories according to the status they would have at the birth of a child if they were to conceive at the time of the survey, assuming the birth would take place in 9 months from the time of the survey. Current pregnancy is not taken into account in this definition.

The high-risk categories are also combined into two-way and three-way combinations of elevated risk.

Denominator: Number of currently married women (v502 = 1)

Variables: IR file.
v008	Date of interview (CMC)
v011	Date of birth of respondent (CMC)
v502	Currently/formerly/never in union
v201	Total children ever born
v222	Last birth to interview (months)
v312	Current contraceptive method
v005	Woman's individual sample weight

Calculation

Women who are sterilized (v312 = 6) are not considered at risk and are removed from the numerator for any high-risk category. Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

None of the information needed to calculate the high-risk categories is allowed to have missing or unknown data.

Notes and Considerations

Percentages are presented in single high-risk categories where the women were only in one of the high-risk categories, and in multiple high-risk categories where women were in two or three of the high-risk categories. Subtotals by single category and multiple categories are also presented, and in DHS-7 onwards for individual high-risk categories irrespective of whether the woman was in a single or in multiple risk categories.

References

Rutstein, S., and R. Winter. 2015. *Contraception Needed to Avoid High-Fertility-Risk Births, and Maternal and Child Deaths That Would Be Averted*. DHS Analytical Studies No. 50. Rockville, Maryland, USA: ICF International. https://dhsprogram.com/publications/publication-as50-analytical-studies.cfm

Resources

DHS-8 Tabulation plan: Tables 8.5

API Indicator IDs:
CM_HRFW_W_NON, CM_HRFW_W_FOB, CM_HRFW_W_A18, CM_HRFW_W_A34, CM_HRFW_W_B24, CM_HRFW_W_BO3, CM_HRFW_W_SNG, CM_HRFW_W_A1B, CM_HRFW_W_A2B, CM_HRFW_W_ABO, CM_HRFW_W_A3B, CM_HRFW_W_BIO, CM_HRFW_W_MLT, CM_HRFW_W_ANY
(API link, STATcompiler link)

9) Maternal Healthcare

This chapter presents findings from several areas of importance to maternal and reproductive health, including antenatal, delivery and postnatal care, and general access to health services.

Information on antenatal, delivery and postnatal care is of great value in identifying subgroups of women who do not utilize such services and is useful in planning for improvements in service delivery. Information on antenatal care is shown according to outcome of birth (live birth and/or stillbirth), the number of ANC visits made, the stage of pregnancy at the time of the first visit, the type of provider and the specific services and information provided during antenatal visits, including whether tetanus toxoid was received. Similarly, delivery services are described according to outcome of birth (live birth and/or stillbirth), the place of the delivery, the type of person assisting the delivery and the rate of caesarean section. Information on postnatal care is shown by whether a woman delivered in a health facility or elsewhere and describes the time since delivery of the first postnatal care and from whom it was received. This information helps identify population groups who are underserved with maternity care services.

General information for access and barriers to use of health services for the woman herself, men's involvement in maternal health care, as well as examinations for breast and cervical cancer is also presented in this chapter.

Antenatal Care

Percent distribution of antenatal care by type of provider, and percentage of antenatal care from a skilled provider

Definition

1) Percentage of women with a live birth or a stillbirth in the last 2 years, distributed by highest type of provider of antenatal care for most recent birth.
2) Percentage of women with a live birth or a stillbirth in the last 2 years receiving antenatal care from a skilled provider for the most recent birth.

Coverage:
Population base:
   a) Women who have had a live birth in the 2 years preceding the survey (NR file)
   b) Women who have had a stillbirth in the 2 years preceding the survey (NR file)
   c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (NR file)
   Time period: Two years preceding the survey

Numerators:
Number of women within the base population who:
1) were attended for antenatal care (ANC) for their last most recent live birth (m80 = 1) or stillbirth (m80 = 3), distributed according to the type of provider with the highest level of qualification (m2a – m2n = 1). (Note that types of providers and variables below are based on the standard DHS-8 questionnaire. Actual provider types and variables are survey specific but will be from the m2a–m2n series.) The types of providers are country specific but typically include:
   a) Doctor (m2a = 1)
   b) Nurse/midwife (m2b = 1)
   c) Auxiliary midwife (m2c = 1)
   d) Community health worker/fieldworker (m2i = 1)
   e) Traditional birth attendant (m2g = 1)
   f) Other (m2h = 1 or m2j = 1 or m2k = 1 or m2l = 1 or m2m = 1)
   g) No ANC (m2n = 1)
2) Number of women receiving antenatal care from a skilled provider for the most recent most recent live birth (m80 = 1) or stillbirth (m80 = 3). The classification of skilled provider is also country specific, but typically includes providers such as Doctor, Nurse/midwife, and Auxiliary midwife (often m2a = 1 or m2b = 1 or m2c = 1, but depends on the survey)

Denominator: Number of women in each of the population bases:
a) Women who have had a live birth in the 2 years preceding the survey (m80 = 1 & p19 < 24)
b) Women who have had a stillbirth in the 2 years preceding the survey (m80 = 3 & p19 < 24)
c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (m80 = 1 or 3 & p19 < 24)

Variables: NR file.
m80   Pregnancy outcome for this section
p19   Months since pregnancy outcome

m2a	Prenatal: Doctor
m2b	Prenatal: Country specific health professional
m2c	Prenatal: Country specific health professional
m2d	Prenatal: Country specific health professional
m2e	Prenatal: Country specific health professional
m2f	Prenatal: Country specific health professional
m2g	Prenatal: Traditional birth attendant
m2h	Prenatal: Country specific other person
m2i	Prenatal: Country specific other person
m2j	Prenatal: Country specific other person
m2k	Prenatal: Other
m2l	Prenatal: Country specific other
m2m	Prenatal: Country specific other
m2n	Prenatal: No one
v005	Woman's individual sample weight

Calculation

During data collection respondents may mention more than one provider. The percent distribution by type of provider takes the highest type of provider from the list above and does not include other providers mentioned by the respondent.

For each type of provider, the numerator divided by the overall denominator, multiplied by 100.

Handling of Missing Values

"Don't know" or missing values on type of provider are excluded from numerators but included in denominators.

Notes and Considerations

Percent distribution adds up to 100 percent.

The category "Trained nurse/midwife" includes only medically trained and licensed personnel. Traditional birth attendants (also sometimes called midwives) are not considered skilled providers, whether trained or untrained.

The category "Traditional birth attendant/other" includes auxiliary health personnel and cases where the respondent did not know the level of qualification.

The category skilled provider typically includes doctor/nurse, midwife, and auxiliary midwife. The category 'auxiliary midwife' may or may not be considered skilled in providing ANC and should be adapted to reflect the country's healthcare system as in most countries, not all cadres of health care professionals are considered "skilled" in providing ANC.

References

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Wang, W., S. Alva, S. Wang, and A. Fort. 2011. Levels and trends in the use of maternal health services in developing countries. *DHS Comparative Reports No. 26*. Calverton, Maryland, USA: ICF Macro. https://dhsprogram.com/publications/publication-cr26-comparative-reports.cfm

Resources

DHS-8 Tabulation plan: Table 9.1

API Indicator IDs:
RH_ANCP_W_DOC, RH_ANCP_W_NRS, RH_ANCP_W_AUX, RH_ANCP_W_CHW, RH_ANCP_W_OHW, RH_ANCP_W_TBA, RH_ANCP_W_OTH, RH_ANCP_W_MIS, RH_ANCP_W_NON, RH_ANCP_W_SKP
(API link, STATcompiler link)

MICS6 Indicator TM.5a: Antenatal care coverage: at least once by skilled health personnel.

Changes over Time

This indicator changed significantly in DHS-8. The reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire. Also, the population base for this indicator was expanded from only women who had at least one live birth in the 2 years preceding the survey to include women who had a stillbirth in the 2 years preceding the survey, as well as women who had one or more births (either live birth or stillbirth) in the 2 years preceding the survey. Finally, the categories of providers changed slightly. "Auxiliary nurse/midwife" was changed to "Auxiliary midwife" and "Community health worker" was changed to "Community health worker/fieldworker".

Percent distribution of number of antenatal care visits, and of timing of first antenatal visit

Definition
1) Percentage of women with a live birth or a stillbirth in the last 2 years, distributed by number of antenatal care visits for most recent birth.
2) Percentage of women with a live birth or a stillbirth in the last 2 years, distributed by number of months pregnant at time of first antenatal care visit for most recent birth.

Coverage:
Population base:
a) Women who have had a live birth in the 2 years preceding the survey (NR file)
b) Women who have had a stillbirth in the 2 years preceding the survey (NR file)
c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (NR file)
Time period: Two years preceding the survey

Numerators:
Number of women within the base population who:
1) Received antenatal care for their last most recent live birth (m80 = 1) and/or stillbirth (m80 = 3), according to grouped number of visits (m14)
2) Received antenatal care for their last most recent live birth (m80 = 1) and/or stillbirth (m80 = 3), according to grouped number of months they were pregnant at time of first visit (m13)

Denominator: Number of women in each of the population bases:
a) Women who have had a live birth in the 2 years preceding the survey (m80 = 1 & p19 < 24)
b) Women who have had a stillbirth in the 2 years preceding the survey (m80 = 3 & p19 < 24)
c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (m80 = 1 or 3 & p19 < 24)

Variables: NR file.
m80	Pregnancy outcome for this section
p19	Months since pregnancy outcome
m14	Number of antenatal visits during pregnancy
m13	Timing of 1st antenatal check (months)
m2n	Prenatal: no one
v005	Woman's individual sample weight

Calculation

Number of antenatal visits is grouped into categories of no antenatal visits, 1 visit, 2 visits, 3 visits, 4-7 visits, 8+ visits, and "don't know" before calculating percentages. Timing of first antenatal visit is grouped into categories of no antenatal visit, <4 months, 4-6 months, 7+ months, and "don't know" before calculating percentages. The percentages are the numerators divided by the denominator, multiplied by 100.

Handling of Missing Values

"Don't know" or missing values on number of antenatal care visits and timing of first ANC are excluded from numerators but included in denominators.

Notes and Considerations

Percent distributions add up to 100 percent.

Changes over Time

In DHS-8, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire. The population base for this indicator was also expanded from only women who had at least one live birth in the 2 years preceding the survey to include women who had a stillbirth in the 2 years preceding the survey, as well as women who had one or more births (either live birth or stillbirth) in the 2 years preceding the survey.

Also, in DHS-8, the groupings were changed to include 8+ ANC visits based on WHO recommendations.

References

Benova, L., Ö. Tunçalp, A.C. Moran and O.M.R. Campbell, 2018. "Not just a number: examining coverage and content of antenatal care in low-income and middle-income countries." *BMJ Global Health*, *3*(2), p.e000779. https://gh.bmj.com/content/3/2/e000779

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MacQuarrie, K.L.D., L. Mallick, and C. Allen. 2017. *Sexual and reproductive health in early and later adolescence: DHS data on youth Age 10-19*. DHS Comparative Reports No. 45. Rockville, Maryland, USA: ICF. https://dhsprogram.com/publications/publication-cr45-comparative-reports.cfm

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World Health Organization. 2016. *WHO recommendations on antenatal care for a positive pregnancy experience*. Geneva: World Health Organization. http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/anc-positive-pregnancy-experience/en/

World Health Organization. 2018. *Global reference list of 100 core health indicators*. Geneva: World Health Organization. https://apps.who.int/iris/handle/10665/259951

Resources

DHS-8 Tabulation plan: Table 9.2

API Indicator IDs:
```
RH_ANCN_W_NON, RH_ANCN_W_N01, RH_ANCN_W_N23, RH_ANCN_W_N4P, RH_ANCN_W_DKM,
RH_ANCT_W_NON, RH_ANCT_W_TL4, RH_ANCT_W_T45, RH_ANCT_W_T67, RH_ANCT_W_T8P,
RH_ANCT_W_DKM
```
([API link](#), [STATcompiler link](#))

WHO 100 Core Health Indicators: Antenatal care coverage

MICS6 Indicator TM.5b: Antenatal care coverage: at least four times by any provider.
MICS6 Indicator TM.5c: Antenatal care coverage: at least eight times by any provider

Median number of months pregnant at time of first antenatal care visit

Definition

Median number of months pregnant at the time of first antenatal care visit for the most recent birth (live birth or stillbirth) in the 2 years preceding the survey.

Coverage:

    Population base:

        a) Women who have had alive birth in the 2 years preceding the survey (NR file)

        b) Women who have had a stillbirth in the 2 years preceding the survey (NR file)

        c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (NR file)

    Time period: Two years preceding the survey.

Numerator:

Number of women within each base population who received antenatal care for their most recent live birth ($m80 = 1$) or stillbirth ($m80 = 3$) according to the single number of months they were pregnant at time of first visit ($m13$)

Denominator: Number of women in each of the population bases:

a) Women who have had a live birth in the 2 years preceding the survey who received antenatal care for the live birth ($m80 = 1$ & $m13 < 96$ & $p19 < 24$)

b) Women who have had a stillbirth in the 2 years preceding the survey who received antenatal care for the stillbirth ($m80 = 3$ & $m13 < 96$ & $p19 < 24$)

c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey who received antenatal care for their last birth ($m80 = 1$ or 3 & $m13 < 96$ & $p19 < 24$)

Variables: NR file.

m80	Pregnancy outcome for this section
p19	Months since pregnancy outcome
m13	Timing of 1st antenatal check (months)
v005	Woman's individual sample weight

Calculation

For the median, first calculate percentages of single months pregnant at first visit by dividing the numerators by the denominator. Cumulate the percentages by single months starting with the lowest value.

Linearly interpolate between the number of months immediately before and after where the cumulated distribution exceeds 50 percent to determine the median. See *Median Calculations* in *Chapter 1*.

Handling of Missing Values

"Don't know" and missing values excluded from numerators and denominator of percentages for median calculation.

Changes over Time

In DHS-8, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire. Also, in DHS-8, the population base for this indicator was expanded from only women who had at least one live birth in the 2 years preceding the survey to include women who had a stillbirth in the 2 years preceding the survey, as well as women who had one or more births (either live birth or stillbirth) in the 2 years preceding the survey.

Resources

DHS-8 Tabulation plan: Table 9.2

API Indicator IDs:
RH_ANCT_W_MED
([API link](#), [STATcompiler link](#))

Percentage of women receiving components of antenatal care

Definition
1) Among women with a live birth or a stillbirth in the last 2 years, the percentage that had their blood pressure measured.
2) Among women with a live birth or a stillbirth in the last 2 years, the percentage that had a urine sample taken.
3) Among women with a live birth or a stillbirth in the last 2 years, the percentage that had a blood sample taken.
4) Among women with a live birth or a stillbirth in the last 2 years, the percentage that had the baby's heartbeat listened for.
5) Among women with a live birth or a stillbirth in the last 2 years the percentage that were counseled about maternal diet.
6) Among women with a live birth or a stillbirth in the last 2 years the percentage that were counseled about breastfeeding.
7) Among women with a live birth or a stillbirth in the last 2 years, the percentage that were asked about vaginal bleeding.

Coverage:
Population base:
a) Women who have had a live birth in the 2 years preceding the survey (NR file)
b) Women who received antenatal care for their most recent live birth in the 2 years preceding the survey (NR file)
c) Women who have had a stillbirth in the 2 years preceding the survey (NR file)
d) Women who received antenatal care for their most recent stillbirth in the 2 years preceding the survey (NR file)
e) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (NR file)
f) Women who received antenatal care for their most recent birth (live birth or stillbirth) in the 2 years preceding the survey (NR file)
Time period: Two years preceding the survey

Numerators:
Number of women within each base population who:
1) had their blood pressure measured (m42c = 1)
2) had a urine sample taken (m42d = 1)
3) had a blood sample taken (m42e = 1)
4) had baby's heartbeat listened for (m42f = 1)
5) were counseled about maternal diet (m42g = 1)
6) were counseled about breastfeeding (m42h = 1)
7) were asked about vaginal bleeding (m42i = 1)

Denominators: Number of women in each of the population bases:
a) Women who have had a live birth in the 2 years preceding the survey (m80 = 1 & p19 < 24)
b) Women who have had a live birth in the 2 years preceding the survey who received antenatal care for their last birth (m80 = 1 & m2n = 0 & p19 < 24)
c) Women who have had a stillbirth in the 2 years preceding the survey (m80 = 3 & p19 < 24)

d) Women who have had a stillbirth in the 2 years preceding the survey who received antenatal care for their stillbirth (m80 = 3 & m2n = 0 & p19 < 24)

e) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (m80 = 1 or 3 & p19 < 24)

f) Women who have had a live birth or a stillbirth in the 2 years preceding the survey who received antenatal care for their last birth (m80 = 1 or 3 & m2n = 0 & p19 < 24)

Variables: NR file.

m80	Pregnancy outcome for this section
p19	Months since pregnancy outcome
m2n	Prenatal: no one (1 = received no antenatal care; 0 = some antenatal care)
m42c	During pregnancy: blood pressure taken
m42d	During pregnancy: urine sample taken
m42e	During pregnancy: blood sample taken
m42f	During pregnancy: baby's heartbeat listened for
m42g	During pregnancy: counseled about maternal diet
m42h	During pregnancy: counseled about breastfeeding
m42i	During pregnancy: asked about vaginal bleeding
v005	Woman's individual sample weight

Calculation

For percentages, the numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

"Don't know" and missing values on key components of antenatal care (e.g., urine sample taken) are excluded from numerators but included in denominators, assuming that they did not receive the antenatal care component.

Changes over Time

In DHS-8, a number of changes were made to indicators on content of ANC. First, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire. Second, the population base for this indicator was expanded from only women who had at least one live birth in the 2 years preceding the survey to include women who had a stillbirth in the 2 years preceding the survey, as well as women who had one or more births (either live birth or stillbirth) in the 2 years preceding the survey. Additionally, maternal report of receipt of these specific items of ANC are now reported among both number of women with a livebirth and/or stillbirth in the last 2 years AND number of women who attended ANC for their livebirth and/or stillbirth in the last 2 years.

Several additional key items for content of ANC were added as a proxy for quality of care. These included listening to the baby's heartbeat and counseling on maternal diet and breastfeeding.

Indicators on iron-supplementation and deworming used to be included in the same table as these components but are now presented in a separate table.

References

Benova, L., Ö. Tunçalp, A.C. Moran and O.M.R. Campbell, 2018. "Not just a number: examining coverage and content of antenatal care in low-income and middle-income countries." *BMJ Global Health*, *3*(2), p.e000779. https://gh.bmj.com/content/3/2/e000779

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World Health Organization. 2016. *WHO recommendations on antenatal care for a positive pregnancy experience*. Geneva: World Health Organization. http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/anc-positive-pregnancy-experience/en/

Resources

DHS-8 Tabulation plan: Tables 9.3.1 and 9.3.2

API Indicator IDs:
`RH_ANCC_W_IRN, RH_ANCC_W_PAR, RH_ANCS_W_BLP, RH_ANCS_W_URN, RH_ANCS_W_BLS`
(API link, STATcompiler link)

MICS6 Indicator TM.6: Content of antenatal care

Percentage of women receiving food/cash assistance, deworming, and iron-containing supplementation during pregnancy

Definition
1) Percentage of women with a live birth or a stillbirth in the last 2 years who received food or cash assistance during their most recent pregnancy.
2) Percentage of women with a live birth or a stillbirth in the last 2 years who took intestinal parasite drugs during their most recent pregnancy.
3) Percentage of women with a live birth or a stillbirth in the last 2 years who took iron tablets or syrup during their most recent pregnancy.

Coverage:
Population base:
a) Women who have had a live birth in the 2 years preceding the survey (NR file)
b) Women who have had a stillbirth in the 2 years preceding the survey (NR file)
c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (NR file)
Time period: Two years preceding the survey

Numerators:
Number of women within each base population who:
1) received food or cash assistance during the pregnancy of the most recent live birth or stillbirth (m82 = 1)
2) took iron tablets or syrup during the pregnancy for the most recent live birth or stillbirth (m45 = 1)
3) took intestinal parasite drugs during the pregnancy for the most recent live birth or stillbirth (m60 = 1)

Denominators: Number of women in each of the population bases:
a) Women who have had a live birth in the 2 years preceding the survey (m80 = 1 & p19 < 24)
b) Women who have had a stillbirth in the 2 years preceding the survey (m80 = 3 & p19 < 24)
c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (m80 = 1 or 3 & p19 < 24)

Variables: NR file.
m80	Pregnancy outcome for this section
p19	Months since pregnancy outcome
m82	During pregnancy, received food or cash assistance
m45	During pregnancy, given or bought iron tablets/syrup
m60	Drugs for intestinal parasites during pregnancy
v005	Woman's individual sample weight

Calculation

For percentages, the numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

"Don't know" and missing values on indicators of food/cash assistance, deworming, and iron-containing supplementation are excluded from numerators but included in denominators, assuming that they did not receive the intervention.

Changes over Time

In DHS-8, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire. Also in DHS-8, the population base for this indicator was expanded from only women who had at least one live birth in the 2 years preceding the survey to include women who had a stillbirth in the 2 years preceding the survey, as well as women who had one or more births (either live birth or stillbirth) in the 2 years preceding the survey.

The indicator on food/cash assistance was added in DHS-8. The indicators on iron-supplementation and deworming used to be included in the same table as the other ANC components but are now presented in a separate table.

References

Benova, L., Ö. Tunçalp, A.C. Moran and O.M.R. Campbell, 2018. "Not just a number: examining coverage and content of antenatal care in low-income and middle-income countries." *BMJ Global Health*, *3*(2), p.e000779. https://gh.bmj.com/content/3/2/e000779

Bhutta ZA, Das JK, Bahl R, et al. Can available interventions end preventable deaths in mothers, newborn babies, and stillbirths, and at what cost? Lancet 2014;384(9940):347–70

Owolabi, O.O., K.L.M. Wong, M.L. Dennis, E. Radovich, F.L. Cavallaro, C.A. Lynch, A. Fatusi, I. Sombie, and L. Benova. 2017. "Comparing the Use and Content of Antenatal Care in Adolescent and Older First-Time Mothers in 13 Countries of West Africa: A Cross-Sectional Analysis of Demographic and Health Surveys." *The Lancet Child & Adolescent Health* 1(3):203-212. https://www.sciencedirect.com/science/article/pii/S2352464217300251

World Health Organization. 2016. *WHO recommendations on antenatal care for a positive pregnancy experience*. Geneva: World Health Organization. http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/anc-positive-pregnancy-experience/en/

Resources

DHS-8 Tabulation plan: Table 9.4

API Indicator IDs:
`RH_ANCC_W_IRN, RH_ANCC_W_PAR, RH_ANCS_W_BLP, RH_ANCS_W_URN, RH_ANCS_W_BLS` (API link, STATcompiler link)

MICS6 Indicator TM.6: Content of antenatal care

Percent distribution of number of days taking iron-containing supplements during pregnancy

Definition

Percentage of women with a live birth or a stillbirth in the last 2 years, distributed by number of days taking iron-containing supplements during their most recent pregnancy.

Coverage:
Population base:
a) Women who have had a live birth in the 2 years preceding the survey (NR file)
b) Women who have had a stillbirth in the 2 years preceding the survey (NR file)
c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (NR file)

Time period: Two years preceding the survey

Numerators:

Number of women within each base population who by number of days she took iron-containing supplements during the most recent pregnancy (m46)

Denominator: Number of women in each of the population bases:

a) Women who have had a live birth in the 2 years preceding the survey (m80 = 1 & p19 < 24)
b) Women who have had a stillbirth in the 2 years preceding the survey (m80 = 3 & p19 < 24)
c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (m80 = 1 or 3 & p19 < 24)

Variables: NR file.

m46	Number of days during which women took iron-containing supplements
m80	Pregnancy outcome for this section
p19	Months since pregnancy outcome
v005	Woman's individual sample weight

Calculation

Number of days during which women took iron-containing supplements is grouped into categories of none, <60, 60-89, 90-179, 180+, and "don't know" before calculating percentages. Percentages are the numerators divided by the denominator, multiplied by 100.

Handling of Missing Values

"Don't know" values included in percent distributions. Missing values are excluded from numerators but included in denominators.

Notes and Considerations

Percent distributions add up to 100 percent.

Changes over Time

In DHS-8, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire. Also in DHS-8, the population base for this indicator was expanded from only women who had at least one live birth in the 2 years preceding the survey to include women who had a stillbirth in the 2 years preceding the survey, as well as women who had one or more births (either live birth or stillbirth) in the 2 years preceding the survey.

Resources

DHS-8 Tabulation plan: Table 9.4

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Percentage of women who obtained iron-containing supplements, by source of supplements

Definition
Percentage of women with a live birth or a stillbirth in the last 2 years who obtained iron-containing supplements during their most recent pregnancy, by source of supplements.

Coverage:
Population base:
a) Women who have had a live birth in the 2 years preceding the survey who were given or bought iron-containing supplements during the pregnancy of the most recent live birth (NR file)
b) Women who have had a stillbirth in the 2 years preceding the survey who were given or bought iron-containing supplements during the pregnancy of the most recent stillbirth (NR file)
c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey who were given or bought iron-containing supplements during the most recent pregnancy (NR file)

Time period: Two years preceding the survey

Numerators:
Number of women within each base population who were given or bought iron-containing supplements during pregnancy, by declared source of iron-containing supplements (m45 = 1 & m81a – x)

Denominator: Number of women in each of the population bases:
a) Women who have had a live birth in the 2 years preceding the survey who were given or bought iron-containing supplements during the pregnancy of the most recent live birth (m80 = 1 & m45 =1 & p19 < 24)
b) Women who have had a stillbirth in the 2 years preceding the survey who were given or bought iron-containing supplements during the pregnancy of the most recent stillbirth (m80 = 3 & m45 =1 & p19 < 24)
c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey who were given or bought iron-containing supplements during the most recent pregnancy (m80 = 1 or 3 & m45 =1 & p19 < 24)

Variables: NR file.
m80	Pregnancy outcome for this section
p19	Months since pregnancy outcome
m45	During pregnancy, given or bought iron tablets/syrup
m81a – x	Source of iron tablets/syrup
v005	Woman's individual sample weight

Calculation

Numerators divided by the same denominator and multiplied by 100.

Notes and Considerations

Supplements may have been obtained from more than one source.

Changes over Time

In DHS-8, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire. Also in DHS-8, the population base for this indicator was expanded from only women who had at least one live birth in the 2 years preceding the survey to include women who had a stillbirth in the 2 years preceding the survey, as well as women who had one or more births (either live birth or stillbirth) in the 2 years preceding the survey.

Resources

DHS-8 Tabulation plan: Table 9.5

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Tetanus Toxoid Injections

Percentage of women receiving two or more tetanus toxoid injections during pregnancy, and percentage whose most recent live birth was protected against neonatal tetanus

Definition
1) Percentage of women with a live birth in the 2 years preceding the survey receiving two or more injections during the pregnancy for the most recent live birth.
2) Percentage of women with a live birth in the 2 years preceding the survey whose most recent live birth was protected against neonatal tetanus.

Coverage:
  Population base: Women who had a live birth in the 2 years preceding the survey (NR file)
  Time period: Two years preceding the survey

Numerators:
1) Number of women with a live birth in the 2 years preceding the survey with two or more of tetanus toxoid injections received during the pregnancy of the most recent birth (m1 in 2:7)
2) Number of women with a live birth in the 2 years preceding the survey who received either:
  a) two tetanus toxoid injections during the pregnancy for her most recent live birth, or
  b) two or more injections (the last within 3 years of the most recent live birth), or
  c) three or more injections (the last within 5 years of the most recent live birth), or
  d) four or more injections (the last within 10 years of the most recent live birth), or
  e) five or more injections at any time prior to the most recent live birth

Denominator: Number of women with a live birth in the last 2 years (m80 = 1 & p19 < 24)

Variables: NR file.

m80	Pregnancy outcome for this section
p19	Months since pregnancy outcome
b19	Current age of child in months
m1	Number of tetanus injections before birth (during pregnancy)
m1a	Number of tetanus injections before pregnancy
m1d	Years ago received last tetanus injection before pregnancy
v005	Woman's individual sample weight

Calculation

Numerators:
1) Numbers of women with a live birth in the 2 years preceding the survey with two or more of tetanus toxoid injections received during the pregnancy of the most recent birth (m80 = 1 & m1 in 2:7)
2) For the percentage of women with a live birth in the 2 years preceding the survey whose most recent live birth was protected against neonatal tetanus, the calculation of the numerator requires calculating two intermediate variables – the total number of tetanus injections in the woman's life (total_tetanus) and the number of years since the last tetanus injection (last_injection). total_tetanus is the sum of the number of injections during the pregnancy (m1) and the number of

injections prior to the pregnancy (m1a) if these are in the range 1 to 7 (values of m1 or m1a outside of the range 1 to 7 are counted as 0). last_injection is initialized to a high value (99). If any injection was given during the pregnancy (m1 in 1:7) then last_injection is set to 0. Otherwise if m1d (years ago received last tetanus toxoid injection) is in the range 1 to 20 then last_injection is set to m1d minus the age of the child (or years since birth if died) (int(b19 / 12)). Using these two intermediate variables, the following conditions are used for the numerator:

a) two tetanus toxoid injections during the pregnancy for her most recent live birth
    (m80 = 1 & m1 in 2:7), or
b) two or more injections (the last within 3 years of the most recent live birth)
    (m80 = 1 & total_tetanus >= 2 & last_injection < 3), or
c) three or more injections (the last within 5 years of the most recent live birth)
    (m80 = 1 & total_tetanus >= 3 & last_injection < 5), or
d) four or more injections (the last within 10 years of the most recent live birth)
    (m80 = 1 & total_tetanus >= 4 & last_injection < 10), or
e) five or more injections at any time prior to the most recent live birth
    (m80 = 1 & total_tetanus >= 5)

The percentages are calculated as the numerators divided by the denominator, multiplied by 100.

Handling of Missing Values

"Don't know" or missing on the number of tetanus toxoid injections during the pregnancy (m1) or prior to the pregnancy (m1a) are treated as 0 injections in the calculation of total_tetanus. "Don't know" or missing on the number of years ago received the last tetanus toxoid injection before the pregnancy (m1d) are treated as a large number of years (99) prior to the pregnancy.

Notes and Considerations

Tetanus toxoid injections are given to women during pregnancy to protect infants from neonatal tetanus, an important cause of infant death that is due primarily to unsanitary conditions at childbirth.

Changes over Time

In DHS-8, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire.

References

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Resources

DHS-8 Tabulation plan: Table 9.6

API Indicator IDs:
RH_TTIJ_W_TT2, RH_TTIJ_W_PRT
(API link, STATcompiler link)

MICS6 Indicator TM.7: Neonatal tetanus protection.

Place of Delivery

Percent distribution of births by place of delivery, and the percentage of births delivered in a health facility

Definition
1) Percent distribution of births (live births and/or stillbirths) in the past 2 years by place of delivery.
2) Percentage of births (live births and/or stillbirths) in the past 2 years delivered in a health facility.

Coverage:
    Population base:
        a)   Live births to interviewed women in the 2 years preceding the survey (NR file)
        b)   Stillbirths to interviewed women in the 2 years preceding the survey (NR file)
        c)   All births (live births and stillbirths) to interviewed women in the 2 years preceding the survey (NR file)
    Time period: Two years preceding the survey

Numerators:
1) Number of births within each base population distributed according to whether the delivery took place in a:
    a)   Public sector health facility (m15 in 20:29)
    b)   Private medical sector (non-NGO) health facility (m15 in 30:39)
    c)   Private medical sector (NGO) health facility (m15 in 40:49)
    d)   At home (m15 = 11 or 12), or
    e)   Other place (m15 = 96)
2) Number of births within each base population that took place in a health facility (m15 in 20:49)

Denominator: Number of births in each of the population bases:
a) Live births to interviewed women in the 2 years preceding the survey (m80 in 1:2 & p19 < 24)
b) Stillbirths to interviewed women in the 2 years preceding the survey (m80 in 3:4 & p19 < 24)
c) All births (live births and stillbirths) to interviewed women in the 2 years preceding the survey (m80 in 1:4 & p19 < 24)

Variables: NR file.
m80   Pregnancy outcome for this section
p19   Months since pregnancy outcome
m15   Place of delivery
v005   Woman's individual sample weight

Calculation

For percent distribution, numerator divided by denominator, multiplied by 100.

For the percentage of births delivered in a health facility: numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Births with missing information are included in the denominator for both the distribution of place of delivery and percentage of all births delivered in a health facility.

Notes and Considerations

Percent distribution adds up to 100 percent.

Changes over Time

In DHS-8, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire. Also in DHS-8, the population base for this indicator was expanded from only women who had at least one live birth in the 2 years preceding the survey to include women who had a stillbirth in the 2 years preceding the survey, as well as women who had one or more births (either live birth or stillbirth) in the 2 years preceding the survey.

Private sector facilities were disaggregated to include NGO and non-NGO facilities separately in the distribution. Both are still included as health facilities for the percentage of births delivered in a health facility.

References

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Lawn, J. E., Blencowe, H., Waiswa, P. et al. Stillbirths: rates, risk factors, and acceleration towards 2030. Lancet. 2016. 387(10018), 587-603.

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Resources

DHS-8 Tabulation plan: Table 9.7

API Indicator IDs:
```
RH_DELP_C_PUB, RH_DELP_C_PRV, RH_DELP_C_HOM, RH_DELP_C_OTH, RH_DELP_C_DKM,
RH_DELP_C_DHF
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(API link, STATcompiler link)

MICS6 Indicator TM.8: Institutional deliveries.

Assistance during Delivery

Percent distribution of births by person providing assistance during delivery, and the percentage assisted by a skilled provider

Definition
1) Percent distribution of births (live births and/or stillbirths) in the 2 years preceding the survey by person providing assistance during delivery.
2) Percentage of births (live births and/or stillbirths) in the 2 years preceding the survey that were assisted by a skilled provider.
3) Percentage of most recent live births in the 2 years preceding the survey with skin-to-skin contact immediately after birth.

Coverage:
Population base:
a) Live births to interviewed women in the 2 years preceding the survey (NR file)
b) Stillbirths to interviewed women in the 2 years preceding the survey (NR file)
c) All births (live births and stillbirths) to interviewed women in the 2 years preceding the survey (NR file)
Time period: Two years preceding survey

Numerators:
1) Numbers of births within each base population distributed according to type of person providing delivery assistance (m3a-n):
   a) Doctor (m3a = 1)
   b) Nurse/midwife (m3b = 1)
   c) Auxiliary midwife (m3c = 1)
   d) Traditional birth attendant (m3g = 1)
   e) Relative/other (m3h = 1 or m3i = 1 or m3j = 1 or m3k = 1 or m3l = 1 or m3m = 1)
   f) No one (m3n = 1)
   (Note that variables used above are based on the standard DHS-8 questionnaire. Actual variables will be country specific but will be from the m3a-n series.)
2) Number of births within each base population delivered by a skilled provider. Skilled provider includes the cadres that are considered skilled attendants for delivery in the country (selection from m3a-n, typically m3a = 1 or m3b = 1 or m3c = 1, however the coding is specific to the country/survey)
3) Number of most recent live births put on mother's chest and bare skin after birth (m77 = 1)

Denominators:
1) and 2) Number of births in each of the population bases:
   a) Live births to interviewed women in the 2 years preceding the survey (m80 in 1:2 & p19 < 24)
   b) Stillbirths to interviewed women in the 2 years preceding the survey (m80 in 3:4 & p19 < 24)
   c) All births (live births and stillbirths) to interviewed women in the 2 years preceding the survey (m80 in 1:4 & p19 < 24)
3) Number of most recent live births to interviewed women in the 2 years preceding the survey (m80 = 1 & p19 < 24)

m80   Pregnancy outcome for this section
p19   Months since pregnancy outcome
m3a   Assistance: Doctor
m3b-f   Assistance: Country specific health professional
m3g   Assistance: Traditional birth attendant
m3h-j   Assistance: Country specific other person
m3k   Assistance: Other
m3l-m   Assistance: Country specific other
m3n   Assistance: No one
m77   Was put on mother's chest and bare skin after birth
v005   Woman's individual sample weight

Calculation

During data collection respondents may mention more than one provider. The percent distribution by type of provider takes the highest type of provider from the list above and does not include other providers mentioned by the respondent.

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Included separately in the distribution and in the denominator but excluded from the numerator for skilled attendance at delivery.

Notes and Considerations

Percent distribution adds up to 100 percent. The variables for each type of provider are country specific. The variables listed above are based on the standard DHS-8 questionnaire, but the survey specific variables may differ. Traditional birth attendants are not considered skilled providers, whether trained or untrained.

Skin-to-skin contact includes baby being put on chest and touching bare skin, if the baby was put on chest but not touching bare skin, it is not considered skin-to-skin.

Changes over Time

The DHS-7 questionnaire was updated in March 2016 to better capture postpartum skin-to-skin contact practices using two questions (Immediately after birth, was (NAME of baby) put on your chest? Was (NAME of baby)'s bare skin touching your bare skin?) rather than one question (Was the baby put directly on the bare skin of your chest?). This indicator was added to the standard tables in final reports in September 2018.

In DHS-8, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire. Also in DHS-8, the population base for this indicator was expanded from only women who had at least one live birth in the 2 years preceding

the survey to include women who had a stillbirth in the 2 years preceding the survey, as well as women who had one or more births (either live birth or stillbirth) in the 2 years preceding the survey. "Auxiliary nurse/midwife" was also changed to "auxiliary midwife"

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World Health Organization. 2018. *Global reference list of 100 core health indicators*. Geneva: World Health Organization. https://apps.who.int/iris/handle/10665/259951

Resources

DHS-8 Tabulation plan: Table 9.9

API Indicator IDs:
RH_DELA_C_DOC, RH_DELA_C_NRS, RH_DELA_C_AUX, RH_DELA_C_OHW, RH_DELA_C_TBA, RH_DELA_C_REL, RH_DELA_C_NON, RH_DELA_C_DKM, RH_DELA_C_SKP
(API link, STATcompiler link)

SDG Indicator 3.1.2: Proportion of births attended by skilled health personnel
WHO 100 Core Health Indicators: Births attended by skilled health personnel
MICS6 Indicator TM.9: Skilled attendant at delivery.

Caesarean Section

Percentage of births delivered by caesarean section, the percentage that was planned before the onset of labor pains, and that was decided after the onset of labor pains

Definition
1) Percentage of births (live birth and/or stillbirth) in the 2 years preceding the survey delivered by caesarean section.
2) Percentage of live births in the 5 years preceding the survey delivered by caesarean section that was planned before the onset of labor pains. (legacy indicator)
3) Percentage of live births in the 5 years preceding the survey delivered by caesarean section that was decided after the onset of labor pains. (legacy indicator)

Coverage:
Population base:
   a) Live births to interviewed women in the 2 years preceding the survey (NR file)
   b) Stillbirths to interviewed women in the 2 years preceding the survey (NR file)
   c) All births (live births and stillbirths) to interviewed women in the 2 years preceding the survey (NR file)
   d) All live births to interviewed women in the 5 years preceding the survey (NR file)
   Time period: a)-c) Two years preceding the survey, d) Five years preceding the survey

Numerators:
Number of births within base population a)-c) which were:
1) delivered by caesarean section (m17 = 1)

Number of births within base population d) which were:
1) delivered by caesarean section that was planned before the onset of labor pains (m17a = 1)
2) delivered by caesarean section that was decided after the onset of labor pains (m17a = 2)

Denominator: Number of births in each of the population bases:
a) Live births to interviewed women in the 2 years preceding the survey (m80 in 1:2 & p19 < 24)
b) Stillbirths to interviewed women in the 2 years preceding the survey (m80 in 3:4 & p19 < 24)
c) All births (live births and stillbirths) to interviewed women in the 2 years preceding the survey (m80 in 1:4 & p19 < 24)
d) All live births to interviewed women in the 5 years preceding the survey

Variables: NR file.
m80	Pregnancy outcome for this section
p19	Months since pregnancy outcome
m17	Delivery by caesarean section
m17a	Timing on decision for caesarean section
v005	Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Excluded from numerator of percentage delivered by Caesarean section (assumed not Caesarean section).

Changes over Time

In DHS-8, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire. Also in DHS-8, the population base for this indicator was expanded from only women who had at least one live birth in the 2 years preceding the survey to include women who had a stillbirth in the 2 years preceding the survey, as well as women who had one or more births (either live birth or stillbirth) in the 2 years preceding the survey.

Indicators about timing of decision to conduct the C-section are no longer included in the DHS-8 questionnaire.

References

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Resources

DHS-8 Tabulation plan: Table 9.8

API Indicator IDs:
RH_DELA_C_CSC
(API link, STATcompiler link)

MICS6 Indicator TM.10: Caesarean section.

Duration of Stay in Health Facility after Birth

Percent distribution by duration of stay in the health facility following the most recent birth by type of delivery

Definition

Among women with a birth (live birth and/or stillbirth) in the 2 years preceding the survey who delivered their most recent birth in a health facility, percent distribution by duration of stay in the health facility following their most recent birth, according to type of delivery.

Coverage:
Population base:
   a) Women who have had a live birth in the 2 years preceding the survey who delivered their most recent live birth in a health facility (NR file)
   b) Women who have had a stillbirth in the 2 years preceding the survey who delivered their most recent stillbirth in a health facility (NR file)
   c) Women who have had one or more births (live birth or stillbirth) in the 2 years preceding the survey who delivered their most recent birth (live birth or stillbirth) in a health facility (NR file)
   #### Time period: Two years preceding the survey

Numerator: Number of women within each base population, by duration of stay (m61), for each type of delivery (m17). Duration of stay is grouped into <6 hours, 6-11 hours, 12-23 hours, 1-2 days, 3+ days, and "don't know".

Denominator: Number of women in each of the population bases:
   a) Women who have had a live birth in the 2 years preceding the survey who delivered their most recent live birth in a health facility (m80 = 1 & m15 in 20:49 & p19 < 24)
   b) Women who have had a stillbirth in the 2 years preceding the survey who delivered their most recent stillbirth in a health facility (m80 = 3 & m15 in 20:49 & p19 < 24)
   c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey who delivered their most recent birth (live birth or stillbirth) in a health facility (m80 = 1 or 3 & m15 in 20:49 & p19 < 24)

Variables: NR file.
m80   Pregnancy outcome for this section
p19   Months since pregnancy outcome
m15   Place of delivery
m17   Delivery by caesarean section
m61   Time spent at place of delivery
v005   Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100 for the particular type of delivery (vaginal birth or caesarean section).

Categories from m61 are:
>   <6 hours = 100-105
>   6-11 hours = 106-111
>   12-23 hours = 112-123, 200
>   1-2 days = 124-171, 201-202
>   3+ days = 172-197, 203-297, 301-397
>   Don't Know/Missing = 198, 199, 298, 299, 398, 399, 998, 999

Handling of Missing Values

Missing values on type of health facility are excluded from the indicator. "Don't know" values on duration of stay are included in the denominator and are presented in a separate category in the percent distribution.

Notes and Considerations

Note the denominator only includes women who delivered in a health facility.

Changes over Time

In DHS-8, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire. Also in DHS-8, the population base for this indicator was expanded from only women who had at least one live birth in the 2 years preceding the survey to include women who had a stillbirth in the 2 years preceding the survey, as well as women who had one or more births (either live birth or stillbirth) in the 2 years preceding the survey.

References

Campbell, O.M., L. Cegolon, D. Macleod, and L. Benova. 2016. "Length of stay after childbirth in 92 countries and associated factors in 30 low-and middle-income countries: compilation of reported data and a cross-sectional analysis from nationally representative surveys." *PLoS medicine*, 13(3), p.e1001972. https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001972

Resources

DHS-8 Tabulation plan: Table 9.10

API Indicator IDs:
RH_DURH_W_H05, RH_DURH_W_H06, RH_DURH_W_H12, RH_DURH_W_D12, RH_DURH_W_D3P
(API link, STATcompiler link)

MICS6 Indicator TM.12: Post-partum stay in health facility.

Postnatal Care

Percent distribution of timing of first postnatal check for the mother, and percentage who received a postnatal check during the first 2 days

Definition

1) Among women giving birth in the 2 years preceding the survey, percent distribution of the mother's first postnatal check for the most recent birth (live birth or stillbirth) by time after delivery.
2) Percentage of women with a birth (live birth or stillbirth) in the 2 years preceding the survey who received a postnatal check during the first 2 days after giving birth.

Coverage:
   Population base:
   a) Women who have had a live birth in the 2 years preceding the survey (NR file)
   b) Women who have had a stillbirth in the 2 years preceding the survey (NR file)
   c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (NR file)
   Time period: Two years preceding the survey

Numerators:
Number of women within each base population:
1) distributed by the timing of first postnatal check by a health provider for the mother (less than 4 hours, 4-23 hours, 1-2 days, 3-6 days, 7-41 days, Don't Know/Missing, No Postnatal Check)
2) who had a postnatal check by a health provider during the first 2 days after giving birth

Denominator:
Number of women in each of the population bases:
a) Women who have had a live birth in the 2 years preceding the survey (m80 = 1 & p19 < 24)
b) Women who have had a stillbirth in the 2 years preceding the survey (m80 = 3 & p19 < 24)
c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (m80 = 1 or 3 & p19 < 24)

Variables: NR file.
m80   Pregnancy outcome for this section
p19   Months since pregnancy outcome
m62   Respondent's health checked before discharge
m63   How long after delivery respondent's health check took place before discharge
m64   Who checked respondent health before discharge
m66   Respondent's health checked after discharge/delivery at home
m67   How long after discharge/delivery at home respondent health check took place
m68   Who checked respondent health after discharge/delivery at home
v005   Woman's individual sample weight

Calculation

Numerators: For the last birth (live birth or stillbirth) in the 2 years preceding the survey (m80 = 1 or 3), if the respondent was checked after delivery in a facility (m62 = 1) or after discharge/delivery at home (m66 = 1):

18) The type of provider before discharge is verified to ensure that it is a health provider (m64 in 10:29) and if so the timing of the check is taken from m63; otherwise

19) The type of provider after discharge or delivery at home is verified to ensure that it is a health provider (m68 in 10:29) and if so the timing of that check is taken from m67. All categories of health providers are considered, including community health workers and traditional birth attendants, which is different from the definitions of skilled providers of antenatal and delivery care.

If neither case is true, it is considered that no postnatal check took place. Additionally, if the postnatal check was 42 or more days after delivery it is also considered that no postnatal check took place.

Categories from m63 or m67 are:
    less than 4 hours = 100:103
    4-23 hours = 104-123, 200
    1-2 days = 124-171, 201-202
    3-6 days = 172-197, 203-206
    7-41 days = 207-241, 300-305
    Don't Know/Missing = 198, 199, 298, 299, 398, 399, 998, 999

If the timing of the mother's postnatal check from m63 or m67 is in the range 0-71 hours (m63/m67 in 100:171), or is reported in hours but the number of hours was missing or "don't know" (m63/m67 = 198 or 199), or timing was 2 days or less (m63/m67 in 200:202) then the postnatal care was considered as taking place during the first 2 days, otherwise is categorized as no postnatal check during the first 2 days.

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

If the type of health provider is missing, the check is considered not to have been performed by a health provider and is treated as no check performed.

If the timing of the check is "don't know", this is included in a separate category in the percent distribution.

For the postnatal check with the first 2 days, if the timing of the check is reported as in hours but is missing or "don't know" (m63/m67 = 198 or 199), this is considered as within the first 2 days. If the timing of the check is reported in days but is missing or "don't know" (m63/m67 = 298 or 299) or the reporting of hours or days is missing (m63/m67 = 998 or 999), this is considered as no postnatal check in the first 2 days.

Notes and Considerations

Percent distribution adds up to 100 percent.

Postnatal check includes women who received a check from a doctor, midwife, nurse, community health worker, or traditional birth attendant. Other persons such as family members or friends are not included as postnatal checks.

The category "No postnatal check" is included in the distribution. This category also includes women whose first postnatal checkup occurred 42 or more days after delivery.

Changes over Time

This indicator has changed substantially over time. Prior to DHS-V (2003), women whose last birth was delivered in a health facility were excluded from this indicator based on the assumption that women who delivered in a health facility received post-partum care. After 2003, all women regardless of place of delivery were assessed for whether they had a check as well as the timing, and provider.

In DHS-V and DHS-VI (2003-2013), women who delivered in a facility were asked if their health was checked before discharge and, if so, the timing and provider of the check. If not, they were asked if their health was checked after discharge, and then about the timing and provider of the first check. Women who delivered at home were also asked if they received a check, as well as about the timing and the provider. In DHS-V and DHS-VI, women who delivered in a health facility could only provide responses about a postnatal check for the newborn *either* before discharge *or* after discharge.

In DHS-7 (2013-2018), however, women who delivered in a facility were asked about a postnatal check *both* before *and* after discharge. Women's responses about timing and provider of a check after discharge or among women who delivered at home are combined into single variables (m66, m67, and m68). In the calculation of the indicator for postnatal care among all women, women's report of a check prior to discharge is prioritized over the check after discharge or among women delivering at home.

In DHS-8, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire. Also in DHS-8, the population base for this indicator was expanded from only women who had at least one live birth in the 2 years preceding the survey to include women who had a stillbirth in the 2 years preceding the survey, as well as women who had one or more births (either live birth or stillbirth) in the 2 years preceding the survey.

References

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Resources

DHS-8 Tabulation plan: Table 9.11 and Table 9.17

API Indicator IDs:
RH_PCMT_W_L4H, RH_PCMT_W_23H, RH_PCMT_W_D12, RH_PCMT_W_D36, RH_PCMT_W_D7P,
RH_PCMT_W_DKM, RH_PCMT_W_NON, RH_PCMT_W_DY2
(API link, STATcompiler link)

WHO 100 Core Health Indicators: Postpartum care coverage - women
MICS6 Indicator TM.20: Postnatal health check for the mother

Percent distribution of type of provider for the first postnatal check for the mother

Definition

Among women giving birth (live birth and/or stillbirth) in the 2 years preceding the survey, percent distribution by type of provider for the mother's first postnatal check during the first 2 days after the most recent live birth and/or stillbirth.

Coverage:
Population base:
a) Women who have had a live birth in the 2 years preceding the survey (NR file)
b) Women who have had a stillbirth in the 2 years preceding the survey (NR file)
c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (NR file)
Time period: Two years preceding the survey

Numerator:
Number of women in each base population, distributed by the type of provider for the first postnatal check for the mother:
1) Doctor/nurse/midwife (m64/m68 = 11 or 12)
2) Auxiliary midwife (m64/m68 = 13)
3) Community health worker/fieldworker (m64/m68 = 22)
4) Traditional birth attendant (m64/m68 = 21)
5) No postnatal check during the first 2 days after the birth

Denominator:
Number of women in each of the population bases:
a) Women who have had a live birth in the 2 years preceding the survey (m80 = 1 & p19 < 24)
b) Women who have had a stillbirth in the 2 years preceding the survey (m80 = 3 & p19 < 24)
c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (m80 = 1 or 3 & p19 < 24)

Variables: NR file.
m80	Pregnancy outcome for this section
p19	Months since pregnancy outcome
m62	Respondent's health checked before discharge
m63	How long after delivery respondent's health check took place
m64	Who checked respondent health before discharge
m66	Respondent's health checked after discharge/delivery at home
m67	How long after discharge/delivery at home respondent health check took place
m68	Who checked respondent health after discharge/delivery at home
v005	Woman's individual sample weight

Calculation

Numerator: For the last birth (live birth or stillbirth) in the 2 years preceding the survey (m80 = 1 or 3), if the respondent was checked after delivery (m62 = 1) or after discharge/delivery at home (m66 = 1):

20) The type of provider before discharge is verified to ensure that it is a health provider (inclusive of all providers—skilled attendants as well as community health workers or traditional birth attendants—m64 in 10:29) and if so the timing of the check is taken from m63; otherwise

21) The type of provider after discharge/delivery at home is verified to ensure that it is a health provider (m68 in 10:29) and if so the timing of that check is taken from m67.

If neither case is true, it is considered that no postnatal check took place.

If the timing of the mother's postnatal check from m63 or m67 is in the range 0-71 hours (m63/m67 in 100:171), or is reported in hours but the number of hours was missing or "don't know" (m63/m67 = 198 or 199), or timing was 2 days or less (m63/m67 in 200:202) then the postnatal care was considered as taking place during the first 2 days, otherwise is categorized as no postnatal check during the first 2 days.

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

If the type of health provider is missing, the check is considered not to have been performed by a health provider and is treated as no check performed.

If the timing of the check is reported as in hours but is missing or "don't know" (m63/m67 = 198 or 199), this is considered as within the first 2 days. If the timing of the check is reported in days but is missing or "don't know" (m63/m67 = 298 or 299) or the reporting of hours or days is missing (m63/m67 = 998 or 999), this is considered as no postnatal check in the first 2 days.

Notes and Considerations

Percent distribution adds up to 100 percent.

Postnatal check includes women who received a check from a doctor, midwife, nurse, community health worker, or traditional birth attendant. Other persons such as family members or friends are not included as postnatal checks.

The category "Did not received prenatal checkup during the first 2 days" is included in the distribution.

Changes over Time

This indicator has changed substantially over time. Prior to DHS-V (2003), women whose last birth was delivered in a health facility were excluded from this indicator based on the assumption that women who delivered in a health facility received post-partum care. After 2003, all women regardless of place of delivery were assessed for whether they had a check as well as the timing, and provider.

In DHS-V and DHS-VI (2003-2013), women who delivered in a facility were asked if their health was checked before discharge and, if so, the timing and provider of the check. If not, they were asked if their health was checked after discharge, and then about the timing and provider of the first check. Women who delivered at home were also asked if they received a check, as well as about the timing and the

provider. In DHS-V and DHS-VI, women who delivered in a health facility could only provide responses about a postnatal check for the newborn *either* before discharge *or* after discharge.

In DHS-7 (2013-2018), however, women who delivered in a facility were asked about a postnatal check *both* before *and* after discharge. Women's responses about timing and provider of a check after discharge or among women who delivered at home are combined into one variable (m66, m67, m68). In the calculation of the indicator for postnatal care among all women, women's report of a check prior to discharge is prioritized over the check after discharge or among women delivering at home.

In DHS-8, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire. Also in DHS-8, the population base for this indicator was expanded from only women who had at least one live birth in the 2 years preceding the survey to include women who had a stillbirth in the 2 years preceding the survey, as well as women who had one or more births (either live birth or stillbirth) in the 2 years preceding the survey.

References

Moran, A.C., K. Kerber, D. Sitrin, T. Guenther, C.S. Morrissey, H. Newby, J. Fishel, P.S. Yoder, Z. Hill and J.E. Lawn, 2013. "Measuring coverage in MNCH: indicators for global tracking of newborn care." *PLoS medicine*, 10(5), p.e1001415.
https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001415

Resources

DHS-8 Tabulation plan: Table 9.12

API Indicator IDs:
RH_PCMP_W_DOC, RH_PCMP_W_NRS, RH_PCMP_W_CHW, RH_PCMP_W_OHW, RH_PCMP_W_TBA, RH_PCMP_W_DKM, RH_PCMP_W_NON
(API link, STATcompiler link)

Percentage of women receiving components of postnatal care

Definition

1) Among women with a birth (live birth and/or stillbirth) in the last 2 years, the percentage that had their blood pressure measured during postnatal care for their most recent birth.
2) Among women with a birth (live birth and/or stillbirth) in the last 2 years, the percentage that discussed vaginal bleeding with a provider during postnatal care for their most recent birth.
3) Among women with a birth (live birth and/or stillbirth) in the last 2 years, the percentage that discussed family planning with a provider during postnatal care for their most recent birth.

Coverage:
   Population base:
      a) Women who have had a live birth in the 2 years preceding the survey (NR file)
      b) Women who have had a stillbirth in the 2 years preceding the survey (NR file)
      c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (NR file)
   Time period: Two years preceding the survey

Numerators:

Number of women within each base population who:
1) had their blood pressure measured during postnatal care within 2 days after the most recent live birth or stillbirth (m74f = 1)
2) discussed vaginal bleeding with a provider during postnatal care within 2 days after the most recent live birth or stillbirth (m74g = 1)
3) discussed family planning with a provider during postnatal care within 2 days after the most recent live birth or stillbirth (m74h = 1)

Denominators:

Number of women in each of the population bases:
a) Women who have had a live birth in the 2 years preceding the survey (m80 = 1 & p19 < 24)
b) Women who have had a stillbirth in the 2 years preceding the survey (m80 = 3 & p19 < 24)
c) Women who have had a live birth or a stillbirth in the 2 years preceding the survey (m80 = 1 or 3 & p19 < 24)

Variables: NR file.

m80	Pregnancy outcome for this section
p19	Months since pregnancy outcome
m74f	During first 2 days health provider: measure blood pressure
m74g	During first 2 days health provider: discuss vaginal bleeding
m74h	During first 2 days health provider: discuss family planning
v005	Woman's individual sample weight

Calculation

For percentages, the numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

"Don't know" and missing values on key components of postnatal care (e.g. blood pressure measured) are excluded from numerators but included in denominators, assuming that they did not receive the antenatal care component.

References

Bhutta ZA, Das JK, Bahl R, Lawn JE, Salam RA, Paul VK, et al. Can available interventions end preventable deaths in mothers, newborn babies, and stillbirths, and at what cost? Lancet. 2014;384:347-70. 10.1016/S0140-6736(14)60792-3

Stanton CK, Rawlins B, Drake M, Dos Anjos M, Cantor D, Chongo L, Chavane L, da Luz Vaz M, Ricca J. Measuring coverage in MNCH: testing the validity of women's self-report of key maternal and newborn health interventions during the peripartum period in Mozambique. PLoS One. 2013;8(5):e60694.

World Health Organization. *WHO recommendations on postnatal care of the mother and newborn*. World Health Organization, 2014. https://apps.who.int/iris/handle/10665/97603

Resources

DHS-8 Tabulation plan: Tables 9.13

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Percent distribution of timing of first postnatal check for the newborn, and percentage receiving a postnatal check during the first 2 days

Definition

1) Percent distribution of most recent live birth in the 2 years preceding the survey by time after birth of first postnatal check for the newborn.
2) Percentage of most recent live birth in the 2 years preceding the survey with a postnatal check for the newborn during the first 2 days after birth.

Coverage:
    Population base: Most recent live births of interviewed mothers in the 2 years preceding the survey (NR File)
    Time period: Two years preceding the survey

Numerators:
1) The number of most recent live births in the 2 years preceding the survey, by category of timing of newborn check during the first week after birth, including newborns who did not have a checkup in that time (less than 1 hour, 1-3 hours, 4-23 hours, 1-2 days, 3-6 days, don't know, no postnatal check)
2) The number of most recent live births in the 2 years preceding the survey with a postnatal check during the first 2 days after birth

Denominator: Most recent live birth of interviewed mothers who had at least one live birth in the 2 years preceding the survey (m80 = 1 & p19 < 24)

Variables: NR file.

m80	Pregnancy outcome for this section
p19	Months since pregnancy outcome
m70	Baby postnatal check within 2 months
m71	Time after delivery postnatal check took place
m72	Person who performed postnatal checkup
m74	Child's health checked before discharge
m75	How long after delivery child's health check took place before discharge
m76	Who checked child health before discharge
v005	Woman's individual sample weight

Calculation

Numerators: For the most recent live birth in the 2 years preceding the survey (m80 = 1), if the newborn was checked before discharge (m74 = 1) or had a postnatal check within two months (m70 = 1):

22) The type of provider before discharge is verified to ensure that it is a health provider (m76 in 10:29) and if so the timing of the check is taken from m75; otherwise
23) The type of provider for the postnatal check is verified to ensure that it is a health provider (m72 in 10:29) and if so the timing of that check is taken from m71

If neither case is true, it is considered that no postnatal check took place. Additionally, if the postnatal check was 7 or more days after delivery it is also considered that no postnatal check took place.

Categories from m71 or m75 are:

       <1 hour = 100
       1-3 hours = 101-103
       4-23 hours = 104-123, 200
       1-2 days = 124-171, 201, 202
       3-6 days = 172-197, 203-206
       Don't Know/Missing = 198, 199, 298, 299, 398, 399, 998, 999

If the timing of the newborn's postnatal check from m75 or m71 is in the range 0-71 hours (m75/m71 in 100:171), or is reported in hours but the number of hours was missing or "don't know" (m75/m71 = 198 or 199), or timing was 2 days or less (m75/m71 in 200:202) then the postnatal care was considered as taking place during the first 2 days, otherwise is categorized as no postnatal check during the first 2 days.

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

If the type of health provider is missing, the check is considered not to have been performed by a health provider and is treated as no check performed.

If the timing of the check is reported as in hours but is missing or "don't know" (m75/m71 = 198 or 199), this is considered as within the first 2 days. If the timing of the check is reported in days but is missing or "don't know" (m75/m71 = 298 or 299) or the reporting of hours or days is missing (m75/m71 = 998 or 999), this is considered as no postnatal check in the first 2 days.

Notes and Considerations

Percent distribution adds up to 100 percent.

Postnatal check includes newborns who received a check from a doctor, midwife, nurse, community health worker, or traditional birth attendant. Other persons such as family members or friends are not included as postnatal checks.

The category "Did not received postnatal checkup during the first 2 days" is included in the distribution.

Changes over Time

This indicator has changed substantially over time. Prior to DHS-V (2003), the DHS survey did not ask separately about postnatal checks for the mother and for the newborn.

In DHS-V and DHS-VI (2003-2013), women who delivered in a facility were asked if their newborn's health was checked before discharge and, if so, about the timing and provider giving performing the check. If they did not have a check before discharge, they were asked if the baby's health was checked after discharge, as well as about the timing and provider of the first check. Women who delivered at home were also asked if their baby received a check, and about the timing and provider of the check. In

DHS-V and DHS-VI, women who delivered in a health facility could only provide responses about a postnatal check for the newborn *either* before discharge *or* after discharge.

In DHS-7 (2013-2018), however, women who delivered in a facility were asked about a postnatal check *both* before *and* after discharge. Women's responses about timing and provider of the baby's check after discharge or among women who delivered at home are combined into one variable (m71 and 72). In the calculation of the indicator, women's report of the baby's check prior to discharge is prioritized over the check after discharge or among women delivering at home.

In DHS-8, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire.

References

Carvajal–Aguirre, L., A. Amouzou, V. Mehra, M. Ziqi, N. Zaka, and H. Newby. 2017. "Gap between contact and content in maternal and newborn care: An analysis of data from 20 countries in sub–Saharan Africa." *Journal of global health*, *7*(2). https://www.ncbi.nlm.nih.gov/pubmed/29423178

Moran, A.C., K. Kerber, D. Sitrin, T. Guenther, C.S. Morrissey, H. Newby, J. Fishel, P.S. Yoder, Z. Hill and J.E. Lawn, 2013. "Measuring coverage in MNCH: indicators for global tracking of newborn care." *PLoS medicine*, 10(5), p.e1001415.
https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001415

World Health Organization. 2018. *Global reference list of 100 core health indicators*. Geneva: World Health Organization. https://apps.who.int/iris/handle/10665/259951

Resources

DHS-8 Tabulation plan: Table 9.14 and Table 9.17

API Indicator IDs:
`RH_PCCT_C_L1H, RH_PCCT_C_H13, RH_PCCT_C_H4P, RH_PCCT_C_D12, RH_PCCT_C_D36, RH_PCCT_C_DKM, RH_PCCT_C_NON, RH_PCCT_C_DY2`
(API link, STATcompiler link)

WHO 100 Core Health Indicators: Postnatal care coverage - newborn
MICS6 Indicator TM.13: Postnatal health check for the newborn.

Percent distribution of type of provider for the first postnatal check for the newborn

Definition

Among the most recent live births in the 2 years preceding the survey, percent distribution by type of provider for the newborn's first postnatal check during the first 2 days after birth.

Coverage:
> Population base: Most recent live births of interviewed mothers in the 2 years preceding the survey (NR File)
> Time period: Two years preceding the survey

Numerator:
Number of most recent live births in the 2 years preceding the survey, distributed by the type of provider for the first postnatal check for the newborn:
1) Doctor/nurse/midwife (m64/m68 = 11 or 12)
2) Auxiliary midwife (m64/m68 = 13)
3) Community health worker/fieldworker (m64/m68 = 22)
4) Traditional birth attendant (m64/m68 = 21)
5) No postnatal check during the first 2 days after the birth

Denominator: Number of most recent live births in the 2 years preceding the survey (m80 = 1 & p19 < 24)

Variables: NR file.

m80	Pregnancy outcome for this section
p19	Months since pregnancy outcome
m70	Baby postnatal check within 2 months
m71	Time after delivery postnatal check took place
m72	Person who performed postnatal checkup
m74	Child's health checked before discharge
m75	How long after delivery child's health check took place
m76	Who checked child health before discharge
v005	Woman's individual sample weight

Calculation

Numerator: For the most recent live birth in the 2 years preceding the survey (m80 = 1), if the newborn was checked before discharge (m74 = 1) or had a postnatal check within two months (m70 = 1):
24) The type of provider before discharge is verified to ensure that it is a health provider (m76 in 10:29) and if so the timing of the check is taken from m75; otherwise
25) The type of provider for the postnatal check is checked to ensure that it is a health provider (m72 in 10:29) and if so the timing of that check is taken from m71
If neither case is true it is considered that no postnatal check took place.

If the timing of the newborn's postnatal check from m75 or m71 is in the range 0-71 hours (m75/m71 in 100:171), or is reported in hours but the number of hours was missing or "don't know" (m75/m71 = 198

or 199), or timing was 2 days or less (m75/m71 in 200:202) then the postnatal care was considered as taking place during the first 2 days, otherwise is categorized as no postnatal check during the first 2 days.

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

If the type of health provider is missing, the check is considered not to have been performed by a health provider and is treated as no check performed.

If the timing of the check is missing or "don't know", this is included in a separate category in the percent distribution.

For the postnatal check with the first 2 days, if the timing of the check is reported as in hours but is missing or "don't know" (m75/m71 = 198 or 199), this is considered as within the first 2 days. If the timing of the check is reported in days but is missing or "don't know" (m75/m71 = 298 or 299) or the reporting of hours or days is missing (m75/m71 = 998 or 999), this is considered as no postnatal check in the first 2 days.

Notes and Considerations

Percent distribution adds up to 100 percent.

Postnatal check includes newborns who received a check from a doctor, midwife, nurse, community health worker, or traditional birth attendant. Other persons such as family members or friends are not included as postnatal checks.

The category "Did not received prenatal checkup" is included in the distribution. This category also includes newborns whose first postnatal checkup occurred 7 or more days after delivery.

Changes over Time

This indicator has changed substantially over time. Prior to DHS-V (2003), the DHS survey did not ask separately about postnatal checks for the mother and for the newborn.

In DHS-V and DHS-VI (2003-2013), women who delivered in a facility were asked if their newborn's health was checked before discharge and, if so, about the timing and provider giving performing the check. If they did not have a check before discharge, they were asked if the baby's health was checked after discharge, as well as about the timing and provider of the first check. Women who delivered at home were also asked if their baby received a check, and about the timing and provider of the check. In DHS-V and DHS-VI, women who delivered in a health facility could only provide responses about a postnatal check for the newborn *either* before discharge *or* after discharge.

In DHS-7 (2013-2018), however, women who delivered in a facility were asked about a postnatal check *both* before *and* after discharge. Women's responses about timing and provider of the baby's check after discharge or among women who delivered at home are combined into one variable (m71 and 72).

In the calculation of the indicator, women's report of the baby's check prior to discharge is prioritized over the check after discharge or among women delivering at home.

In DHS-8, the reference time period for this indicator changed from 5 years to 2 years, reflecting a shorter time period asked about in the women's questionnaire.

Resources

DHS-8 Tabulation plan: Table 9.15

API Indicator IDs:
```
RH_PCCP_C_DOC, RH_PCCP_C_NRS, RH_PCCP_C_CHW, RH_PCCP_C_OHW, RH_PCCP_C_TBA,
RH_PCCP_C_DKM, RH_PCCP_C_NON
```
(API link, STATcompiler link)

Percentage of newborns receiving selected function of postnatal care

Definition

1) Among the most recent live births in the 2 years preceding the survey, percentage for whom each of the selected functions of the postnatal newborn care were performed during the first 2 days after birth.
2) Among the most recent live births in the 2 years preceding the survey, percentage for whom at least five signal functions of the newborn postnatal care were performed during the first 2 days after birth.

Coverage:
Population base: Most recent live births of interviewed mothers in the 2 years preceding the survey (NR File)
Time period: Two years preceding the survey

Numerators:
1) Numbers of most recent live births in the 2 years preceding the survey (m80 = 1) for whom a healthcare provider performed the selected function during the first 2 days after the birth:
   a) Examined cord (m78a = 1)
   b) Measured temperature (m78b = 1)
   c) Mother told how to recognize if the baby needs immediate medical attention (m78c = 1)
   d) Mother counseled on breastfeeding (m78d = 1)
   e) Observed breastfeeding (m78e = 1)
   f) Mother both counseled on breastfeeding and observed breastfeeding (m78d = 1 & m78e = 1)
   g) Weighed (m19a in 1:2)
2) Number of most recent live births in the last 2 years where the newborn received 5 or more signal postnatal care functions within 2 days after birth (5 or more of the above list)

Denominator: Number of most recent live births in the 2 years preceding the survey (m80 = 1 & p19 < 24)

Variables: NR file.

m80	Pregnancy outcome for this section
p19	Months since pregnancy outcome
m19a	Weight at birth/recall
m78a	During first 2 days health provider: examine cord
m78b	During first 2 days health provider: measure temperature
m78c	During first 2 days health provider: counsel on newborn dangers
m78d	During first 2 days health provider: counsel on breastfeeding
m78e	During first 2 days health provider: observe breastfeeding
v005	Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data or "Don't know" responses on any of the signal functions are excluded from the numerator but included in the denominator.

Notes and Considerations

Signal functions of the newborn postnatal care are 1) examining the umbilical cord, 2) measuring temperature, 3) observing and/or counseling on breastfeeding, 4) telling the mother about danger signs/how to recognize if the baby needs immediate attention, and 5) weighing. Corresponds to the definition of the five signal functions to assess the content of postnatal care for newborns described in Moran et al, 2013.

The category "Weighed" captures newborns who were weighed "at birth." May exclude some newborns were weighed during the 2 days after birth.

Changes over Time

This is a relatively new indicator and is not available in surveys before DHS-7.

In DHS-8 this indicator was revised to ask about five signal functions instead of at least two as in DHS-7.

References

Carvajal–Aguirre, L., A. Amouzou, V. Mehra, M. Ziqi, N. Zaka, and H. Newby. 2017. "Gap between contact and content in maternal and newborn care: An analysis of data from 20 countries in sub–Saharan Africa." *Journal of global health*, *7*(2). https://www.ncbi.nlm.nih.gov/pubmed/29423178

Moran, A.C., K. Kerber, D. Sitrin, T. Guenther, C.S. Morrissey, H. Newby, J. Fishel, P.S. Yoder, Z. Hill and J.E. Lawn, 2013. "Measuring coverage in MNCH: indicators for global tracking of newborn care." *PLoS medicine*, 10(5), p.e1001415.
https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001415

World Health Organization. *WHO recommendations on postnatal care of the mother and newborn*. World Health Organization, 2014. https://apps.who.int/iris/handle/10665/97603

Resources

DHS-8 Tabulation plan: Table 9.16

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

MICS6 Indicator TM.11: Children weighed at birth
MICS6 Indicator TM.19: Postnatal care signal functions

Percentage of mother-newborn pairs where both received postnatal checks within the first 2 days of birth and percentage of mother-newborn pairs where neither received a postnatal check within the first 2 days of birth.

Definition

1) Among the most recent live births in the 2 years preceding the survey, percentage of mother-newborn pairs where both the mother and newborn received a postnatal check during the first 2 days after birth.
2) Among the most recent live births in the 2 years preceding the survey, percentage of mother-newborn pairs where neither the mother nor the newborn received a postnatal check during the first 2 days after birth.

Coverage:
> Population base: Most recent live births of interviewed mothers in the 2 years preceding the survey (NR File)
> Time period: Two years preceding the survey

Numerator:

1) Number of most recent live births in the 2 years preceding the survey for whom both the mother and the newborn had a postnatal check during the first two days after birth
2) Number of most recent live births in the 2 years preceding the survey for whom neither the mother nor the newborn had a postnatal check during the first two days after birth

Denominator: Number of most recent live births in the 2 years preceding the survey (m80 = 1 & p19 < 24)

Variables: NR file.

m80	Pregnancy outcome for this section
p19	Months since pregnancy outcome
m62	Respondent's health checked before discharge
m63	How long after delivery respondent's health check took place
m64	Who checked respondent health before discharge
m66	Respondent's health checked after discharge/delivery at home
m67	How long after discharge/delivery at home respondent health check took place
m68	Who checked respondent health after discharge/delivery at home
m70	Baby postnatal check within 2 months
m71	Time after delivery postnatal check took place
m72	Person who performed postnatal checkup
m74	Child's health checked before discharge
m75	How long after delivery child's health check took place
m76	Who checked child health before discharge
v005	Woman's individual sample weight

Calculation

Numerator:

1) Both mother and newborn had a postnatal check within the first 2 days after birth
2) Neither mother nor newborn had a postnatal check within the first 2 days after birth

Mother:
For the most recent live birth in the 2 years preceding the survey (m80 = 1), if the respondent was checked after delivery (m62 = 1) or after discharge/delivery at home (m66 = 1):

26) The type of provider before discharge is verified to ensure that it is a health provider (inclusive of all providers—skilled attendants as well as community health workers or traditional birth attendants—m64 in 10:29) and if so the timing of the check is taken from m63; otherwise
27) The type of provider after discharge/delivery at home is verified to ensure that it is a health provider (m68 in 10:29) and if so the timing of that check is taken from m67.

If neither case is true it is considered that no postnatal check took place.

If the timing of the mother's postnatal check from m63 or m67 is in the range 0-71 hours (m63/m67 in 100:171), or is reported in hours but the number of hours was missing or "don't know" (m63/m67 = 198 or 199), or timing was 2 days or less (m63/m67 in 200:202) then the postnatal care was considered as taking place during the first 2 days, otherwise is categorized as no postnatal check during the first 2 days.

Newborn:
For the most recent live birth in the 2 years preceding the survey (m80 = 1), if the newborn was checked before discharge (m74 = 1) or had a postnatal check within two months (m70 = 1):

28) The type of provider before discharge is verified to ensure that it is a health provider (m76 in 10:29) and if so the timing of the check is taken from m75; otherwise
29) The type of provider for the postnatal check is checked to ensure that it is a health provider (m72 in 10:29) and if so the timing of that check is taken from m71

If neither case is true it is considered that no postnatal check took place.

If the timing of the newborn's postnatal check from m75 or m71 is in the range 0-71 hours (m75/m71 in 100:171), or is reported in hours but the number of hours was missing or "don't know" (m75/m71 = 198 or 199), or timing was 2 days or less (m75/m71 in 200:202) then the postnatal care was considered as taking place during the first 2 days, otherwise is categorized as no postnatal check during the first 2 days.

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

If the type of health provider is missing, the check is considered not to have been performed by a health provider and is treated as no check performed.

For the postnatal check with the first 2 days, if the timing of the check is reported as in hours but is missing or "don't know" (m75/m71 = 198 or 199), this is considered as within the first 2 days. If the timing of the check is reported in days but is missing or "don't know" (m75/m71 = 298 or 299) or the reporting of hours or days is missing (m75/m71 = 998 or 999), this is considered as no postnatal check in the first 2 days.

Notes and Considerations

Percent distribution adds up to 100 percent.

Postnatal check includes women and newborns who received a check from a doctor, midwife, nurse, community health worker, or traditional birth attendant. Other persons such as family members or friends are not included as postnatal checks.

Resources

DHS-8 Tabulation plan: Table 9.17

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Men's involvement in maternal health care

Percentage of men who report their child's mother had any antenatal care visit during pregnancy and percentage of men ever present during any of their child's mother's antenatal care visits

Definition

1) Percentage of men age 15-49 with a youngest child age 0-2 years who report that the child's mother had any antenatal check-ups during the pregnancy with the child
2) Percentage of men age 15-49 with a youngest child age 0-2 years for whom the child's mother had any antenatal check-ups during the pregnancy with the child and he was present for any antenatal check-up

Coverage:
> Population base: All men age 15-49 with a youngest child age 0-2 years at the time of the survey (MR File)
> Time period: Two years preceding the survey

Numerators:
1) Number of men age 15-49 with a youngest child age 0-2 years at the time of the survey who report that the child's mother had any antenatal check-ups during the pregnancy with the child (mv247 in 0:2 & mv248 = 1)
2) Number of men age 15-49 with a youngest child age 0-2 years at the time of the survey who report that they attended any antenatal check-up during the pregnancy with the child (mv247 in 0:2 & mv248 = 1 & mv249 = 1)

Denominators:
a) Number of men age 15-49 with a youngest child age 0-2 years at the time of the survey (mv247 in 0:2)
b) Number of men age 15-49 with a youngest child age 0-2 years at the time of the survey who report that the child's mother had any antenatal check-ups during the pregnancy with the child (mv247 in 0:2 & mv248 = 1)

Variables: MR file.
mv247   Age of most recent child
mv248   Antenatal check-ups for the mother of most recent child
mv249   Respondent present during check-ups for most recent child
mv005   Man's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing data or "Don't know" responses are excluded from the numerator but included in the denominator.

References

Suandi D., Williams P., Bhattacharya S., Does involving male partners in antenatal care improve healthcare utilisation? Systematic review and meta-analysis of the published literature from low- and middle-income countries, *International Health*, Volume 12, Issue 5, September 2020, Pages 484–498, https://doi.org/10.1093/inthealth/ihz073

Resources

DHS-8 Tabulation plan: Table 9.18

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Percentage of men who report their child was born in a health facility, and percentage of men who went with their child's mother to the health facility for the birth

Definition

1) Percentage of men age 15-49 with a youngest child age 0-2 years who report that the child was born in a health facility
2) Percentage of men age 15-49 with a youngest child age 0-2 years for whom the child was born in a health facility who went with their child's mother to the health facility for the birth

Population base: All men age 15-49 with a youngest child age 0-2 years at the time of the survey (MR File)
Time period: Two years preceding the survey

Numerators:
1) Number of men age 15-49 with a youngest child age 0-2 years at the time of the survey who report that the child was born in a health facility (mv247 in 0:2 & mv250 = 1)
2) Number of men age 15-49 with a youngest child age 0-2 years at the time of the survey who report that they went with their child's mother to the health facility for the birth (mv247 in 0:2 & mv250 = 1 & mv253 = 1)

Denominators:
a) Number of men age 15-49 with a youngest child age 0-2 years at the time of the survey (mv247 in 0:2)
b) Number of men age 15-49 with a youngest child age 0-2 years at the time of the survey who report that the child was born in a health facility (mv247 in 0:2 & mv250 = 1)

Variables: MR file.
mv247	Age of most recent child
mv250	Place of birth of most recent child
mv253	Did go with child's mother to health facility for birth
mv005	Man's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing data or "Don't know" responses are excluded from the numerator but included in the denominator.

References

Mohammed, B.H., Johnston, J.M., Vackova, D. et al. The role of male partner in utilization of maternal health care services in Ethiopia: a community-based couple study. *BMC Pregnancy Childbirth* 19, 28 (2019). https://doi.org/10.1186/s12884-019-2176-z

Resources

DHS-8 Tabulation plan: Table 9.18

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Cervical cancer

Percentage of women ever examined for breast cancer and percentage ever tested for cervical cancer

Definition

1) Percentage of women ever examined by a doctor or healthcare worker for breast cancer
2) Percentage of women ever tested by a doctor or healthcare worker for cervical cancer

Coverage:
>> Population base: All women age 15-49 at the time of the survey (IR File)
>> Time period: Lifetime of woman interviewed

Numerators:
1) Number of women age 15-49 ever examined by a doctor or healthcare worker for breast cancer (v484a = 1)
2) Number of women age 15-49 ever tested by a doctor or healthcare worker for cervical cancer (v484b = 1)

Denominator: Number of women age 15-49

Variables: IR file.
v484a	Breasts examined for cancer by health care provider
v484b	Ever tested for cervical cancer by health care provider
v005	Woman's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with missing information are included in the denominator.

References

Ba DM, Ssentongo P, Agbese E, et al. Prevalence and determinants of breast cancer screening in four sub-Saharan African countries: a population-based study. *BMJ Open* 2020; 10: e039464. https://bmjopen.bmj.com/content/10/10/e039464

Resources

DHS-8 Tabulation plan: Table 9.19

API Indicator IDs:

`TBD`
(API link TBD, STATcompiler link TBD)

Problems in Accessing Health Care

Percentage of women who reported serious problems in accessing health care for themselves, by type of problem

Definition

Percentage of women who reported that they have serious problems in accessing health care for themselves when they are sick, by type of problem.

Coverage:
Population base: All women age 15-49 at the time of the survey (IR File)
Time period: Current status at the time of the survey

Numerator:
Number of women age 15-49 who reported that they have serious problems in accessing health care for themselves when they are sick, for each type of problem:
1) Getting permission to go for treatment (v467b = 1)
2) Getting money for treatment (v467c = 1)
3) Distance to the health facility (v467d = 1)
4) Not wanting to go alone (v467f = 1)
5) At least one problem accessing health care (one or more of the above)

Denominator: Number of women age 15-49 at the time of the survey

Variables: IR file.
v467b	Getting medical help for self: getting permission to go
v467c	Getting medical help for self: getting money needed for treatment
v467d	Getting medical help for self: distance to health facility
v467f	Getting medical help for self: not wanting to go alone
v005	Woman's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with missing information are included in the denominator.

Notes and Considerations

Accessing health care applies to any type of health care when the respondent is sick and is not limited to reproductive health care.

Changes over Time

Prior to DHS-V (2003), this question was asked only of women who had at least one child living with. Although DHS-V and DHS-VI included the above response options in the core questionnaire, prior phases have also included various additional response options; surveys may add country-specific response options at their discretion.

References

Gupta, S., G. Yamada, R. Mpembeni, G. Frumence, J.A. Callaghan-Koru, R. Stevenson, N. Brandes, and A.H. Baqui. 2014. "Factors associated with four or more antenatal care visits and its decline among pregnant women in Tanzania between 1999 and 2010." *PloS one*, *9*(7), p.e101893.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0101893

Woldemicael, G. and E.Y. Tenkorang. 2010. "Women's autonomy and maternal health-seeking behavior in Ethiopia." *Maternal and child health journal*, 14(6), pp.988-998.

Resources

DHS-8 Tabulation plan: Table 9.20

API Indicator IDs:
RH_PAHC_W_PRM, RH_PAHC_W_MON, RH_PAHC_W_DIS, RH_PAHC_W_ALN, RH_PAHC_W_PR1
(API link, STATcompiler link)

Percent distribution of women by travel time to nearest health facility and by means of transport to nearest health facility.

Definition

1) Percent distribution of women by travel time to nearest health facility.
2) Percent distribution of women by means of transport to nearest health facility.

Numerators:
1) The number women in each group of travel time to nearest health facility, according to grouped travel times (v483a)
2) The number of women who take each means of transport to the nearest health facility, according to grouped types of transportation (v483b)

Denominator: Number of women age 15-49 at the time of the survey

Variables: IR file.
v483a   Minutes to nearest healthcare facility
v483b   Mode of transportation to nearest healthcare facility
v005   Woman's individual sample weight

Calculation

Travel time to nearest facility is grouped into categories of <30 minutes (v483a in 0:29), 30-59 minutes (v483a in 30:59), 60-119 minutes (v483a in 60:119), and $\geq$ 2 hours (v483a in 120:900) before calculating percentages. Means of transport to nearest health facility are grouped into motorized (v483b in 11:19), not motorized (v483b in 21:29), and other (v483b = 96) before calculating percentages.

For percentages, the numerators divided by the same denominator, multiplied by 100.

Handling of Missing Values

"Don't know" and missing values included in the denominator.

Notes and Considerations

Percent distribution adds up to 100 percent.

Motorized means of transport include car/truck, public bus, motorcycle/scooter, and boat with motor. Not motorized means of transport include animal-drawn cart, bicycle, boat without motor, and walking.

Resources

DHS-8 Tabulation plan: Table 9.21

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

10) Child Health

This chapter presents findings from several areas of importance to child health: characteristics of the neonate (birth weight and size at birth), vaccination status of children and important childhood illnesses and their treatment.

The information on birth weight and neonate's size assists in monitoring programs to decrease neonatal and infant mortality through a reduction in low birth weight infants.

The vaccination coverage information focuses on the age groups 12-23 months and 24-25 months and the vaccinations recommended in the two years of life. Overall coverage levels at the time of the survey and by 12 months of age are shown for this age group. Additionally, the source of the vaccination information (whether based on a written vaccination card or on the mother's recall), and the presence of home-based records are included. Differences in vaccination coverage between different subgroups of the population are an aid in program planning.

Treatment practices and contact with health services among children with the three most important childhood illnesses (symptoms of acute respiratory infection, fever and diarrhea) help in the assessment of national programs aimed at reducing the mortality impact of these illnesses. Information is provided on the prevalence and treatment of symptoms of ARI and the prevalence of fever and its treatment with antimalarial drugs and antibiotics. The treatment of diarrhea disease with oral rehydration therapy (including increased fluids) and zinc aids in the assessment of programs that recommend such treatment. Because appropriate sanitary practices can help prevent and reduce the severity of diarrheal disease, indicators are also provided on the manner of disposing of children's fecal matter.

Child Size and Weight at Birth

Percent distribution of live births by birth size and birth weight

Definition

1) Percent distribution of live births in the 2 years preceding the survey by mother's estimate of baby's size at birth.
2) Percentage of live births in the 2 years preceding the survey with a reported birth weight by source.
3) Percentage of live births in the 2 years preceding the survey weighed at birth reported as less than 2.5 kg.

Coverage:
> Population base: Live births to interviewed women (KR file)
> Time period: 2 years preceding the survey

Numerators:
1) Number of live births in the 2 years preceding the survey distributed according to mother's estimate of baby's size at time of birth (very small, smaller than average, average or larger, don't know/missing) (m80 in 1:2 & m18 = 5, 4, 1:3, 8 or 9)
2) Number of live births in the 2 years preceding the survey with a reported birth weight according to written record, mother's recall, or either source (m80 in 1:2 & m19a = 1, 2 or in 1:2)
3) Number of live births in the 2 years preceding the survey who were weighed at birth and were reported as weighing less than 2.5 kg (m80 in 1:2 & m19a in 1:2 & m19 in 0:2499)

Denominators:
a) Number of live births in the last 2 years (m80 in 1:2)
b) Number of live births in the last 2 years (m80 in 1:2)
c) Number of live births in the last 2 years who were weighed at birth (m80 in 1:2 & m19a in 1:2)

Variables: KR file.
m80   Pregnancy outcome for this section
m18   Size of child at birth
m19   Birth weight in kilograms
m91a   Weight at birth/recall
v005   Woman's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Included in distributions of birth size but excluded from numerator of reported weight at birth, and numerator and denominator for birth weight less than 2.5 kg.

Notes and Considerations

Percent distribution of birth size adds up to 100 percent.

Reporting of birth weight is based on either a written record or mother's recall.

Changes over Time

In DHS-V and DHS-VI a percent distribution of birth weight was provided for children weighed at birth. In earlier rounds the percent distribution also included the category "Not weighed" and was based on all births.

Through DHS-7, size at birth and birth weight data were reported for all live births in the 5 years preceding the survey. In DHS-8, data are collected for live births in the 3 years preceding the survey and tabulated for live births in the 2 years preceding the survey. In addition, in DHS-8, live births with a reported birth weight are presented according to written record, mother's report, or either written record or mother's report. If the percentage of births that have a reported birth weight is less than 90 percent, the percentage with a birth weight less than 2.5 kg is not calculated.

Care should be taken when comparing birth weight data with data reported in earlier DHS reports.

References

Blanc, A. K., and T. Wardlaw. 2005. "Monitoring low birth weight: an evaluation of international estimates and an updated estimation procedure." *Bulletin of the World Health Organization*, 83, pp.178-185d. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2624216/

WHO. 2017. *Global Nutrition Monitoring Framework: Operational Guidance for Tracking Progress in Meeting Targets for 2025*. http://www.who.int/nutrition/publications/operational-guidance-GNMF-indicators/en/

Resources

DHS-8 Tabulation plan: Table 10.1

API Indicator IDs:
CH_SZWT_C_VSM, CH_SZWT_C_SML, CH_SZWT_C_AVG, CH_SZWT_C_DKM, CH_SZWT_C_REP, CH_SZWT_C_L25
(API link, STATcompiler link)

GNMF Indicator 3: Prevalence of infants born <2,500g

Vaccination

Percentage of children age 12-23 months and children age 24-35 months who received specific vaccines at any time before the survey according to vaccination card, according to mother's report, according to either vaccination card or mother's report, and percentage who received specific vaccines by appropriate age

Definition

1) Percentage of children age 12-23 months who received specific vaccines at any time before the survey according to vaccination card.
2) Percentage of children age 12-23 months who received specific vaccines at any time before the survey according to mother's report.
3) Percentage of children age 12-23 months who received specific vaccines at any time before the survey according to either vaccination card or mother's report.
4) Percentage of children age 12-23 months who received specific vaccines by appropriate age.
5) Percentage of children age 24-35 months who received specific vaccines at any time before the survey according to vaccination card.
6) Percentage of children age 24-35 months who received specific vaccines at any time before the survey according to mother's report.
7) Percentage of children age 24-35 months who received specific vaccines at any time before the survey according to either vaccination card or mother's report.
8) Percentage of children age 24-35 months who received specific vaccines by appropriate age.

Coverage:
Population base: Living children age 12–23 months and 24-35 months (KR file)
Time period: 3 years preceding the survey

Numerators:
1) Number of living children age 12–23 months and 24-35 months receiving specified vaccines, fully vaccinated (basic antigens), fully vaccinated (according to national schedule), all age appropriate vaccinations, and no specified vaccines, according to information on vaccination card (b5 = 1 & h1 = 1 & vaccination given [see *Calculation*])
2) Number of living children age 12–23 months and 24-35 months receiving specified vaccines, fully vaccinated (basic antigens), fully vaccinated (according to national schedule), all age appropriate vaccinations, and no specified vaccines, according to mother's report (b5 = 1 & h1 ≠ 1)
3) Number of living children age 12–23 months and 24-35 months receiving specified vaccines, fully vaccinated (basic antigens), fully vaccinated (according to national schedule), all age appropriate vaccinations, and no specified vaccines, according to information on vaccination card or mother's report (b5 = 1 & vaccination given [see *Calculation*])
4) Number of living children age 12–23 months and 24-35 months receiving specified vaccines, fully vaccinated (basic antigens), fully vaccinated (according to national schedule), all age appropriate vaccinations, by the appropriate age (b5 = 1 & vaccination given by appropriate age [see *Calculation*])

a) Number of living children age 12–23 months (b5 = 1 & b19 in 12:23)
b) Number of living children age 24-35 months (b5 = 1 & b19 in 24:35)

Variables: KR file.

b5	Child is alive
b19	Current age of child in months
h0, h0d/h0m/h0y	Received Polio 0
h1	Has health card
h2, h2d/h2m/h2y	Received BCG
h3, h3d/h3m/h3y	Received DPT 1
h4, h4d/h4m/h4y	Received Polio 1
h5, h5d/h5m/h5y	Received DPT 2
h6, h6d/h6m/h6y	Received Polio 2
h7, h7d/h7m/h7y	Received DPT 3
h8, h8d/h8m/h8y	Received Polio 3
h9, h9d/h9m/h9y	Received Measles 1
h9a, h9ad/h9am/h9ay	Received Measles 2
h50, h50d/h50m/h50y	Received Hepatitis B at birth
h51, h51d/h51m/h51y	Received Pentavalent 1
h52, h52d/h52m/h52y	Received Pentavalent 2
h53, h53d/h53m/h53y	Received Pentavalent 3
h54, h54d/h54m/h54y	Received Pneumococcal 1
h55, h55d/h55m/h55y	Received Pneumococcal 2
h56, h56d/h56m/h56y	Received Pneumococcal 3
h57, h57d/h57m/h57y	Received Rotavirus 1
h58, h58d/h58m/h58y	Received Rotavirus 2
h59, h59d/h59m/h59y	Received Rotavirus 3
h60, h60d/h60m/h60y	Received Polio inactivated
h61, h61d/h61m/h61y	Received Hepatitis B 1
h62, h62d/h62m/h62y	Received Hepatitis B 2
h63, h63d/h63m/h63y	Received Hepatitis B 3
h64, h64d/h64m/h64y	Received Hib 1
h65, h65d/h65m/h65y	Received Hib 2
h66, h66d/h66m/h66y	Received Hib 3
v005	Woman's individual sample weight

For the above, h*xx*d, h*xx*m, and h*xx*y are the day, month, and year the child received the vaccination.

Calculation

Numerators:
Number of living children between age 12 and 23 months or between age 24 and 35 months at the time of the survey who received the specified vaccine.

Specific vaccines:

The following provides a list of the typical vaccines reported, based on the national schedule of vaccines. The specific vaccines provided may differ from country to country and will change over time.

BCG (Bacille Calmette-Guérin)—Anti-tuberculosis vaccine received shortly after birth.

HepB—A birth dose of hepatitis B vaccine should be given within 24 hours of birth; it is classified as given within 1 day of birth and after 1 day of birth.

DPT-HepB-Hib—A pentavalent vaccine against diphtheria, pertussis, tetanus (DPT), hepatitis B (HepB), and Haemophilus influenza type b (Hib) received in 3 doses typically at 6, 10, and 14 weeks after birth. If DPT, HepB, and Hib are not provided as a single pentavalent vaccine, each vaccine type is reported separately.

Polio—Given either as oral polio vaccine (OPV) or inactivated polio vaccine (IPV). Received in 3 doses usually given at same time as DPT-containing vaccine (6, 10, and 14 weeks after birth). In some countries, an additional birth dose of OPV (polio 0) is given. Increasingly a single dose of IPV is given at the same time as the third dose of OPV.

Pneumococcal—Pneumococcal conjugate vaccine is given in 3 doses: 2 doses before age 6 months of age, plus booster dose at age 9-15 months or on the same schedule as DPT-containing vaccine (6, 10, and 14 weeks after birth).

Rotavirus—Depending on the type of vaccine, rotavirus vaccine is given on a 2 or 3 dose schedule at the same time as DPT-containing vaccine.

Measles containing vaccine (MCV)—In countries with ongoing measles transmission, dose 1 is recommended to be given at age 9 months. In countries with low levels of measles transmission, MCV 1 is recommended to be given at age 12 months. MCV 2, where given, is usually at 15-18 months. Measles containing vaccine includes vaccines such as the measles-mumps-rubella (MMR) vaccine and the measles-rubella (MR) vaccine.

Fully vaccinated (basic antigens):
BCG, 3 doses of DPT-containing vaccine, 3 doses of polio vaccine (excluding polio vaccine given at birth), and 1 dose of MCV.

Fully vaccinated (according to national schedule):
For children age 12-23 months: BCG, HepB (birth dose), 3 doses of DPT-HepB-Hib, 3 [4] doses of OPV, 1 dose of IPV, 3 [2] doses of pneumococcal vaccine, 3 [2] doses of rotavirus vaccine, and 1 dose of MCV, according to the national vaccination schedule.

For children age 24-35 months, BCG, HepB (birth dose), 3 doses of DPT-HepB-Hib, 3 [4] doses of OPV, 1 dose of IPV, 3 [2] doses of pneumococcal vaccine, 3 [2] doses of rotavirus vaccine, and 2 doses of MCV, according to the national vaccination schedule.

No vaccinations: None of the above specified childhood vaccinations was given to the child.

Vaccinated at any time

Where the information is present on a vaccination card shown to the interviewer, the record of the vaccination is used. Where no card was shown to the interviewer or there was no record of the vaccination, the mother's report of the vaccination is used. A vaccination is considered given if information is provided from either source (hxx in 1:3).

For multi-dose vaccines, the record of vaccines may include gaps in the vaccination history. The DHS Program assumes that the missing vaccination has not been given and renumbers the vaccines to match the number of a specific type of vaccine given. For example, if a child is recorded as having received DPT-HepB-Hib 2 only and there is no record of DPT-HepB-Hib 1, it is assumed that DPT-HepB-Hib 1 has been given, but <u>not</u> DPT-HepB-Hib 2. Similarly, if a child has a record with Polio 1 and Polio 3 completed, but not Polio 2, it is assumed that Polio 1 and Polio 2 have been given but not Polio 3. That is, the logic goes by the number of vaccinations known to have been given, not by the position in the record that the vaccinations are recorded.

The logic for multi-dose vaccinations is as follows:
Vacc 1: Sum of (hxx in 1:3) + (hyy in 1:3) + (hzz in 1:3) ≥ 1
Vacc 2: Sum of (hxx in 1:3) + (hyy in 1:3) + (hzz in 1:3) ≥ 2
Vacc 3: Sum of (hxx in 1:3) + (hyy in 1:3) + (hzz in 1:3) ≥ 3
Where hxx is the first vaccination in a series, hyy is the second, and hzz is the third.

For example for DPT-HepB-Hib:
DPT-HepB-Hib 1: Sum of (h3 in 1:3) + (h5 in 1:3) + (h7 in 1:3) ≥ 1
DPT-HepB-Hib 2: Sum of (h3 in 1:3) + (h5 in 1:3) + (h7 in 1:3) ≥ 2
DPT-HepB-Hib 3: Sum of (h3 in 1:3) + (h5 in 1:3) + (h7 in 1:3) ≥ 3

Vaccinated by appropriate age
A vaccination is considered to have been given at the appropriate age if the vaccination was given within the first 12 months for vaccines scheduled to be given in the first year of life and given within the first 24 months for vaccines scheduled to be given in the second year of life. Typically, all childhood vaccines reported in a DHS survey are given in the first year of life except for MCV 2, which is usually scheduled to be given in the second year of life. In some countries MCV 1 is given at 12 months and MCV 2 at 24 months or later, and the appropriate age is adjusted accordingly for these vaccines in this case.

The logic for assessing if a vaccine was given at the appropriate age is similar to that for vaccinated at any time, except for the additional test for the vaccination having been given in the first year of life or the second year of life as appropriate. This test is only possible for children with vaccination dates reported on a vaccination card. When a child does not have a vaccination card that was shown to the interviewer, an assumption is made that the ages at vaccinations for children whose mothers reported the vaccination are the same as those derived from the dates on the vaccination cards. Additionally, there may be vaccination dates that are unknown or not fully recorded on the vaccination cards, some of which provide enough information to determine if the vaccination was given by the appropriate age, while others do not. Therefore, the number of all children with the specific vaccination dose is multiplied by the proportion of that dose given before age 12 months compared with those for which it is possible to determine if the vaccination was given by the appropriate age, as determined by information taken from the vaccination card.

The calculation of this proportion requires two steps:
1) Number of vaccinations where the vaccination was given by the appropriate age, if:

a) Year of vaccination is the same as year of birth and vaccination was given after date of birth, or
b) Year of vaccination equals the year of birth plus 1 (or plus 2 for MCV 2) years and
   - month of vaccination is before month of birth, or
   - month of vaccination equals month of birth and day of vaccination is before day of birth, or
c) Year of vaccination equals the year of birth plus 1 for MCV 2 only.

2) Number of vaccinations where it is possible to say whether the vaccination was given by the appropriate age:
a) Year of vaccination equals year of birth and vaccination was given after date of birth, or
b) Year of vaccination equals year of birth plus 1 (or plus 2 for MCV 2) years, and month of vaccination is given and, if month of vaccination equals month of birth, day of vaccination is also given, or
c) Year of vaccination is any other year after the year of birth.

It is the ratio of these two that provides the proportion that is applied to the number of all children having received the specific vaccination to produce the percentage given by the appropriate age.

Denominators:
a) Number of living children age 12–23 months (b5 = 1 & b19 in 12:23)
b) Number of living children age 24-35 months (b5 = 1 & b19 in 24:35)

Indicator Definitions:
Indicators 1-3, 5-7: Numerator divided by denominator for the age group, multiplied by 100.
Indicators 4, 8 and Indicators 3 or 7, respectively, multiplied by the quotient of the number of vaccinations where the vaccination was given by the appropriate age (*see Step 1) in Calculation above*) divided by the number of vaccinations where it is possible to say whether the vaccination was given by the appropriate age (*see Step 2) in Calculation above*).

Handling of Missing Values

Missing vaccination card: Mother's report of vaccination, if any, is used.

Missing vaccination on card: Use mother's report of vaccination, if any, and otherwise assume vaccination is not given.

Missing or invalid date on vaccination card: Impute whether before or after age 12 months or before or after age 24 months according to distributions on vaccination cards with valid dates – applied in aggregate after calculation of number of children receiving each vaccine.

Missing mother's report of vaccination or mother does not know if vaccination given: Treat as vaccine not received when no valid information is on the vaccination card.

Notes and Considerations

The complexity of the vaccination landscape and the fact that it has changed over time (and is expected to continue to do so) complicates trend analysis, and cross-country comparisons. The all basic vaccinations indicator can be used for trend analysis, although the components of this indicator too

have changed over time (for example, DPT has been replaced by DPT-HepB-Hib or other DPT-containing vaccines in most countries).

In some countries, especially those of Latin America and the Commonwealth of Independent States (CIS), the recommended age for MCV 1 is at 12 months or later, compared with at 9 months in many other countries. In such cases, MCV 1 will only be reported for children age 24-35 months. Similarly, in many of these same countries, the recommended age for giving MCV 2 is at 24 months or later, in which case MCV 2 is not reported for children age 24-35 months. Similarly, other vaccines may be given at later ages according to the national vaccination schedule and will be excluded from reporting for age groups where all children in the age group have not had the opportunity to receive the vaccine.

The fully vaccinated (according to national schedule) indicator will change every time a country adds an additional vaccine to its national vaccination schedule. The age-appropriate vaccinations will vary depending on the national vaccination schedule, and the numbers of doses, the types of vaccine included, or the ages at which they are given may vary from country to country or from survey to survey.

Care needs to be taken not to confuse the oral polio vaccine (OPV) dose given at birth (called polio 0) from the OPV doses given later (polio 1, polio 2, and polio 3). Similarly, the inactivated polio dose (IPV) may be given at the same time as the third OPV dose and should not be confused with the third dose of OPV. Alternatively, IPV may entirely replace OPV or IPV may be given in combination with DPT-Hib or DPT-HepB-Hib as a pentavalent or hexavalent antigen vaccine.

Changes over Time

In some countries, especially those of Latin America, the recommended age for MCV has changed from below age 12 months to age 12 months or above. In DHS-VI and earlier, where this was the case, the age range of the children in both numerator and denominator was changed from 12-23 months to 18-29 months. Additionally, age 18 months instead of age 12 months was used as the age by which vaccinations should have taken place. However, in DHS-7 and DHS-8, The DHS Program is consistently reporting vaccination rates across the age 12-23 and 24-35 month cohorts. Thus, in the instance where a child should receive MCV 1 at age 18 months, the survey would report on whether or not a child age 24-35 months received the MCV 1, and this vaccine would not be reported for children age 12-23 months.

In surveys before DHS-7, the calculation of whether vaccinations were given in the first year of life was only calculated to the month because the day of birth of the child was not collected. Beginning in DHS-8, the calculation is performed to the day using the day, month, and year of birth and of vaccination.

The nomenclature used for key vaccination coverage indicators has also changed over time. Following guidance developed under the auspices of WHO's Expanded Programme on Immunization, beginning in DHS-8, the term "fully vaccinated (basic antigens)" replaces "all basic vaccinations" and the term "fully vaccinated (according to national schedule)" replaces "all age appropriate vaccinations".

References

Assaf, S., L. Horton, M. Bornstein, and T. Pullum. 2017. *Levels and Trends of Maternal and Child Health Indicators in 11 Middle East and North African Countries*. DHS Comparative Report No. 46. Rockville,

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WHO. *WHO vaccine-preventable diseases: monitoring system. 2018 global summary.* 2018. https://immunizationdata.who.int/

Resources

DHS-8 Tabulation plan: Tables 10.3 and 10.4

API Indicator IDs:
By source of information:
```
CH_VACS_C_BCG, CH_VACS_C_DP1, CH_VACS_C_DP2, CH_VACS_C_DP3, CH_VACS_C_OP0,
CH_VACS_C_OP1, CH_VACS_C_OP2, CH_VACS_C_OP3, CH_VACS_C_MSL, CH_VACS_C_MS2,
CH_VACS_C_HP0, CH_VACS_C_HP1, CH_VACS_C_HP2, CH_VACS_C_HP3, CH_VACS_C_HB1,
CH_VACS_C_HB2, CH_VACS_C_HB3, CH_VACS_C_PN1, CH_VACS_C_PN2, CH_VACS_C_PN3,
CH_VACS_C_RT1, CH_VACS_C_RT2, CH_VACS_C_RT3, CH_VACS_C_BAS, CH_VACS_C_APP,
CH_VACS_C_NON
```
(API link, STATcompiler link)

By background characteristics:
```
CH_VACC_C_BCG, CH_VACC_C_DP1, CH_VACC_C_DP2, CH_VACC_C_DP3, CH_VACC_C_OP0,
CH_VACC_C_OP1, CH_VACC_C_OP2, CH_VACC_C_OP3, CH_VACC_C_MSL, CH_VACC_C_MS2,
CH_VACC_C_HP0, CH_VACC_C_HP1, CH_VACC_C_HP2, CH_VACC_C_HP3, CH_VACC_C_HB1,
CH_VACC_C_HB2, CH_VACC_C_HB3, CH_VACC_C_PN1, CH_VACC_C_PN2, CH_VACC_C_PN3,
```

```
CH_VACC_C_RT1, CH_VACC_C_RT2, CH_VACC_C_RT3, CH_VACC_C_BAS, CH_VACC_C_APP,
CH_VACC_C_NON
```
([API link](#), [STATcompiler link](#))

SDG Indicator 3.b.1: Proportion of the target population covered by all vaccines included in their national programme

WHO 100 Core Health Indicators: National vaccination rate by vaccine

MICS6 Indicator TC.1: Tuberculosis immunization coverage
MICS6 Indicator TC.2: Polio immunization coverage
MICS6 Indicator TC.3: Diphtheria, tetanus, and pertussis (DTP) immunization coverage
MICS6 Indicator TC.4: Hepatitis B immunization coverage
MICS6 Indicator TC.5: Haemophilus influenza type B (Hib) immunization coverage
MICS6 Indicator TC.6: Pneumococcal (conjugate) immunization coverage
MICS6 Indicator TC.7: Rotavirus immunization coverage
MICS6 Indicator TC.10: Measles immunization coverage
MICS6 Indicator TC.11: Full immunization coverage

Percentage of children who ever had a vaccination card and who had a vaccination card seen

Definition

1) Percentage of children age 12–23 months who ever had a vaccination card.
2) Percentage of children age 12–23 months who had a vaccination card seen.
3) Percentage of children age 24-35 months who ever had a vaccination card.
4) Percentage of children age 24-35 months who had a vaccination card seen.

Coverage:
Population base: Living children age 12–23 months and 24-35 months (KR file)
Time period: 3 years preceding the survey

Numerators:
1) Number of living children age 12-23 months who ever had a vaccination card (b5 = 1 & h1 in 1:3)
2) Number of living children age 12-23 months whose vaccination card was seen at the time of the interview (b5 = 1 & h1 = 1)
3) Number of living children age 24-35 months who ever had a vaccination card (b5 = 1 & h1 in 1:3)
4) Number of living children age 24-35 months whose vaccination card was seen at the time of the interview (b5 = 1 & h1 = 1)

Denominators:
a) Number of living children age 12-23 months (b5 = 1 & b19 in 12:23)
b) Number of living children age 24-35 months (b5 = 1 & b19 in 24:35)

Variables: KR file.
b5   Child is alive
b19   Current age of child in months
h1   Has health card

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data or "don't know" response for whether ever had a card or whether it was seen are excluded from numerators.

Notes and Considerations

The term vaccination card encompasses card, booklet, or other home-based record in which vaccination information has been recorded.

Changes over Time

Percentage who ever had a card was first included in DHS-7.

References

Brown, D.W., and M. Gacic-Dobo. 2015. "Home-based record prevalence among children age 12-23 months from 180 demographic and health surveys." *Vaccine*. 33: 2584-2593.
https://www.sciencedirect.com/science/article/pii/S0264410X15004405

Resources

DHS-8 Tabulation plan: Table 10.2

API Indicator IDs:
CH_VACP_C_EV1, CH_VACP_C_SN1
(API link, STATcompiler link)

Percentage of children age 12-23 months and 24-35 months by source of most vaccinations

Definition

1) Among children age 12-23 months who received at least one vaccination, percent distribution of children by source of most vaccinations.
2) Among children age 23-35 months who received at least one vaccination, percent distribution of children by source of most vaccinations.

Coverage:
Population base: Living children age 12–23 months and 24-35 months (KR file)
Time period: 3 years before survey; at the time of interview

Numerators:
1) Number of living children age 12-23 months whose source of most vaccinations was: public medical sector, private medical sector (non-NGO), private medical sector (NGO), other (b5 = 1 & b19)
2) Number of living children age 24-35 months whose source of most vaccinations was: public medical sector, private medical sector (non-NGO), private medical sector (NGO), other (b5 = 1 & b19)

Denominators:
a) Number of living children age 12-23 months who received at least one vaccination (b5 = 1 & b19 in 12:23)
b) Number of living children age 24-35 months who received at least vaccination (b5 = 1 & b19 in 24:35)

Variables: KR file.
b5   Child is alive
b19   Current age of child in months
h69   Place where most vaccinations were received

Calculation

Numerator divided by the denominator, multiplied by 100.

Source of most vaccination is categorized as public medical sector (b19 in 10:19), private medical sector (non-NGO) (b19 in 20:29), private medical sector (NGO) (b19 in 30:39), other (b19 in 40:46)

Handling of Missing Values

"Don't know" responses and missing values are included in the "don't know" category in the percent distributions. Percent distributions add up to 100 percent.

Changes over Time

Information on source of vaccinations was introduced in DHS-8.

Resources

DHS-8 Tabulation plan: Table 10.5

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Symptoms of Acute Respiratory Infection (ARI) and careseeking

Percentage of children under age 5 with symptoms of ARI, and among children under age 5 with symptoms of ARI, the percentage for whom advice or treatment was sought and for whom advice or treatment was sought the same or next day

Definition

1) Percentage of children under age 5 with symptoms of ARI at any time in the 2 weeks preceding the survey.
2) Percentage of children under age 5 with symptoms of ARI at any time in the 2 weeks preceding the survey for whom advice or treatment was sought.
3) Percentage of children under age 5 with symptoms of ARI at any time in the 2 weeks preceding the survey for whom advice or treatment was sought the same or next day.

Coverage:
Population base: Living children under age 5 years (KR file)
Time period: 2 weeks preceding the survey

Numerators:
1) Number of living children under age 5 with symptoms of ARI (short, rapid breathing which was chest-related and/or difficult breathing which was chest-related) in the 2 weeks preceding the survey (b5=1 & b19 < 60 & h31b = 1 & h31c in 1,3)
2) Number of living children under age 5 with symptoms of ARI in the 2 weeks preceding the survey for whom treatment was sought (b5=1 & b19 < 60 & h31c = 1 & h31c in 1,3 & any of h32a – x = 1 excluding advice or treatment from a traditional practitioner (usually h32t))
3) Number of living children under age 5 with symptoms of ARI in the 2 weeks preceding the survey for whom treatment was sought the same or next day (b5=1 & b19 < 60 & h31b = 1 & h31c in 1,3 & any of h32a – x = 1 excluding advice or treatment from a traditional practitioner (usually h32t) & h46b in 0,1)

Denominators:
a) Number of living children under age 5 (b5=1 & b19 < 60)
b) Number of children under age 5 with symptoms of ARI at in the 2 weeks preceding the survey (b5=1 and b19 < 60 and h31b = 1 & h31c in 1,3)
c) Same as denominator 2

Variables: KR file.

b5	Child is alive
b19	Current age of child in months
h31b	Short, rapid breaths
h31c	Problem in the chest or blocked or running nose
h32a-i	Fever/cough: government hospital
h32j	Fever/cough: private hospital/clinic
h32k	Fever/cough: private pharmacy
h32l	Fever/cough: private doctor

h32m-r	Fever/cough: CS private medical
h32na-ne	Fever/cough: NGO medical sector
h32s-w	Fever/cough: CS other sector
h32x	Fever/cough: other
h46b	Number of days after fever began sought advice or treatment
v005	Women's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data or "don't know" responses on the questions on short, rapid breathing and/or difficult breathing and whether it was chest-related are excluded from numerator 1, and from numerators and denominators 2 & 3, assuming no illness.

Missing data or "don't know" responses for whether sought advice or treatment and who from are excluded from numerators 2 & 3, assuming no treatment sought from a health facility or provider.

Notes and Considerations

Indicators 2 & 3 include advice or treatment from the public sector, private medical sector, NGO medical sector, shops, market, and itinerant drug sellers, but excludes advice or treatment from a traditional practitioner.

Changes over Time

For DHS-7, symptoms of ARI is defined as short, rapid breathing which was chest-related and/or difficult breathing which was chest-related. In prior surveys, the definition of symptoms of ARI included cough. Specifically, in DHS-VI and later DHS-V surveys, symptoms of ARI was defined as a cough accompanied by short, rapid breathing which was chest-related and/or by difficult breathing which was chest-related (h31b = 1 & h31c in 1,3). In earlier DHS-V and DHS-IV surveys, the wording of the question about breathing only defined the symptoms of ARI as cough accompanied by short, rapid breathing. In prior surveys symptoms of ARI was defined as cough accompanied by rapid breaths alone (h31b = 1) as the question on whether the illness was chest-related (h13c) was not included.

For surveys prior to DHS-7, care seeking was defined differently. The indicator measured care seeking from a medical source or provider, and excluded pharmacy, shop, market, itinerant drug seller and traditional practitioner.

In DHS-8, NGO medical sector was added as a separate source category. Previously, it was lumped in with private medical sector.

References

Assaf, S., L. Horton, M. Bornstein, and T. Pullum. 2017. *Levels and Trends of Maternal and Child Health Indicators in 11 Middle East and North African Countries*. DHS Comparative Report No. 46. Rockville, Maryland, USA: ICF. https://www.dhsprogram.com/publications/publication-CR46-Comparative-Reports.cfm

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WHO and UNICEF. 2013. Ending preventable child deaths from Pneumonia and Diarrhoea by 2025: The integrated Global Action Plan for Pneumonia and Diarrhoea (GAPPD). Geneva: WHO https://apps.who.int/iris/bitstream/handle/10665/79207/WHO_FWC_MCA_13_01_eng.pdf

World Health Organization. 2018. *Global reference list of 100 core health indicators*. Geneva: World Health Organization. https://apps.who.int/iris/handle/10665/259951

UNICEF. 2012. *Pneumonia and diarrhea: Tackling the deadliest diseases for the world's poorest children.* New York, New York, USA:UNICEF https://data.unicef.org/resources/pneumonia-and-diarrhoea-tackling-the-deadliest-diseases-for-the-worlds-poorest-children/

Resources

DHS-8 Tabulation plan: Table 10.6

API Indicator IDs:
CH_ARIS_C_ARI
(API link, STATcompiler link)

WHO 100 Core Health Indicators: Care-seeking for symptoms of pneumonia

MICS6 Indicator TC.19: Care-seeking for children with acute respiratory infection (ARI) symptoms

Percentage of children under age 5 with symptoms of ARI for whom advice or treatment was sought from specific sources, and among those for whom advice or treatment was sought, percentage for whom advice or treatment was sought from specific sources

Definition

1) Percentage of children under age 5 with symptoms of ARI for whom advice or treatment was sought from specific sources.
2) Among children under age 5 with symptoms of ARI for whom advice or treatment was sought, the percentage for whom advice or treatment was sought from specific sources.

Coverage:
　　　　Population base: Living children under age 5 with symptoms of ARI (KR file)
　　　　Time period: 2 weeks preceding the survey

Numerator:
1) Number of living children under age 5 with symptoms of ARI (short, rapid breathing which was chest-related and/or by difficult breathing which was chest-related) in the 2 weeks preceding the survey for whom care was sought from each specific source (b5=1 & b19 < 60 & h31b = 1 & h31c in 1,3 & h32a – x)
2) Same as numerator 1

Denominators:
a) Number of living children under age 5 with symptoms of ARI in the 2 weeks preceding the survey (b5=1 & b19 < 60 & h31b = 1 & h31c in 1,3)
b) Number of living children under age 5 with symptoms of ARI in the 2 weeks preceding the survey for whom treatment was sought from any source (b5=1 & b19 < 60 & h31b = 1 & h31c in 1,3 & h32a – x)

Variables: KR file.
b5	Child is alive
b19	Current age of child in months
h31b	Short, rapid breaths
h31c	Problem in the chest or blocked or running nose
h32a	Fever/cough: government hospital
h32b-i	Fever/cough: CS public sector
h32j	Fever/cough: private hospital/clinic
h32k	Fever/cough: private pharmacy
h32l	Fever/cough: private doctor
h32m-r	Fever/cough: CS private medical
h32na-ne	Fever/cough: NGO medical sector
h32s-w	Fever/cough: CS other sector
h32x	Fever/cough: other
h32y	Fever/cough: no treatment
v005	Women's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data or "don't know" responses on the questions on short, rapid breathing and/or difficult breathing and whether it was chest-related are excluded from numerators and denominators, assuming no illness.

Missing data or "don't know" responses for whether sought advice or treatment and who from are excluded from numerators, assuming no treatment sought from a specific health facility or provider.

Notes and Considerations

In contrast to the indicator *Percentage of children under age 5 with symptoms of ARI, and among children under age 5 with symptoms of ARI, the percentage for whom advice or treatment was sought and for whom advice or treatment was sought the same or next day*, these indicators include advice or treatment from a traditional practitioner.

Changes over Time

For DHS-7, symptoms or ARI is defined as short, rapid breathing which was chest-related and/or difficult breathing which was chest-related. In prior surveys, the definition of symptoms of ARI included cough. Specifically, in DHS-VI and later DHS-V surveys, symptoms of ARI was defined as a cough accompanied by short, rapid breathing which was chest-related and/or by difficult breathing which was chest-related (h31b = 1 & h31c in 1,3). In earlier DHS-V and DHS-IV surveys, the wording of the question about breathing only defined the symptoms of ARI as cough accompanied by short, rapid breathing. In prior surveys symptoms of ARI was defined as cough accompanied by rapid breaths alone (h31b = 1) as the question on whether the illness was chest-related (h13c) was not included.

In DHS-8, NGO medical sector was added as a separate source category. Previously, it was lumped in with private medical sector.

Resources

DHS-8 Tabulation plan: Table 10.7

API Indicator IDs:
Among children with symptoms of ARI:
CH_ARSS_C_PUB, CH_ARSS_C_GHS, CH_ARSS_C_GHC, CH_ARSS_C_GHP, CH_ARSS_C_GMB,
CH_ARSS_C_GFW, CH_ARSS_C_GOT, CH_ARSS_C_PRV, CH_ARSS_C_PHS, CH_ARSS_C_PPH,
CH_ARSS_C_PDR, CH_ARSS_C_PMB, CH_ARSS_C_PFW, CH_ARSS_C_POT
(API link, STATcompiler link)
CH_ARSS_C_OSR, CH_ARSS_C_SHP, CH_ARSS_C_TRP, CH_ARSS_C_MKT, CH_ARSS_C_OTH
(API link, STATcompiler link)

Among children with symptoms of ARI for whom treatment was sought:

```
CH_ARSA_C_PUB, CH_ARSA_C_GHS, CH_ARSA_C_GHC, CH_ARSA_C_GFP, CH_ARSA_C_GMB,
CH_ARSA_C_GFW, CH_ARSA_C_GOT, CH_ARSA_C_PRV, CH_ARSA_C_PHS, CH_ARSA_C_PPH,
CH_ARSA_C_PDR, CH_ARSA_C_PMB, CH_ARSA_C_PFW, CH_ARSA_C_POT,
```
([API link](), [STATcompiler link]())
```
CH_ARSA_C_OSR, CH_ARSA_C_SHP, CH_ARSA_C_TRP, CH_ARSA_C_MKT, CH_ARSA_C_OTH
```
([API link](), [STATcompiler link]())

Fever and Careseeking

Percentage of children with fever in the 2 weeks preceding the survey; and among children with fever, percentage for whom advice or treatment was sought, percentage for whom advice or treatment was sought the same or next day following the onset of fever, and percentage who took antibiotic drugs

Definition

1) Percentage of children under age 5 years with fever in the 2 weeks preceding the survey.
2) Among children under age 5 years with fever in the 2 weeks preceding the survey, percentage for whom advice or treatment was sought.
3) Among children under age 5 years with fever in the 2 weeks preceding the survey, percentage for whom advice or treatment was sought the same or next day following the onset of fever.
4) Among children under age 5 with fever in the 2 weeks preceding the survey, percentage who took antibiotic drugs.

Coverage:
   Population base: Living children under age 5 years (KR file)
   Time period: Two weeks preceding the survey

Numerators:
1) Number of living children under age 5 years with fever at any time during the 2 weeks preceding the survey (b5 = 1 & b19 < 60 & h22 = 1)
2) Number of living children under age 5 years with a fever at any time during the 2 weeks preceding the interview for whom advice or treatment was sought (b5 = 1 & b19 < 60 & h22 = 1 & any of h32a – x = 1 except traditional practitioner (usually h32t))
3) Number of living children under age 5 years with a fever at any time during the 2 weeks preceding the interview for whom advice or treatment was sought the same day or next day following the onset of fever (b5 = 1 & b19 < 60 & h22 = 1 & any of h32a – x = 1 excluding advice or treatment from a traditional practitioner (usually h32t) & h46b in 0:1)
4) Number of living children under age 5 years with a fever at any time during the 2 weeks preceding the interview who took antibiotic drugs (b5 = 1 & h22 = 1 & (h37i = 1 or h37j = 1 or h37n= 1 or h37o = 1) [or ml13i = 1 or ml13j = 1 or ml13n = 1 or ml13o = 1])

Denominators:
a) Numerator 1: Number of living children under age 5 (b5 = 1 & b19 < 60)
b) Numerators 2, 3, and 4: Number of living children under age 5 with fever at any time during the 2 weeks preceding the survey (b5 = 1 & b19 < 60 and h22 = 1).

Variables: KR file.
b5   Child is alive
b19   Current age of child in months
h22   Had fever in last two weeks
h32a   Fever/cough: government hospital
h32b-i   Fever/cough: CS public sector

h32j	Fever/cough: private hospital/clinic
h32k	Fever/cough: private pharmacy
h32l	Fever/cough: private doctor
h32m-r	Fever/cough: CS private medical
h32na-ne	Fever/cough: NGO medical sector
h32s-w	Fever/cough: CS other sector
h32x	Fever/cough: other
h37i	Antibiotic pill/syrup taken for fever
h37j	Antibiotic injection taken for fever
h37n	Amoxicillin taken for fever
h37o	Cotrimoxazole taken for fever/cough
h46b	Number of days after fever began sought advice or treatment
ml13i	Antibiotic pill/syrup taken for fever
ml13j	Antibiotic injection taken for fever
v005	Women's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing data or "don't know" responses on the question on fever are excluded from numerator 1, and from numerators and denominators 2, 3 & 4, assuming no illness.

Missing data or "don't know" responses for whether sought advice or treatment and from whom are excluded from numerators 2 & 3, assuming no treatment sought from a health facility or provider.

Missing data or "don't know" responses for whether the child took antibiotics are excluded from numerator 4, assuming no antibiotics were given.

Notes and Considerations

Indicators 2 & 3 include advice or treatment from the public sector, private medical sector, NGO medical sector, shops, markets, and itinerant drug sellers, but excludes advice or treatment from a traditional practitioner.

Changes over Time

For surveys prior to DHS-7, care seeking was defined differently. The indicator measured care seeking from a medical source or provider, and excluded pharmacy, shop, market, itinerant drug seller and traditional practitioner.

In DHS-8, NGO medical sector was added as a separate source category. Previously, it was lumped in with private medical sector.

References

Rutstein, S.O., S. Staveteig, R. Winter, and J. Yourkavitch. 2016. *Urban child poverty, health, and survival in low- and middle-income countries.* DHS Comparative Reports No. 40. Rockville, Maryland, USA: ICF International. https://www.dhsprogram.com/publications/publication-CR40-Comparative-Reports.cfm

Resources

DHS-8 Tabulation plan: Table 10.8 and Table 12.10

API Indicator IDs:
`CH_FEVT_C_FEV, CH_FEVT_C_ABI`
(API link, STATcompiler link)

MICS6 Indicator TC.26: Care-seeking for fever

Diarrhea and Careseeking

Percentage of children under age 5 with diarrhea, and percentage for whom advice or treatment was sought

Definition

1) Percentage of children under age 5 with diarrhea at any time in the 2 weeks preceding the survey.
2) Percentage of children under age 5 with diarrhea at any time in the 2 weeks preceding the survey for whom advice or treatment was sought.

Coverage:
> Population base: Living children under age 5 years (KR file)
> Time period: 2 weeks preceding the interview

Numerators:
1) Number of living children under age 5 with diarrhea in the 2 weeks preceding the survey (b5 = 1 & b19 < 60 & h11 in 1,2)
2) Number of living children under age 5 with diarrhea in the 2 weeks preceding the survey for whom advice or treatment was sought (b5 = 1 & b19 < 60 & h11 in 1,2 & any of h12a – x = 1, excluding advice or treatment from a traditional practitioner)

Denominators:
a) Number of living children under age 5 (b5 = 1 & b19 < 60)
b) Number of living children under age 5 with diarrhea in the 2 weeks preceding the survey (b5 = 1 & b19 < 60 & h11 in 1,2)

Variables: KR file.
b5	Child is alive
b19	Current age of child in months
h11	Had diarrhea recently
h12a	Diarrhea: government hospital
h12b-i	Diarrhea: CS public sector
h12j	Diarrhea: private hospital/clinic
h12k	Diarrhea: private pharmacy
h12l	Diarrhea: private doctor
h12na-ne	Diarrhea: NGO medical sector
h12m-r	Diarrhea: CS private medical
h12s-w	Diarrhea: CS other sector
h12x	Diarrhea: other
v005	Women's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data or "don't know" responses on the question on fever are excluded from numerator 1, and from numerator and denominator 2, assuming no illness.

Missing data or "don't know" responses for whether sought advice or treatment and from whom are excluded from numerator 2, assuming no treatment sought from a health facility or provider.

Notes and Considerations

Indicator 2 includes advice or treatment from the public sector, private medical sector, NGO medical sector, shops, markets, and itinerant drug sellers, but excludes advice or treatment from a traditional practitioner.

Changes over Time

For surveys prior to DHS-7, care seeking was defined differently. The indicator measured care seeking from a medical source or provider, and excluded pharmacy, shop, market, itinerant drug seller and traditional practitioner.

In DHS-8, NGO medical sector was added as a separate source category. Previously, it was lumped in with private medical sector.

References

Rutstein, S.O., S. Staveteig, R. Winter, and J. Yourkavitch. 2016. *Urban child poverty, health, and survival in low- and middle-income countries.* DHS Comparative Reports No. 40. Rockville, Maryland, USA: ICF International. https://www.dhsprogram.com/publications/publication-CR40-Comparative-Reports.cfm

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Resources

DHS-8 Tabulation plan: Table 10.9

API Indicator IDs:
CH_DIAR_C_DIA
(API link, STATcompiler link)

MICS6 Indicator TC.12: Care-seeking for diarrhoea

Feeding Practices During Diarrhea

Percent distribution of children under age 5 with diarrhea by amount of liquids given, and by amount of food given

Definition

1) Percent distribution of children under age 5 with diarrhea at any time in the 2 weeks preceding the survey by amount of liquids given.
2) Percent distribution of children under age 5 with diarrhea at any time in the 2 weeks preceding the survey by amount of food given.

Coverage:
  Population base: Living children under age 5 years (KR file)
  Time period: 2 weeks preceding the interview

Numerators:
1) Number of living children under age 5 with diarrhea in the 2 weeks preceding the interview in categories of amount of liquids given: more than usual, same as usual, somewhat less, much less, none, or don't know (b5 = 1 & b19 < 60 & h11 in 1:2 & h38 = 5/4/3/2/0/8,9)
2) Number of living children under age 5 with diarrhea in the 2 weeks preceding the interview in categories of amount foods offered: more than usual, same as usual, somewhat less, much less, none, never gave food, or don't know (b5 = 1 & b19 < 60 & h11 in 1:2 & h39 = 5/4/3/2/0/1/8,9)

Denominator: Number of living children under age 5 with diarrhea in the 2 weeks preceding the survey (b5 = 1 & b19 < 60 & h11 in 1:2)

Variables: KR file.
b5	Child is alive
b19	Current age of child in months
h11	Had diarrhea recently
h38	Diarrhea in last 2 weeks: amount offered to drink
h39	Diarrhea in last 2 weeks: amount offered to eat
v005	Women's individual sample weight

Calculation

Percent distribution adds up to 100 percent.

Handling of Missing Values

"Don't know" responses and missing values are included in the "don't know" category in the percent distributions. Percent distributions add up to 100 percent.

Resources

DHS-8 Tabulation plan: Table 10.10

API Indicator IDs:
CH_DIFP_C_LMR, CH_DIFP_C_LSM, CH_DIFP_C_LLS, CH_DIFP_C_LML, CH_DIFP_C_LNO,
CH_DIFP_C_LDK, CH_DIFP_C_FMR, CH_DIFP_C_FSM, CH_DIFP_C_FLS, CH_DIFP_C_FML,
CH_DIFP_C_FNO, CH_DIFP_C_FNV, CH_DIFP_C_FDK
(API link, STATcompiler link)

Oral Rehydration Therapy, Zinc, Continued Feeding and Other Treatments for Diarrhea

Among children under age 5 who had diarrhea in the 2 weeks preceding the survey, percentage given fluid from an ORS packet or pre-packaged ORS fluid, zinc, ORS and zinc, ORS and continued feeding, ORS, zinc, and continued feeding, ORS or increased fluids, recommended homemade fluids (RHF), oral rehydration therapy (ORT), ORT and continued feeding, and other treatments; and percentage given no treatment

Definition

Percentage of living children under age 5 with diarrhea who were given:
1) Fluid from oral rehydration salts (ORS) packet or pre-packaged ORS fluid
2) Zinc
3) ORS and zinc
4) ORS and continued feeding
5) ORS, zinc, and continued feeding
6) ORS or increased fluids
7) Recommended homemade fluids (RHF)
8) Oral rehydration treatment (ORT – ORS, RHF, or increased fluids)
9) ORT and continued feeding
10) Antibiotic drugs
11) Antimotility drugs
12) Intravenous solution
13) Home remedy/other treatment
14) No treatment

Coverage:
> Population base: Living children under age 5 years (KR file)
> Time period: 2 weeks preceding the interview

Numerators:
Number of living children under age 5 with diarrhea at any time during the 2 weeks preceding the interview (b5 = 1 & b19 < 60 & h11 in 1,2) who were given:
1) Fluid from oral rehydration salts (ORS) packet or pre-packaged ORS fluid (h13 in 1:2 or h13b = 1)
2) Zinc (h15e = 1)
3) ORS and Zinc ((h13 in 1:2 or h13b = 1) & h15e = 1)
4) ORS and continued feeding ((h13 in 1:2 or h13b = 1) & h39 in 3:5)
5) ORS, zinc, and continued feeding ((h13 in 1:2 or h13b = 1) & h15e = 1 & h39 in 3:5)
6) ORS or increased fluids ((h13 in 1:2 or h13b = 1) or h38 = 5)
7) Recommended homemade fluids (RHF) (h14 in 1:2)
8) Oral rehydration treatment (ORT – ORS, RHF, or increased fluids) (h13 in 1:2 or h13b = 1 or h14 in 1:2 or h38 = 5)
9) ORT and continued feeding ((h13 in 1:2 or h13b = 1 or h14 in 1:2 or h38 = 5) & h39 in 3:5)
10) Antibiotic drugs (h15 = 1 or h15b = 1)
11) Antimotility drugs (h15a = 1)

12) Intravenous solution (h15c = 1)
13) Home remedy/other treatment (h15d = 1 or any of h15d, f – m = 1 or h20 = 1)
14) No treatment (h21a = 1)

Denominator: Number of children under age 5 with diarrhea in the 2 weeks preceding the interview (b5 = 1 & b19 < 60 & h11 in 1,2)

Variables: KR file.

b5	Child is alive
b19	Current age of child in months
h11	Had diarrhea recently
h13	Given oral rehydration
h13b	Given pre-packaged ORS liquid
h14	Given recommended home solution
h15	Given antibiotic pills or syrups
h15a	Given antimotility
h15b	Given antibiotic injection
h15c	Given intravenous (IV)
h15d	Given home remedy, herbal medicine
h15e	Given zinc
h15f	Given other (not antibiotic, antimotility, zinc)
h15g	Given unknown pill or syrup
h15h	Given non-antibiotic injection
h15i	Given unknown injection
h15j-m	Given CS
h20	Given other treatment
h21a	Given no treatment
h38	Diarrhea in last 2 weeks: amount offered to drink
h39	Diarrhea in last 2 weeks: amount offered to eat
v005	Women's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

"Don't know" responses and missing values on whether had diarrhea are excluded from numerators and denominator, assuming no illness. "Don't know" responses and missing values for each type of treatment are excluded from the numerator but included in the denominator assuming the treatment was not given.

Notes and Considerations

Continued feeding includes children who were given more than usual, same as usual, or somewhat less food during the diarrhea episode.

Changes over Time

The terminology has changed since DHS-VI. Oral rehydration therapy (ORT) used to be defined as ORS or RHF. ORT is now defined as ORS, RHF, or increased fluids to be comparable with MICS.

Zinc as a diarrhea treatment was added as an indicator in DHS-7.

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Resources

DHS-8 Tabulation plan: Table 10.11

API Indicator IDs:
```
CH_DIAT_C_ORS, CH_DIAT_C_RHF, CH_DIAT_C_ORT, CH_DIAT_C_INC, CH_DIAT_C_ORI,
CH_DIAT_C_ABI, CH_DIAT_C_AMO, CH_DIAT_C_ZNC, CH_DIAT_C_IVS, CH_DIAT_C_HOM,
CH_DIAT_C_NOT
```
(API link, STATcompiler link)

WHO 100 Core Health Indicators: Coverage of diarrhea treatment

MICS6 Indicator TC.13a: Diarrhoea treatment with oral rehydration salt solution (ORS)
MICS6 Indicator TC.13b: Diarrhoea treatment with oral rehydration salt solution (ORS) and zinc
MICS6 Indicator TC.14: Diarrhoea treatment with oral rehydration therapy (ORT) and continued feeding

Source of Advice or Treatment for Children with Diarrhea

Percentage of children under age 5 with diarrhea for whom advice or treatment was sought from specific sources, among children with diarrhea for whom advice or treatment was sought, percentage sought from specific sources, and among children with diarrhea who received ORS, the percentage for whom advice or treatment was sought from specific sources

Definition

1) Percentage of living children under age 5 with diarrhea for whom advice or treatment was sought from specific sources.
2) Among living children under age 5 with diarrhea for whom advice or treatment was sought, percentage for whom advice or treatment was sought from specific sources.
3) Among living children under age 5 with diarrhea who received ORS, the percentage for whom advice or treatment was sought from specific sources.
4) Among living children under age 5 with diarrhea who were given zinc, the percentage for whom advice or treatment was sought from specific sources.

Coverage:
> Population base: Living children under age 5 years (KR file)
> Time period: 2 weeks preceding the interview

Numerators:
1) Number of living children under 5 age years with diarrhea at any time during the 2 weeks preceding the interview for whom advice or treatment was sought from specific sources (b5 = 1 & b19 < 60 & h11 in 1,2 & h12a – h12x = 1)
2) Same as numerator 1
3) Number of living children under age 5 with diarrhea at any time during the 2 weeks preceding the interview who received ORS and for whom advice or treatment was sought from specific sources (b5 = 1 & b19 < 60 & h11 in 1,2 & (h13 in 1,2 or h13b = 1) & h12a – h12x = 1)
4) Number of living children under age 5 with diarrhea at any time during the 2 weeks preceding the interview who were given zinc and for whom advice or treatment was sought from specific sources (b5 = 1 & b19 < 60 & h11 in 1,2 & h15e = 1 & h12a – h12x = 1)

Denominators:
a) Number of living children under age 5 with diarrhea in the 2 weeks preceding the interview (b5 = 1 & b19 < 60 & h11 in 1,2)
b) Number of living children under age 5 with diarrhea in the 2 weeks preceding the interview for whom advice or treatment was sought (b5 = 1 & b19 < 60 & h11 in 1,2 & any of h12a – h12x = 1)
c) Number of living children under age 5 with diarrhea in the 2 weeks preceding the interview who received ORS (b5 = 1 & b19 < 60 & h11 in 1,2 & (h13 in 1,2 or h13b = 1))
d) Number of living children under age 5 with diarrhea in the 2 weeks preceding the interview who were given zinc (b5 = 1 & b19 < 60 & h11 in 1,2 & h15e = 1)

Variables: KR file.

b5	Child is alive
b19	Current age of child in months
h11	Had diarrhea recently
h12a	Diarrhea: government hospital
h12b-i	Diarrhea: CS public sector
h12j	Diarrhea: private hospital/clinic
h12k	Diarrhea: private pharmacy
h12l	Diarrhea: private doctor
h12na-ne	Diarrhea: NGO medical sector
h12m-r	Diarrhea: CS private medical
h12s-w	Diarrhea: CS other sector
h12x	Diarrhea: Other
h13	Given oral rehydration
h13b	Given pre-packaged ORS liquid
h15e	Given zinc
v005	Women's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data or "don't know" responses on the questions on whether the child had diarrhea are excluded from numerators and denominators, assuming no illness.

Missing data or "don't know" responses for whether sought advice or treatment and from whom are excluded from numerators, assuming no treatment sought from a specific health facility or provider.

Notes and Considerations

In contrast to the indicator *Percentage of children under age 5 with symptoms of ARI, and among children under age 5 with symptoms of ARI, the percentage for whom advice or treatment was sought and for whom advice or treatment was sought the same or next day*, these indicators include advice or treatment from a traditional practitioner.

Changes over time

In DHS-8, NGO medical sector was added as a separate source category. Previously, it was lumped in with private medical sector.

Resources

DHS-8 Tabulation plan: Table 10.12

API Indicator IDs:
Among children with diarrhea:

```
CH_DISS_C_PUB, CH_DISS_C_GHS, CH_DISS_C_GHC, CH_DISS_C_GHP, CH_DISS_C_GMB,
CH_DISS_C_GFW, CH_DISS_C_GOT
```
([API link](#), [STATcompiler link](#))
```
CH_DISS_C_PRV, CH_DISS_C_PHS, CH_DISS_C_PPH, CH_DISS_C_PDR, CH_DISS_C_PMB,
CH_DISS_C_PFW, CH_DISS_C_POT, CH_DISS_C_OSR, CH_DISS_C_SHP, CH_DISS_C_TRP,
CH_DISS_C_MKT, CH_DISS_C_OTH
```
([API link](#), [STATcompiler link](#))

Among children with diarrhea for whom treatment was sought:
```
CH_DISA_C_PUB, CH_DISA_C_GHS, CH_DISA_C_GHC, CH_DISA_C_GFP, CH_DISA_C_GMB,
CH_DISA_C_GFW, CH_DISA_C_GOT
```
([API link](#), [STATcompiler link](#))
```
CH_DISA_C_PRV, CH_DISA_C_PHS, CH_DISA_C_PPH, CH_DISA_C_PDR, CH_DISA_C_PMB,
CH_DISA_C_PFW, CH_DISA_C_POT, CH_DISA_C_OSR, CH_DISA_C_SHP, CH_DISA_C_TRP,
CH_DISA_C_MKT, CH_DISA_C_OTH
```
([API link](#), [STATcompiler link](#))

Among children with diarrhea who received ORS:
```
CH_DISS_C_PUB, CH_DISS_C_GHS, CH_DISS_C_GHC, CH_DISS_C_GHP, CH_DISS_C_GMB,
CH_DISS_C_GFW, CH_DISS_C_GOT
```
([API link](#), [STATcompiler link](#))
```
CH_DISS_C_PRV, CH_DISS_C_PHS, CH_DISS_C_PPH, CH_DISS_C_PDR, CH_DISS_C_PMB,
CH_DISS_C_PFW, CH_DISS_C_POT, CH_DISS_C_OSR, CH_DISS_C_SHP, CH_DISS_C_TRP,
CH_DISS_C_MKT, CH_DISS_C_OTH
```
([API link](#), [STATcompiler link](#))
```
CH_DISO_C_PUB, CH_DISO_C_GHS, CH_DISO_C_GHC, CH_DISO_C_GFP, CH_DISO_C_GMB,
CH_DISO_C_GFW, CH_DISO_C_GOT
```
([API link](#), [STATcompiler link](#))
```
CH_DISO_C_PRV, CH_DISO_C_PHS, CH_DISO_C_PPH, CH_DISO_C_PDR, CH_DISO_C_PMB,
CH_DISO_C_PFW, CH_DISO_C_POT, CH_DISO_C_OSR, CH_DISO_C_SHP, CH_DISO_C_TRP,
CH_DISO_C_MKT, CH_DISO_C_OTH
```
([API link](#), [STATcompiler link](#))

Among children with diarrhea who were given zinc:
```
TBD
```
(API link TBD, STATcompiler link TBD)

Knowledge of ORS packets

Percentage of mothers who know about ORS packets or ORS pre-packaged liquids (legacy indicator)

Definition

Percentage of women with a live birth in the 5 years preceding the survey who know about ORS packets or ORS pre-packaged liquids for treatment of diarrhea.

Coverage:
> Population base: Women with one or more live births in the 5 years preceding the survey (IR file)
> Time period: Current status at time of survey

Numerator: Number of women with a live birth in the 5 years preceding the survey who know about oral rehydration salts (ORS) packets or ORS pre-packaged liquids (v208 > 0 & v416 in 1,2)

Denominator: Number of women with a live birth in the 5 years preceding the survey (v208 > 0)

Variables: IR file.
v208	Births in the last five years
v416	Heard of oral rehydration
v005	Women's individual sample weight

Calculation

For percentage, the numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

"Don't know" or missing responses on whether heard of or used ORS are excluded from the numerator, assuming that the respondent does not know about ORS.

Changes over time

Beginning in DHS-8, this is no longer collected because knowledge of ORS among women is universally high.

Resources

API Indicator IDs:
`CH_KORS_W_ORS`
(API link, STATcompiler link)

11) Nutrition of Children and Adults

This chapter covers nutritional concerns for children and adults. Adequate nutrition plays a critical role in child development and growth and in preventing poor health outcomes across the lifecycle. The nutrition topics for children are anthropometric assessment of the nutritional status of children under five years of age based on children's height, weight, and age; anemia status measured by hemoglobin; infant and young child feeding practices and counseling, child growth monitoring, micronutrient supplementation, and deworming. The topics for adults covers anthropometric assessment of the nutritional status of women and men 15 to 49 years of age based on height and weight (as well as age for adolescents 15-19 years of age); anemia status measured by hemoglobin; and women's dietary practices. The presence of iodine in household cooking salt is covered at the household level.

Chapter 9 presents information on nutritional interventions that are provided during the antenatal period including maternal nutrition counseling, breastfeeding counseling, food or cash assistance, deworming, iron-containing supplementation and the sources of the supplements, and postnatal breastfeeding counseling and observation. Chapter 10 presents information on child feeding practices during diarrhea.

Anthropometric indicators for young children and for adults provide measures of nutritional status. Marked differences, especially in regard to height-for-age and weight-for-age are often seen between different subgroups of children within a country. Adolescent and adult nutritional status has important implications for the health status of the adolescent or adult as well as that of the children that women may bear.

Adequate nutrition is critical to child development. The period from birth to two years of age is important for optimal growth, health, and development. This period is one marked for growth faltering, micronutrient deficiencies, and common childhood illnesses, such as diarrhea and acute respiratory infections (ARI).

Optimal feeding practices reported in this chapter include early breastfeeding, exclusive breastfeeding and mixed milk feeding during the first six months of life, continued breastfeeding, feeding from a bottle, timely introduction of complementary feeding at six-eight months of age, frequency of feeding, and the diversity of foods fed to children between 6 and 23 months of age. In addition, unhealthy infant and young child feeding practices are also reported.

Malnutrition in adolescents and adults results in reduced productivity, an increased susceptibility to infections, retarded recovery from illness, and for women, heightened risks of adverse pregnancy outcomes. Moreover, a woman who has poor nutritional status as indicated by a low Body Mass Index (BMI) or low BMI-for-age, short stature, anemia, or other micronutrient deficiency has a greater risk of obstructed labor, of having a baby with a low birth weight, of producing lower quality breastmilk, of mortality due to postpartum hemorrhage, and of morbidity of both her and her baby.

Micronutrient deficiencies are a result of inadequate intake of micronutrient-rich foods, the inadequate utilization of available micronutrients in the diet due to infection, and genetic abnormalities. Measures of micronutrient status (e.g. anemia), consumption of vitamin-A rich and iron-rich foods, micronutrient

supplementation for iron and vitamin A, and salt iodization are included in this chapter for both women and children.

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Nutritional Status

Percentage of children stunted, wasted, and underweight, and mean z-scores for stunting, wasting and underweight

Definition

Percentage of children under 5 years of age, by nutritional status:
1) Stunted.
2) Wasted and overweight.
3) Underweight and overweight for age.
4) Mean z-score for height-for-age, weight-for-height, and weight-for-age.

Coverage:
> Population base: Living children born 0-59 months before the survey (PR file)
> Time period: Current status at time of survey

Numerators:
Stunting:
1) Severely stunted: Number of children age 0-59 months whose height-for-age z-score is below minus 3 (-3.0) standard deviations (SD) below the median on the WHO Child Growth Standards (hc70 < -300)
2) Moderately or severely stunted: Number of children age 0-59 months whose height-for-age z-score is below minus 2 (-2.0) standard deviations (SD) below the median on the WHO Child Growth Standards (hc70 < -200)
3) Mean z-score for height-for-age: Sum of the z-scores of children age 0-59 months with a non-flagged height for age score ($\sum$ hc70/100, if hc70 < 9990)

Wasting and overweight:
4) Severely wasted: Number of children age 0-59 months whose weight-for-height z-score is below minus 3 (-3.0) standard deviations (SD) below the median on the WHO Child Growth Standards (hc72 < -300)
5) Moderately or severely wasted: Number of children age 0-59 months whose weight-for-height z-score is below minus 2 (-2.0) standard deviations (SD) below the median on the WHO Child Growth Standards (hc72 < -200)
6) Overweight: Number of children age 0-59 months whose weight-for-height z-score is above plus 2 (+2.0) standard deviations (SD) above the median on the WHO Child Growth Standards (hc72 > 200 & hc72 < 9990)
7) Mean z-score for weight for height: Sum of the z-scores of children age 0-59 months with a non-flagged weight for height score ($\sum$ hc72/100, if hc72 < 9990)

Underweight and overweight for age:
8) Severely underweight: Number of children age 0-59 months whose weight-for-age z-score is below minus 3 (-3.0) standard deviations (SD) below the median on the WHO Child Growth Standards (hc71 < -300)

9) Moderately underweight: Number of children age 0-59 months whose weight-for-age z-score is below minus 2 (-2.0) standard deviations (SD) below the median on the WHO Child Growth Standards (hc71 < -200)
10) Overweight for age: Number of children whose weight-for-age z-score is above plus 2 (+2.0) standard deviations (SD) above the mean on the WHO Child Growth Standards (hc71 > 200 & hc71 < 9990) (legacy indicator)
11) Mean z-score for weight for age: Sum of the z-scores of children age 0-59 months with a non-flagged weight for age score (∑ hc71/100, if hc71 < 9990)

Denominators:
Number of de facto living children between ages 0 and 59 months before the survey (hv103 = 1 & hc1 in 0:59) who have:
a) Stunting: valid non-flagged height for age z-scores (hc70 < 9990)
b) Wasting and overweight: valid non-flagged weight for height z-scores (hc72 < 9990)
c) Underweight and overweight for age: valid non-flagged weight for age z-scores (hc71 < 9990)

Variables: PR file.
hv103   Slept last night
hc1   Child's age in months
hc70   Height/Age standard deviation (new WHO)
hc71   Weight/Age standard deviation (new WHO)
hc72   Weight/Height standard deviation (new WHO)

Calculation

The assignment of anthropometric z-scores based on the WHO Child Growth Standards is done through a complicated interpolation function that takes into account sex, age (measured by difference in date of birth and date of interview, both precise to day of month), height in centimeters, and weight in kilograms (precise to 100 grams). As part of the creation of a recode file, variables with the z-scores are calculated and included in that file. The z-scores are calculated using software based on the WHO Anthro program and the macros for statistical packages at http://www.who.int/childgrowth/software/en/.

If the WHO Anthro program or the WHO igrowup macros are used to recalculate z-scores, then exclude cases without a month and year of birth recorded (hc33>1). Additionally, when the data are collected the weight variable includes two decimal places for weight (e.g. 10.65). This is rounded in the recode file to one decimal (variable hc2) (e.g. 10.7) and so recalculated z-scores may differ slightly.

In the process of assigning the z-scores, checks are made on their plausibility. Z-scores for height-for-age and weight-for-age are assigned special values to children with incomplete date of birth (month or year missing or "don't know") as the z-scores are sensitive to changes in age. Children with height-for-age z-scores below -6 SD or above +6 SD, with weight-for-age z-scores below -6 SD or above +5 SD, or with weight for height z-scores below -5 SD or above +5 SD are flagged as having invalid data.

The percentage of children stunted, wasted, and underweight are equal to the specific numerator divided by the appropriate denominator, multiplied by 100.

The mean z-scores are equal to the numerator divided by the appropriate denominator.

Handling of Missing Values

Children who were not weighed and measured and children whose values for weight and height were not recorded are excluded from both the denominators and the numerators. Children whose month or year of birth are missing or unknown are flagged and excluded from both the denominators and the numerators for anthropometry indices that use age in the calculation (i.e. height-for-age and weight-for-age). Children whose day of birth is missing or unknown are randomly assigned a day of birth. In DHS-VI and earlier rounds, children were assigned day 15. Children who are flagged for out-of-range z-scores or invalid z-scores are excluded from both the denominator and the numerators.

Notes and Considerations

Stunting, based on a child's height and age, is a measure of growth faltering. Wasting, based on a child's weight and height, is a measure of acute undernutrition. Underweight, based on weight and age, is a composite measure of wasting and stunting. Overweight, based on weight and height, is a measure of excess weight than is optimally healthy.

The World Health Organization (WHO) released an international growth standard statistical distribution in 2006, which describes the growth of children ages 0 to 59 months living in environments believed to support optimal growth of children in six countries throughout the world, including the U.S. The distribution shows how infants and young children grow under these conditions, rather than how they grow in environments that may not support optimal growth. The WHO Child Growth Standards (WHO, 2006) have replaced the NCHS/CDC/WHO international reference standard as the standard for assessing the nutritional status of children.

Due to natural variations in a well-nourished population, 2.2 percent of children will be between -2.0 and -2.99 SD below the mean, and 0.1 percent will be -3.0 or more SD below the mean. The extent of malnutrition in a population should be taken by the extent the proportions moderate and severe exceed these percentages that occur in a well-fed population of children.

Changes over Time

In phases of the DHS survey before DHS-IV, only children of interviewed women and who were under 5 years old (or the cutoff for the health section of the individual questionnaire) were weighed and measured. In many surveys, only a subsample of these children were selected for anthropometry.

The later DHS surveys (DHS-V onwards) included height and weight measurements of all children born in the 5 years preceding the survey and listed in the Household Questionnaire, irrespective of the interview status of their mother.

The levels of stunting, wasting, and underweight since DHS-VI are calculated using the 2006 WHO Child Growth Standards. In earlier surveys the NCHS/CDC/WHO international reference standard was used, and results published in the earlier survey reports will differ from those using the newer standard. In order to assess trends in nutritional status, the earlier DHS nutrition indicators should be re-calculated using the 2006 WHO Child Growth Standards. The recalculated variables hc70-hc73 are available in the

HW files (see *Chapter 1* under *Organization of Data, Recode Files*) for the older surveys, and can be merged with the KR file (for the oldest surveys) or the PR file (for later surveys prior to DHS-VI).

Prior to DHS-7 if any of the three sets of z-scores (height-for-age, weight-for-height, and weight-for-age) was flagged for a child, all were considered flagged and excluded from the numerators and denominators of the indicators. In DHS-7 this was changed so that there is a separate denominator for indicators based on height-for-age, weight-for-height and weight-for-age.

Prior to DHS-7, children whose day of birth was missing or recorded as "don't know" were assigned 15 as the day of birth. In DHS-7 and later rounds, the day of birth of the child was randomly imputed.

The overweight for age indicator (weight-for-age z-score is above +2.0 SD) is no longer included in the DHS-8 tabulation plan. All comparisons between surveys, either over time or between countries, should take into account the possible differences in the defined population base and in the reference standard used.

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Resources

WHO Anthro program and macros. http://www.who.int/childgrowth/software/en/

DHS-8 Tabulation plan: Table 11.1

API Indicator IDs:
`CN_NUTS_C_HA3, CN_NUTS_C_HA2, CN_NUTS_C_HAM, CN_NUTS_C_WH3, CN_NUTS_C_WH2, CN_NUTS_C_WHP, CN_NUTS_C_WHM, CN_NUTS_C_WA3, CN_NUTS_C_WA2, CN_NUTS_C_WAP, CN_NUTS_C_WAM`
(API link, STATcompiler link)

SDG Indicator 2.2.1: Prevalence of stunting among children under 5 years of age
SDG Indicator 2.2.2: Prevalence of malnutrition among children under 5 years of age, by type (wasting and overweight)

GNMF Indicator 1: Prevalence of low height-for-age in children under five years of age
GNMF Indicator 4: Prevalence of weight-for-height >+2 SD in children under five years of age
GNMF Indicator 6: Prevalence of low weight-for-height in children under five years of age

WHO 100 Core Health Indicators: Children under 5 years who are stunted
WHO 100 Core Health Indicators: Children under 5 years who are wasted
WHO 100 Core Health Indicators: Children under 5 years who are overweight

MICS6 Indicator TC.44: Underweight prevalence
MICS6 Indicator TC.45: Stunting prevalence
MICS6 Indicator TC.46: Wasting prevalence
MICS6 Indicator TC.47: Overweight prevalence

Percentage of women by nutritional status

Definition

1) Percentage of women age 20-49 with height under 145 cm.
2) Percentage of women age 15-19 who have short stature.
3) Percentage of non-pregnant, non-postpartum women age 20-49 by nutritional status based on specific body mass index (BMI) levels.
4) Percentage of non-pregnant, non-postpartum women age 15-19 by nutritional status based on specific body mass index for age (BMI-for-age) z-score levels.
5) Mean body mass index (BMI) for non-pregnant, non-postpartum women age 20-49.
6) Mean body mass index for age (BMI-for-age) z-score for non-pregnant, non-postpartum women age 15-19.

Coverage:
Population base: (IR file, PR file)
a) Women age 20-49
b) Women age 15-19
c) Non-pregnant and non-postpartum women age 20-49 years at the time of the survey
d) Non-pregnant and non-postpartum women age 15-19 years at the time of the survey
Time period: Current status at time of survey

Numerators:

1) Number of women age 20-49 with height below 145cm (v438 < 1450, if v438 in 1300:2200)
2) Number of women age 15-19 whose height-for-age z-score is below minus 2 (-2.0) standard deviations (SD) below the median on the WHO Growth Reference (v446a < -200)
3) Number of non-pregnant, non-postpartum women age 20-49 with a body mass index (BMI) with the following values:
a) Normal: 18.5 to 24.9 (v445 in 1850:2499)
b) Total thin: less than 18.5 (v445 in 1200:1849)
c) Mildly thin: 17.0 to 18.4 (v445 in 1700:1849)
d) Moderately and severely thin: less than 17.0 (v445 in 1200:1699)
e) Total overweight or obese (>=25.0) (v445 in 2500:6000)
f) Overweight: 25.0 to 29.9 (v445 in 2500:2999)
g) Obese: 30.0 or more (v445 in 3000:6000)
4) Number of non-pregnant, non-postpartum women age 15-19 with a BMI-for-age z-score with the following values:
a) Normal: between minus 1 (-1.0) standard deviations (SD) and plus 1 (+1.0) SD above the median on the WHO Growth Reference (v446d in -100:100)
b) Total thin: less than less than minus 1 (-1.0) SD below the median on the WHO Growth Reference (v446d < -100)
c) Mildly thin: between minus 1 (-1.0) SD and minus 2 (-2.0) SD below the median on the WHO Growth Reference (v446d in -200:-101)
d) Moderately and severely thin: less than minus 2 (-2.0) SD below the median on the WHO Growth Reference (v446d < -200)
e) Total overweight or obese: greater than plus 1 (1.0) SD above the median on the median on the WHO Growth Reference (v446d > 100)

f) Overweight: between plus 1 (+1.0) SD and plus 2 (+2.0) SD above the median on the WHO Growth Reference (v446d in 101:200)
g) Obese: greater than plus 2 (2.0) SD above the median on the median on the WHO Growth Reference (v446d > 200)
5) Mean BMI: Sum of BMI for non-pregnant, non-postpartum women age 20-49 who were weighed and measured ($\sum$ v445/100, if v445 in 1200:6000)
6) Mean z-score for BMI-for-age: Sum of the z-scores for non-pregnant, non-postpartum women age 15-19 with a non-flagged BMI for age score ($\sum$ v446d/100, if v446d < 9990)

Denominator:
a) Number of women age 20-49 with a valid height measurement (v438 in 1300:2200)
b) Number of women age 15-19 with a valid height for age z-score (v446d < 9990)
c) Number of women age 20-49, excluding women who are pregnant or who gave birth in the 2 months preceding the date of the interview (v213 ≠ 1 and (v208 = 0 or b19_01 >= 2)), with a valid BMI (v445 in 1200:6000)
d) Number of women age 15-19, excluding women who are pregnant or who gave birth in the 2 months preceding the date of the interview (v213 ≠ 1 and (v208 = 0 or b19_01 >= 2)), with a valid BMI for age z-score (v446d < 9990)
e) Same as denominator 3
f) Same as denominator 4

Variables: IR file.
v012   Current age
v208   Births in last five years
v213   Currently pregnant
b19_01   Current age of child in months (months since birth for dead children) (01 is last birth)
v438   Respondent's height in centimeters
v445   Body Mass Index
v446a   Height/Age standard deviation (new WHO)
v446d   BMI-for-age z-score
v005   Women's individual sample weight

b19_01 exists in DHS-7 and DHS-8 surveys. For older surveys use b19_01 = v008 - b3_01 to create its equivalent.

Calculation

The body mass index is calculated as weight in kilograms divided by the square of height in meters. The percentages of women, by category, are equal to the category numerators divided by the denominator and multiplied by 100.

The assignment of height-for-age and BMI-for-age z-scores based on the WHO Growth Reference is done through a complicated interpolation function that takes into account sex, age (measured by difference in date of birth and date of interview, both precise to day of month), height in centimeters, and weight in kilograms (precise to 100 grams). As part of the creation of a recode file, variables with the z-scores are calculated and included in that file. The z-scores are calculated using software based on

the WHO Anthro program and the macros for statistical packages at https://www.who.int/tools/growth-reference-data-for-5to19-years/application-tools.

If the WHO Anthro program or the WHO 2007 macros are used to recalculate z-scores, then exclude cases without a month and year of birth recorded (v014 > 1). Additionally, when the data are collected the weight variable includes two decimal places for weight (e.g. 50.65). This is rounded in the recode file to one decimal (variable v437) (e.g. 50.7) and so recalculated z-scores may differ slightly.

In the process of assigning the z-scores, checks are made on their plausibility. Z-scores for height-for-age and BMI-for-age are assigned special values to women with incomplete date of birth (month or year missing or "don't know") as the z-scores are sensitive to changes in age. Respondents with height-for-age z-scores below -6 SD or above +6 SD, or with BMI-for-age z-scores below -5 SD or above +5 SD, are flagged as having invalid data.

The percentage of women stunted and by BMI-for-age categories are equal to the specific numerators divided by the appropriate denominators and multiplied by 100.

In ever-married women samples, the data in the IR file are augmented with data from the PR file for never-married women to provide nutritional status estimates for all women. In ever-married samples (hv020 = 1), never-married women who are de facto residents and were weighed and measured (hv115 = 0 & hv103 = 1 & either ha3 in 1300:2200 or ha40 in 1200:6000, ha70 in -600:600, or ha73 in -600:500 depending on the denominator) are added to the denominator, and to the numerators if their height (ha3) was below 145 cm, their height-for-age (ha70) was below -2.0 SD, and if their BMI or BMI-for-age were in the appropriate categories (ha40 or ha73). In ever-married samples, never-married women are assumed to not be pregnant nor to have had a recent birth.

Added variables required for ever-married samples:
hv020   Ever-married sample
hv103   Slept last night
hv115   Current marital status
ha1   Woman's age in years
ha3   Woman's height in centimeters
ha40   Body Mass Index
ha70   Height/Age standard deviation (new WHO) (women age 15-19)
ha73   BMI/Age standard deviation (new WHO) (women age 15-19)
hv005   Household sample weight

The mean BMI or BMI-for-age z-scores are equal to the numerator divided by the denominator.

Handling of Missing Values

Women who were not weighed and measured and women whose values for weight and height were not recorded are excluded from both the denominator and the numerators. Women whose month or year of birth are missing or unknown are flagged and excluded from both the denominators and the numerators for anthropometry indices that use age in the calculation (i.e. height-for-age and BMI-for-age). Women whose day of birth is missing or unknown are assigned day 15. Women whose calculated BMI is below 12.0 or above 60.0 are flagged as out of range and are excluded from both the

denominator and the numerators. Women who are flagged for out-of-range z-scores or invalid z-scores are excluded from both the denominator and the numerators.

Notes and Considerations

BMI, also known as the Quetelet Index, is a measure of nutritional status in adults. It is based on the Fogarty Metropolitan Life tables of ideal weight for height. BMI-for-age is a measure of nutritional status in adolescents. It is sex and age specific because adolescents are still growing, and the timing of peak growth differs in boys and girls.

These indicators could be presented based on the IR file or the PR file. Using the PR file would result in a slightly larger sample size, but the IR file is chosen for consistency with other women's indicators, and as some of the women's characteristics used in presenting the results are only available for women with completed interviews.

Changes over Time

In phases of the DHS survey before DHS-IV, either only interviewed women or mothers of children under 5 years (or the cutoff for the health section of the individual questionnaire) were weighed and measured. In some surveys, only a subsample of these women were selected for anthropometry. All comparisons between surveys, either over time or between countries, should take into account the possible differences in the defined population base. While pregnant women and women two months postpartum are weighed and measured, they are excluded from the BMI and BMI-for-age indicator calculations because of weight gain during pregnancy.

In DHS-8 surveys, the nutritional status of adolescents age 15-19 are calculated using BMI-for-age z-scores. To better align with adult BMI classifications, DHS-8 surveys report adolescent total thin as BMI-for-age z-scores <-1SD (Lelijveld et al. 2022). Prior survey rounds calculated adolescent nutritional status using BMI. Hence, caution should be observed when comparing the figures in DHS-8 with the results published in the final reports for previous DHS surveys.

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Resources

DHS-8 Tabulation plan: Table 11.14.1 and Table 11.14.2

API Indicator IDs:
AN_NUTS_W_SHT, AN_NUTS_W_NRM, AN_NUTS_W_THN, AN_NUTS_W_TH1, AN_NUTS_W_TH2, AN_NUTS_W_OWT, AN_NUTS_W_OVW, AN_NUTS_W_OBS, AN_NUTS_W_BMI
(API link, STATcompiler link)

GNMF Indicator 10: Proportion of overweight and obese women 18+ years of age (body mass index ≥25 kg/m2)

Percentage of men by nutritional status

Definition

1) Percentage of men age 20-49 by nutritional status based on specific body mass index (BMI) levels.
2) Percentage of men age 15-19 by nutritional status based on specific body mass index for age (BMI-for-age) z-scores levels.
3) Mean body mass index (BMI) for men age 20-49.
4) Mean body mass index for age (BMI-for-age) z-score for men age 15-19.

Coverage:
        Population base: (MR file, PR file)
        a) Men age 20-49
        b) Men age 15-19
        Time period: Current status at time of survey

Numerators:
1) Number of men age 20-49 with a body mass index (BMI) with the following values:
   a) Normal: 18.5 to 24.9 (hb40 in 1850:2499)
   b) Total thin: less than 18.5 (hb40 in 1200:1849)
   c) Mildly thin: 17.0 to 18.4 (hb40 in 1700:1849)
   d) Moderately and severely thin: less than 17.0 (hb40 in 1200:1699)
   e) Total overweight or obese (>= 25.0) (hb40 in 2500:6000)
   f) Overweight: 25.0 to 29.9 (hb40 in 2500:2999)
   g) Obese: 30.0 or more (hb40 in 3000:6000)
2) Number of men age 15-19 with a BMI-for-age z-score with the following values:
   a) Normal: between minus 1 (-1.0) standard deviations (SD) and plus 1 (+1.0) SD above the median on the WHO Growth Reference (hb73 in -100:100)
   b) Total thin: less than less than minus 1 (-1.0) SD below the median on the WHO Growth Reference (hb73 < -100)
   c) Mildly thin: between minus 1 (-1.0) SD and minus 2 (-2.0) SD below the median on the WHO Growth Reference (hb73 in -200:-101)
   d) Moderately and severely thin: less than minus 2 (-2.0) SD below the median on the WHO Growth Reference (hb73 < -200)
   e) Total overweight or obese: greater than plus 1 (1.0) SD above the median on the median on the WHO Growth Reference (hb73 > 100)
   f) Overweight: between plus 1 (+1.0) SD and plus 2 (+2.0) SD above the median on the WHO Growth Reference (hb73 in 101:200)
   g) Obese: greater than plus 2 (2.0) SD above the median on the median on the WHO Growth Reference (hb73 > 200)
3) Mean BMI: Sum of BMI for men age 20-49 who were weighed and measured ($\sum$ hb40/100, if hb40 in 1200:6000)
4) Mean z-score for BMI-for-age: Sum of the z-scores for men age 15-19 with a non-flagged BMI for age score ($\sum$ hb73/100, if hb73 < 9990)

Denominator:
a) Number of men age 20-49 with a valid BMI (hb40 in 1200:6000)

b) Number of men age 15-19, with a valid BMI for age z-score (hb73 < 9990)
c) Same as denominator 1
d) Same as denominator 2

hv103   Slept last night
hb1   Man's age in years
hb40   Body Mass Index
hb73   BMI/Age standard deviation (new WHO) (men age 15-19)
mv003   Respondent's line number
mv005   Men's sample weight

Calculation

To calculate the nutritional status for men, it is first necessary to merge the anthropometric variables from the household members recode (PR file) to the men's recode (MR file) using the cluster, household and line numbers (see *Matching and Merging Datasets* in *Chapter 1*).

The body mass index is calculated as weight in kilograms divided by the square of height in meters. The percentages of men, by category, are equal to the category numerators divided by the denominator and multiplied by 100.

The mean BMI is equal to the numerator divided by the denominator.

The assignment of BMI-for-age z-scores based on the WHO Growth Reference is done through a complicated interpolation function that takes into account sex, age (measured by difference in date of birth and date of interview, both precise to day of month), height in centimeters, and weight in kilograms (precise to 100 grams). As part of the creation of a recode file, variables with the z-scores are calculated and included in that file. The z-scores are calculated using software based on the WHO Anthro program and the macros for statistical packages at https://www.who.int/tools/growth-reference-data-for-5 to19-years/application-tools.

If the WHO Anthro program or the WHO 2007 macros are used to recalculate z-scores, then exclude cases without a month and year of birth recorded (mv014>1). Additionally, when the data are collected the weight variable includes two decimal places for weight (e.g. 60.65). This is rounded in the recode file to one decimal (variable hb2) (e.g. 60.7) and so recalculated z-scores may differ slightly.

In the process of assigning the z-scores, checks are made on their plausibility. Z-scores for BMI-for-age are assigned special values to men with incomplete date of birth (month or year missing or "don't know" (m014 > 1)) as the z-scores are sensitive to changes in age. Respondents with BMI-for-age z-scores below -6 SD or above +6 SD (hb73 < -600 or bh73 > 600), are flagged as having invalid data. The percentage of men by BMI-for-age categories are equal to the specific numerators divided by the appropriate denominators and multiplied by 100.

The mean BMI-for-age z-scores are equal to the numerator divided by the denominator.

Handling of Missing Values

Men who were not weighed and measured and men whose values for weight and height were not recorded are excluded from both the denominator and the numerators. Men whose month or year of birth are missing or unknown are flagged and excluded from both the denominators and the numerators for anthropometry indices that use age in the calculation (i.e. BMI-for-age). Men whose day of birth is missing or unknown are assigned day 15. Men whose calculated BMI is below 12.0 or above 60.0 are flagged as out of range and are excluded from both the denominator and the numerators. Men who are flagged for out-of-range z-scores or invalid z-scores are excluded from both the denominator and the numerators.

Notes and Considerations

BMI, also known as the Quetelet Index, is a measure of nutritional status in adults. It is based on the Fogarty Metropolitan Life tables of ideal weight for height. BMI-for-age is a measure of nutritional status in adolescents. It is sex and age specific because adolescents are still growing, and the timing of peak growth differs in boys and girls.

These indicators could be presented based on the MR file or the PR file. Using the PR file would result in a slightly larger sample size, but the MR file is chosen for consistency with other men's indicators, and as some of the men's characteristics used in presenting the results are only available for men with completed interviews.

Changes over Time

In some surveys, only a subsample of men were selected for anthropometry. All comparisons between surveys, either over time or between countries, should take into account the possible differences in the defined population base.

In DHS-8 surveys, the nutritional status of adolescents age 15-19 are calculated using BMI-for-age z-scores. To better align with adult BMI classifications, DHS-8 surveys report adolescent total thin as BMI-for-age z-scores <-1SD (Lelijveld et al. 2022). Prior survey rounds calculated adolescent nutritional status using BMI. Hence, caution should be observed when comparing the figures in DHS-8 with the results published in the final reports for previous DHS surveys.

References

See *References* for *Percentage of women by nutritional status*.

Resources

DHS-8 Tabulation plan: Table 11.14.3 and 11.14.4

API Indicator IDs:
`AN_NUTS_M_NRM, AN_NUTS_M_THN, AN_NUTS_M_TH1, AN_NUTS_M_TH2, AN_NUTS_M_OWT,`
`AN_NUTS_M_OVW, AN_NUTS_M_OBS, AN_NUTS_M_BMI`
([API link](), [STATcompiler link]())

Child Growth Monitoring

Percentage of children who had their weight measured, weight and height measured, mid-upper arm circumference (MUAC) measured, and weight, height and mid-upper arm circumference measured in the last 3 months

Definition

Percentage of children under age 5 who:
1) had their weight measured by a healthcare provider in the last 3 months.
2) had their height measured by a healthcare provider in the last 3 months.
3) had their MUAC measured by a healthcare provider in the last 3 months.
4) had their weight and height measured by a healthcare provider in the last 3 months.
5) had their weight, height, and MUAC measured by a healthcare provider in the last 3 months.

Coverage:
       Population base: Children born 0-59 months before the survey (KR file)
       Time period: 3 months preceding the survey

Numerators:
Number of children age 0-59 months who had their:
1) weight measured by a healthcare provider in the last 3 months.
2) height measured by a healthcare provider in the last 3 months.
3) MUAC measured by a healthcare provider in the last 3 months.
4) weight and height measured by a healthcare provider in the last 3 months.
5) weight, height, and MUAC measured by a healthcare provider in the last 3 months

Denominator: Number children age 0-59 months

Variables: KR file.

caseid	Case Identification
h70a	Past 3 months health care provider measured child's weight
h70b	Past 3 months health care provider measured child's length/height
h70c	Past 3 months health care provider measured child's upper arm
v005	Women's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing values and "don't know" excluded from numerators in all percentages but included in denominators.

Changes over Time

The indicators of child growth monitoring were introduced in DHS-8.

References

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Resources

DHS-8 Tabulation plan: Table 11.2

API Indicator IDs:
`CN_GWMT_WGT,CN_GWMT_HGT,CN_GWMT_MUA,CN_GWMT_WAH,CN_GWMT_WHM`
(API link, STATcompiler link)

Anemia Status

Percentage of children with anemia

Definition

Percentage of children age 6-59 months with mild, moderate or severe anemia or with any anemia.

Numerators:
1) Any anemia: Number of children whose hemoglobin count is less than 11 grams per deciliter (g/dl) (hc57 in 1:3)
2) Mild anemia: Number of children whose hemoglobin count is between 10.0 and 10.9 grams per deciliter (g/dl) (hc57 = 3)
3) Moderate anemia: Number of children whose hemoglobin count is between 7.0 and 9.9 grams per deciliter (g/dl) (hc57 = 2)
4) Severe anemia: Number of children whose hemoglobin count is less than 7.0 grams per deciliter (g/dl) (hc57 = 1)

Denominator: Number of children between age 6-59 months who were measured in households selected for anemia testing who stayed in the household on the night before the survey (hv042 = 1 & hc1 in 6:59 & hc55 = 0 & hv103 = 1)

Variables: PR file.
hv042	Household selected for hemoglobin
hv103	Slept in household
hc1	Child's age in months
hc55	Result of measurement – hemoglobin
hc57	Anemia level

Calculation

At the time of creation of a recode file, an adjustment of the hemoglobin count is made for altitude. Rather than change the cutoff points, the effective hemoglobin count is lowered as altitude increases, since oxygen is less available. The adjustment is made with the following formula:

$$\textbf{adjust} = -0.032 * alt + 0.022 * alt^2$$
$$\textbf{adjHb} = Hb - adjust \text{ if adjust > 0}$$

where **adjust** is the amount of the adjustment, alt is altitude in 1,000 feet (converted from meters by dividing by 1,000 and multiplying by 3.3), **adjHb** is the adjusted hemoglobin level, and **Hb** is the

measured hemoglobin level in grams per deciliter. No adjustment is made for altitudes below 1,000 meters. Both the adjusted and unadjusted hemoglobin counts are included in the recode files.

The percentage anemic, by category, is obtained by dividing the numerators by the denominator and multiplying by 100.

Handling of Missing Values

Children whose mothers are not listed in the Household Questionnaire are excluded. Children who were not tested and those children whose hemoglobin values were not recorded are excluded from both the denominator and the numerators.

Notes and Considerations

Children less than six months of age are not included because they have higher levels of hemoglobin at birth and just after birth and thus may distort the indication of prevalence of anemia.

People residing at higher altitudes (greater than 1,000 meters (~3,300 feet)) have higher Hb levels than those residing at sea level. This variation is due to the lower oxygen partial pressure at higher altitudes, a reduction in oxygen saturation of blood, and a compensatory increase in red cell production to ensure adequate oxygen supply to the tissues. Thus, higher altitude causes a generalized upward shift of the Hb distributions. This shift may be associated with the underdiagnosis of anemia for residents of higher altitudes when sea-level cutoffs are applied (CDC, unpublished data). Therefore, the proper diagnosis of anemia for those residing at higher altitudes requires an upward adjustment of Hb cutoffs. The values for altitude-specific adjustment of Hb are derived from data collected by the CDC Pediatric Nutrition Surveillance System on children residing at various altitudes in the mountain states. Altitude affects Hb levels throughout pregnancy in a similar way (J.N. Chatfield, unpublished data). Altitude data should always be obtained to adjust where the altitude of the dwelling is more than 1,000 meters. The DHS Program uses cluster altitude instead of altitude for each dwelling in the cluster. Note that both the adjusted and unadjusted altitude data are available in the recode files.

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WHO. 2015. *The global prevalence of anaemia in 2011.* https://www.who.int/publications/i/item/9789241564960

Resources

DHS-8 Tabulation plan: Table 11.12

API Indicator IDs:
CN_ANMC_C_ANY, CN_ANMC_C_MLD, CN_ANMC_C_MOD, CN_ANMC_C_SEV
(API link, STATcompiler link)

WHO 100 Core Health Indicators: Anaemia prevalence in children

Percentage of women with anemia

Definition

Percentage of women age 15-49 with mild, moderate or severe anemia or with any anemia.

Numerators:
1) Any anemia:
   - Number of non-pregnant women whose hemoglobin count is less than 12.0 grams per deciliter (g/dl) (v456 < 120)
   - plus number of pregnant women whose count is less than 11.0 g/dl (v456 < 110)
2) Mild anemia:
   - Number of non-pregnant women whose hemoglobin count is between 11.0 and 11.9 g/dl (v456 in 110:119)
   - plus number of pregnant women whose hemoglobin count is between 10.0 and 10.9 g/dl (v456 in 100:109)
3) Moderate anemia:
   - Number of non-pregnant women whose hemoglobin count is between 8.0 and 10.9 g/dl (v456 in 80:109)
   - plus number of pregnant women whose hemoglobin count is between 7.0 and 9.9 g/dl (v456 in 70:99)
4) Severe anemia:
   - Number of non-pregnant women whose hemoglobin count is less than 8.0 g/dl (v456<80)
   - plus number of pregnant women whose hemoglobin count is less than 7.0 g/dl (v456<70)

Denominator: Number of women age 15-49 years measured for anemia in households selected for anemia testing (v042 = 1 and v455 = 0)

Variables: IR file.
v042   Household selected for hemoglobin
v455   Result of measurement - hemoglobin
v456   Hemoglobin level adjusted for altitude and smoking (g/dl – 1 decimal)
v005   Women's individual sample weight

Calculation

At the time of creation of a recode file, an adjustment of the hemoglobin count is made for altitude. Rather than change the cutoff points, the effective hemoglobin count is lowered as altitude increases, since oxygen is less available. The adjustment is made with the following formulas:

$$\textbf{adjust} = \ -\textbf{0.032} * \textbf{alt} + \textbf{0.022} * \textbf{alt}^2$$
$$\textbf{adjHb} = \ \textbf{Hb} - \textbf{adjust} \text{ if adjust} > 0$$

where **adjust** is the amount of the adjustment, alt is altitude in 1,000 feet (converted from meters by dividing by 1,000 and multiplying by 3.3), **adjHb** is the adjusted hemoglobin level, and **Hb** is the measured hemoglobin level in grams per deciliter. No adjustment is made for altitudes below 1,000 meters. Both the adjusted and unadjusted hemoglobin counts are included in the recode files.

Similarly, an adjustment is made for women who smoke (if information was collected). The adjustment is to be made in accordance with the following table:

Cigarettes Smoked	Adjust Hb (g/dl) concentration by
Less than 10 per day	No adjustment
10-19 per day	-0.3
20-39 per day	-0.5
40 or more per day	-0.7
Unknown quantity or non-cigarettes smoking	-0.3

In ever-married women samples, the data in the IR file are augmented with data from the PR file for never-married women to provide anemia prevalence estimates for all women. In ever-married samples (hv020 = 1), never-married women who are de facto residents and were tested for anemia (hv115 = 0 & hv103 = 1 & hv042 = 1 & ha55 = 0) are added to the denominator, and to the numerators if their hemoglobin levels were in the appropriate categories (ha57 in 1:3).

Added variables required for ever-married samples:
hv020   Ever-married sample
hv042   Household selected for hemoglobin
hv103   Slept last night
ha55   Result of measurement – hemoglobin
ha56   Hemoglobin level adjusted for altitude and smoking (g/dl – 1 decimal)
hv005   Household sample weight

The percentage anemic, by category, is obtained by dividing the numerators by the denominator and multiplying by 100.

Handling of Missing Values

Women who were not tested and women whose values were not recorded are excluded from both the denominator and the numerators.

Notes and Considerations

Pregnancy causes an increase in blood fluid diluting somewhat the concentration of hemoglobin. Therefore, the cutoff for mild anemia is lowered for pregnant women. No adjustment is made for the cutoff values for either moderate or severe anemia. Because the availability of oxygen is less at higher altitudes (lower partial pressures) and because smoking interferes with the blood's capacity to transfer oxygen, adjustments need to be made for both altitude and smoking.

People residing at higher altitudes (greater than 1,000 meters (~3,300 feet)) have higher Hb levels than those residing at sea level. This variation is due to the lower oxygen partial pressure at higher altitudes, a reduction in oxygen saturation of blood, and a compensatory increase in red cell production to ensure

adequate oxygen supply to the tissues. Thus, higher altitude causes a generalized upward shift of the Hb distributions. This shift may be associated with the under diagnosis of anemia for residents of higher altitudes when sea-level cutoffs are applied (CDC, unpublished data). Therefore, the proper diagnosis of anemia for those residing at higher altitudes requires an upward adjustment of Hb cutoffs. The values for altitude-specific adjustment of Hb are derived from data collected by the CDC Pediatric Nutrition Surveillance System on children residing at various altitudes in the mountain states. Altitude affects Hb levels throughout pregnancy in a similar way (Chatfield, unpublished data).

The influence of cigarette smoking is similar to that of altitude; smoking increases Hb level substantially. The higher Hb of smokers is a consequence of an increased carboxyhemoglobin from inhaling carbon monoxide while smoking. Because carboxyhemoglobin has no oxygen-carrying capacity, its presence causes a generalized upward shift of the Hb distribution curves (CDC, unpublished data). Therefore, a smoking-specific adjustment to the anemia cutoff is necessary for the proper diagnosis of anemia in smokers.

The adjustment for altitude can be substantial, but the adjustment for smoking is less substantial. Thus, where no smoking information is available, no adjustment is made. However, altitude data should always be obtained to adjust where the altitude of the dwelling is more than 1,000 meters. The DHS Program uses cluster altitude instead of altitude for each dwelling in the cluster. Note that both the adjusted and unadjusted altitude data are available in the recode files.

The World Health Organization recommends slightly different hemoglobin cutoffs to define anemia for non-pregnant women: mild anemia (11.0-11.9 g/dL), moderate anemia (8.0-10.9 g/dL), and severe anemia.

These indicators could be presented based on the IR file or the PR file. Using the PR file would result in a slightly larger sample size, but the IR file is chosen for consistency with other women's indicators, and as some of the women's characteristics used in presenting the results are only available for women with completed interviews.

Changes over Time

Prior to February 2019, previous versions of the Guide to DHS Statistics and previous final report tables had incorrect categorization of hemoglobin levels for non-pregnant women. Previous categories were labeled as mild anemia (10.0-11.9 g/dl), moderate anemia (7.0-9.9 g/dl), and severe anemia (<7.0 g/dl), though the true categories are mild (11.0-11.9 g/dl), moderate (8.0-10.9 g/dl), and severe (<8.0 g/dl). These incorrectly categorized levels were reflected in the variables v457 and ha57 and therefore v456 and ha56 must be used instead to estimate anemia levels when using these earlier surveys. These calculations and labels were corrected in February 2019.

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Resources

DHS-8 Tabulation plan: Table 11.17.1

API Indicator IDs:
`AN_ANEM_W_ANY, AN_ANEM_W_MLD, AN_ANEM_W_MOD, AN_ANEM_W_SEV`
(API link, STATcompiler link)

SDG Indicator 2.2.3: Prevalence of anaemia in women aged 15 to 49 years, by pregnancy status (percentage)

GNMF Indicator 2: Prevalence of haemoglobin <11 g/dL in pregnant women; Prevalence of haemoglobin <12 g/dL in non-pregnant women

WHO 100 Core Health Indicators: Anaemia prevalence in women

Percentage of men with anemia

Definition

Percentage of men age 15-49 with mild, moderate or severe anemia or with any anemia.

Coverage:
>   Population base: All men age 15-49 (MR file, PR file)
>   Time period: Current status at time of survey

Numerator:
1) Any anemia: Number of men whose hemoglobin count is less than 13.0 grams per deciliter (g/dl) (hb56 < 130)
2) Mild anemia: Number of men whose hemoglobin count is between 11.0 and 12.9 g/dl (hb56 in 110:129)
3) Moderate anemia: Number of men whose hemoglobin count is between 8.0 and 10.9 g/dl (hb56 in 80:109)
4) Severe anemia: Number of men whose hemoglobin count is less than 8.0 g/dl (hb56 < 80)

Denominator: Number of men age 15-49 measured for anemia in households selected for anemia testing (hv042 = 1 and hb55 = 0)

Variables: MR file, PR file.
hv042	Household selected for hemoglobin
hb55	Result of measurement – hemoglobin
hb56	Hemoglobin level adjusted for altitude and smoking (g/dl - 1 decimal)
mv005	Household sample weight

Calculation

To calculate the anemia status for men, it is first necessary to merge the anemia test variables from the household members recode (PR file) to the men's recode (MR file) using the cluster, household and line numbers (see *Matching and Merging Datasets* in *Chapter 1*).

At the time of creation of a recode file, an adjustment of the hemoglobin count is made for altitude. Rather than change the cutoff points, the effective hemoglobin count is lowered as altitude increases, since oxygen is less available. The adjustment is made with the following formulas:

$$\textbf{adjust} = -0.032 * alt + 0.022 * alt^2$$
$$\textbf{adjHb} = Hb - adjust \text{ if adjust} > 0$$

where **adjust** is the amount of the adjustment, alt is altitude in 1,000 feet (converted from meters by dividing by 1,000 and multiplying by 3.3), **adjHb** is the adjusted hemoglobin level, and **Hb** is the measured hemoglobin level in grams per deciliter. No adjustment is made for altitudes below 1,000 meters. Both the adjusted and unadjusted hemoglobin counts are included in the recode files.

Similarly, an adjustment is made for men who smoke (if information was collected). The adjustment is to be made in accordance with the following table:

Cigarettes Smoked	Adjust Hb (g/dl) concentration by
Less than 10 per day	No adjustment
10-19 per day	-0.3
20-39 per day	-0.5
40 or more per day	-0.7
Unknown quantity or non-cigarettes smoking	-0.3

The percentage anemic, by category, is obtained by dividing the numerators by the denominator and multiplying by 100.

Handling of Missing Values

Men who were not tested and men whose values were not recorded are excluded from both the denominator and the numerators.

Notes and Considerations

No adjustment is made for the cutoff values for either moderate or severe anemia. Because the availability of oxygen is less at higher altitudes (lower partial pressures) and because smoking interferes with the blood's capacity to transfer oxygen, adjustments need to be made for both altitude and smoking.

People residing at higher altitudes (greater than 1,000 meters (3,300 feet)) have higher Hb and Hct levels than those residing at sea level. This variation is due to the lower oxygen partial pressure at higher altitudes, a reduction in oxygen saturation of blood, and a compensatory increase in red cell production to ensure adequate oxygen supply to the tissues. Thus, higher altitude causes a generalized upward shift of the Hb distributions. This shift may be associated with the under diagnosis of anemia for residents of higher altitudes when sea-level cutoffs are applied (CDC, unpublished data). Therefore, the proper diagnosis of anemia for those residing at higher altitudes requires an upward adjustment of Hb cutoffs. The values for altitude-specific adjustment of Hb are derived from data collected by the CDC Pediatric Nutrition Surveillance System on children residing at various altitudes in the mountain states.

The influence of cigarette smoking is similar to that of altitude; smoking increases Hb level substantially. The higher Hb of smokers is a consequence of an increased carboxyhemoglobin from inhaling carbon monoxide while smoking. Because carboxyhemoglobin has no oxygen-carrying capacity, its presence causes a generalized upward shift of the Hb distribution curves (CDC, unpublished data). Therefore, a smoking-specific adjustment to the anemia cutoff is necessary for the proper diagnosis of anemia in smokers.

The adjustment for altitude can be substantial, but the adjustment for smoking is less substantial. Thus, where no smoking information is available, no adjustment is made. However, altitude data should always be obtained to adjust where the altitude of the dwelling is more than 1,000 meters. The DHS Program uses cluster altitude instead of altitude for each dwelling in the cluster. Note that both the adjusted and unadjusted altitude data are available in the recode files.

These indicators could be presented based on the MR file or the PR file. Using the PR file would result in a slightly larger sample size, but the MR file is chosen for consistency with other men's indicators, and as some of the men's characteristics used in presenting the results are only available for men with completed interviews.

Changes over Time

Starting in DHS-8, the prevalence of mild, moderate, and severe anemia for men is shown in addition to any anemia.

References

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Resources

DHS-8 Tabulation plan: Table 11.17.2

API Indicator IDs:
AN_ANEM_M_ANY
(API link, STATcompiler link)

Early Breastfeeding

Percentage of children ever breastfed, put to the breast within one hour of birth (early initiation of breastfeeding), who started breastfeeding within one day of birth, and were exclusively breastfed for the first 2 days after birth

Definition

1) Percentage of children born in the past 2 years ever breastfed.
2) Percentage of children born in the past 2 years who were put to the breast within one hour of birth.
3) Percentage of last-born children born in the past 2 years who started breastfeeding within one day of birth (legacy indicator).
4) Percentage of last-born children born in the past 2 years who were ever breastfed and who received a prelacteal feed (legacy indicator).
5) Percentage of children born in the past 2 years who were fed exclusively with breastmilk for the first 2 days after birth.

Coverage:
       Population base: Children born in the 2 years preceding the survey, surviving and dead (KR file)
       Time period: Two years preceding the survey

Numerators:
Number of children born in the past 2 years (b19 < 24), both living and dead, who:
1) Were ever breastfed (m4 ≠ 94,99)
2) Were put to the breast within one hour of birth (m4 ≠ 94,99 & m34 in 0,100)
3) Started breastfeeding within one day of birth (m4 ≠ 94,99 & m34 in 0:123 [23 hours])
4) Were ever breastfed and given something other than breastmilk during the first three days of life (m4 ≠ 94,99 & m55 = 1)
5) Were fed exclusively with breastmilk for the first 2 days after birth (m4 ≠ 94,99 & m55 = 0)

Denominators:
a) For numerator 1, 2, 5: Number of children who were born in the 2 years preceding the survey (b19 < 24)
b) For numerator 3: Number of last-born children who were born in the 2 years preceding the survey (midx = 1 & b19 < 24)
c) For numerator 4: Number of last-born children who were born in the 2 years preceding the survey who were ever breastfed (midx = 1 & b19 < 24 & m4 ≠ 94,99)

Variables: KR file.
midx	Index to Birth History
b19	Current age of child in months (months since birth for dead children)
m4	Duration of breastfeeding
m34	When child put to breast
m55	Given child anything other than breastmilk
v005	Woman's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing data are excluded from numerators but are included in denominators.

Notes and Considerations

The DHS-8 indicators on ever breastfed, children who were put to the breast within one hour of birth, and who were fed exclusively with breastmilk for the first 2 days after birth are based on all children born in the 2 years preceding the survey, both alive and dead.

Changes over Time

The early breastfeeding indicators have changed over time. For DHS-IV and DHS-V surveys, the early breastfeeding indicators were reported for all children born in the 5 years before the survey. For DHS-VI and DHS-7 surveys, the indicators were reported for last-born children born in the 2 years preceding the survey.

For DHS-8, all early breastfeeding indicators are reported for all children born in the 2 years preceding the survey, both alive and dead.

In earlier rounds of DHS, initiation of breastfeeding within one hour and within one day of birth were calculated among the children who were ever-breastfed, whereas for the DHS-VI and DHS-7 results were based on last-born children who were born in the 2 years preceding the survey.

Hence, caution should be observed when comparing the figures in DHS-8 with the results published in the final reports for previous DHS surveys.

The prelacteal feeding indicator (ever breastfed and were given something other than breastmilk in the first 3 days after birth) has been replaced by the indicator exclusively breastfed for the first two days after birth.

The indicators early initiation of breastfeeding within one day of birth and prelacteal feeding are no longer included in the DHS-8 tabulation plan.

References

WHO and UNICEF 2021. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. https://www.who.int/publications/i/item/9789240018389

Resources

DHS-8 Tabulation plan: Tables 11.3 and 11.10

API Indicator IDs:
CN_BRFI_C_EVR, CN_BRFI_C_1HR, CN_BRFI_C_1DY, CN_BRFI_C_PLF, CN_BRFI_C_EXC
([API link](), [STATcompiler link]())

WHO/UNICEF IYCF Indicator 1: Ever breastfed
WHO/UNICEF IYCF Indicator 2: Early initiation of breastfeeding
WHO/UNICEF IYCF Indicator 3: Exclusively breastfed for the first two days after birth
WHO 100 Core Health Indicators: Early initiation of breastfeeding
MICS6 Indicator TC.30: Children ever breastfed
MICS6 Indicator TC.31: Early initiation of breastfeeding

Breastfeeding and Complementary Feeding

Percentage of children exclusively breastfed, and receiving mixed milk feeding

Definition

1) Percentage of youngest children age 0-5 months who were fed exclusively with breastmilk during the previous day or night.
2) Percentage of youngest children age 0-5 months who were fed both breastmilk and formula and/or animal milk during the previous day or night.

Coverage:
> Population base: Living children living with their mother born 0-5 months before the survey (KR file)
> Time period: Previous day or night before the survey

Numerators:
1) Number of youngest children age 0-5 months living with their mother who received only breastmilk during the previous day or night preceding the interview (b19 < 6 & b9 = 0 & m4 = 95 & received only breastmilk - see Numerator 2 for *Percent distribution of children who were fed breastmilk only.*
2) Number of youngest children age 0-5 months living with their mother who were fed both breastmilk and formula and/or animal milk during the previous day or night preceding the interview (b19 < 6 & b9 = 0 & m4 = 95 & (v411 = 1 or v411A = 1))

Denominator: Number of youngest children age 0-5 months living with their mother (b9 = 0 & b19 < 6)
See *Calculation* below for the selection for the denominator and select for the appropriate age group.

Variables: KR file.
caseid	Case Identification
b5	Child is alive
b9	Child lives with whom
b19	Current age of child in months
m4	Duration of breastfeeding
m39a	Did eat any solid, semi-solid or soft foods yesterday
v409	Gave child plain water
v409a	Gave child sugar water
v410	Gave child juice
v410a	Gave child tea or coffee
v411	Gave child tinned, powdered or fresh milk
v411a	Gave child baby formula
v412	Gave child fresh milk
v412a	Gave child fortified baby food (cerelac, etc)
v412b	Gave child other porridge/gruel
v412c	Gave child soup/clear broth
v413	Gave child other liquid
v413a	Gave child yogurt as a drink
v413b	Gave child soy milk

v413c	Gave child chocolate flavored drink
v413d	Gave child sodas/malt/sports/energy drinks
v413e-i	Gave child CS liquid
v414a	Gave child any other vegetables
v414b	Gave child sausages, hot dogs, frankfurters, ham, bacon, salami, canned food
v414c	Gave child nuts, seeds
v414d	Gave child any insects
v414e	Gave child bread, noodles, other made from grains
v414f	Gave child potatoes, cassava, or other tubers
v414g	Gave child eggs
v414h	Gave child meat (beef, pork, lamb, chicken, etc)
v414i	Gave child pumpkin, carrots, squash (yellow or orange inside)
v414j	Gave child any dark green leafy vegetables
v414k	Gave child mangoes, papayas, other vitamin A fruits
v414l	Gave child any other fruits
v414m	Gave child liver, heart, other organs
v414n	Gave child fish or shellfish
v414o	Gave child food made from beans, peas, lentils, nuts
v414p	Gave child cheese, yogurt, other milk products
v414q	Gave child oil, fats, butter, products made of them
v414r	Gave child chocolates, sweets, candies, pastries, etc
v414s	Gave child other solid, semi-solid food
v414t	Gave child CS foods
v414u	Gave child CS foods
v414v	Gave child yogurt
v414w	Gave child common sentinel sweet food
v414wa	Gave child CS foods
v414wb	Gave child CS foods
v414wc	Gave child CS foods
v414wd	Gave child CS foods
v414we	Gave child CS foods
v005	Woman's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Denominator:
To select the cases for the denominator, first filter or keep only living children living with the mother born in the preceding 6 months (keep/select if b19 < 6 & b9 = 0), then keep only the youngest child (keep/select if the first entry in the dataset (_n = 1) or the first for this respondent (caseid ≠ caseid[_n-1]) as the youngest child is the first listed for the respondent in the data file). The commands in Stata and SPSS are given below:

```
* keep if under 6 months and living with mother
keep if b19 < 6 & b9 == 0
* and keep the last born of those.
* if caseid is the same as the prior case, then not the last born
keep if _n == 1 | caseid != caseid[_n-1]
```

```
* keep if under 6 months and living with mother.
Select if (b19 < 6 & b9 = 0).
* and keep the last born of those.
* if caseid is the same as the prior case, then not the last born.
Select if (caseid <> lag(caseid)).
```

Handling of Missing Values

Missing data on breastfeeding is treated as not currently breastfeeding in numerator and included in the denominator. Missing and "don't know" data on foods and liquids given is treated as not given in numerator and included in denominator.

Notes and Considerations

The indicator calculation for the percentage of children receiving mixed milk feeding excludes yogurt drinks and soy milk and nut milks, whereas yogurt drinks is included in the feeding practice by age indicator when calculating the percent distribution of children consuming breastmilk and formula and/or animal milk.

Changes over Time

The indicator on mixed breast and non-breast milk feeding has been renamed to mixed milk feeding.

See *Changes over Time* for *Percent distribution of children who were fed breastmilk only*

References

WHO and UNICEF 2021. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. https://www.who.int/publications/i/item/9789240018389

WHO. 2017. *Global Nutrition Monitoring Framework: Operational Guidance for Tracking Progress in Meeting Targets for 2025*. http://www.who.int/nutrition/publications/operational-guidance-GNMF-indicators/en/

Xiaodong C., T. Wardlaw and D.W Brown. 2012. "Global trends in exclusive breastfeeding." *International Breastfeeding Journal* 7:12 DOI: https://doi.org/10.1186/1746-4358-7-12
https://internationalbreastfeedingjournal.biomedcentral.com/articles/10.1186/1746-4358-7-12

Resources

DHS-8 Tabulation plan: Tables 11.4 and 11.10

API Indicator IDs:
CN_BRFS_C_EXB, CN_BRFS_C_CMP
([API link](), [STATcompiler link]())

WHO/UNICEF IYCF Indicator 4: Exclusive breastfeeding under 6 months
WHO/UNICEF IYCF Indicator 5: Mixed milk feeding under 6 months
WHO 100 Core Health Indicators: Exclusive breastfeeding 0-5 months of age
MICS6 Indicator TC.32: Exclusive breastfeeding under 6 months

Percent distribution of children who were fed breastmilk only, breastmilk and plain water, breastmilk and non-milk liquids, breastmilk and animal milk or formula, breastmilk and solid, semi-solid and soft foods, and not breastfed during the previous day

Definition

Percent distribution of youngest children 0-5 months who are living with their mother who are:
1) Exclusively breastfeeding.
2) Breastfeeding and consuming plain water only.
3) Breastfeeding and consuming non-milk liquids.
4) Breastfeeding and consuming formula and/or animal milk.
5) Breastfeeding and consuming solid, semi-solid, or soft foods.
6) Not breastfeeding.
7) Unknown.

Coverage:
Population base: Living children living with their mother born 0 to 5 months before the survey (KR file)
Time period: Previous day or night before the survey

Numerators:
Number of youngest children age 0-5 months who are living with their mother (see *Calculation* below) who were:
Breastfeeding (m4 = 95):
1) and given nothing else the previous day or night preceding the interview (exclusive breastfeeding) (not in numerators 2-5)
2) and given plain water only the previous day or night preceding the interview (v409 = 1 & not in numerators 3-5).
3) and given non-milk liquids the previous day or night preceding the interview ((v409a = 1 or v410 = 1 or v410a = 1 or v412c = 1 or v413 = 1 or any of v413a – d = 1) & not in numerators 4 or 5).
4) and given formula and/or animal milk the previous day or night preceding the interview ((v411 = 1 or v411a = 1) & not in numerator 5).
5) and given solid or semi-solid foods the previous day or night preceding the interview. (v412a = 1 or v412b = 1 or any of v414a – w = 1)
6) Not breastfeeding (m4 ≠ 95), or
7) Unknown (v409 = 8 or v409a = 8 or v410 = 8 or v410a = 8 or v412c = 8 or v413 = 8 or any of v413a – d = 8 or any of v414a – w = 8)

Denominator: Number of youngest children born 6 months preceding the survey who are living with their mother (see *Calculation* below)

Variables: KR file.
caseid	Case Identification
b5	Child is alive
b9	Child lives with whom
b19	Current age of child in months

m4	Duration of breastfeeding
m39a	Did eat any solid, semi-solid or soft foods yesterday
v409	Gave child plain water
v409a	Gave child sugar water
v410	Gave child juice
v410a	Gave child tea or coffee
v411	Gave child tinned, powdered or fresh milk
v411a	Gave child baby formula
v412	Gave child fresh milk
v412a	Gave child fortified baby food (cerelac, etc)
v412b	Gave child other porridge/gruel
v412c	Gave child soup/clear broth
v413	Gave child other liquid
v413a	Gave child yogurt as a drink
v413b	Gave child soy milk
v413c	Gave child chocolate flavored drink
v413d	Gave child sodas/malt/sports/energy drinks
v413e-i	Gave child CS liquid
v414a	Gave child any other vegetables
v414b	Gave child sausages, hot dogs, frankfurters, ham, bacon, salami, canned food
v414c	Gave child nuts, seeds
v414d	Gave child any insects
v414e	Gave child bread, noodles, other made from grains
v414f	Gave child potatoes, cassava, or other tubers
v414g	Gave child eggs
v414h	Gave child meat (beef, pork, lamb, chicken, etc)
v414i	Gave child pumpkin, carrots, squash (yellow or orange inside)
v414j	Gave child any dark green leafy vegetables
v414k	Gave child mangoes, papayas, other vitamin A fruits
v414l	Gave child any other fruits
v414m	Gave child liver, heart, other organs
v414n	Gave child fish or shellfish
v414o	Gave child food made from beans, peas, lentils, nuts
v414p	Gave child cheese, yogurt, other milk products
v414q	Gave child oil, fats, butter, products made of them
v414r	Gave child chocolates, sweets, candies, pastries, etc
v414s	Gave child other solid, semi-solid food
v414t	Gave child CS foods
v414u	Gave child CS foods
v414v	Gave child yogurt
v414w	Gave child common sentinel sweet food
v414wa	Gave child CS foods
v414wb	Gave child CS foods
v414wc	Gave child CS foods
v414wd	Gave child CS foods
v414we	Gave child CS foods
v005	Woman's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Denominator:

To select the cases for the denominator, first filter or keep only living children living with the mother born in the preceding 6 months (keep/select if b19 < 6 & b9 = 0), then keep only the youngest child (keep/select if the first entry in the dataset (_n = 1) or the first for this respondent (caseid ≠ caseid[_n-1]) as the youngest child is the first listed for the respondent in the data file). The commands in Stata and SPSS are given below:

Stata

```
* keep if under 6 months and living with mother
keep if b19 < 6 & b9 == 0
* and keep the last born of those.
* if caseid is the same as the prior case, then not the last born
keep if _n == 1 | caseid != caseid[_n-1]
```

SPSS

```
* keep if under 6 months and living with mother.
Select if (b19 < 6 & b9 = 0).
* and keep the last born of those.
* if caseid is the same as the prior case, then not the last born.
Select if (caseid <> lag(caseid)).
```

Handling of Missing Values

Missing data on breastfeeding is treated as not currently breastfeeding in numerator and included in the denominator. Missing and "don't know" data on foods and liquids given is treated as not given in numerators 1-5 and included in denominator, and included in the numerator and denominator for indicator 7 (Unknown).

Notes and Considerations

Data are also presented in an area graph to visualize IYCF practice progression during the first 6 months such as below:

Infant feeding practices by age

The infant feeding area graph is for children age 0-6 months. Data are typically disaggregated by age groups of 2 months.

If the last-born child is deceased or not living with the mother, questions on foods and liquids are asked of the prior child born in the two years preceding the interview who is living with the mother. However, in surveys prior to DHS-8 the question on breastfeeding was not asked of this child. In this situation the child will be treated as not currently breastfeeding in the numerator and included in the denominator. This was relevant when the indicators were presented for children up to age 2 years but is no longer relevant for children age 0-5 months.

Changes over Time

Surveys based on the DHS-8, DHS-7, and DHS-VI questionnaire only ask about the feeding status of the youngest living child who lives with the mother and was born in the preceding two years; DHS-V ask about the feeding status of the youngest living child who lives with the mother and was born in the preceding three years; and DHS-IV surveys ask about the feeding status of all children under age 3. When comparing the results of DHS-8 surveys to earlier surveys, it should be noted that in DHS-8 the indicators on feeding practices by age are restricted to the youngest children 0-5 months, DHS-VI and DHS-7 the indicators are restricted to the youngest children under age 2 living with their mothers; DHS-V surveys are restricted to the youngest children under age 3 living with their mothers; and DHS-IV surveys all children under age 3.

Wording of questions in DHS-8 differ from those in the DHS-7 or DHS-VI surveys, and DHS-V and DHS-IV, and questions about foods made with oil, fat, or butter were not asked.

The list of foods asked about has changed from round to round of DHS, and food lists can vary by survey. Users should check the questionnaires used when comparing results from different surveys.

Additionally, in DHS-IV surveys, respondents were asked how many times yesterday/last night the child received the specific food.

An alternative formulation of exclusive breastfeeding would be to consider only children who have never received anything but breastmilk. The required information was collected only in DHS-II, when respondents were asked about the age of introduction of liquids and foods. These questions were dropped when they were found to produce older ages at introduction of foods than that estimated from current status.

The wording of the indicator for the percentage of children consuming other milk has been changed in the DHS-8 tabulation plan. It is now worded as the percentage of children consuming formula and/or animal milk.

In prior rounds of DHS, the creation of the indicator breastfeeding and given solid or semi-solid foods the previous day or night also included the use of m39a (Did eat any solid, semi-solid or soft foods yesterday). The variable m39a was dropped from the calculation in DHS-8, following the WHO guidance for this indicator.

References

WHO and UNICEF 2021. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. https://www.who.int/publications/i/item/9789240018389

Resources

DHS-8 Tabulation plan: Table 11.5 and Figure X

API Indicator IDs:
CN_BRFS_C_NOT, CN_BRFS_C_EXB, CN_BRFS_C_WAT, CN_BRFS_C_LIQ, CN_BRFS_C_MLK, CN_BRFS_C_CMP, CN_BRFS_C_DKM
(API link, STATcompiler link)

WHO/UNICEF IYCF Indicator 17: Infant feeding area graphs

Percentage of children predominantly breastfed, and age-appropriately breastfed (legacy indicator)

Definition

1) Percentage of youngest children under 6 months who are living with their mother, who are predominantly breastfed.
2) Percentage of youngest children under 2 years who are living with their mother who are age-appropriately breastfed.

Coverage:

Population base: Living children living with their mother born 0-5, or 0-23 months before the survey (KR file)
Time period: Previous day or night before the survey

Numerators:

1) Number of youngest children age 0-5 months living with their mother who were breastfed (m4 = 95) and either exclusively breastfed or given plain water and/or non-milk liquids (see Numerators 2, 3 & 4 for *Percent distribution of children who were fed breastmilk only*)
2) Number of youngest children under 2 years who are living with their mother who were breastfed (m4 = 95) and:
   a) If under 6 months (b19 < 6): given nothing else the day or night preceding the interview (see *Numerator* for *Percentage of children exclusively breastfed*), or
   b) If age 6-23 months (b19 in 6:23): given solid or semi-solid foods in the day or night preceding the interview (v412a = 1 or v412b = 1 or any of v414a – w = 1 or m39a = 1)

Denominator:

See *Calculation* for *Percent distribution of children who were fed breastmilk only* for the selection for the denominator and select for the appropriate age group.
a) Number of youngest children age 0-5 months living with their mother (b19 < 6)
b) Number of youngest children born in the 2 years preceding the survey who are living with their mother (b19 < 24)

Variables: KR file.

caseid	Case Identification
b5	Child is alive
b9	Child lives with whom
b19	Current age of child in months
m4	Duration of breastfeeding
m39a	Did eat any solid, semi-solid or soft foods yesterday
v409	Gave child plain water
v409a	Gave child sugar water
v410	Gave child juice
v410a	Gave child tea or coffee
v412a	Gave child fortified baby food (cerelac, etc)
v412b	Gave child other porridge/gruel
v412c	Gave child soup/clear broth

v413	Gave child other liquid
v413a	Gave child yogurt as a drink
v413b	Gave child soy milk
v413c	Gave child chocolate flavored drink
v413d	Gave child sodas/malt/sports/energy drinks
v413e-i	Gave child CS liquid
v414a	Gave child any other vegetables
v414b	Gave child sausages, hot dogs, frankfurters, ham, bacon, salami, canned food
v414c	Gave child nuts, seeds
v414d	Gave child any insects
v414e	Gave child bread, noodles, other made from grains
v414f	Gave child potatoes, cassava, or other tubers
v414g	Gave child eggs
v414h	Gave child meat (beef, pork, lamb, chicken, etc)
v414i	Gave child pumpkin, carrots, squash (yellow or orange inside)
v414j	Gave child any dark green leafy vegetables
v414k	Gave child mangoes, papayas, other vitamin A fruits
v414l	Gave child any other fruits
v414m	Gave child liver, heart, other organs
v414n	Gave child fish or shellfish
v414o	Gave child food made from beans, peas, lentils, nuts
v414p	Gave child cheese, yogurt, other milk products
v414q	Gave child oil, fats, butter, products made of them
v414r	Gave child chocolates, sweets, candies, pastries, etc
v414s	Gave child other solid, semi-solid food
v414t	Gave child CS foods
v414u	Gave child CS foods
v414v	Gave child yogurt
v414w	Gave child common sentinel sweet food
v414wa	Gave child CS foods
v414wb	Gave child CS foods
v414wc	Gave child CS foods
v414wd	Gave child CS foods
v414we	Gave child CS foods
v005	Woman's individual sample weight

Calculation

See *Calculation* for *Percent distribution of children who were fed breastmilk only* for selection of children for the denominator, including Stata and SPSS code.

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing data on breastfeeding is treated as not currently breastfeeding in numerator and included in the denominator. Missing and "don't know" data on foods and liquids given is treated as not given in numerator and included in denominator.

Notes and Considerations

If the last-born child is deceased or not living with the mother, questions on foods and liquids are asked of the prior child born in the two years preceding the interview. However, in surveys before DHS-8 the question on breastfeeding was not asked of this child. In this situation the child will be treated as not currently breastfeeding in the numerator and included in the denominator.

Changes over Time

The indicators for predominant breastfeeding, age-appropriate breastfeeding are no longer included in the DHS-8 tabulation plan.

See *Changes over Time* for *Percent distribution of children who were fed breastmilk only*.

References

WHO and UNICEF 2021. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. https://www.who.int/publications/i/item/9789240018389

Resources

API Indicator IDs:
`CN_IYCB_C_PBF, CN_IYCB_C_AGA, CN_IYCB_C_MBF`
(API link, STATcompiler link)

IYCF 2007 Indicator 11 (Optional): Age-appropriate breastfeeding
IYCF 2007 Indicator 12 (Optional): Predominant breastfeeding under 6 months

Percentage of children currently breastfeeding, continuing breastfeeding at 1 year and at 2 years

Definition

Percentage of children age 12-23 months who were:
1) Currently breastfeeding (continuing breastfeeding)
2) Continuing breastfeeding at 1 year (12-15 months) (legacy indicator)
3) Continuing breastfeeding at 2 years (20-23 months) (legacy indicator)

Coverage:
        Population base: Children born 12 to 23 months before the survey (KR file)
        Time period: Current status at time of survey

Numerators:
Number of children age 12-23 months who are:
1) Currently breastfeeding (m4 = 95 & b19 in 12:23)
2) Currently breastfeeding and age 12-15 months (m4 = 95 & b19 in 12:15)
3) Currently breastfeeding and age 20-23 months (m4 = 95 & b19 in 20:23)

Denominator:
a) Number of children age 12-23 months (b5 = 1 & b19 in 12:23)
b) Number of children age 12-15 months (b5 = 1 & b19 in 12:15)
c) Number of children age 20-23 months (b5 = 1 & b19 in 20:23)

Variables: KR file.

caseid	Case Identification
b5	Child is alive
b19	Current age of child in months (months since birth for dead children)
m4	Duration of breastfeeding
v005	Woman's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing data on breastfeeding is treated as not currently breastfeeding in numerator and included in the denominator.

Notes and Considerations

Note that the wording of the question asks "Are you still breastfeeding (NAME)?" rather than "Was (NAME) breastfed yesterday during the day or at night?" The question is asked about all living children under age 36 months but reported for age 12-23 months.

Changes over Time

In DHS-8, the indicators for continued breastfeeding at 1 year (12-15 month) and continued breastfeeding at 2 years (20-23 months) have been combined to create the continued breastfeeding (12-23 month) indicator.

When comparing the results of DHS-8 surveys to the earlier surveys, it should be noted that DHS-VI and DHS-7 indicators on continued breastfeeding at 1 year and continued breastfeeding at 2 years were reported for last-born children born in the 2 years preceding the survey and living with their mother.

References

WHO and UNICEF 2021. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. https://www.who.int/publications/i/item/9789240018389

Resources

DHS-8 Tabulation plan: Tables 11.4 and 11.10

API Indicator IDs:
CN_BRFS_C_BRF
(API link, STATcompiler link)

WHO/UNICEF IYCF Indicator 6: Continued breastfeeding 12-23 months
IYCF 2007 Indicator 3 (Core): Continued breastfeeding at 1 year
IYCF 2007 Indicator 10 (Optional): Continued breastfeeding at 2 years
MICS6 Indicator TC.34: Continued breastfeeding at 1 year
MICS6 Indicator TC.35: Continued breastfeeding at 2 years

Percentage of children bottle feeding

Definition

Percentage of children age 0-23 months who were fed from a bottle with a nipple during the previous day or night.

Numerator: Number of children age 0-23 months who were fed from a bottle with a nipple during the previous day or night preceding the interview (m38 = 1 & b19 < 24).

Denominator: Number of children age 0-23 months (b5 = 1 & b19 < 24)

Variables: KR file.

b5	Child is alive
b19	Current age of child in months (months since birth for dead children)
m38	Drank from bottle with nipple yesterday/last night
v005	Woman's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing and "don't know" responses on whether drank from a bottle with nipple yesterday during the day or night are excluded from the numerator but included in the denominator.

References

WHO and UNICEF 2021. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. https://www.who.int/publications/i/item/9789240018389

Resources

DHS-8 Tabulation plan: Tables 11.4 and 11.10

API Indicator IDs:
CN_BRFS_C_BNP
(API link, STATcompiler link)

WHO/UNICEF IYCF Indicator 16: Bottle feeding 0-23 months
MICS6 Indicator TC.43: Bottle feeding

Median and mean durations of breastfeeding among children born in the past three years for any breastfeeding, exclusive breastfeeding, predominant breastfeeding (legacy indicator)

Definition

1) Median duration (in months) of breastfeeding among children born in the past three years for any breastfeeding.
2) Median duration (in months) of breastfeeding among children born in the past three years for exclusive breastfeeding.
3) Median duration (in months) of breastfeeding among children born in the past three years for predominant breastfeeding.
4)
5) Mean duration (in months) of breastfeeding among children born in the past three years for any breastfeeding.
6) Mean duration (in months) of breastfeeding among children born in the past three years for exclusive breastfeeding.
7) Mean duration (in months) of breastfeeding among children born in the past three years for predominant breastfeeding.

Coverage:
> Population base: All births in the 0-35 months preceding the interview (KR file)
> Time period: Previous day or night before the survey

Numerators:
1) Number of children born at specified times before the survey for which the mother is still breastfeeding the child (m4 = 95)
2) Number of children born at specified times before the survey for which the mother is exclusively breastfeeding the child (m5 = 95 & numerator 2 <u>only</u> for *Percent distribution of children exclusively breastfeeding, or breastfeeding and consuming plain water only, non-milk liquids, consuming formula and/or animal milk, and consuming complementary foods*
3) Number of children born at specified times before the survey for which the mother is predominantly breastfeeding the child. Predominant breastfeeding is defined as children either exclusively breastfed or breastfeeding and receiving water or other liquids only, excluding non-animal milk and food-based fluids (m4 = 95 & numerators 2, 3, or 4 <u>only</u> for *Percent distribution of children exclusively breastfeeding, or breastfeeding and consuming plain water only, non-milk liquids, consuming formula and/or animal milk, and consuming complementary foods*)

Denominator: Number of births at specified times in the three years preceding the survey (b19 < 36)

Variables: KR file.
See variable list for *Percent distribution of children exclusively breastfeeding, or breastfeeding and consuming plain water only, non-milk liquids, consuming formula and/or animal milk, and consuming complementary foods***Error! Reference source not found.**.

Calculation

Utilizes similar numerators and denominators calculated for the proportions any breastfeeding, exclusive breastfeeding, and predominant breastfeeding by time since birth in two-month groups, as given in *Percent distribution of children exclusively breastfeeding, or breastfeeding and consuming plain water only, non-milk liquids, consuming formula and/or animal milk, and consuming complementary foods*. The medians and means are based on all births that occurred within the three years preceding the interview, including last and other births, surviving or not. Tabulations assume that last-born children age 24 months or older who live with the mother and are breastfeeding are neither exclusively nor predominantly breastfed.

Twins living with their mother are assumed to have the same breastfeeding and complimentary feeding status, and the grouping calculated in *Percent distribution of children exclusively breastfeeding, or breastfeeding and consuming plain water only, non-milk liquids, consuming formula and/or animal milk, and consuming complementary foods* for the youngest child living with their mother is applied to any twin of that child who is also living with their mother; other children born in the past 3 years are assumed to not be exclusively or predominantly breastfeeding.

In rounds prior to DHS-8, next-to-last birth assumed to not be breastfeeding, thus excluded from numerator but included in denominator.

Numerators and denominators are calculated for each two-month group of time since birth. Numerators and denominators are each smoothed by a three-group moving average. For example, the value of the numerators and denominators for births that occurred 4-5 months before the interview is the average of groups 2-3, 4-5, and 6-7 months. Groups < 2 months and 34-35 months are not smoothed. Smoothed proportions are calculated by dividing the smoothed numerator values by the smoothed denominator values of each two-month group.

Median

Beginning with the lowest time-since-birth group, each group is examined to see whether the proportion breastfeeding, exclusively breastfeeding, or predominantly breastfeeding is less than 0.5. Value of median is determined by linear interpolation of percentage of first group below 0.5 and previous group percentage using the following formula:

$$\textbf{median} = m_{i-1} + \frac{(p_{i-1}-0.5)}{(p_{i-1}-p_i)} * (w_i)$$

where p_i is the proportion breastfeeding, exclusively breastfeeding, or predominantly breastfeeding for the first group where the proportion is below 0.5, p_{i-1} is the proportion breastfeeding, exclusively breastfeeding, or predominantly breastfeeding for the preceding group, m_{i-1} is the midpoint value for the preceding group, and w_i is the time width of the group taken as the difference between the midpoint value of the current group and the preceding group.

Prior to DHS-7: In The DHS Program rounds prior to DHS-7, for all groups except the first, the midpoint values are one-half month above the lower limit. This midpoint value comes about because the time since birth is calculated as the difference between birth dates and the date of interview, which are accurate for month only (day of month is not ascertained).

For example, if the date of interview were April 2018, the interview could have occurred at any time during the month, from the 1st to the 30th. The same holds true for a birth that occurred in January 2018, at any time between the 1st and the 31st of the month. Thus, the time difference between the date of birth and the date of interview could be between 60 days and 120 days. Assuming a constant distribution by day of month for interviews and for births, the midpoint is 90 days or three months, which is the value of the difference in the century- month codes of the dates. The midpoint value for the group of the difference of two months and three months together is therefore 2.5.

The first group is special. The value of the previous group is assumed to be equal to the percentage of children born 0-35 months before the survey who were ever breastfed. Moreover, births that occur in the month of interview can only come before the date of interview, rather than on any day of the month of interview. Based on simulations, 0.75 is chosen as the midpoint value for the group < 2 months (0-1). The midpoint of the previous group is 0 (day of interview).

DHS-7: The midpoint values are at the midpoints of the range as the difference between the births dates and date of interview are accurate to the day, and month 0 now contains a full month of births.

Using the example above, if the date of interview were April 2018, the interview could have occurred at any time during the month, from the 1st to the 30th. The same holds true for a birth that occurred in January 2018, at any time between the 1st and the 31st of the month. With the day of interview known, and the day of birth known, or imputed, it is possible to calculate the exact age of the child to the day and the age would be between 2.0 months and just less than 4.0 months and would be either 2 month or 3 months when truncated. Similarly, a child born in February 2018 would either be 1 or 2 months old. Combining all date combinations together, a child categorized as 2 months old would on average be 2.5 month, and a child categorized as 3 months old would on average be 3.5 months old. The midpoint value for the group of the difference of 2 months and 3 months together is therefore 3.0.

In DHS-7, the first group is still special, and the value of the previous group is still assumed to be 1 equal to the percentage of children born 0-35 months before the survey who were ever breastfed. However, because births in the month 0 group now come from births in the month of interview and in the preceding month, the midpoint of the month 0 group is 0.5 and the month 1 group is 1.5, so for the group 0-1 months, the midpoint is 1.0.

Example:

	DHS-7				Rounds prior to DHS-7		
Group	Pi	Midpoint	Width	Group	Pi	Midpoint	Width
<2	0.88	1.0	1.0	<2	0.90	0.75	0.75
2–3	0.67	3.0	2.0	2–3	0.70	2.5	1.75
4–5	0.52	5.0	2.0	4–5	0.55	4.5	2.00
6–7	0.40	7.0	2.0	6–7	0.43	6.5	2.00

Note that the proportions in age each group are not the same between the DHS-7 approach and the prior approach as the calculation of months since birth has changed in DHS-7 to provide a more accurate estimate, thus requiring the change in the method of calculating the median.

DHS-7/8: $$\text{median duration} = 5.0 + \frac{(0.52-0.50)}{(0.52-0.40)} * (7.0 - 5.0) = 5.33 \ months$$

Prior to DHS-7:   **median duration** $= 4.5 + \frac{(0.55-0.50)}{(0.55-0.43)} * (6.5 - 4.5) = 5.33\ months$

Note also that due to a number of factors including the different calculation of the age groups, and the application of the three-month moving average, the actual calculations are unlikely to result in exactly the same estimates (as the example does) from the two approaches, but they should be quite close. In general the DHS-7 approach is a more accurate estimate.

Mean

The mean duration is the accumulation over all groups of the proportions breastfeeding, exclusively breastfeeding, or predominantly breastfeeding (p_i) multiplied by the width of the time-since-birth group (w_i). For the first group, the proportion breastfeeding is taken as the proportion ever breastfed for children born 0 to 35 months before the survey.

mean duration $= \ \Sigma\, p_i\, * w_i$

The calculation of the mean is also affected by the change in approach in the calculation of the time-since-birth groups, which will result in slightly different proportions in each group, and a change in the width of the first two groups.

Handling of Missing Values

Birth dates were imputed if missing. Dates of interview are not allowed to have missing data. Respondents with missing reports of breastfeeding are considered to be not breastfeeding. Respondents with missing reports for liquids and foods or who "don't know" whether the child received the liquids or foods are treated as the liquid or food not given.

Notes and Considerations

Medians and means are based on current status of mothers of the births. The distributions of the proportions of births, by month of birth of the child, are analogous to the l_x column of the synthetic life table. The basic assumption is that there has been no change in the proportions breastfeeding, exclusively breastfeeding, and predominantly breastfeeding over time so that proportions that are calculated from births with small times since birth are the same as those of births that occurred earlier, when those earlier births had those durations. For the short period of 36 months, this assumption is very likely to be approximately correct. The proportions are assumed to be the proportion ever breastfed at the time of birth and to decrease monotonically with time since birth. The time at which the proportions decline to 0.5 is taken as the median. The mean is taken similarly from the l_x column of the life table, which in this case is the series of proportions by time since birth. Because the sum of proportions equals 1, there is no need to divide the sum of the proportions times the width of the interval.

Because of the relatively small number of births in each month before the interview, the months are first grouped and then smoothed to reduce random fluctuations due to sampling variance.

Truncated Mean: Because of the limitation to births that occurred within the three years preceding the survey, the mean is truncated if there are mothers who are breastfeeding longer than three years after their last birth. It is very unlikely that the proportions exclusively or predominantly breastfeeding are more than negligible after 35 months since birth. Therefore, it is felt that the truncated mean is very close to the full mean for both of these statistics. On the other hand, any breastfeeding can continue for considerably longer than 35 months so that the mean may be biased somewhat downwards. To get an idea of the possible extent of this bias, the proportions of children who are breastfeeding, by age of child in months, should be examined.

The measures are based on all births that occurred within the three years preceding the interview, including last and other births, surviving or not.

Decisions on Alternatives

Current status medians and means are used instead of measures based on the recall of durations because of the severe heaping (digit preference) on multiples of 3 and 6 months in the recall data.

In the current calculation of median and mean durations, a woman can contribute more than once if she had more than one birth in the three years preceding the survey. An alternative calculation would be to base the medians and means on women rather than births. In this alternative, each woman is represented only once, which is equivalent to durations based on only the last birth. Estimates of durations based on last births (open interval durations) are thought to overestimate average durations of breastfeeding, since they almost always exceed those based on recall after other births (closed interval durations).

Changes over Time

As described above under the median calculation the change in the calculation of time since birth required changes in the calculation of the current status median from the proportions amenorrheic, abstaining or insusceptible. See also *Age of Children* in *Chapter 1* for more information on the change in the calculation of time since birth.

The indicators for median and mean durations of breastfeeding are no longer included in the DHS-8 tabulation plan.

References

WHO and UNICEF 2021. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. https://www.who.int/publications/i/item/9789240018389

Resources

API Indicator IDs:
```
CN_BFDR_C_MDA, CN_BFDR_C_MDE, CN_BFDR_C_MDP,
CN_BFDR_C_MNA, CN_BFDR_C_MNE, CN_BFDR_C_MNP
```
(API link, STATcompiler link)

IYCF 2007 Indicator 13 (Optional): Duration of breastfeeding
MICS6 Indicator TC.36: Duration of breastfeeding

Introduction of solid, semi-solid or soft foods

Percentage of children introduced to solid, semi-solid, or soft foods

Definition

Percentage of children 6-8 months who were fed solid, semi-solid, or soft foods during the previous day or night.

Coverage:
    Population base: Living children living with their mother born 6-8 months before the survey (KR file)
    Time period: Previous day or night before the survey

Numerator: Number of youngest children age 6-8 months living with their mother who were fed solid, semi-solid, or soft foods during the previous day or night preceding the interview (b5 = 1 & b19 in 6:8 & (v412a = 1 or v412b = 1 or any of v414a – w = 1)

Denominator: Number of youngest children age 6-8 months living with their mother (b5 = 1 & b19 in 6:8 & see *Calculation*)

Variables: KR file.
caseid	Case Identification
b5	Child is alive
b9	Child lives with whom
b19	Current age of child in months
m39a	Did eat any solid, semi-solid or soft foods yesterday
v414a-d	Gave child CS foods
v414e	Gave child bread, noodles, other made from grains
v414f	Gave child potatoes, cassava, or other tubers
v414g	Gave child eggs
v414h	Gave child meat (beef, pork, lamb, chicken, etc)
v414i	Gave child pumpkin, carrots, squash (yellow or orange inside)
v414j	Gave child any dark green leafy vegetables
v414k	Gave child mangoes, papayas, other vitamin A fruits
v414l	Gave child any other fruits
v414m	Gave child liver, heart, other organs
v414n	Gave child fish or shellfish
v414o	Gave child food made from beans, peas, lentils, nuts
v414p	Gave child cheese, yogurt, other milk products
v414q	Gave child oil, fats, butter, products made of them
v414r	Gave child chocolates, sweets, candies, pastries, etc
v414s	Gave child other solid, semi-solid food
v414t	Gave child CS foods
v414u	Gave child CS foods
v414v	Gave child yogurt
v414w	Gave child CS foods

v414wa   Gave child CS foods
v414wb   Gave child CS foods
v414wc   Gave child CS foods
v414wd   Gave child CS foods
v414we   Gave child CS foods
v005   Woman's individual sample weight

Calculation

See *Calculation* for *Percent distribution of children exclusively breastfeeding, or breastfeeding and consuming plain water only, non-milk liquids, consuming formula and/or animal milk, and consuming complementary foods* for selection of children for the denominator, including Stata and SPSS code.

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing and "don't know" data on foods and liquids given is treated as not given in numerator and included in denominator.

Notes and Considerations

Changes over Time

Note that previous surveys used children age 6-9 months (rather than 6-8 months) for the indicator of introduction of solid, semi-solid or soft foods. Also surveys prior to DHS-8 included variable m39a in the definition of solid, semi-solid or soft foods.

See *Changes over Time* for *Percent distribution of children exclusively breastfeeding, or breastfeeding and consuming plain water only, non-milk liquids, consuming formula and/or animal milk, and consuming complementary foods*

References

WHO and UNICEF 2021. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. https://www.who.int/publications/i/item/9789240018389

WHO. 2017. *Global Nutrition Monitoring Framework: Operational Guidance for Tracking Progress in Meeting Targets for 2025*. http://www.who.int/nutrition/publications/operational-guidance-GNMF-indicators/en/

Resources

DHS-8 Tabulation plan: Table 11.10

API Indicator IDs:
CN_IYCB_C_CMP

(API link, STATcompiler link)

WHO/UNICEF IYCF Indicator 7: Introduction of solid, semi-solid or soft foods
MICS6 Indicator TC.38: Introduction of solid, semi-solid or soft foods

Foods and Liquids Consumed by Children

Percentage of breastfeeding and non-breastfeeding children consuming specific liquids and foods

Definition

1) Percentage of youngest children under age 2 who are living with the mother consuming specific types of liquids during the previous day or night, disaggregated by whether breastfeeding or not.
2) Percentage of youngest children under age 2 who are living with the mother consuming specific types of foods during the previous day or night, disaggregated by whether breastfeeding or not.

Coverage:
Population base: Youngest living child born in the 2 years preceding the survey living with the mother (KR file)
Time period: Previous day or night before the survey

Numerators:
Number of youngest children born in the 2 years preceding the survey who are living with their mother who consumed the specific liquids and foods, disaggregated by whether breastfeeding or not (m4 = 95):

Liquids:
1) Plain water (v409 = 1)
2) Infant formula (v411a = 1)
3) Any fresh, packaged, or powdered animal milk (v411 = 1)
4) Sweet/flavored fresh, packaged, or powdered animal milk (v411 = 1 and v411s = 1)
5) Any yogurt drinks (v413a = 1)
6) Sweet/flavored yogurt drinks (v413a = 1 and v413as = 1)
7) Any soy milk and nut milks (v413b = 1)
8) Sweet/flavored soy milk and nut milks (v413b = 1 and v413bs = 1)
9) Fruit juice and fruit-flavored drinks (v410 = 1)
10) Sodas, malt drinks, sports drinks, and energy drinks (v413d = 1)
11) Any tea, coffee, and herbal drinks (v410a = 1)
12) Sweetened tea, coffee, and herbal drinks (v410a = 1 and v410as = 1)
13) Clear broth and clear soup (v412c = 1)
14) Other liquids. (v413c = 1 or v413 = 1)

Solid or semi-solid foods:
1) Food made from grains (v414e = 1)
2) White/pale starchy roots, tubers, and plantains (v414f = 1)
3) Beans, peas, lentils, nuts, and seeds (v414o = 1 or v414c = 1)
4) Cheese and yogurt ((v414v = 1 and v413a ≠ 1) or v414p = 1)
5) Meat, fish, poultry, organ meats (v414m = 1 or v414b = 1 or v414h = 1 or v414n = 1)
6) Eggs (v414g = 1)
7) Vitamin A rich fruits and vegetables (v414i = 1 or v414j = 1 or v414k = 1)
8) Other fruits and vegetables (v414l = 1 or v414a = 1)
9) Insects and other small protein foods (v414d = 1)

10) Red palm oil (v414u = 1)
11) Sweet foods such as chocolates, candies, pastries, cakes, biscuits, ice cream, popsicles (v414r = 1)
12) Fried and salty foods such as chips, crisps, puffs, French fries, fried dough (v414t = 1)
13) Other solid or semisolid food (v414s = 1)

Denominators: Number of youngest children born in the 2 years preceding the survey living with the mother, disaggregated by whether breastfeeding or not (m4 = 95). See *Calculation* for the selection for the denominator

Variables: KR file.

caseid	Case Identification
b5	Child is alive
b9	Child lives with whom
b19	Current age of child in months (months since birth for dead children)
m4	Duration of breastfeeding
v409	Gave child plain water
v410	Gave child juice
v410a	Gave child tea or coffee
v410as	Tea or coffee/herbal drink was sweetened
v411	Gave child tinned, powdered or fresh milk
v411s	Tinned, powdered or fresh milk was sweetened
v413	Gave child other liquid
v413s	Other liquid was sweetened
v413a	Gave child yogurt as a drink
v413as	Yogurt as a drink was sweetened
v413b	Gave child soy milk
v413bs	Soy milk was sweetened
v413c	Gave child chocolate flavored drink
v413d	Gave child sodas/malt/sports/energy drinks
v414a	Gave child any other vegetables
v414b	Gave child sausages, hot dogs, frankfurters, ham, bacon, salami, canned food
v414c	Gave child nuts, seeds
v414d	Gave child any insects
v414e	Gave child bread, noodles, other made from grains
v414f	Gave child potatoes, cassava, or other tubers
v414g	Gave child eggs
v414h	Gave child meat (beef, pork, lamb, chicken, etc)
v414i	Gave child pumpkin, carrots, squash (yellow or orange inside)
v414j	Gave child any dark green leafy vegetables
v414k	Gave child mangoes, papayas, other vitamin A fruits
v414l	Gave child any other fruits
v414m	Gave child liver, heart, other organs
v414n	Gave child fish or shellfish
v414o	Gave child food made from beans, peas, lentils, nuts
v414p	Gave child cheese, yogurt, other milk products
v414r	Gave child chocolates, sweets, candies, pastries, etc
v414s	Gave child other solid, semi-solid food
v414t	Gave child chips, crisps, french fries, fried dough, instant noodles

v414u   Gave child red palm oil
v414v   Gave child yogurt
v414w   Gave child common sentinel sweet food

Based on DHS-8 standard questionnaires. Other variables may be needed if additional survey-specific liquids and foods are included.

Calculation

Numerator divided by denominator, multiplied by 100.

Denominator:

To select the cases for the denominator, first filter or keep only living children living with the mother born in the preceding 24 months (keep/select if b19 < 24 & b9 = 0), then keep only the youngest child (keep/select if the first entry in the dataset (_n = 1) or the first for this respondent (caseid ≠ caseid[_n-1]) as the youngest child is the first listed for the respondent in the data file). The commands in Stata and SPSS are given below:

Stata
```
* keep if under 24 months and living with mother
keep if b19 < 24 & b9 == 0
* and keep the last born of those.
* if caseid is the same as the prior case, then not the last born
keep if _n == 1 | caseid != caseid[_n-1]
```

SPSS
```
* keep if under 24 months and living with mother.
Select if (b19 < 24 & b9 = 0).
* and keep the last born of those.
* if caseid is the same as the prior case, then not the last born.
Select if (caseid <> lag(caseid)).
```

Handling of Missing Values

Breastfeeding: Missing values and "don't know" assumed not breastfeeding.

Specific liquids and foods: Missing values and "don't know" excluded from numerators in all percentages but included in denominators.

Notes and Considerations

Country-specific liquids and foods may be added to each category. Percentages are based only on children living with their mother. Children living elsewhere are excluded from both the numerators and the denominators.

Changes over Time

The groupings of types of foods have changed over time. Other milk, and cheese, yogurt or other milk product were previously combined. Fruits and vegetables rich in vitamin A, and other fruits and

vegetables were previously grouped together. Meat, fish, shellfish and poultry, and eggs were also grouped together in earlier surveys. Food made with oil, fat, or butter was also presented in DHS-IV and DHS-V surveys. Sugary foods, such as chocolates, sweets, candies, pastries, cakes of biscuits were also presented in DHS-V surveys.

Additional variables related to fresh milk, tea and coffee, porridge gruel, and other foods or drinks have been used in older surveys (see v412, v412b, v413a – d, v414a – d, t, u, w), and should be taken into consideration when comparing results with the surveys reports.

DHS-8 surveys report separately on the liquids and foods consumed. For several liquids (i.e. fresh, packaged, or powdered animal milk; yogurt drinks; soy and nut milks; tea, coffee and herbal drinks; and other liquids) consumption is also reported for the sweet/flavored versions of the drink.

Resources

DHS-8 Tabulation plan: Tables 11.6 and 11.7

API Indicator IDs:
Breastfeeding children:
```
CN_FDBF_C_INF, CN_FDBF_C_MLK, CN_FDBF_C_LIQ, CN_FDBF_C_BBY, CN_FDBF_C_GRN,
CN_FDBF_C_VTA, CN_FDBF_C_FVG, CN_FDBF_C_RTS, CN_FDBF_C_LEG, CN_FDBF_C_MTF,
CN_FDBF_C_EGG, CN_FDBF_C_MFE, CN_FDBF_C_CHS, CN_FDBF_C_OTH, CN_FDBF_C_SLD
```
(API link, STATcompiler link)

Non-breastfeeding children:
```
CN_FDNB_C_INF, CN_FDNB_C_MLK, CN_FDNB_C_LIQ, CN_FDNB_C_BBY, CN_FDNB_C_GRN,
CN_FDNB_C_VTA, CN_FDNB_C_FVG, CN_FDNB_C_RTS, CN_FDNB_C_LEG, CN_FDNB_C_MTF,
CN_FDNB_C_EGG, CN_FDNB_C_MFE, CN_FDNB_C_CHS, CN_FDNB_C_OTH, CN_FDNB_C_SLD
```
(API link, STATcompiler link)

Minimum Dietary Diversity, Minimum Meal Frequency, Minimum Milk Feeding Frequency, and Minimum Acceptable Diet

Percentage of children fed the minimum dietary diversity, the minimum meal frequency, the minimum milk feeding frequency, and the minimum acceptable diet

Definition

Percentage of youngest children age 6-23 months who are living with the mother who were fed:
1) A minimum dietary diversity of 5 out of 8 food groups during the previous day or night:
   a) Breastmilk
   b) Grains, white/pale starchy roots, tubers, and plantains
   c) Legumes and nuts
   d) Dairy products (infant formula, milk, yogurt, cheese)
   e) Flesh foods (meat, fish, poultry and liver/organ meats)
   f) Eggs
   g) Vitamin A rich fruits and vegetables
   h) Other fruits and vegetables
2) A minimum meal frequency during the previous day or night of:
   a) 2 or more solid, semi-solid or soft feeds for breastfeeding children age 6-8 months, or
   b) 3 or more solid, semi-solid or soft feeds for breastfeeding children age 9-23 months; or
   c) 4 or more solid, semi-solid or soft food or milk feeds for non-breastfeeding children age 6-23 months where at least one of the feeds must be a solid, semi-solid, or soft feed.
3) A minimum milk feeding frequency of at least two milk feeds during the previous day or night (for children not breastfed).
4) A minimum acceptable diet during the previous day or night:
   a) Breastfed children – minimum dietary diversity and minimum meal frequency as above.
   b) Non-breastfed children – minimum dietary diversity but excluding the dairy products category (4 out of 6 groups) and minimum meal frequency and 2 or more milk feeds.

Coverage:
      Population base: Youngest child age 6-23 months living with the mother (KR file)
      Time period: Previous day or night before the survey

Numerators:
Number of youngest children age 6-23 months living with the mother who were fed:
1) At least 5 of the following 8 food groups during the previous day or night before the survey:
   a) Breastmilk (m4 = 95)
   b) Grains, white/pale starchy roots, tubers, and plantains (v412a = 1 or v414e = 1 or v414f = 1)
   c) Legumes and nuts (v414o = 1 or v414c = 1)
   d) Dairy products (infant formula, milk, yogurt, cheese) (v411 = 1 or v411a = 1 or v414v = 1 or v414p = 1)
   e) Flesh foods (meat, fish, poultry and liver/organ meats) (v414h = 1 or v414m = 1 or v414n = 1 or v414b = 1)
   f) Eggs (v414g = 1)
   g) Vitamin A rich fruits and vegetables (v414i = 1 or v414j = 1 or v414k = 1)

      h) Other fruits and vegetables (v414a = 1 or v414l = 1)
2) A minimum meal frequency:
      a) Defined for breastfed children as receiving solid or semi-solid foods
      b) at least twice a day for infants 6-8 months (m4 = 95 & b19 in 6:8 & m39 in 2:7) or
      c) at least three times a day for children 9-23 months (m4 = 95 & b19 in 9:23 & m39 in 3:7)
      d) Defined for non-breastfed children age 6-23 months as receiving solid, semi-solid, or soft foods
         or milk feeds at least four times a day (m4 ≠ 95 & total milk feeds (sum of v469e (if in 1:7) plus
         v469f (if in 1:7) plus v469x (if in 1:7 and v413a = 1) >= 2) plus solid feeds (m39 – if in 1:7) >= 4)
         where at least one of the feeds must be a solid, semi-solid, or soft food (m39 in 1:7)
3) A minimum milk feeding frequency of at least two milk feeds during the day or night preceding the
    survey (sum of v469e (if in 1:7) among non-breastfeeding children (m4 ≠ 95))
4) A minimum acceptable diet:
      a) Defined for breastfed children (m4 = 95) as minimum dietary diversity <u>and</u> minimum meal
         frequency as above during the previous day or night preceding the survey.
      b) Defined for non-breastfed children (m4 ≠ 95) as minimum dietary diversity and minimum meal
         frequency <u>and</u> 2 or more milk feeds during the previous day or night preceding the survey.
Disaggregated by whether breastfeeding or not (m4 = 95)

Denominators: Number of youngest children age 6-23 months living with the mother, disaggregated by
whether breastfeeding or not (m4 = 95). See *Calculation* for the selection for the denominator.

Variables: KR file.

caseid	Case Identification
b5	Child is alive
b9	Child lives with whom
b19	Current age of child in months (months since birth for dead children)
m4	Duration of breastfeeding
v411	Gave child tinned, powdered or fresh milk
v411a	Gave child baby formula
v412a	Gave child fortified baby food (cerelac, etc)
v413	Gave child other liquid
v414a	Gave child any other vegetables
v414b	Gave child sausages, hot dogs, frankfurters, ham, bacon, salami, canned food
v414c	Gave child nuts, seeds
v414d	Gave child any insects
v414e	Gave child bread, noodles, other made from grains
v414f	Gave child potatoes, cassava, or other tubers
v414g	Gave child eggs
v414h	Gave child meat (beef, pork, lamb, chicken, etc)
v414i	Gave child pumpkin, carrots, squash (yellow or orange inside)
v414j	Gave child any dark green leafy vegetables
v414k	Gave child mangoes, papayas, other vitamin A fruits
v414l	Gave child any other fruits
v414m	Gave child liver, heart, other organs
v414n	Gave child fish or shellfish
v414o	Gave child food made from beans, peas, lentils, nuts
v414p	Gave child cheese, yogurt, other milk products
v414v	Gave child yogurt

v469e	Times gave child powdered/tinned/fresh milk
v469f	Times gave child infant formula
v469x	Times gave child yogurt
m39	Number of times ate solid, semi-solid or soft food yesterday

Based on DHS-8 standard questionnaires. Other variables may be needed if additional survey-specific foods are included.

Calculation

Numerator divided by denominator, multiplied by 100.

Denominator:

To select the cases for the denominator, first filter or keep only living children living with the mother born in the preceding 24 months (keep/select if b19 < 24 & b9 = 0), then keep only the youngest child (keep/select if the first entry in the dataset (_n = 1) or the first for this respondent (caseid ≠ caseid[_n-1]) as the youngest child is the first listed for the respondent in the data file), then finally restrict to children age 6-23 (note that you cannot select for children age 6-23 in the first step as this would include some cases that were not asked the questions. The commands in Stata and SPSS are given below:

Stata

```
* keep if under 24 months and living with mother
keep if b19 < 24 & b9 == 0
* and keep the last born of those.
* if caseid is the same as the prior case, then not the last born
keep if _n == 1 | caseid != caseid[_n-1]
* now restrict to age 6-23
keep if b19 >= 6
```

SPSS

```
* keep if under 24 months and living with mother.
Select if (b19 < 24 & b9 = 0).
* and keep the last born of those.
* if caseid is the same as the prior case, then not the last born.
Select if (caseid <> lag(caseid)).
* now restrict to age 6-23.
Select if (b19 >= 6).
```

Handling of Missing Values

Breastfeeding: Missing values and "don't know" assumed not breastfeeding.

Specific liquids and foods: Missing values and "don't know" excluded from numerators in all percentages but included in denominators.

Solid, semi-solid or soft foods: Missing values and "don't know" excluded from numerator but included in denominator.

Notes and Considerations

Country-specific liquids and foods may be added to each category. Percentages are based only on children living with their mother. Children living elsewhere are excluded from both the numerators and the denominators.

If the last-born child is deceased or not living with the mother, questions on foods and liquids are asked of the prior child born in the two years preceding the interview and living with the mother. In earlier surveys prior to DHS-8, however, the question on breastfeeding was not asked of this child. In this situation the child will be treated as not currently breastfeeding in the numerator and included in the denominator.

Changes over Time

In DHS-8 surveys, as per the 2021 update to the "Indicators for assessing infant and young child feeding practices" several indicators have been updated (WHO and UNICEF 2021).

The minimum dietary diversity indicator was previously defined as receiving 4 out of 7 food groups but is now defined as receiving 5 out of 8 food groups with a group for breastmilk being added (WHO 2017). The change in the definition of the indicator was made to eliminate disparities in the indicator for breastfeeding compared with non-breastfeeding children. DHS-7 surveys from February 2019, also use the updated indicator definition.

The definition for minimum meal frequency for non-breastfed children has changed to require that at least one of the feedings is solid, semi-solid or soft foods. Both the minimum dietary diversity and the minimum meal frequency updated definitions affect the minimum acceptable diet. DHS-7 surveys from February 2019, also use the updated indicator definitions.

Caution should be observed when comparing DHS-8 and late DHS-7 surveys to earlier rounds of DHS as the definitions of minimum dietary diversity, minimum meal frequency and minimum acceptable diet have changed.

Additional variables related to fresh milk, tea and coffee, porridge gruel, and other foods or drinks have been used in older surveys (see v412, v412b, v413a – d, v414a – d, t, u, w), and should be taken into consideration when comparing results with the surveys reports.

References

WHO and UNICEF 2021. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. https://www.who.int/publications/i/item/9789240018389

WHO. 2017. *Global Nutrition Monitoring Framework: Operational Guidance for Tracking Progress in Meeting Targets for 2025*. http://www.who.int/nutrition/publications/operational-guidance-GNMF-indicators/en/

Resources

DHS-8 Tabulation plan: Tables 11.8 and 11.10

API Indicator IDs:
Breastfeeding children:
`CN_IYCF_C_4FB, CN_IYCF_C_MNB, CN_IYCF_C_BTB`
([API link](), [STATcompiler link]())

Non-breastfeeding children:
`CN_IYCF_C_MKN, CN_IYCF_C_4FN, CN_IYCF_C_MNN, CN_IYCF_C_3PN`
([API link](), [STATcompiler link]())

All children:
`CN_IYCF_C_MKA, CN_IYCF_C_4FA, CN_IYCF_C_MNA, CN_IYCF_C_3PA`
([API link](), [STATcompiler link]())

GNMF Indicator 12: Proportion of children aged 6-23 months who receive a minimum acceptable diet
WHO/UNICEF IYCF Indicator 8: Minimum dietary diversity 6-23 months
WHO/UNICEF IYCF Indicator 9: Minimum meal frequency 6-23 months
WHO/UNICEF IYCF Indicator 10: Minimum milk feeding frequency for non-breastfed children 6-23 months
WHO/UNICEF IYCF Indicator 11: Minimum acceptable diet 6-23 months
MICS6 Indicator TC.39a: Minimum acceptable diet (breastfed children)
MICS6 Indicator TC.39b: Minimum acceptable diet (non-breastfed children)
MICS6 Indicator TC.40: Milk feeding frequency for non-breastfed children
MICS6 Indicator TC.41: Minimum dietary diversity
MICS6 Indicator TC.42: Minimum meal frequency

Egg and/or Flesh Food Consumption

Percentage of children fed egg and/or flesh food

Definition

Percentage of children age 6-23 months who were fed egg and/or flesh food during the previous day.

Coverage:
> Population base: Youngest child age 6-23 months living with the mother (KR file)
> Time period: Previous day or night before the survey

Numerator: Number of youngest children age 6-23 months living with the mother who were fed egg (v414g = 1) and/or flesh food (v414h = 1 or v414m = 1 or v414n = 1 or v414b = 1) during the previous day or night.

Denominator: Number of youngest children age 6-23 months living with the mother. See *Calculation* of denominator in *Percentage of children fed the minimum dietary diversity, the minimum meal frequency, the minimum milk feeding frequency, and the minimum acceptable diet* for the selection for the denominator.

Variables: KR file.
caseid	Case Identification
b5	Child is alive
b9	Child lives with whom
b19	Current age of child in months (months since birth for dead children)
v414b	Gave child sausages, hot dogs, frankfurters, ham, bacon, salami, canned food
v414g	Gave child eggs
v414h	Gave child meat (beef, pork, lamb, chicken, etc.)
v414m	Gave child liver, heart, other organs
v414n	Gave child fish or shellfish

Based on DHS-8 standard questionnaires. Other variables may be needed if additional survey-specific liquid and foods are included.

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Specific liquids and foods: Missing values and "don't know" excluded from numerators in all percentages but included in denominators.

Notes and Considerations

Country-specific liquids and foods may be added to each category. Percentages are based only on children living with the mother. Children living elsewhere are excluded from both the numerators and the denominators.

If the last-born child is deceased or not living with the mother, questions on foods and liquids are asked of the prior child born in the two years preceding the interview.

References

WHO and UNICEF 2021. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. https://www.who.int/publications/i/item/9789240018389

Resources

DHS-8 Tabulation plan: Table 11.9 and 11.10

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

WHO/UNICEF IYCF Indicator 12: Egg and/or flesh food consumption 6-23 months

Unhealthy Feeding Practices

Percentage of children fed a sweet beverage, selected sentinel unhealthy foods, and percentage of children not fed any vegetables or fruits

Definition

Percentage of children age 6-23 months who:
1) Drank a sweet beverage during the previous day or night.
2) Ate selected sentinel unhealthy foods during the previous day or night.
3) Were not fed any vegetables or fruits during the previous day or night.

Coverage:

  Population base: Youngest child age 6-23 months living with the mother (KR file)
  Time period: Previous day or night before the survey

Numerators:

Number of youngest children age 6-23 months living with the mother who:
1) Drank a sweet beverage during the previous day (v410 = 1 or v410as = 1 or v411s = 1 or v413s = 1 or v413as = 1 or v413bs = 1 or v413c = 1 or v413d = 1)
2) Ate selected sentinel unhealthy foods during the previous day (v414r = 1 or v414t = 1 or v414w = 1)
3) Were not fed any vegetables or fruits during the previous day (v414i = 0 or v414j = 0 or v414k = 0 or v414l = 0 or v414a = 0)

Denominators: Number of youngest children age 6-23 months living with the mother. See *Calculation* of denominator in *Percentage of children fed the minimum dietary diversity, the minimum meal frequency, the minimum milk feeding frequency, and the minimum acceptable diet* for the selection for the denominator.

Variables: KR file.

caseid	Case Identification
b5	Child is alive
b9	Child lives with whom
b19	Current age of child in months (months since birth for dead children)
m4	Duration of breastfeeding
v410	Gave child juice
v410as	Tea or coffee/herbal drink was sweetened
v411s	Tinned, powdered or fresh milk was sweetened
v413s	Other liquid was sweetened
v413as	Yogurt as a drink was sweetened
v413bs	Soy milk was sweetened
v413c	Gave child chocolate flavored drink
v413d	Gave child sodas/malt/sports/energy drinks
v414a	Gave child any other vegetables
v414i	Gave child pumpkin, carrots, squash (yellow or orange inside)
v414j	Gave child any dark green leafy vegetables
v414k	Gave child mangoes, papayas, other vitamin A fruits

v414l   Gave child any other fruits
v414r   Gave child chocolates, sweets, candies, pastries, etc
v414t   Gave child chips, crisps, french fries, fried dough, instant noodles
v414w   Gave child common sentinel sweet food

Based on DHS-8 standard questionnaires. Other variables may be needed if additional survey-specific liquid and foods are included.

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Specific liquids and foods: Missing values and "don't know" excluded from numerators in all percentages but included in denominators.

Notes and Considerations

Country-specific liquids and foods may be added to each category. Percentages are based only on children living with the mother. Children living elsewhere are excluded from both the numerators and the denominators.

If the last-born child is deceased or not living with the mother, questions on foods and liquids are asked of the prior child born in the two years preceding the interview.

References

WHO and UNICEF 2021. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. https://www.who.int/publications/i/item/9789240018389

Resources

DHS-8 Tabulation plan: Table 11.9 and 11.10

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

WHO/UNICEF IYCF Indicator 13: Sweet beverage consumption 6-23 months
WHO/UNICEF IYCF Indicator 14: Unhealthy food consumption 6-23 months
WHO/UNICEF IYCF Indicator 15: Zero vegetable or fruit consumption 6-23 months

Infant and Young Child Feeding Counseling

Percentage of mothers who received infant and young child feeding (IYCF) counseling in the last 6 months

Definition

Percentage of mothers with children age 6-23 months who received IYCF counseling in the last 6 months by a healthcare provider or community health worker.

Coverage:
        Population base: Women with youngest child age 6-23 months living with them (KR file)
        Time period: 6 months preceding the interview

Numerator: Number of women whose youngest child age 6-23 months living with them and who received IYCF counseling in the last 6 months.

Denominators: Number of women whose youngest child age 6-23 months is living with them. See *Calculation* of denominator in *Percentage of children fed the minimum dietary diversity, the minimum meal frequency, the minimum milk feeding frequency, and the minimum acceptable diet* for the selection for the denominator.

Variables: KR file.
caseid   Case Identification
b5   Child is alive
b9   Child lives with whom
b19   Current age of child in months (months since birth for dead children)
v486   Counseled in the last 6 months about how or what to feed their child

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing values and "don't know" excluded from numerators in all percentages but included in denominators.

Notes and Considerations

Percentages are based only on children living with the mother. Children living elsewhere are excluded from both the numerators and the denominators.

If the last-born child is deceased or not living with the mother, the counseling question is asked of the prior child born in the two years preceding the interview.

References

WHO and UNICEF 2021. Indicators for assessing infant and young child feeding practices: definitions and measurement methods. https://www.who.int/publications/i/item/9789240018389

WHO. 2003. Guiding Principles for Complementary Feeding of the Breastfed Child. Geneva: WHO. https://iris.paho.org/handle/10665.2/752

International Food Policy Research Institute. 2018. *Report of the Joint Consultation on Approaches to Measure Coverage of Nutrition Counseling Interventions, Washington DC September 17 2018*. Washington, DC: Alive and Thrive, DataDENT, WHO-UNICEF Technical Expert Advisory Group on Nutrition Monitoring, International Food Policy Research Institute. https://cdn.who.int/media/docs/default-source/nutritionlibrary/team---technical-expert-advisory-group-on-nutrition-monitoring/meeting-reports/joint-consultation-nutrition-counselling-interventions-report.pdf

Resources

DHS-8 Tabulation plan: Table 11.11

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Micronutrient Intake among Children

Percentage of children who consumed foods rich in vitamin A, who consumed foods rich in iron, or who live in household with tested iodized salt (legacy indicator)

Definition

1) Percentage of youngest children age 6-23 months living with their mother who consumed foods rich in vitamin A.
2) Percentage of youngest children age 6-23 months living with their mother who consumed foods rich in iron.
3) Percentage of children age 6-59 months who live in a household with iodized salt.

Coverage:

Population base: (KR file, HR file).
   a) Youngest living children 6-23 months of age living with their mother (indicators 1-2)
   b) Living children 6-59 months of age living in households with salt tested (indicator 3)

Time period:
   a) The previous day and night before the survey (indicators 1-2)
   b) Current status at time of interview (indicator 3)

Numerators:

1) Number of youngest living children 6-23 months living with their mother who consumed foods rich in vitamin A at any time in the day or night preceding the interview (any of v414g, h, i, j, k, m, n = 1)
2) Number of youngest living children 6-23 months living with their mother who consumed foods rich in iron at any time in the day or night preceding the interview (any of v414g, h, m, n = 1)
3) Number of children 6-59 months living in households in which salt was tested having iodized salt (b5 = 1 & b19 in 6:59 & h234a = 1)

Denominators:

a) For numerators 1-2: Number of youngest living children 6-23 months of age living with their mother (b5 = 1 & b19 in 6:23 & youngest child living with mother – see *Calculation* of denominator in *Percentage of children fed the minimum dietary diversity, the minimum meal frequency, the minimum milk feeding frequency, and the minimum acceptable diet***Error! Reference source not found.**)
b) For numerator 3: Number of living children 6-59 months of age living in households with salt tested (b5 = 1 & b19 in 6:59 & h234a in 0,1)

Variables: KR file.

caseid	Case Identification
b5	Child is alive
b19	Current age of child in months
v414g	Gave child eggs
v414h	Gave child meat (beef, pork, lamb, chicken, etc)
v414i	Gave child pumpkin, carrots, squash (yellow or orange inside)
v414j	Gave child any dark green leafy vegetables

v414k	Gave child mangoes, papayas, other vitamin A fruits
v414m	Gave child liver, heart, other organs
v414n	Gave child fish or shellfish
hv234a	Result of salt test for iodine
v005	Women's individual sample weight

Calculation

For denominator for indicators 1-2): See *Percentage of children fed the minimum dietary diversity, the minimum meal frequency, the minimum milk feeding frequency, and the minimum acceptable diet* for the selection for the denominator.

For indicator 3): To calculate the salt iodization indicator for children, it is first necessary to merge the salt iodization variables from the household recode (HR file) to the children's recode (KR file) using the cluster and household numbers (see *Matching and Merging Datasets* in *Chapter 1*.)

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing values and "don't know" excluded from numerator (assumes did not consume or receive).

Indicator 3: Children living in households that were not tested or where information is missing on salt content are excluded from numerator and denominator.

Changes over Time

The indicators on children who consumed foods rich in iron, who consumed foods rich in vitamin A, and children who live in households with iodized salt are no longer included in the DHS-8 tabulation plan.

References

UNICEF Iodine Monitoring https://data.unicef.org/topic/nutrition/iodine/#resources

WHO. 2007. *Assessment of iodine deficiency disorders and monitoring their elimination: a guide for programme managers. 3rd ed.* https://www.who.int/publications/i/item/9789241595827

Resources

API Indicator IDs:
CN_MIAC_C_VAF, CN_MIAC_C_IRF, CN_MIAC_C_IOD
(API link, STATcompiler link)

Micronutrient Supplementation and Deworming among Children

Percentage of children who were given iron tablets or syrups, who were given multiple micronutrient powders, who were given iron-containing supplements, who were given vitamin A supplements, or who were given deworming medication

Definition

1) Percentage of children age 6-59 months who were given iron tablets or syrups in the last 12 months.
2) Percentage of children age 6-59 months who were given multiple micronutrient powders in the last 12 months.
3) Percentage of children age 6-59 months who were given iron-containing supplements in the last 12 months.
4) Percentage of children age 6-59 months who were given vitamin A supplements in the last 6 months.
5) Percentage of children age 12-59 months who were given deworming medication in the last 6 months.

Coverage:

Population base: (KR file).
a) Living children 6-59 months of age (indicators 1-4)
b) Living children 12-59 months of age (indicator 5)

Time period:
a) 12 months preceding the interview (indicators 1-3)
b) 6 months preceding interview (indicators 4-5)

Numerators:

1) Number of living children 6-59 months who were given iron tablets or syrups in the 12 months preceding the interview (b5 = 1 & b19 in 6:59 & h42 = 1)
2) Number of living children 6-59 months who were given multiple micronutrient powders in the 12 months preceding the interview (b5 = 1 & b19 in 6:59 & h80a = 1)
3) Number of living children 6-59 months who given iron-containing supplements in the 12 months preceding the interview (b5 = 1 & b19 in 6:59 & (h42 = 1 or h80a = 1))
4) Number of living children 6-59 months who were given vitamin A supplements in the 6 months preceding the interview (b5 = 1 & b19 in 6:59 & ((v008a - CDCode(h33d, h33m, h33y)/DaysMonth) < 6 or h34 = 1)), where DaysMonth = 30.4375
5) Number of living children 12-59 months who received deworming medication in the 6 months preceding the interview (b5 = 1 & b19 in 12:59 & h43 = 1)

Denominators:

a) For numerator 1-4: Number of living children 6-59 months of age (b5 = 1 & b19 in 6:59)
b) For numerators 5: Number of living children 12-59 months of age (b5 = 1 & b19 in 12:59)

Variables: KR file, HR file.
b5   Child is alive
b19   Current age of child in months

h33d	Vitamin A1 day
h33m	Vitamin A1 month
h33y	Vitamin A1 year
h34	Vitamin A in last 6 months
h42	Last 12 months given iron tablets, sprinkles or syrup
h43	Medicines for intestinal worms in last 6 months
h80a	In the last 12 months given: LOCAL NAME for multiple micronutrient powders
v008a	Date of interview Century Day Code (CDC)
v005	Women's individual sample weight

Calculation

For numerator 4: CDCode represents the century day code (CDC) calculated from the day, month and year when the child last received a vitamin A supplement (See *Century Day Code* in *Chapter 1*). Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing values and "don't know" excluded from numerator (assumes did not consume or receive). Missing values and "don't know" for month and year of last vitamin A supplement are excluded from numerator (assumes did not receive), but if only day is missing or "don't know" day is imputed as 15.

Notes and Considerations

Mothers are asked whether their child had iron tablets or syrup in the last 12 months. Similarly, mothers are asked whether their child had multiple micronutrient powders in the last 12 months. Multiple micronutrient powders contain a range of vitamins and minerals (and nearly always include iron, per WHO recommendations) enclosed in a single-dose sachet added to foods; Sprinkles™ is a brand name used for micronutrient powders. Iron-containing supplements is defined as having had either iron tablets/syrup or multiple micronutrient powders.

WHO does not recommend giving deworming to children to 6-12 months and country programs do follow this so by including those younger kids you will be underestimating the coverage of deworming in children.

Changes over Time

The indicators have changed over time. In DHS-7 and previous surveys the reference period for iron tablet or syrup and multiple micronutrient powders was the 7 days preceding the interview. In addition, in DHS-7 the iron supplementation indicator was defined as iron tablets, sprinkles, and syrups and an additional indicator was reported for multiple micronutrient powders (asked in a separate location in the questionnaire). In DHS-7 the population base for the iron supplementation was children age 6-59 months and the multiple micronutrient powders indicator was children age 6-23 months.

In DHS-8 surveys, the reference period for iron tablets or syrups and multiple micronutrient powders indicators is the last 12 months preceding the interview and the population base for both is children age 6-59 months and. In addition, the iron supplementation indicator is now defined as iron tablets or

syrups and a new indicator for iron-containing supplements was added and is defined as iron tablets or syrups, and/or multiple micronutrient powders. Therefore, caution should be observed when comparing the figures from DHS-8 surveys with DHS-7 and earlier surveys.

For the child deworming indicator, in DHS-7 and previous surveys, the population base was children age 6-59 months.

For the deworming indicator in DHS-8 surveys, the population base is children age 12-59 months. Note, caution should be observed when comparing figures from DHS-8 surveys with DHS-7 and earlier surveys as previous surveys underestimate the coverage of deworming in children since WHO does not recommend giving deworming to children age 6-12 months.

References

UNICEF. 2018. *Coverage at a Crossroads: New directions for vitamin A supplementation programmes.* New York: UNICEF. https://data.unicef.org/resources/vitamin-a-coverage/

WHO. 2017. Guideline: Preventive Chemotherapy to Control Soil-transmitted Helminth Infections in At-Risk Population Groups. Geneva: WHO. https://www.who.int/publications/i/item/9789241550116

WHO. 2016. Guideline: Daily Iron Supplementation in Infants and Children. Geneva: WHO. https://www.who.int/publications/i/item/9789241549523

WHO. 2016. Guideline: Use of Multiple Micronutrient Powders for Point-of-Use Fortification of Foods Consumed by Infants and Young Children Aged 6-23 Months and Children Aged 2-12 Years. Geneva: WHO. https://www.who.int/publications/i/item/9789241549943

WHO. 2011. Guideline: Intermittent Iron Supplementation in Preschool and School-age Children. Geneva: WHO. https://www.who.int/publications/i/item/9789241502009

WHO. 2011. Guideline: Vitamin A Supplementation in Infants and Children 6-59 Months of Age. Geneva: WHO. https://www.who.int/nutrition/publications/micronutrients/guidelines/vas_6to59_months/en/.

Resources

DHS-8 Tabulation plan: Table 11.13

API Indicator IDs:
CN_MIAC_C_VAS, CN_MIAC_C_IRS, CN_MIAC_C_MMN, CN_MIAC_C_DWM,
(API link, STATcompiler link)

Therapeutic and Supplemental Foods

Percentage of children who received Plumpy'Nut or who received Plumpy'Doz (legacy indicator)

Definition

1) Percentage of children age 6-35 months who received Plumpy'Nut in the 7 days preceding the interview.
2) Percentage of children age 6-35 months who received Plumpy'Doz in the 7 days preceding the interview.

Coverage:
       Population base: Living children 6-35 months of age (KR file)
       Time period: 7 days preceding interview

Numerators:
1) Number of living children 6 -35 months who received Plumpy'Nut (or local name) in the 7 days preceding the interview (b5 = 1 & b19 in 6:35 & h80b = 1)
2) Number of living children 6 -35 months who received Plumpy'Doz (or local name) in the 7 days preceding the interview (b5 = 1 & b19 in 6:35 & h80c = 1)

Denominator: Number of living children 6-35 months of age (b5 = 1 & b19 in 6:35)

Variables: KR file.
b5	Child is alive
b19	Current age of child in months
h80b	In the last 7 days given: LOCAL NAME for ready to use therapeutic food
h80c	In the last 7 days given: LOCAL NAME for ready to use supplemental food
v005	Women's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing values and "don't know" excluded from numerator (assumes did not receive) but included in denominator.

Notes and Considerations

Plumpy'Nut is a peanut-based paste given as a ready-to-use therapeutic food (RUTF) for treatment of severe acute malnutrition. Plumpy'Doz is a soy-based ready-to-use supplementary food (RUSF) for treatment of moderate acute malnutrition.

References

UNICEF. 2013. *Position Paper: Ready-to-use therapeutic food for children with severe acute malnutrition.* https://www.unicef-irc.org/files/documents/d-3838-Position-Paper--Ready-to-.pdf

Valid International. 2006. *Community-Based Therapeutic Care (CTC): Field Manual and Special Supplement* https://www.fantaproject.org/focus-areas/nutrition-emergencies-mam/ctc-field-manual-and-supplement

WHO. *Severe acute malnutrition*. http://www.who.int/nutrition/topics/severe_malnutrition/en/

Resources

API Indicator IDs:
CN_THSF_C_PLN,CN_THSF_C_PLD
(API link, STATcompiler link)

Women's Dietary Practices

Foods and Liquids Consumed by Women

Percentage of women consuming specific foods

Definition
Percentage of women age 15-49 consuming specific types of foods and liquids in the day or night before the interview.

Coverage:
> Population base: Women age 15-49 years (IR file)
> Time period: Previous day or night preceding the interview

Numerators:
Number of women age 15-49 who consumed the specific foods and liquids:
1) Food made from grains (v472e = 1)
2) White/pale starchy roots, tubers, and plantains (v472f = 1)
3) Beans, peas, lentils (v472o = 1)
4) Nuts, and seeds (v472c = 1)
5) Milk, cheese, and yogurt other milk products (v472p = 1)
6) Meat, fish, poultry, organ meats (v472m = 1 or v472n = 1 or v472b = 1 or v472h = 1)
7) Eggs (v472g = 1)
8) Dark green leafy vegetables (v472j = 1)
9) Other vitamin A rich fruits and vegetables (v472i = 1 or v472k = 1)
10) Other vegetables (v472a = 1)
11) Other fruits (v472l = 1)
12) Insects and other small protein foods (v472d = 1)
13) Red palm oil (v472u = 1)
14) Sweet foods such as chocolates, candies, pastries, cakes, biscuits, ice cream, popsicles (v472r = 1 or v472w = 1)
15) Fried and salty foods such as chips, crisps, puffs, French fries, fried dough (v472t = 1)
16) Fruit juice and fruit-flavored drinks (v471e = 1)
17) Sodas, malt drinks, sports drinks, and energy drinks (v472d = 1)
18) Sweetened tea, coffee, herbal drinks and other sweetened beverages (v472v = 1 & v471cs = 1)

Denominator: Number of women age 15-49.

Variables: IR file.
v471a	Woman had tinned, powdered or fresh milk
v471b	Woman had tea or coffee
v471c	Woman had any other liquid
v471cs	Woman had other liquid - sweetened
v471d	Woman had sodas/malt/sports/energy drinks
v471e	Woman had fruit juice, fruit-flavored drinks
v471f	Woman had CS liquid
v471g	Woman had CS liquid

v471h	Woman had CS liquid
v471i	Woman had CS liquid
v472a	Woman had other vegetables
v472b	Woman had sausages, hot dogs, frankfurters, ham, bacon, salami, canned food
v472c	Woman had nuts, seeds
v472d	Woman had any insects
v472e	Woman had porridge, bread, rice, noodles, pasta
v472f	Woman had plantains, white potatoes, yams, manioc, cassava, or other tubers
v472g	Woman had eggs
v472h	Woman had any other meat (beef, pork, lamb, chicken, etc.)
v472i	Woman had pumpkin, carrots, squash, sweet potatoes (yellow or orange inside)
v472j	Woman had any dark green leafy vegetables
v472k	Woman had mangoes, papayas, other vitamin A fruits
v472l	Woman had any other fruits
v472m	Woman had liver, heart, other organs
v472n	Woman had fish or shellfish
v472o	Woman had food made from beans, peas, lentils
v472p	Woman had cheese, yogurt, other milk products
v472q	Woman had oil, fats, butter, products made of them
v472r	Woman had sweet foods, chocolates, candies, pastries, cakes, ice cream, etc.
v472s	Woman had any other food
v472t	Woman had chips, crisps, French fries, fried dough, instant noodles
v472u	Woman had red palm oil
v472v	Woman had sweetened tea, coffee or herbal drinks
v472w	Woman had [COMMON SENTINEL SWEET FOOD]
v472wa	Woman had CS foods
v472wb	Woman had CS foods
v472wc	Woman had CS foods
v472wd	Woman had CS foods
v472we	Woman had CS foods
v005	Women's individual sample weight

Based on DHS-8 standard questionnaires. Other variables may be needed if additional survey-specific liquids and foods are included.

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Specific beverages and foods: Missing values and "don't know" excluded from numerators in all percentages but included in denominators.

Notes and Considerations

Country-specific liquids and foods may be added to each category.

Changes over Time

The groupings of types of foods have changed over time. In DHS-V surveys and early DHS-VI surveys, cheese/yogurt; fruits and vegetables rich in vitamin A; and meat, fish, shellfish and poultry, and eggs were grouped together, respectively. Sugary foods, such as chocolates, sweets, candies, pastries, cakes of biscuits were also presented in DHS-V surveys and early DHS-VI surveys.

Other food groups reported in DHS-V and early DHS-VI surveys include food made with oil, fat, or butter; any other solid or semi-solid food; fresh milk; tea and coffee; and other liquids. These changes should be taken into consideration when comparing results with the surveys reports.

Resources

DHS-8 Tabulation plan: Tables 11.15

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Percentage of women achieving minimum dietary diversity, consuming sweet beverages, consuming unhealthy foods

Definition

Percentage of women age 15-49 who consumed:
1) Foods from at least of 5 out of 10 food groups during the previous day or night:
   a) Grains, white/pale starchy roots, tubers, and plantains
   b) Pulses
   c) Nuts and seeds
   d) Dairy (milk, cheese, yogurt, other milk products)
   e) Flesh foods (meat, fish, poultry and liver/organ meats)
   f) Eggs
   g) Dark green leafy vegetables
   h) Vitamin A rich fruits and vegetables
   i) Other vegetables
   j) Other fruits
2) Sweet beverages during the previous day or night
3) Selected sentinel unhealthy foods during the previous day or night

Coverage:
   Population base: Women age 15-49 years (IR file)
   Time period: Previous day or night before the survey

Numerators:
Number of women age 15-49 who consumed:
1) Foods from at least of 5 or more of the following 10 food groups during the previous day or night preceding the interview:
   a) Grains, white/pale starchy roots, tubers, and plantains (v472e = 1 or v472f = 1)
   b) Pulses (v472o = 1)
   c) Nuts and seeds (v472n = 1)
   d) Dairy (milk, cheese, yogurt, other milk products) (v472p = 1)
   e) Flesh foods (meat, fish, poultry and liver/organ meats) (v472m = 1 or v472n = 1 or v472b = 1 or v472h = 1)
   f) Eggs (v472g = 1)
   g) Dark green leafy vegetables (v472j = 1)
   h) Vitamin A rich fruits and vegetables (v472i = 1 or v472k = 1)
   i) Other vegetables (v472a = 1)
   j) Other fruits (v472l = 1)
2) Sweet beverages during the previous day or night preceding the interview (v471e = 1 or v471d = 1 or v472v = 1 or v471cs = 1)
3) Selected sentinel unhealthy foods during the previous day or night preceding the interview (v472r = 1 or v472t = 1 or v472w = 1)

Denominators: Number of women age 15-49.

Variables: IR file.

v471a	Woman had tinned, powdered or fresh milk
v471b	Woman had tea or coffee
v471c	Woman had any other liquid
v471cs	Woman had other liquid - sweetened
v471d	Woman had sodas/malt/sports/energy drinks
v471e	Woman had fruit juice, fruit-flavored drinks
v471f	Woman had CS liquid
v471g	Woman had CS liquid
v471h	Woman had CS liquid
v471i	Woman had CS liquid
v472a	Woman had other vegetables
v472b	Woman had sausages, hot dogs, frankfurters, ham, bacon, salami, canned food
v472c	Woman had nuts, seeds
v472d	Woman had any insects
v472e	Woman had porridge, bread, rice, noodles, pasta
v472f	Woman had plantains, white potatoes, yams, manioc, cassava, or other tubers
v472g	Woman had eggs
v472h	Woman had any other meat (beef, pork, lamb, chicken, etc.)
v472i	Woman had pumpkin, carrots, squash, sweet potatoes (yellow or orange inside)
v472j	Woman had any dark green leafy vegetables
v472k	Woman had mangoes, papayas, other vitamin A fruits
v472l	Woman had any other fruits
v472m	Woman had liver, heart, other organs
v472n	Woman had fish or shellfish
v472o	Woman had food made from beans, peas, lentils
v472p	Woman had cheese, yogurt, other milk products
v472q	Woman had oil, fats, butter, products made of them
v472r	Woman had sweet foods, chocolates, candies, pastries, cakes, ice cream, etc.
v472s	Woman had any other food
v472t	Woman had chips, crisps, French fries, fried dough, instant noodles
v472u	Woman had red palm oil
v472v	Woman had sweetened tea, coffee or herbal drinks
v472w	Woman had [COMMON SENTINEL SWEET FOOD]
v472wa	Woman had CS foods
v472wb	Woman had CS foods
v472wc	Woman had CS foods
v472wd	Woman had CS foods
v472we	Woman had CS foods
v005	Women's individual sample weight

Based on DHS-8 standard questionnaires. Other variables may be needed if additional survey-specific liquids and foods are included.

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Specific beverages and foods: Missing values and "don't know" excluded from numerators in all percentages but included in denominators.

Notes and Considerations

Country-specific beverages or foods may be added to each category.

Changes over Time

In some DHS-V and early DHS-VI surveys, Women's Dietary Diversity Score (WDDS) was used to assess women's diet diversity. The Women's Dietary Diversity Score indicator is a proxy for micronutrient adequacy and is based on nine food groups.

In late DHS-VI and in DHS-7 surveys, information on women's diet diversity was not routinely collected.

In DHS-8 surveys, women's diet diversity is assessed by the Minimum Dietary Diversity for Women (MDD-W) indicator (FAO 2021). The indicator is a proxy for micronutrient adequacy and is based on 10 food groups. Despite MDD-W and WDDS both being proxies for micronutrient adequacy, they are two different indicators and cannot be directly compared. Therefore, caution should be observed when comparing the results from DHS-8 surveys with earlier surveys.

References

FAO. 2021. *Minimum Dietary Diversity for Women*. Rome: FAO. https://di.org/10.4060/cb3434en

WHO. 2013. *Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020*. Geneva: World Health Organization. https://www.who.int/publications/i/item/9789241506236

Resources

DHS-8 Tabulation plan: Table 11.15

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Micronutrient Intake among Women

Percent distribution of women with a birth in last five years, by number of days they took iron tablets or syrup during pregnancy of last birth, percentage who took deworming medication, and percentage who live in a household with tested iodized salt (legacy indicator)

Definition

1) Percent distribution of women with a birth in last 5 years, by number of days they took iron tablets or syrup during pregnancy of last birth.
2) Percentage of women with a birth in last 5 years who took deworming medication during pregnancy of last birth.
3) Percentage of women with a birth in last 5 years who live in a household with salt tested with iodized salt.

Coverage:
Population base: Women with a birth in the 5 years preceding the survey (IR file)
Time period: 5 years preceding the survey

Numerators:
1) Number of women with a birth in the 5 years preceding the survey distributed by the number of days they took iron tablets or syrup during the pregnancy of their last birth (none, < 60, 60-89, 90+, "don't know"/missing) (m45 = 0, m46 in 0:59, m46 in 60:89, m46 in 90:300, m45 = 8, 9 or m46 = 998, 999)
2) Number of women with a birth in the 5 years preceding the survey who took deworming medication during pregnancy of last birth (m60 = 1).
3) Number of women with a birth in the 5 years preceding the survey living in households with tested iodized salt (hv234a = 1)

Denominators:
a) For numerators 1, 2: Number of women with a birth in the 5 years preceding the survey (v208 > 0)
b) For numerator 3: Number of women with a birth in the 5 years preceding the survey who live in households where salt was tested (v208 > 0 & hv234a in 0, 1)

Variables: IR file.
v208	Births in last five years
m45_1	During pregnancy, given or bought iron tablets/syrup
m46_1	Days tablets or syrup taken
m60_1	Drugs for intestinal parasites during pregnancy
hv234a	Result of salt test for iodine
v005	Women's individual sample weight

Calculation

For numerator 3/denominator b: To calculate the salt iodization indicator for women, it is first necessary to merge the salt iodization variables from the household recode (HR file) to the women's recode (IR file) using the cluster and household numbers (see *Matching and Merging Datasets* in *Chapter 1*).

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing values and "don't know" on whether given iron tablets/syrup or missing and "don't know" on number of days given iron tablets/syrup are included in a separate category. Missing values and "don't know" for deworming during pregnancy excluded from numerator and included in denominator. Women living in households in which salt was not tested or for which information is missing on salt content are excluded from the numerator and denominator.

Changes over Time

The indicators for women taking iron tablets or syrup, women taking deworming medication, and women living in households with iodized salt are no longer included in the DHS-8 tabulation plan.

References

Sununtnasuk, C., A. D'Agostino, & J. Fiedler. 2016. "Iron folic acid distribution and consumption through antenatal care: Identifying barriers across countries." *Public Health Nutrition*, 19(4), 732-742. doi:10.1017/S1368980015001652
https://www.cambridge.org/core/journals/public-health-nutrition/article/ironfolic-acid-distribution-and-consumption-through-antenatal-care-identifying-barriers-across-countries/B6645437C3E9493D83765E9AD862F21F#

WHO. 2016. *WHO recommendations on antenatal care for a positive pregnancy experience.* Geneva.
http://www.who.int/nutrition/publications/guidelines/antenatalcare-pregnancy-positive-experience/en/

Resources

API Indicator IDs:
AN_MIAM_W_NON, AN_MIAM_W_L60, AN_MIAM_W_L89, AN_MIAM_W_90P, AN_MIAM_W_DKM, AN_MIAM_W_DWM, AN_MIAM_W_IOD
(API link, STATcompiler link)

Iodization of Household Salt

Percentage of households with salt tested for iodine content, with salt but salt not tested, with no salt, and among households tested percentage with iodized salt

Definition

1) Percentage of households with salt tested for iodine content.
2) Percentage of households with salt, but the salt was not tested.
3) Percentage of households with no salt.
4) Percentage of households with salt tested which contained iodized salt.

Coverage:
        Population base: Interviewed households (HR file)
        Time period: Current status at time of survey

Numerators:
1) Number of households with salt tested for iodine content (hv234a 0 or hv234a = 1)
2) Number of households with salt, but the salt was not tested (hv234a = 6)
3) Number of households with no salt (hv234a = 3)
4) Number of households with salt tested with iodized salt (hv234a = 1)

Denominators:
a) For numerators 1-3: Number of households interviewed
b) For numerator 4: Number of households where salt was tested for iodine content (hv234a in 0,1)

Variables: HR file.
hv234a   Result of salt test for iodine
hv005   Household sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing values and "don't know" on iodine content or whether salt was available or tested excluded from the numerators but included from the first denominator.

Changes over Time

DHS tests household salt iodization using a Rapid Test Kit (RDK). The WHO recommends RTKs should only be used to report the proportion of household using salt containing iodine (non-iodized or iodized), because the RTK does not provide accurate estimates of the quantity of iodine in salt. DHS-V and earlier surveys reported iodine content of salt in households tested as none (0 ppm), inadequate (<15ppm),

and adequate (15+ ppm) (hv234). Surveys in DHS-VI, DHS-7 and DHS-8 report the percentage of any iodized salt in households in which salt was tested.

References

UNICEF Iodine Monitoring https://data.unicef.org/topic/nutrition/iodine/#resources

WHO. 2007. *Assessment of iodine deficiency disorders and monitoring their elimination: a guide for programme managers. 3rd ed*. https://www.who.int/publications/i/item/9789241595827

Resources

DHS-8 Tabulation plan: Table 11.18

API Indicator IDs:
`CN_IODZ_H_SLT, CN_IODZ_H_SLN, CN_IODZ_H_NSL, CN_IODZ_H_IOD`
(API link, STATcompiler link)

MICS6 Indicator TC.48: Iodized salt consumption

12) Malaria

This chapter presents data that are useful for assessing the implementation of malaria control strategies, including the availability and use of mosquito nets, the prophylactic and therapeutic use of antimalarial drugs, and the collection of blood for diagnostic tests for children with fever.

Indicators are presented which provide information on the percentage of households possessing mosquito nets by category (any nets or insecticide treated nets (ITNs)) and the percentages of household members, of pregnant women, and of children who slept under a net the night before the survey is provided. Indicators are also presented, for women who gave birth in the two years preceding the survey, of the percentage who took SP/Fansidar during pregnancy by number of doses (two doses is referred to as Intermittent Preventive Treatment for pregnancy (IPTp), and the percentage who obtained IPTp as part of antenatal care. Additionally, among children under age five, indicators are provided on the percentage of children who experienced an episode of fever in the two weeks preceding the survey, whether they had blood taken from a finger or heel for testing at any time during the fever, whether they were treated with antimalarial drugs, the specific drug(s) they received and the timeliness with which they received drug treatment. Indicators for the percentage of children under age five with hemoglobin levels less than 8.0 g/dl are given. Note that the cutoff value for malaria-related anemia (8.0 g/dl) is different from the cutoff value used for severe anemia in the nutrition chapter (7.0 g/dl).

In surveys that collected specimens for malaria testing (primarily Malaria Indicator Surveys), indicators of the prevalence of malaria in children are provided, based on both rapid diagnostic tests (RDT) and on laboratory analysis.

Changes over Time

Insecticide-Treated Net
An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. Prior to 2018, this was known as a long-lasting insecticidal net (LLIN), and an insecticide-treated net (ITN) was either (1) a factory-treated net that does not require any further treatment (LLIN) or (2) a net that has been soaked with insecticide within the past 12 months.

The definition of an ITN used to include another category of "pre-treated" nets that would not require treatment with insecticide 12 months after it was obtained. In 2018 the definition of ITN was changed to only include what was previously known as a long-lasting insecticidal net (LLIN).

Bednets that require annual retreatment and the products used for retreatment are no longer distributed. Therefore, factory-treated nets that do not require any further treatment are the only kind of treated bednets available. Following guidance from the Roll Back Malaria Vector Working Group the terminology ITN should be used for these nets.

References

Roll Back Malaria Monitoring and Evaluation Reference Group Survey and Indicator Task Force. 2018. Household Survey Indicators for Malaria Control.

English:
https://www.malariasurveys.org/documents/Household%20Survey%20Indicators%20for%20Malaria%20Control_FINAL.pdf
French:
https://www.malariasurveys.org/documents/Household%20Survey%20Indicators%20for%20Malaria%20Control_FINAL%20French.pdf

Roll Back Malaria Monitoring and Evaluation Reference Group Survey and Indicator Task Force. 2013. *Household Survey Indicators for Malaria Control.* https://data.unicef.org/resources/household-survey-indicators-for-malaria-control-2013-edition/

Resources

The DHS Program Malaria Topics page: https://www.dhsprogram.com/topics/malaria/index.cfm

Household Possession of Mosquito Nets

Percentage of households with at least one mosquito net, percentage of households with at least one insecticide-treated net (ITN), average number of mosquito nets, average number of ITNs, percentage of households with at least one mosquito net for every two persons who stayed in the household last night, and percentage of households with at least one ITN for every two persons who stayed in the household last night

Definition

1) Percentage of households with at least one mosquito net.
2) Percentage of households with at least one insecticide-treated net (ITN).
3) Average number of mosquito nets per household.
4) Average number of insecticide-treated nets (ITNs) per household.
5) Percentage of households with at least one mosquito net for every 2 persons who stayed in the household last night.
6) Percentage of households with at least one insecticide-treated net (ITN) for every 2 persons who stayed in the household last night.

Coverage:

Population base: Surveyed households (HR file)
Time period: Current status at time of survey

Numerators:

1) Number of households surveyed with at least one mosquito net (treated or untreated) (hv227 = 1)
2) Number of households surveyed with at least one ITN (any of hml10_1 – hml10_7 = 1)
3) Sum of the number of mosquito nets (hml1)
4) Sum of the number of ITNs (sum of nets with hml10_1 – hm10_7 = 1)
5) Number of households surveyed with at least one mosquito net (treated or untreated) for every 2 persons who stayed in the household the night prior to the survey, in households with at least one de facto person who stayed in the household the night prior to the survey (hv013 > 0 & hml1/hv013 >= 0.5)
6) Number of households surveyed with at least one ITN for every 2 persons who stayed in the household the night prior to the survey, in households with at least one de facto person who stayed in the household the night prior to the survey (hv013 > 0 & (sum of hml10_1 – hml10_7 = 1)/hv013 >= 0.5)

Denominator:

a) Numerators 1-4: Number of surveyed households
b) Numerators 5-6: Number of households with at least one de facto person who stayed in the household the night prior to the survey (hv013 > 0)

Variables: HR file.

hv013   Number of de facto members
hv227   Has mosquito bed net for sleeping
hml1   Number of mosquito bed nets

hml10_1 – _7   Insecticide-Treated Net (ITN)
hv005   Household sample weight

Calculation

For percentages, numerator divided by denominator, multiplied by 100. For average, numerator divided by denominator.

Handling of Missing Values

Households with missing information on ownership of nets are considered not to own nets. For the average number of mosquito nets, missing information on the total number of nets is counted as one net if the household reports at least one net (hv227 = 1). Nets with missing information on type are considered not to be ITNs.

Notes and Considerations

ITN ownership indicators are highly influenced by the timing since the last ITN mass distribution campaign in a country. Some surveys collect information on more than 7 nets. Please check variable hml10_#.

Changes over Time

An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. Prior to 2018, this was known as a long-lasting insecticidal net (LLIN).

References

Burgert, C. R., S.E.K. Bradley, E. Eckert, and F. Arnold. 2012. *Improving Estimates of Insecticide-Treated Mosquito Net Coverage from Household Surveys: Using Geographic Coordinates to Account for Endemicity and Seasonality*. DHS Analytical Studies No. 32. Calverton, Maryland, USA: ICF International. https://dhsprogram.com/publications/publication-AS32-Analytical-Studies.cfm

Fullman, N., R. Burstein, S. S. Lim, C. Medlin, and E. Gakidou. 2013. "Nets, spray or both? The effectiveness of insecticide-treated nets and indoor residual spraying in reducing malaria morbidity and child mortality in sub-Saharan Africa." *Malaria journal* 12(1): 62. https://malariajournal.biomedcentral.com/articles/10.1186/1475-2875-12-62

Kilian, A., H. Koenker, E. Baba, E.O. Onyefunafoa, R.A. Selby, K. Lokko, and M. Lynch. 2013. "Universal coverage with insecticide-treated nets–applying the revised indicators for ownership and use to the Nigeria 2010 malaria indicator survey data." *Malaria journal* 12(1): 314. https://www.ncbi.nlm.nih.gov/pubmed/24020332

Lim, S. S., N. Fullman, A. Stokes, N. Ravishankar, F. Masiye, C. JL Murray, and E. Gakidou. 2011. "Net benefits: a multicountry analysis of observational data examining associations between insecticide-treated mosquito nets and health outcomes*." PLoS medicine* 8(9): e1001091 http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1001091

Taylor, C., L. Florey, and Y. Ye. 2017. "Equity trends in ownership of insecticide-treated nets in 19 sub-Saharan African countries." *Bulletin of the World Health Organization* 95(5): 322. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5418821/

Wanzira, H., H. Katamba, and D. Rubahika. 2016. "Use of long-lasting insecticide-treated bed nets in a population with universal coverage following a mass distribution campaign in Uganda." *Malaria journal* 15(1): 311. https://malariajournal.biomedcentral.com/articles/10.1186/s12936-016-1360-0

Resources

DHS-8 Tabulation plan: Table 12.1

API Indicator IDs:
ML_NETP_H_MOS, ML_NETP_H_ITN, ML_NETP_H_LLN, ML_NETP_H_MNM, ML_NETP_H_MNI,
ML_NETP_H_MNL, ML_NETP_H_MS2, ML_NETP_H_IT2, ML_NETP_H_LL2
(API link, STATcompiler link)

Household Survey Indicators for Malaria Control Indicator 1: Proportion of households with at least one ITN
Household Survey Indicators for Malaria Control Indicator 2: Proportion of households with at least one ITN for every two people

MICS6 Indicator TC.21a: Household availability of insecticide treated nets (ITNs) – at least one ITN
MICS6 Indicator TC.21b: Household availability of insecticide treated nets (ITNs) – at least one ITN for every two people

Source of Mosquito Nets

Percent distribution of mosquito nets by source of net

Definition

Percent distribution of mosquito nets by source of net for ITNs (hml10_1 – hlm10_7 = 1), non-ITNs (hml10_1 – hlm10_7 ≠ 1), and all nets.

Coverage:
    Population base: Mosquito nets owned by surveyed households (HR file)
    Time period: Current status at time of survey

Numerator: Number of mosquito nets (treated or untreated) from each source owned by surveyed households (hml22_1 – hml22_7 = 1,2,3 or hml23_1 – hml23_7 = 11-19,21-29,31-35,96,)

Denominator: Number of mosquito nets owned by surveyed households (hmlidx1 – hmlidx_7 > 0)

Variables: HR file.
hmlidx_1 – _7   Mosquito Bed Net Designation Number
hml10_1 – _7   Insecticide-Treated Net (ITN)
hml22_1 – _7   Obtained net from campaign, antenatal or immunization visit
hml23_1 – _7   Place where net was obtained
hv005   Household sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Nets with missing information on source are included as "don't know."

Notes and Considerations

Data are stratified by type of net: ITN and non-ITN. See *Changes over Time* for this chapter details about the term ITN. An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. Prior to 2018, this was known as a long-lasting insecticidal net (LLIN). Some surveys collect information on more than 7 nets. Please check variables hmlidx_#, hml10_#, hml22_#, and hml23_#.

Nets obtained from a mass distribution campaign, ANC visit, immunization visit, or government health facility are assumed to be ITNs and coded as such.

Changes over Time

An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. Prior to 2018, this was known as a long-lasting insecticidal net (LLIN). See *Changes over Time* for this chapter.

Since 2017, nets obtained from a mass distribution campaign, ANC visit, immunization visit, or government health facility are assumed to be ITNs and coded as such.

References

Koenker, H., and J. O. Yukich. 2017. "Effect of user preferences on ITN use: a review of literature and data." *Malaria journal* 16(1): 233. https://malariajournal.biomedcentral.com/articles/10.1186/s12936-017-1879-8

Njau, J. D., R. Stephenson, M. Menon, S. P. Kachur, and D. A. McFarland. 2013. "Exploring the impact of targeted distribution of free bed nets on households bed net ownership, socio-economic disparities and childhood malaria infection rates: analysis of national malaria survey data from three sub-Saharan Africa countries." *Malaria journal* 12(1): 245.
https://malariajournal.biomedcentral.com/articles/10.1186/1475-2875-12-245

Resources

DHS-8 Tabulation plan: Table 12.2

API Indicator IDs:
```
ML_NSRC_N_MDC, ML_NSRC_N_ANC, ML_NSRC_N_IMM, ML_NSRC_N_GHF, ML_NSRC_N_PHF,
ML_NSRC_N_PHM, ML_NSRC_N_SHP, ML_NSRC_N_CHW, ML_NSRC_N_REL, ML_NSRC_N_SCL,
ML_NSRC_N_OTH, ML_NSRC_N_DKM, ML_NSRC_N_TOT
```
(API link, STATcompiler link)

Access to an Insecticide-Treated Net (ITN)

Percent distribution of the household population by number of ITNs the household owns (legacy indicator)

Definition

Percent distribution of the de facto household population by number of insecticide-treated nets (ITNs) the household owns.

Coverage:
>   Population base: De facto household members (PR file, HR file)
>   Time period: Night before the survey

Numerator: Distribution of the number of de facto persons (hv103 = 1) in the household by the number of ITNs the household owns (sum of hml10_1 – hml10_7 = 1)

Denominator: Number of persons who stayed in the household the night before the survey (hv103 = 1)

Variables: HR file, PR file.
hhid	Household identification
hml10_1 – _7	Insecticide-Treated Net (ITN)
hv103	Slept last night
hv005	Household sample weight

Calculation

This indicator uses the net roster from the HR file to produce summary variables applied to the household members. First merge hml10_1 – hml10_7 from the HR file to the PR file using hhid as the variable for matching before calculating the indicator (see *Matching and Merging Datasets* in *Chapter 1*).

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households with missing information on ownership of nets are considered not to own nets. Nets with missing information on type are considered not to be ITNs.

Notes and Considerations

May be biased by the seasonality of the survey data collection.

Changes over Time

An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. Prior to 2018, this was known as a long-lasting insecticidal net (LLIN). See *Changes over Time* for this chapter.

This indicator is no longer included in the standard DHS-8 tabulation plan.

References

See *References* for this chapter.

Percentage of the population with access to an ITN

Definition

Percentage of the de facto household population with access to an ITN in the household, defined as the proportion of the de facto household population who slept under an ITN if each ITN in the household were used by up to two people.

Coverage:
> Population base: De facto household members (PR file, HR file)
> Time period: Night before the survey

Numerator: Number of de facto persons (hv103 = 1) who could sleep under an ITN if each ITN in the household is used by up to 2 people, calculated for each household as the minimum of:
> (1) number of de facto persons in the household (hv013), and
> (2) twice the number of ITNs per household (2 * sum of hml10_1 – hml10_7 = 1)

Denominator: Number of persons who stayed in the household the night before the survey (hv103 = 1)

Variables: HR file, PR file.

hhid	Household identification
hml10_1 – _7	Insecticide-Treated Net (ITN)
hv013	Number of de facto members
hv103	Slept last night
hv005	Household sample weight

Calculation

This indicator uses the net roster from the HR file to produce summary variables applied to the household members. First merge hml10_1 – hml10_7 from the HR file to the PR file using hhid as the variable for matching before calculating the indicator (see *Matching and Merging Datasets* in *Chapter 1*).

ITN access is calculated by dividing the sum of all potential ITN users in the sample by the total number of individuals who spent the previous night in surveyed households.

For the numerator, sum the total number of ITNs in the household (sum of hml10_1 – hml10_7 = 1). Calculate an intermediate variable which is "potential users" calculated by multiplying the number of ITNs in each household by 2. In households which have more than 1 ITN for every 2 people, the product of this calculation will be greater than the number of individuals who spent the previous night. In this case, the "potential users" variable in that household should be modified to reflect the number of individuals who spent the previous night in the household because the number of potential users in a household cannot exceed the number of individuals who spent the previous night in that household.

For example, in a household with 10 people and 4 ITNs, there are 8 potential users; however, in a household with 5 people and 4 ITNs, there are 5 potential users even though the number of ITNs available could cover more than 5 people.

Handling of Missing Values

Households with missing information on ownership of nets are considered not to own nets. Nets with missing information on type are considered not to be ITNs.

Notes and Considerations

This indicator is based on the assumption that 2 people can sleep under 1 ITN. For example, a household with 6 residents will require 3 ITNs. It excludes surplus ITNs in households which have more than 1 ITN for every 2 people; household-level access is limited to 100%. Some surveys collect information on more than 7 nets. Please check variable hml10_#.

May be biased by the seasonality of the survey data collection.

Stata code useful for calculating this indicator can be found in the Household Survey Indicators for Malaria Control manual.

Changes over Time

An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. Prior to 2018, this was known as a long-lasting insecticidal net (LLIN). See *Changes over Time* for this chapter.

References

Kilian, A, H. Koenker, and L. Paintain. 2013. "Estimating population access to insecticide-treated nets from administrative data: correction factor is needed." *Malaria journal* 12(1): 259. https://malariajournal.biomedcentral.com/articles/10.1186/1475-2875-12-259

Koenker, H, E. Ricotta, B. Olapeju. 2018. *Insecticide-Treated Nets (ITN) Access and Use Report.* Baltimore, MD. PMI | VectorWorks Project, Johns Hopkins Center for Communication Programs. DOI: 10.1371/journal.pone.0097496

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Resources

DHS-8 Tabulation plan: Tables 12.3

The DHS Program Malaria Topics page: https://www.dhsprogram.com/topics/Malaria.cfm

DHS Indicator Snapshot: Insecticide Treated Net Access: https://www.youtube.com/watch?v=YfTXcc13GOI

API Indicator IDs:
ML_ITNA_P_ACC
([API link](#), [STATcompiler link](#))

Household Survey Indicators for Malaria Control Indicator 3: Proportion of population with access to an ITN in their household

Use of Mosquito Nets by Persons in the Household

Percentage of the household population who slept the night before the survey under a mosquito net, under an insecticide-treated net (ITN), and among the population in households with at least one ITN, the percentage who slept under an ITN the night before the survey

Definition

1) Percentage of the de facto household population who slept the night before the survey under a mosquito net (treated or untreated).
2) Percentage of the de facto household population who slept the night before the survey under an insecticide-treated net (ITN).
3) Among the de facto household population in households with at least one ITN, the percentage who slept under an ITN the night before the survey.

Coverage:
  Population base: De facto household members (PR file, HR file)
  Time period: Night before the survey

Numerators:
1) Number of de facto persons who reported sleeping under any mosquito net the night before the survey (hv103 = 1 & hml12 in 1:3)
2) Number of de facto persons who reported sleeping under an ITN the night before the survey (hv103 = 1 & hml12 in 1:2)
3) Number of de facto persons in households with at least one ITN who reported sleeping under an ITN the night before the survey (hv103 = 1 & hml12 in 1:2 & any hml10_1 – hml10_7 = 1)

Denominators:
a) Number of persons in the de facto household population (hv103 = 1)
b) Number of persons in the de facto household population (hv103 = 1)
c) Number of persons in the de facto household population in households owning at least one ITN (hv103 = 1 & any hml10_1 – hml10_7 = 1)

Variables: HR file, PR file.
hhid   Household identification
hv103   Slept last night
hml10_1 – _7 Insecticide-Treated Net (ITN)
hml12   Type of mosquito net person slept under last night
hv005   Household sample weight

Calculation

This indicator uses the net roster from the HR file to produce summary variables applied to the household members. First merge hml10_1 – hml10_7 from the HR file to the PR file using hhid as the

variable for matching before calculating the indicator (see *Matching and Merging Datasets* in *Chapter 1*).

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Households with missing information on ownership of nets are considered not to own nets. Nets with missing information on type are considered not to be ITNs.

Notes and Considerations

May be biased by the seasonality of the survey data collection. Some surveys collect information on more than 7 nets. Please check variable hml10_#.

Changes over Time

An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. Prior to 2018, this was known as a long-lasting insecticidal net (LLIN). See *Changes over Time* for this chapter.

References

Jima, D., A. Getachew, H. Bilak, R.W. Steketee, P.M. Emerson, P.M. Graves, T. Gebre, R. Reithinger, and J. Hwang. 2010. "Malaria indicator survey 2007, Ethiopia: coverage and use of major malaria prevention and control interventions." *Malaria journal* 9(1): 58. https://malariajournal.biomedcentral.com/articles/10.1186/1475-2875-9-58

Samadoulougou, S., M. Pearcy, Y. Yé, and F. Kirakoya-Samadoulougou. 2017. "Progress in coverage of bed net ownership and use in Burkina Faso 2003–2014: evidence from population-based surveys." *Malaria journal* 16(1): 302. https://link.springer.com/article/10.1186/s12936-017-1946-1

Resources

DHS-8 Tabulation plan: Table 12.4

API Indicator IDs:
`ML_NETU_P_ANY`, `ML_NETU_P_ITN`, `ML_NETU_P_LLN`, `ML_NETU_P_IT1`
(API link, STATcompiler link)

Household Survey Indicators for Malaria Control Indicator 4: Proportion of population that slept under an ITN the previous night
WHO 100 Core Health Indicators: Use of insecticide treated nets (ITNs)
MICS6 Indicator TC.22: Population that slept under an ITN

Use of Existing ITNs

Percentage of insecticide-treated nets (ITNs) used the night before the survey

Definition

Percentage of the insecticide-treated nets (ITNs) that were used by anyone the night before the survey.

Coverage:
>   Population base: Total number of ITNs in all households (HR file)
>   Time period: The night before the survey

Numerator: Number of ITNs in surveyed households that were used by anyone the night prior to the survey (sum of hml10_i = 1 & hml21_i = 1 where i = 1 –7)

Denominator: Number of ITNs in surveyed households (sum of hml10_1 – hml10_7 = 1)

Variables: HR file.
hml10_1 – _7   Insecticide-Treated Net (ITN)
hml21_1 – _7   Someone slept under this net last night
hv005   Household sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households with missing information on ownership of nets are considered not to own nets. Nets with missing information on type are considered not to be ITNs.

Notes and Considerations

May be biased by the seasonality of the survey data collection. Some surveys collect information on more than 7 nets. Please check variable hml10_# and hml21_#.

Changes over Time

An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. Prior to 2018, this was known as a long-lasting insecticidal net (LLIN). See *Changes over Time* for this chapter.

References

Koenker, H., and J.O. Yukich. 2017. "Effect of user preferences on ITN use: a review of literature and data." *Malaria journal* 16(1): 233. https://malariajournal.biomedcentral.com/articles/10.1186/s12936-017-1879-8

Resources

DHS-8 Tabulation plan: Table 12.5

API Indicator IDs:
ML_ITNU_N_ITN
(API link, STATcompiler link)

Household Survey Indicators for Malaria Control Indicator 7: Proportion of existing ITNs used the previous night

Use of Mosquito Nets by Children

Percentage of children under age 5 who slept the night before the survey under a mosquito net, under an insecticide treated net (ITN), and among children under age 5 in households with at least one ITN, the percentage who slept under an ITN the night before the survey

Definition

1) Percentage of children under age 5 who slept the night before the survey under a mosquito net (treated or untreated).
2) Percentage of children under age 5 who slept the night before the survey under an insecticide treated net (ITN).
3) Among children under age 5 in households with at least one ITN, the percentage who slept under an ITN the night before the survey.

Coverage:
> Population base: Children under age 5 who slept in the household the night before the survey (PR file, HR file)
> Time period: The night before the survey

Numerators:
1) Number of de facto children under age 5 who reported sleeping under any mosquito net the night before the survey (hv103 = 1 & hml16 in 0:4 & hml12 in 1:3)
2) Number of de facto children under age 5 who reported sleeping under an ITN the night before the survey (hv103 = 1 & hml16 in 0:4 & hml12 in 1:2)
3) Number of de facto children under age 5 in households with at least one ITN who reported sleeping under an ITN the night before the survey (hv103 = 1 & hml16 in 0:4 & hml12 in 1:2 & any of hml10_1 – hml10_7 = 1) > 0)

Denominators:
a) Number of children under age 5 in the de facto household population (hv103 = 1 & hml16 in 0:4)
b) Number of children under age 5 in the de facto household population (hv103 = 1 & hml16 in 0:4)
c) Number of children under age 5 in the de facto household population in households owning at least one ITN (hv103 = 1 & hml16 in 0:4 & sum of (any hml10_1 – hml10_7 = 1) > 0)

Variables: HR file, PR file.
hhid	Household identification
hv103	Slept last night
hml10_1 – _7	Insecticide-Treated Net (ITN)
hml12	Type of Mosquito Bed Net(s) person slept under last night
hml16	Corrected age from individual file
hv005	Household sample weight

Calculation

Indicator 3 uses the net roster from the HR file to produce summary variables applied to the household members. First merge hml10_1 – hml10_7 from the HR file to the PR file using hhid as the variable for matching before calculating the indicator (see *Matching and Merging Datasets* in *Chapter 1*).

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households with missing information on ownership of nets are considered not to own nets. Nets with missing information on type are considered not to be ITNs.

Notes and Considerations

May be biased by the seasonality of the survey data collection. Some surveys collect information on more than 7 nets. Please check variable hml10_#.

Changes over Time

An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. Prior to 2018, this was known as a long-lasting insecticidal net (LLIN). See Changes over Time for this chapter.

References

Boulay, M., M. Lynch, and H. Koenker. 2014. "Comparing two approaches for estimating the causal effect of behaviour-change communication messages promoting insecticide-treated bed nets: an analysis of the 2010 Zambia malaria indicator survey." *Malaria journal* 13(1): 342. https://malariajournal.biomedcentral.com/articles/10.1186/1475-2875-13-342

Resources

DHS-8 Tabulation plan: Table 12.6

API Indicator IDs:
ML_NETC_C_ANY, ML_NETC_C_ITN, ML_NETC_C_LLN, ML_NETC_C_IT1
(API link, STATcompiler link)

Household Survey Indicators for Malaria Control Indicator 5: Proportion of children under five years old who slept under an ITN the previous night
MICS6 Indicator TC.23: Children under age 5 who slept under an ITN

Use of Mosquito Nets by Pregnant Women

Percentage of pregnant women who slept the night before the survey under a mosquito net, who slept the night before the survey under an insecticide-treated net (ITN), and among pregnant women age 15-49 in households with at least one ITN, the percentage who slept under an ITN the night before the survey

Definition

1) Percentage of pregnant women age 15-49 who slept the night before the survey under a mosquito net (treated or untreated).
2) Percentage of pregnant women age 15-49 who slept the night before the survey under an insecticide-treated net (ITN).
3) Among pregnant women age 15-49 in households with at least one ITN, the percentage who slept under an ITN the night before the survey.

Coverage:
      Population base: Pregnant women (PR file, HR file)
      Time period: The night before the survey

Numerators:
1) Number of pregnant women age 15-49 who reported sleeping under any mosquito net the night before the survey (hv103 = 1 & hv104 = 2 & hml18 = 1 & hml16 in 15:49 & hml12 in 1:3)
2) Number of pregnant women age 15-49 who reported sleeping under an ITN the night before the survey (hv103 = 1 & hv104 = 2 & hml18 = 1 & hml16 in 15:49 & hml12 in 1:2)
3) Number of pregnant women age 15-49 in households with at least one ITN who reported sleeping under an ITN the night before the survey (hv103 = 1 & hv104 = 2 & hml18 = 1 & hml16 in 15:49 & hml12 in 1:2 & any of hml10_1 – hml10_7 = 1)

Denominators:
a) Number of pregnant women age 15-49 in the de facto household population (hv103 = 1 & hv104 = 2 & hml18 = 1 & hml16 in 15:49)
b) Number of pregnant women age 15-49 in the de facto household population (hv103 = 1 & hv104 = 2 & hml18 = 1 & hml16 in 15:49)
c) Number of pregnant women age 15-49 in the de facto household population in households owning at least one ITN (hv103 = 1 & hv104 = 2 & hml18 = 1 & hml16 in 15:49 & any of hml10_1 – hml10_7 = 1)

Variables: HR file, PR file.

hhid	Household identification
hv103	Slept last night
hv104	Sex of household member
hml10_1 – _7	Insecticide-Treated Net (ITN)
hml12	Type of Mosquito Bed Net(s) person slept under last night
hml16	Corrected age from Individual file
hml18	Pregnancy status from Individual file

hv005   Household sample weight

Calculation

These indicators use the net roster from the HR file to produce summary variables applied to the pregnant women. First merge hml10_1 – hml10_7 from the HR file to the PR file using hhid as the variable for matching before calculating the indicator (see *Matching and Merging Datasets* in *Chapter 1*).

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Households with missing information on ownership of nets are considered not to own nets. Nets with missing information on type are considered not to be ITNs.

Notes and Considerations

May be biased by the seasonality of the survey data collection. Some surveys collect information on more than 7 nets. Please check variable hml10_#.

For women with completed individual interview pregnancy status is taken from the woman's individual questionnaire, otherwise it is taken from the equivalent question in the household questionnaire. Also note that for Malaria Indicator Surveys, pregnancy status is not included in the household questionnaire.

Changes over Time

An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. Prior to 2018, this was known as a long-lasting insecticidal net (LLIN). See *Changes over Time* for this chapter.

References

Eisele, T.P., D. A. Larsen, P.A. Anglewicz, J. Keating, J. Yukich, A. Bennett, P. Hutchinson, and R.W. Steketee. 2012. "Malaria prevention in pregnancy, birthweight, and neonatal mortality: a meta-analysis of 32 national cross-sectional datasets in Africa." *The Lancet infectious diseases* 12(12): 942-949. https://www.ncbi.nlm.nih.gov/pubmed/22995852

Ricotta, E., H. Koenker, A. Kilian, and M. Lynch. 2014. "Are pregnant women prioritized for bed nets? An assessment using survey data from 10 African countries." *Global Health: Science and Practice* 2(2): 165-172. http://www.ghspjournal.org/content/2/2/165

van Eijk, A.J., J. Hill, V.A. Alegana, V. Kirui, P. W. Gething, F.O. ter Kuile, and R. W. Snow. 2011. "Coverage of malaria protection in pregnant women in sub-Saharan Africa: a synthesis and analysis of national survey data." *The Lancet infectious diseases* 11(3): 190-207. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3119932/

Resources

DHS-8 Tabulation plan: Table 12.7

API Indicator IDs:
`ML_NETW_W_ANY, ML_NETW_W_ITN, ML_NETW_W_LLN, ML_NETW_W_IT1`
([API link](#), [STATcompiler link](#))

Household Survey Indicators for Malaria Control Indicator 6: Proportion of pregnant women who slept under an ITN the previous night
MICS6 Indicator TC.24: Pregnant women who slept under an ITN

Reason net was not used

Among ITNs, non-ITNs, and all mosquito nets, percentage that were not used by anyone the night before the survey, and among mosquito nets that were not used by anyone the night before the survey, percent distribution by the main reason each net was not used

Definition

1) Percentage of nets not used the night before the survey, separately for ITNs (hml10_1 – hlm10_7 = 1), non-ITNs (hml10_1 – hlm10_7 ≠ 1), and all mosquito nets
2) Among mosquito nets that were not used by anyone the night before the survey, percent distribution by the main reason each net was not used, separately for ITNs, non-ITNs, and all mosquito nets

Coverage:
> Population base: Total number of mosquito bed nets in all households (HR file)
> Time period: The night before the survey

Numerators:
1) Number of mosquito nets in surveyed households that were not used by anyone the night prior to the survey (sum of hml10_i = 1 & hml21_i = 1 where i = 1 –7)
2) Number of mosquito nets in surveyed households that were not used by anyone the night prior to the survey by reason for not using (sum of hml21_1 – hml21_7 = 0 & hml24_1 – hml24_7)

Denominators:
a) Number of mosquito nets in surveyed households (sum of hml10_1 – hml10_7 = 0)
b) Number of mosquito nets not used by anyone the night prior to the survey (sum of any hml21_1 – hml21_7 = 0)

Variables: HR file.
hml1   Number of mosquito bed nets
hml10_1 – 7   Insecticide-Treated Net (ITN)
hml21_1 – 7   Someone slept under this net last night
hml24_1 – 7   Reason net was not used
hv005   Household sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households with missing information on ownership of nets are considered not to own nets. Nets with missing information on type are considered not to be ITNs.

Notes and Considerations

May be biased by the seasonality of the survey data collection. For ITNs, hml10_1 – hml10_7 = 1; for non-ITNs, hml10_1 – hml10_7 = 0; for all mosquito nets hml1. Some surveys collect information on more than 7 nets. Please check variable hml10_#, hml24_# and hml21_#.

Changes over Time

An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. Prior to 2018, this was known as a long-lasting insecticidal net (LLIN). See *Changes over Time* for this chapter.

References

Koenker, H., and J.O. Yukich. 2017. "Effect of user preferences on ITN use: a review of literature and data." *Malaria journal* 16(1): 233. https://malariajournal.biomedcentral.com/articles/10.1186/s12936-017-1879-8

Resources

DHS-8 Tabulation plan: Table 12.8

Use of Intermittent Preventive Treatment (IPTp) by Women during Pregnancy

Percentage of women who, during pregnancy, received one or more doses of SP/Fansidar, received two or more doses of SP/Fansidar, and received three or more doses of SP/Fansidar

Definition

1) Percentage of women age 15-49 with a live birth or a stillbirth in the 2 years preceding the survey who, during the pregnancy that resulted in the last live birth or stillbirth, received one or more doses of SP/Fansidar.
2) Percentage of women age 15-49 with a live birth or a stillbirth in the 2 years preceding the survey who, during the pregnancy that resulted in the last live birth or stillbirth, received two or more doses of SP/Fansidar.
3) Percentage of women age 15-49 with a live birth or a stillbirth in the 2 years preceding the survey who, during the pregnancy that resulted in the last live birth or stillbirth, received three or more doses of SP/Fansidar.

Coverage:
Population base: Women age 15-49 who had a live birth or a stillbirth in the 2 years preceding the survey (IR file)
Time period: Two years preceding the survey

Numerators:
1) Number of women who had a live birth (m80 = 1) or a stillbirth (m80 = 3) in the 2 years preceding the interview who received one or more doses of SP/Fansidar, in the 2 years preceding the interview (m49a_1 = 1)
2) Number of women who had a live birth (m80 = 1) or a stillbirth (m80 = 3) in the 2 years preceding the interview who received two or more doses of SP/Fansidar, in the 2 years preceding the interview (m49a_1 = 1 & ml1_1 in 2:97)
3) Number of women who had a live birth (m80 = 1) or a stillbirth (m80 = 3) in the 2 years preceding the interview who received three or more doses of SP/Fansidar, in the 2 years preceding the interview (m49a_1 = 1 & ml1_1 in 3:97)

Denominator: Number of women who had a live birth (m80 = 1) or a stillbirth (m80 = 3) in the 2 years preceding the interview (b19_01 < 24)

Variables: IR file.
b19_01   Current age of child in months
m80   Pregnancy outcome for this section
m49a_1   During pregnancy took: SP/Fansidar for malaria
ml1_1   Number of times took Fansidar during pregnancy
v005   Women's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

"Don't know" and missing values for receiving any SP/Fansidar, and numbers of doses of SP/Fansidar received are treated as "no" responses in calculating the indicators.

Changes over Time

This indicator has recently changed to remove the specification that at least one of the SP doses was received during an ANC visit (ml2_1 = 1). The source of the SP doses is still of interest and the data are collected in the survey (ml2_1). In DHS-8, these indicators are shown separate for live births (m80 = 1), stillbirths (m80 = 3), and combined live births and stillbirths.

References

Chikwasha, V., I. Phiri, P. Chimberengwa, D. Bangure, and S. Rusakaniko. 2014. *Predictors of IPTp uptake among pregnant women in the 2010–2011 Zimbabwe demographic and health survey*. No. 112. DHS working papers. https://dhsprogram.com/publications/publication-WP112-Working-Papers.cfm

Florey, L. 2013. Preventing malaria during pregnancy in sub-Saharan Africa: Determinants of effective IPTp delivery. DHS Analytical Studies No. 39. Calverton, Maryland, USA: ICF International. https://dhsprogram.com/publications/publication-as39-analytical-studies.cfm

Resources

DHS-8 Tabulation plan: Table 12.9

API Indicator IDs:
`ML_IPTP_W_SPF, ML_IPTP_W_2SP, ML_IPTP_W_3SP, ML_IPTP_W_SPA, ML_IPTP_W_2SA, ML_IPTP_W_3SA`
(API link, STATcompiler link)

Household Survey Indicators for Malaria Control Indicator 8: Proportion of women who received three or more doses of IPTp for malaria during their last pregnancy
WHO 100 Core Health Indicators: Intermittent preventive treatment for malaria during pregnancy (IPTp)
MICS6 Indicator TC.25: Intermittent preventive treatment for malaria during pregnancy

Prevalence, Diagnosis, and Prompt Treatment of Children with Fever

Percentage of children with fever in the 2 weeks preceding the survey; and among children with fever, percentage for whom advice or treatment was sought, percentage for whom advice or treatment was sought the same or next day following the onset of fever, and percentage who had blood taken from a finger or heel for testing, and percentage who were diagnosed with malaria by a healthcare provider

Definition

1) Percentage of children under age 5 years with fever in the 2 weeks preceding the survey.
2) Among children under age 5 years with fever in the 2 weeks preceding the survey, percentage for whom advice or treatment was sought.
3) Among children under age 5 years with fever in the 2 weeks preceding the survey, percentage for whom advice or treatment was sought the same or next day following the onset of fever.
4) Percentage of children under age 5 years with fever in the 2 weeks preceding the survey who had blood taken from a finger or heel for testing.
5) Percentage of children under age 5 years with fever in the 2 weeks preceding the survey who were diagnosed with malaria by a healthcare provider.

Coverage:
  Population base: Living children under age 5 years (KR file)
  Time period: Two weeks preceding the interview

Numerators:
1) Number of living children under age 5 years with a fever at any time during the 2 weeks preceding the interview (b5 = 1 & b19 < 60 & h22 = 1)
2) Number of living children under age 5 years with a fever at any time during the 2 weeks preceding the interview for whom advice or treatment was sought (b5 = 1 & b19 < 60 & h22 = 1 & any of h32a – x = 1 except traditional practitioner (usually h32t))
3) Number of living children under age 5 years with a fever at any time during the 2 weeks preceding the interview for whom advice or treatment was sought the same day or next day following the onset of fever (b5 = 1 & b19 < 60 & h22 = 1 & any of h32a – x = 1 excluding advice or treatment from a traditional practitioner (usually h32t) & h46b in 0:1)
4) Number of living children under age 5 years with a fever at any time during the 2 weeks preceding the interview who had blood taken from a finger or heel for testing (b5 = 1 & b19 < 60 & h22 = 1 & h47 = 1)
5) Number of living children under age 5 years with a fever at any time during the 2 weeks preceding the interview who were diagnosed with malaria by a healthcare provider (b5 = 1 & b19 < 60 & h22 = 1 & h71 = 1)

Denominators:
a) Numerator 1: Number of living children under age 5 years (b5=1 & b19 < 60)
b) Numerators 2, 3, 4, and 5: Number of living children under age 5 years with a fever at any time during the 2 weeks preceding the survey (b5 = 1 & b19 < 60 & h22 = 1)

Variables: KR file.

b5	Child is alive
b19	Current age of child in months
h22	Had fever in last two weeks
h32a	Fever/cough: government hospital
h32b-i	Fever/cough: CS public sector
h32j	Fever/cough: private hospital/clinic
h32k	Fever/cough: private pharmacy
h32l	Fever/cough: private doctor
h32m-r	Fever/cough: CS private medical
h32na-ne	Fever/cough: NGO medical sector
h32s-w	Fever/cough: CS other sector
h32x	Fever/cough: other
h46b	Number of days after fever began sought advice or treatment
h47	Blood taken from child's finger/heel for testing
h71	Child diagnosed with malaria by a healthcare provider
v005	Women's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing data or "don't know" responses on the question on fever are excluded from numerator 1, and from numerators and denominators 2, 3, 4 and 5, assuming no illness.

Missing data or "don't know" responses for whether sought advice or treatment and who from are excluded from numerators 2 & 3, assuming no treatment sought from a health facility or provider.

Missing data or "don't know" responses for whether blood was taken from the child's finger or heel and for whether the child was diagnosed with malaria are excluded from numerator 4 and 5, assuming no blood was taken and no diagnosis provided, respectively.

Notes and Considerations

As fever is an important symptom of malaria, this indicator provides a useful measure of the proportion of children under age 5 years who might require diagnosis or treatment for malaria. The number of children under age 5 years with recent fever is the denominator for several care seeking indicators. The limitations of the indicator are that it is based on mother's or caregiver's information, which may not provide reliable estimates of fever episodes in the 2 weeks preceding the survey and may miss fostered children or others living in a household without a parent/caregiver. Additionally, a fever may not have been the result of a malaria infection. Trends in this indicator may be biased by the season of data collection.

Indicators 2 & 3 include advice or treatment from the public sector, private medical sector, shops, market, and itinerant drug sellers, but excludes advice or treatment from a traditional practitioner.

The possibility exists that the percentage of children who were diagnosed with malaria is greater than the percentage who had blood from their finger or heel tested. The two questions are asked independently of one another (WQ619 and WQ620). The diagnosis of malaria is based on the woman's recall and is not confirmed with a healthcare provider.

Changes over Time

For surveys prior to DHS-7, care seeking was defined differently. The indicator measured care seeking from a medical source or provider, and excluded pharmacy, shop, market, itinerant drug seller and traditional practitioner.

In DHS-8, NGO medical sector was added as a separate source category. Previously, it was lumped in with private medical sector.

References

Johansson, E.W., P.W. Gething, H. Hildenwall, B. Mappin, M. Petzold, S.S. Peterson, and K.E. Selling. 2014. "Diagnostic testing of pediatric fevers: meta-analysis of 13 national surveys assessing influences of malaria endemicity and source of care on test uptake for febrile children under five years." *PLoS One*, 9(4), p.e95483. http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0095483

Johansson, E.W., P.W. Gething, H. Hildenwall, B. Mappin, M. Petzold, S.S. Peterson, and K.E. Selling. 2015. "Effect of diagnostic testing on medicines used by febrile children less than five years in 12 malaria-endemic African countries: a mixed-methods study." *Malaria journal*, 14(1), p.194. https://malariajournal.biomedcentral.com/articles/10.1186/s12936-015-0709-0

Prasad, N., Sharples, K.J., Murdoch, D.R. and Crump, J.A., 2015. "Community prevalence of fever and relationship with malaria among infants and children in low-resource areas." *The American journal of tropical medicine and hygiene*, 93(1), pp.178-180. https://www.ncbi.nlm.nih.gov/pubmed/25918207

Uggla, C. and Mace, R., 2016. "Parental investment in child health in sub-Saharan Africa: a cross-national study of health-seeking behaviour." *Royal Society open science*, 3(2), p.150460. http://rsos.royalsocietypublishing.org/content/3/2/150460

Rutstein, S.O., S. Staveteig, R. Winter, and J. Yourkavitch. 2016. *Urban child poverty, health, and survival in low- and middle-income countries.* DHS Comparative Reports No. 40. Rockville, Maryland, USA: ICF International. https://www.dhsprogram.com/publications/publication-CR40-Comparative-Reports.cfm

Resources

DHS-8 Tabulation plan: Table 12.10 and Table 10.8

API Indicator IDs:
`ML_FEVR_C_FEV, ML_FEVT_C_ADV, ML_FEVT_C_ADS, ML_FEVT_C_BLD`
(API link, STATcompiler link)

Household Survey Indicators for Malaria Control Indicator 9: Proportion of children under five years old with fever in the last two weeks who had a finger or heel stick
Household Survey Indicators for Malaria Control Indicator 10: Proportion of children under five years old with fever in the last two weeks for whom advice or treatment was sought

MICS6 Indicator TC.26: Care-seeking for fever
MICS6 Indicator TC.27: Malaria diagnostics usage
MICS6 Indicator TC.28: Antimalarial treatment of children under age 5

Percentage of children under age 5 with fever in the 2 weeks preceding the survey for whom advice or treatment was sought from specific sources; and among children under age 5 with fever in the 2 weeks preceding the survey for whom advice or treatment was sought, the percentage for whom advice or treatment was sought from specific sources

Definition

1) Among children under age 5 years with fever in the 2 weeks preceding the survey, percentage for whom advice or treatment was sought.
2) Among children under age 5 years with fever in the 2 weeks preceding the survey for whom advice or treatment was sought, the percentage for whom advice or treatment was sought from specific sources.

Coverage:
Population base: Living children under age 5 years (KR file)
Time period: Two weeks preceding the interview

Numerators:
1) Number of living children under age 5 years with a fever at any time during the 2 weeks preceding the interview (b5 = 1 & b19 < 60 & h22 = 1) by source of advice or treatment sought (h32a – x)
2) Number of living children under age 5 years with a fever at any time during the 2 weeks preceding the interview for whom advice or treatment was sought (b5 = 1 & b19 < 60 & h22 = 1 & any of h32a – x = 1) by source of advice or treatment sought (h32a –x)

Denominators:
a) Number of living children under age 5 years with a fever at any time during the 2 weeks preceding the interview (b5 = 1 & b19 < 60 & h22 = 1)
b) Number of children under age 5 who were ill with a fever in the 2 weeks preceding the interview and for whom advice or treatment was sought (b5 = 1 & b19 < 60 & h22 = 1 & h32y = 0)

Variables: KR file.
b5	Child is alive
b19	Current age of child in months
h22	Had fever in last two weeks
h32a	Fever/cough: government hospital
h32b-i	Fever/cough: CS public sector
h32j	Fever/cough: private hospital/clinic
h32k	Fever/cough: private pharmacy
h32l	Fever/cough: private doctor
h32m-r	Fever/cough: CS private medical
h32na-ne	Fever/cough: NGO medical sector
h32s-w	Fever/cough: CS other sector
h32x	Fever/cough: other
h32y	Fever/cough: no treatment
v005	Women's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing values for fever status and whether advice or treatment was sought for children with fever are not included in the denominator. Missing values for sources of advice or treatment for children with fever are treated as "no" responses.

Notes and Considerations

The limitations of the indicator are that it is based on mother's or caregiver's information, which may not provide reliable estimates of fever episodes in the 2 weeks preceding the survey and may miss fostered children or others living in a household without a parent/caregiver. The mother of a child does not always know the exact qualifications of or the type of provider and, thus, may not be able to tell the interviewer this information.

Changes over Time

There may be survey-specific changes over time to the response options for sources of care for fever.

References

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Resources

DHS-8 Tabulation plan: Table 12.11

API Indicator IDs:
```
ML_FEVS_C_PUB, ML_FEVS_C_GHS, ML_FEVS_C_GHC, ML_FEVS_C_GHP, ML_FEVS_C_GMC,
ML_FEVS_C_GFW, ML_FEVS_C_GOT, ML_FEVS_C_PRV, ML_FEVS_C_PHS, ML_FEVS_C_PPH,
ML_FEVS_C_PDR, ML_FEVS_C_PMC, ML_FEVS_C_PFW, ML_FEVS_C_POT, ML_FEVS_C_OSR,
ML_FEVS_C_SHP, ML_FEVS_C_TRD, ML_FEVS_C_MKT, ML_FEVS_C_OTH, ML_FEVA_C_PUB,
ML_FEVA_C_GHS, ML_FEVA_C_GHC, ML_FEVA_C_GHP, ML_FEVA_C_GMC, ML_FEVA_C_GFW,
ML_FEVA_C_GOT, ML_FEVA_C_PRV, ML_FEVA_C_PHS, ML_FEVA_C_PPH, ML_FEVA_C_PDR,
ML_FEVA_C_PMC, ML_FEVA_C_PFW, ML_FEVA_C_POT, ML_FEVA_C_OSR, ML_FEVA_C_SHP,
ML_FEVA_C_TRD, ML_FEVA_C_MKT, ML_FEVA_C_OTH
```
(API link, STATcompiler link)

Type of Antimalarial Drugs Used

Among children with fever in the 2 weeks preceding the survey who took any antimalarial medication, percentage who took specific antimalarial drugs

Definition

Among children under age 5 years with fever in the 2 weeks preceding the survey who took any antimalarial medication, percentage who took specific antimalarial drugs:
1) Any Artemisinin-based Combination Therapy (ACT)
2) SP/Fansidar
3) Chloroquine
4) Amodiaquine
5) Quinine pills
6) Quinine injection or intravenous (IV)
7) Artesunate rectal
8) Artesunate injection or intravenous (IV)
9) Other antimalarial

The purpose of this indicator is to measure the proportion of anti-malarial treatments that are in accordance with national treatment policy, an important component of access to effective treatment for uncomplicated malaria.

Coverage:
  Population base: Children under age 5 (KR file)
  Time period: Two weeks preceding the interview

Numerator:
Number of children under age 5 with fever, at any time during the 2 weeks preceding the interview, who took specific antimalarial drugs (b5 = 1 & b19 < 60 & h22 = 1):
1) Any Artemisinin-based Combination Therapy (ACT) (ml13e = 1)
2) SP/Fansidar (ml13a = 1)
3) Chloroquine (ml13b = 1)
4) Amodiaquine (ml13c = 1)
5) Quinine pills (ml13d = 1)
6) Quinine injection or intravenous (IV) (ml13da = 1)
7) Artesunate rectal (ml13aa = 1)
8) Artesunate injection or intravenous (IV) (ml13ab = 1)
9) Other antimalarial (ml13h = 1)
Note that other survey-specific antimalarials may also be included using ml13f and ml13g.

Denominator: Number of children under age 5 who were ill with a fever in the 2 weeks preceding the interview who were given any anti-malarial drugs (b5 = 1 & b19 < 60 & h22 = 1 and any of ml13a – ml13h = 1)

Variables: IR file.
b19   Current age of child in months

h22	Had fever in last two weeks
ml13a	Fansidar taken for fever
ml13aa	Artesunate rectal taken for fever
ml13ab	Artesunate injection/IV taken for fever
ml13b	Chloroquine taken for fever
ml13c	Amodiaquine taken for fever
ml13d	Quinine taken for fever
ml13da	Quinine injection/IV taken for fever
ml13e	Combination with artemisinin taken for fever
ml13f	CS antimalarial taken for fever
ml13g	CS antimalarial taken for fever
ml13h	Other antimalarial taken for fever
v005	Women's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Children with missing values for fever status will be excluded from this indicator. Missing values are assumed to be "no" responses and are thus Included in both numerator and denominator (assumes no ACT taken, or no anti-malarial drugs taken).

Notes and Considerations

When a DHS includes a malaria module and for MIS survey, the specific drugs given are included as variables ml13. In DHS surveys without a malaria module, the specific drugs may be included in variables h37.

The current guidelines in most countries with predominantly *Plasmodium falciparum* malaria are for Artemisinin-based Combination Therapy (ACT) to be given as a first-line treatment.

Due to the challenges of measuring confirmed malaria cases among children under age 5 years through household surveys, this indicator is considered an interim measure of access to effective treatment for malaria. The limitations of the indicator are that it is based on mother's or caregiver's information, which may not provide reliable estimates of fever episodes in the previous 2 weeks and may miss fostered children or others living in a household without a parent/caregiver. Additionally, a fever may not have been the result of a malaria infection.

Changes over Time

In previous surveys before ACT was the recommended first line antimalarial for uncomplicated malaria these indicators were not calculated. Previously, the denominator was specified as all children under age 5 with recent fever. As WHO now recommends testing before treating, the denominator has been changed.

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Resources

DHS-8 Tabulation plan: Table 12.12

API Indicator IDs:
`ML_AMLD_C_ACT, ML_AMLD_C_SPF, ML_AMLD_C_CHL, ML_AMLD_C_AMQ, ML_AMLD_C_QNN, ML_AMLD_C_ART, ML_AMLD_C_OAM`
(API link, STATcompiler link)

Household Survey Indicators for Malaria Control Indicator 11: Proportion receiving first-line treatment, among children under five years old with fever in the last two weeks who received any antimalarial drugs
MICS6 Indicator TC.29: Treatment with Artemisinin-based Combination therapy (ACT) among children who received anti-malarial treatment

Coverage of Testing for Anemia and Malaria in Children

Percentage of eligible children who were tested for anemia and for malaria

Definition

Percentage of eligible children age 6-59 months who were tested for anemia and for malaria.

Coverage:
>   Population base: Children age 6-59 months from interviewed households (PR file)
>   Time period: Current status at the time of the survey

Numerators:
1) Number of de facto children age 6-59 months tested for anemia (hv103 = 1 & hc1 in 6:59 & hv042 = 1 & hc55 = 0)
2) Number of de facto children age 6-59 months tested for malaria with an RDT (hv103 = 1 & hc1 in 6:59 & hv042 = 1 & hml35 in 0,1)
3) Number of de facto children age 6-59 months tested for malaria by microscopy (hv103 = 1 & hc1 in 6:59 & hv042 = 1 & hml32 in 0,1,6)

Denominator: Total number of de facto children age 6-59 months in households selected for hemoglobin and malaria testing (hv103 = 1 & hc1 in 6:59 & hv042 = 1)

Variables: PR file.

hv042	Household selected for hemoglobin
hv103	Slept last night
hc1	Child's age in months
hc55	Result of measurement – hemoglobin
hml32	Final result of malaria from blood smear test
hml35	Result of malaria rapid test

Calculation

The coverage of testing for anemia and malaria indicators are produced unweighted as they reflect the coverage of the survey, not a population estimate.

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Children who were not tested and those children whose values were not recorded are excluded from both the denominator and the numerators.

Notes and Considerations

Prevalence estimates may be biased by the seasonality of survey data collection; survey fieldwork for DHS is most often done during the dry season, while fieldwork for Malaria Indicator Surveys (MIS) is typically conducted at the end of or just after the rainy season.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Table 12.13

API Indicator IDs:
ML_CMLT_C_ANM, ML_CMLT_C_RDT, ML_CMLT_C_MSY
(API link, STATcompiler link)

Hemoglobin <8.0 g/dl in Children

Percentage of children with hemoglobin lower than 8.0 g/dl

Definition

Percentage of children age 6-59 months who stayed in the household the night before the interview with hemoglobin lower than 8.0 g/dl.

Coverage:
> Population base: Children age 6-59 months from interviewed households (PR file)
> Time period: Current status at the time of the survey

Numerator: Number of de facto children age 6-59 months with a hemoglobin measurement of <8 grams per deciliter (hv042 = 1 & hv103 = 1 & hc1 in 6:59 & hc56<80)

Denominator: Number of de facto children age 6-59 months who had hemoglobin measurements obtained during the survey (hv042 = 1 & hv103 = 1 & hc1 in 6:59 & hc55=0)

Variables: HR file.

hv042	Household selected for hemoglobin
hv103	Slept last night
hc1	Child's age in months
hc55	Result of measurement – hemoglobin
hc56	Hemoglobin level adjusted for altitude
hv005	Household sample weight

Calculation

At the time of creation of a recode file, an adjustment of the hemoglobin count is made for altitude. Rather than change the cutoff points, the effective hemoglobin count is lowered as altitude increases, since oxygen is less available. The adjustment is made with the following formula:

$$\mathbf{adjust} = \ -\mathbf{0.032} * \boldsymbol{alt} + \mathbf{0.022} * \boldsymbol{alt^2}$$
$$\mathbf{adjHb} = \ \boldsymbol{Hb} - \boldsymbol{adjust} \text{ if adjust > 0}$$

where adjust is the amount of the adjustment, alt is altitude in 1,000 feet (converted from meters by dividing by 1,000 and multiplying by 3.3), **adjHb** is the adjusted hemoglobin level, and **Hb** is the measured hemoglobin level in grams per deciliter. No adjustment is made for altitudes below 1,000 meters.

The percentage with low hemoglobin is obtained by dividing the numerator by the denominator and multiplying by 100.

Handling of Missing Values

Children who were not tested and those children whose values were not recorded are excluded from both the denominator and the numerators.

Notes and Considerations

This is an impact indicator, as the prevalence of moderate-to-severe anemia can reflect malaria morbidity and responds to changes in the coverage of malaria interventions. Hemoglobin is measured with the HemoCue system, which requires capillary blood samples from the children in the sample.

Prevalence estimates may be biased by the seasonality of survey data collection; survey fieldwork for DHS is most often done during the dry season, while fieldwork for Malaria Indicator Surveys (MIS) is typically conducted at the end of or just after the rainy season.

An Hb concentration cut-off of less than 7.0 g/dL has been widely used to classify severe nutritional anemia, but a different cut-off, 8.0 g/dL, is used to classify malaria-related anemia, as intervention trials have shown that malaria control reduces the prevalence of moderate-to-severe anemia (below 8.0 g/dL) more so than it reduces the prevalence of any anemia (below 11.0 g/dL).

Use of anemia as a malaria indicator will be compromised by a lack of specificity, particularly in areas with low malaria transmission, given other anemia determinants such as pediatric HIV/AIDS, malnutrition and helminth infections. Even in areas of intense malaria transmission, moderate to severe anemia in young children may depend more on undernutrition than on malaria, and separating malnutrition from malaria as the cause of anemia is not possible, as the proportions will vary from population to population and cannot be known. Consequently, data must be interpreted cautiously, with consideration of the many other causes of anemia present in the survey area.

Children less than six months of age are not included because they have higher levels of hemoglobin at birth and just after birth and thus may distort the indication of prevalence of anemia.

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Resources

DHS-8 Tabulation plan: Table 12.14

API Indicator IDs:
ML_HEMO_C_HL8
([API link](), [STATcompiler link]())

Household Survey Indicators for Malaria Control Indicator 13: Moderate-to-severe anemia prevalence: proportion of children aged 6-59 months with a hemoglobin measurement of <8 g/dL

Prevalence of Malaria in Children

Percentage of children classified in two tests as having malaria

Definition

1) Percentage of children age 6-59 months classified as having malaria according to a rapid diagnostic test (RDT).
2) Percentage of children age 6-59 months classified as having malaria according to microscopy.

Coverage:
> Population base: De facto children age 6-59 months (PR file)
> Time period: Current status at the time the blood sample was taken

Numerators:
1) Number of de facto children tested using RDT who are positive for malaria (hv042 = 1 & hv103 = 1 & hc1 in 6:59 & hml35 = 1)
2) Number of de facto children tested using microscopy who are positive for malaria (hv042 = 1 & hv103 = 1 & hc1 in 6:59 & hml32 = 1)

Denominators:
a) Number of de facto children tested using RDT (hv042 = 1 & hv103 = 1 & hc1 in 6:59 & hml35 in 0,1)
b) Number of de facto children tested using microscopy (hv042 = 1 & hv103 = 1 & hc1 in 6:59 & hml32 in 0,1,6)

Variables: PR file.
hv042	Household selected for hemoglobin
hv103	Slept last night
hc1	Child's age in months
hml32	Final result of malaria from blood smear test
hml35	Result of malaria rapid test
hv005	Household sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Children who were not tested and those children whose values were not recorded are excluded from both the denominator and the numerators.

Notes and Considerations

Some studies of malaria interventions showing mortality reductions have found large decreases in parasite prevalence; however, other studies of control interventions have found that despite reductions in mortality, parasite prevalence changes little.

As measurement of parasite prevalence requires finger stick blood, some caretakers may not consent to parasitemia testing of their child. Additionally, survey personnel require extra training to use RDTs or to collect blood on slides for microscopy.

Parasite prevalence can fluctuate dramatically throughout the course of a year with the seasonality of malaria, and thus values of the indicator may be influenced by the timing of a survey in relation to peak transmission. Accordingly, parasite prevalence should not be used for tracking the short-term impact of scaling up prevention efforts, as the prevalence rates may merely reflect differences in the timing of surveys in relation to within year variation in parasite prevalence. Parasite prevalence is better suited to measuring changes in malaria burden of over a longer term during which changes in parasite prevalence are expected to be much greater and outweigh within-year variation. To demonstrate a reliable trend, no more than four data points within a ten-year span are generally needed.

When interpreting this indicator, the method of measuring parasite prevalence should be considered (microscopy vs. RDT). Microscopy detects parasites present in the blood at the time of the survey and therefore provides point parasite prevalence. By contrast, HRP2-based RDTs detect antigens to malaria parasites, which may endure for some weeks after treatment. This is especially important when interpreting trends over time, as parasite prevalence before the advent of RDTs was measured primarily using microscopy.

Changes over Time

Microscopy testing used to be considered the gold standard for measuring malaria parasitemia prevalence in household survey settings. The Roll Back Malaria Monitoring and Evaluation Reference Group currently recommend using only RDTs in most settings.

References

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Resources

DHS-8 Tabulation plan: Table 12.15

API Indicator IDs:
ML_PMAL_C_RDT, ML_PMAL_C_MSY
(API link, STATcompiler link)

Household Survey Indicators for Malaria Control Indicator 12: Parasite prevalence: proportion of children aged 6-59 months with malaria infection

13) HIV-AIDS Related Knowledge, Attitudes, and Behaviors

This chapter covers a number of HIV/AIDS-related issues and presents indicators for monitoring and evaluating HIV/AIDS prevention programs. The indicators in this chapter present information reported by both female and male respondents and can be grouped into five broad categories:

30) **HIV Knowledge:** Indicators concerning knowledge of HIV, knowledge of HIV prevention methods, detailed or comprehensive knowledge about HIV including knowledge of prevention of mother-to-child transmission of HIV, knowledge of HIV treatment, and knowledge of pre-exposure prophylaxis (PrEP).

31) **Attitudes concerning HIV:** Indicators about the willingness to provide care for a family member with HIV and willingness to interact with people living with HIV, women's attitudes toward negotiating sexual relation with their husbands and support for education about condom use to prevent HIV.

32) **HIV-related behavior:** Indicators such as having multiple sexual partners in the past 12 months, commercial sexual relations and condom use in those circumstances, testing for HIV, self-reported prevalence of sexually transmitted infections (STI) and care-seeking for STIs.

33) **Young people and HIV:** These indicators are for respondents age 15-24. They present detailed information about age at first sexual intercourse, multiple sexual partners and condom use at last intercourse in the past 12 months, and testing for HIV in the past 12 months.

34) **Self-testing for HIV:** These indicators look at the percentage of respondents who have ever used an HIV self-test kit.

Knowledge of HIV or AIDS

Percentage of women and men who have heard of HIV or AIDS

Definition

Percentage of women and men age 15-49 who have heard of HIV or AIDS.

Coverage:
　　　Population base: Women and men age 15-49 (IR file, MR file)
　　　Time period: Current status at time of survey

Numerator: Number of women (or men) age 15-49 who respond "Yes" that they have heard of HIV or AIDS (women: v751 = 1; men: mv751 = 1)

Denominator: Number of women age 15-49 or number of men (age range varies by survey)

Variables: IR file, MR file.
v751　　　　Ever heard of HIV or AIDS (women)
v005　　　　Woman's individual sample weight
mv751　　　Ever heard of HIV or AIDS (men)
mv005　　　Man's individual sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing values are assumed to reflect a lack of knowledge about HIV or AIDS and are therefore not included in the numerator.

Changes over Time

Prior to DHS-7, the standard questionnaires asked if women and men had "ever heard of an illness called AIDS". Due to improved knowledge about HIV/AIDS and the decrease in AIDS cases as treatment is more common, some respondents may be more familiar with the term "HIV" than "AIDS". The purpose of the question is to assess basic knowledge of either HIV or AIDS.

In DHS-8 this has become an optional question. It may be deleted in countries with near universal knowledge of HIV in which case everyone is assumed to have knowledge of HIV.

References

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Resources

DHS-8 Tabulation plan: Table 13.0.W

API Indicator IDs:
HA_KAID_W_HRD, HA_KAID_M_HRD
(API link, STATcompiler link)

Knowledge of HIV Prevention

Percentage of women and men who know that people can reduce the risk of getting HIV by use of condoms and having just one uninfected faithful partner (legacy indicator)

Definition

1) Percentage of women and men age 15-49 who know that people can reduce the risk of getting HIV by using condoms every time they have sexual intercourse.
2) Percentage of women and men age 15-49 who know that people can reduce the risk of getting HIV by limiting sexual intercourse to one partner who is not infected and has no other partners.
3) Percentage of women and men age 15-49 who know that people can reduce the risk of getting HIV by using condoms every time they have sexual intercourse and by limiting sexual intercourse to one partner who is not infected and has no other partners.

Coverage:
      Population base: Women and men age 15-49 (IR file, MR file)
      Time period: Current status at time of survey

Numerators:
1) Number of women (or men) age 15-49 who respond "Yes" that people can reduce the risk of getting HIV by using a condom every time they have sex (women: v754cp = 1; men: mv754cp = 1)
2) Number of women (or men) age 15-49 who respond "Yes" that people can reduce the risk of getting HIV by having just one uninfected sex partner who has no other sex partners (women: v754dp = 1; men: mv754dp = 1)
3) Number of women (or men) age 15-49 who respond "Yes" to both of the above questions (women: v754cp = 1 & v754dp = 1; men: mv754cp = 1 & mv754dp = 1)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.

v012	Current age (women)
v754cp	Reduce risk of getting HIV: always use condoms during sex (women)
v754dp	Reduce risk of getting HIV: have 1 sex partner only, who has no other partners (women)
v005	Woman's individual sample weight
mv012	Current age (men)
mv754cp	Reduce risk of getting HIV: always use condoms during sex (men)
mv754dp	Reduce risk of getting HIV: have 1 sex partner only, who has no other partners (men)
mv005	Man's individual sample weight

Calculation

The numerator divided by the denominator, expressed as a percentage. If a respondent has not heard of HIV, they are included in the denominator but excluded from the numerator.

Handling of Missing Values

Missing values are assumed to reflect a lack of knowledge about HIV or AIDS and are therefore not included in the numerator. Respondents can also indicate "don't know" which is treated as a lack of knowledge. Note that women and men who have not heard of HIV or AIDS are not asked these questions but are still included in the denominator; if they have not heard of HIV/AIDS they are assumed not to have this knowledge.

Changes over Time

Previous questionnaires used the term "AIDS virus" to refer to HIV because research had indicated that respondents were less familiar with the term "HIV". This has changed in recent years as knowledge of HIV/AIDS has improved and treatment has led to many more cases of HIV than AIDS. The respondent is first asked if they have heard of HIV or AIDS. If the respondent says yes, the interviewer says "HIV is the virus that can lead to AIDS" and then asks a series of knowledge questions about HIV.

In DHS-8, these questions are now only asked of women and men age 15-24. Previous surveys included women and men age 15-49. See *Percentage of young women and men with knowledge about HIV prevention*.

References

Wang, W., S. Alva, and S. Wang. 2012. *HIV-Related Knowledge and Behaviors among People Living with HIV in Eight High HIV Prevalence Countries in Sub-Saharan Africa*. DHS Analytical Studies No. 29. Calverton, Maryland, USA: ICF International https://dhsprogram.com/publications/publication-AS29-Analytical-Studies.cfm

Resources

DHS-8 Tabulation plan: No longer presented in DHS reports.

API Indicator IDs:
Women:
`HA_KHVP_W_CND, HA_KHVP_W_SX1, HA_KHVP_W_CS1`

Men:
`HA_KHVP_M_CND, HA_KHVP_M_SX1, HA_KHVP_M_CS1`
(API link, STATcompiler link)

Percentage of women and men with comprehensive knowledge about HIV (legacy indicator)

Definition

1) Percentage of women and men age 15-49 who know that a healthy looking person can have HIV.
2) Percentage of women and men age 15-49 who know that HIV cannot be transmitted by mosquito bites.
3) Percentage of women and men age 15-49 who know that HIV cannot be transmitted by supernatural means.
4) Percentage of women and men age 15-49 who know that a person cannot become infected by sharing food with a person who has HIV.
5) Percentage of women and men age 15-49 who say that a healthy-looking person can have HIV and who reject the two most common local misconceptions.

Indicators 2, 3 and 4 are survey-specific and may refer to other local misconceptions.

Coverage:
Population base: Women and men age 15-49 (IR file, MR file)
Time period: Current status at time of survey

Numerators:
Number of women (or men) age 15-49 who indicate that they:
1) Know that a healthy-looking person can have HIV (women: v756 = 1; men: mv756 = 1)
2) Know that HIV cannot be transmitted by mosquito bites (women: v754jp = 0; men: mv754jp = 0)
3) Know that HIV cannot be transmitted by supernatural means (women: v823 = 0; men: mv823 = 0)
4) Know that a person cannot become infected by sharing food with a person who has HIV (women: v754wp = 0; men: mv754wp = 0)
5) Know that a healthy-looking person can have HIV (see Numerator 1 above) and reject the two most common local misconceptions about HIV transmission or prevention (these two most common misconceptions are footnoted in DHS 7 table 13.2). Survey specific but typically two of the following three (see *Calculation* below):
   a) HIV cannot be transmitted by mosquito bites (women: v754jp = 0; men: mv754jp = 0).
   b) HIV cannot be transmitted by supernatural means (women: v823 = 0; men: mv823 = 0).
   c) A person cannot become infected by sharing food with a person who has HIV (women: v754wp = 0; men: mv754wp = 0)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.
v012	Current age (women)
v756	A healthy looking person can have HIV (women)
v754jp	Can get HIV from mosquito bites (women)
v754wp	Can get HIV by sharing food with person who has HIV (women)
v823	Can get HIV by witchcraft or supernatural means (women)
v005	Woman's individual sample weight
mv012	Current age (men)

mv756	A healthy looking person can have HIV (men)
mv754jp	Can get HIV from mosquito bites (men)
mv754wp	Can get HIV by sharing food with person who has HIV (men)
mv823	Can get HIV by witchcraft or supernatural means (men)
mv005	Man's individual sample weight

Calculation

The numerator divided by the denominator, expressed as a percentage. If a respondent has not heard of HIV, they are included in the denominator but excluded from the numerator.

Misconceptions are incorrect beliefs about modes of transmission—believing that HIV can be transmitted in ways it cannot be transmitted. For DHS-7 surveys and earlier, calculation of the two most common misconceptions is based on a working table including frequencies of responses of women and men on each misconception question included in the questionnaire. If men are interviewed in a subsample of households, the male cases are inflated by the inverse of the sub-sample proportion to produce frequencies for women and men combined. The most common misconceptions are those to which the greatest percentage of women and men respond "Yes", meaning they believe HIV can be transmitted through the false mode stated in the question. The misconceptions were survey specific, but typically included:
  35) HIV can be transmitted by mosquito bites.
  36) HIV can be transmitted by supernatural means.
  37) A person can become infected by sharing food with a person who has HIV.

Handling of Missing Values

Missing values are assumed to reflect a lack of knowledge about HIV or AIDS and are therefore not included in the numerator. Respondents can also indicate "don't know" which is treated as a lack of knowledge. Note that women and men who have not heard of HIV or AIDS are not asked these questions but are still included in the denominator; if they have not heard of HIV/AIDS they are assumed not to have this knowledge.

Changes over Time

The language used in this series of questions has changed in recent years to refer to "HIV" rather than "the AIDS virus" (see *Changes over Time* under *Knowledge of HIV Prevention Methods*.)

 In DHS-8, these questions are now only asked of women and men age 15-24. Previous surveys included women and men age 15-49. See *Percentage of young women and men with knowledge about HIV prevention*.

References

Bankole, A., S. Singh, V. Woog, and D. Wulf. 2004. "Risk and protection: youth and HIV/AIDS in sub-Saharan Africa.". https://www.guttmacher.org/news-release/2004/new-resource-documents-hiv-risk-and-protection-african-youth

Wang, W., S. Alva, and S. Wang. 2012. *HIV-Related Knowledge and Behaviors among People Living with HIV in Eight High HIV Prevalence Countries in Sub-Saharan Africa*. DHS Analytical Studies No. 29. Calverton, Maryland, USA: ICF International https://dhsprogram.com/publications/publication-AS29-Analytical-Studies.cfm

Resources

DHS-8 Tabulation plan: No longer presented in DHS reports.

API Indicator IDs:
Women:
`HA_CKNA_W_HLT, HA_CKNA_W_MOS, HA_CKNA_W_SUP, HA_CKNA_W_SHR, HA_CKNA_W_REJ`

Men:
`HA_CKNA_M_HLT, HA_CKNA_M_MOS, HA_CKNA_M_SUP, HA_CKNA_M_SHR, HA_CKNA_M_REJ`
(API link, STATcompiler link)

Percentage of young women and men with knowledge about HIV prevention

Definition

Percentage of young women and young men age 15-24 who know that:
1) Know that using a condom every time they have sex can reduce the risk of getting HIV; and
2) Know that having just one uninfected faithful partner can reduce the risk of getting HIV; and
3) Know that a healthy-looking person can have HIV; and
4) Know that HIV cannot be transmitted by mosquito bites; and
5) Know that HIV cannot be transmitted by sharing food with someone who has HIV.

6) Percentage of young women and young men age 15-24 with knowledge about HIV prevention which is defined as:
   a) Knowing that using a condom every time they have sex can reduce the risk of getting HIV; and
   b) Knowing that having just one uninfected faithful partner can reduce the risk of getting HIV; and
   c) Knowing that a healthy-looking person can have HIV; and
   d) Knowing that HIV cannot be transmitted by mosquito bites; and
   e) Knowing that HIV cannot be transmitted by sharing food with someone who has HIV.

Coverage:
   Population base: Women and men age 15-24 (IR file, MR file)
   Time period: Current status at time of survey

Numerators:
Number of women (or men) age 15-24 who indicate that they:
1) Know that using a condom every time they have sex can reduce the risk of getting HIV (women: v754cp = 1; men: mv754cp = 1)
2) Know that having just one uninfected faithful partner can reduce the risk of getting HIV (women: v754dp = 1; men: mv754dp = 1)
3) Know that a healthy-looking person can have HIV (women: v756 = 1; men: mv756 = 1)
4) Know that HIV cannot be transmitted by mosquito bites (women: v754jp = 0; men: mv754jp = 0)
5) Know that a person cannot become infected by sharing food with a person who has HIV (women: v754wp = 0; men: mv754wp = 0)
6) Know that using a condom every time they have sex can reduce the risk of getting HIV AND know that having just one uninfected faithful partner can reduce the risk of getting HIV AND know that a healthy-looking person can have HIV AND know that HIV cannot be transmitted by mosquito bites AND know that a person cannot become infected by sharing food with a person who has HIV (women: v754cp = 1 & v754dp = 1 & v754jp = 0 & v754wp = 0 & v756 = 1; men: mv754cp = 1 & mv754dp = 1 & mv754jp = 0 & mv754wp = 0 & mv756 = 1)

Denominators:
Number or young women (or men) age 15-24 (women: v012 in 15:24; men: mv012 in 15:24)

Variables: IR file, MR file.
v012   Current age (women)
v754cp   Reduce risk of getting HIV: always use condoms during sex (women)

v754dp	Reduce risk of getting HIV: have 1 sex partner only, who has no other partners (women)
v756	A healthy looking person can have HIV (women)
v754jp	Can get HIV from mosquito bites (women)
v754wp	Can get HIV by sharing food with person who has HIV (women)
v823	Can get HIV by witchcraft or supernatural means (women)
v005	Woman's individual sample weight
mv012	Current age (men)
mv754cp	Reduce risk of getting HIV: always use condoms during sex (men)
mv754dp	Reduce risk of getting HIV: have 1 sex partner only, who has no other partners (men)
mv756	A healthy looking person can have HIV (men)
mv754jp	Can get HIV from mosquito bites (men)
mv754wp	Can get HIV by sharing food with person who has HIV (men)
mv823	Can get HIV by witchcraft or supernatural means (men)
mv005	Man's individual sample weight

Calculation

The numerator divided by the denominator, expressed as a percentage. If a respondent has not heard of HIV, they are included in the denominator but excluded from the numerator.

Misconceptions are incorrect beliefs about modes of transmission—believing that HIV can be transmitted in ways it cannot be transmitted. In DHS-7 surveys and earlier, calculation of the two most common misconceptions is based on a working table including frequencies of responses of women and men on each misconception question included in the questionnaire. If men are interviewed in a subsample of households, the male cases are inflated by the inverse of the sub-sample proportion to produce frequencies for women and men combined. The most common misconceptions are those to which the greatest percentage of women and men respond "Yes", meaning they believe HIV can be transmitted through the false mode stated in the question. The misconceptions are survey specific, but typically include:

38) HIV can be transmitted by mosquito bites.
39) HIV can be transmitted by supernatural means.
40) A person can become infected by sharing food with a person who has HIV.

Handling of Missing Values

Missing values are assumed to reflect a lack of knowledge about HIV or AIDS and are therefore not included in the numerator. Respondents can also indicate "don't know" which is treated as a lack of knowledge. Note that women and men who have not heard of HIV or AIDS are not asked these questions but are still included in the denominator; if they have not heard of HIV/AIDS they are assumed not to have this knowledge.

Changes over Time

The language used in this series of questions has changed in recent years to refer to "HIV" rather than "the AIDS virus" (see *Changes over Time* under *Knowledge of HIV Prevention Methods* .)

As of DHS-8, the common misconceptions have been standardized across countries to be can HIV be transmitted by mosquito bites and by sharing food with a person who has HIV. In addition, this indicator was restricted to young people age 15-24. Previous surveys included women and men age 15-49.

References

UNAIDS. 2017. *Global AIDS Monitoring 2018: Indicators for monitoring the 2016 United Nations Political Declaration on Ending.* http://www.unaids.org/en/resources/documents/2018/Global-AIDS-Monitoring (page 102).

Wang, W., S. Alva, and S. Wang. 2012. *HIV-Related Knowledge and Behaviors among People Living with HIV in Eight High HIV Prevalence Countries in Sub-Saharan Africa.* DHS Analytical Studies No. 29. Calverton, Maryland, USA: ICF International https://dhsprogram.com/publications/publication-AS29-Analytical-Studies.cfm

Resources

DHS-8 Tabulation plan: Tables 13.11.1 and 13.11.2

API Indicator IDs:
HA_CKNA_W_CKA, HA_CKNA_M_CKA
(API link, STATcompiler link)

UNAIDS Indicator 5.1: Young people: Knowledge about HIV prevention
MICS6 Indicator TM.29: Knowledge about HIV prevention among young people

Knowledge of Prevention of Mother-to-Child Transmission

Percentage of women and men who know that HIV can be transmitted from mother to child during pregnancy, during delivery, by breastfeeding, and in all 3 ways; Percentage of women and men who know that the risk of mother-to-child transmission can be reduced by the mother taking special drugs (legacy indicator)

Definition

1) Percentage of women and men age 15-49 who know that HIV can be transmitted from mother to child during pregnancy.
2) Percentage of women and men age 15-49 who know that HIV can be transmitted from mother to child during delivery.
3) Percentage of women and men age 15-49 who know that HIV can be transmitted from mother to child by breastfeeding.
4) Percentage of women and men age 15-49 who know that HIV can be transmitted from mother to child during pregnancy, during delivery, and by breastfeeding.
5) Percentage of women and men age 15-49 who know that the risk of mother-to-child transmission can be reduced by the mother taking special drugs.

Coverage:
   Population base: Women and men age 15-49 (IR file, MR file)
   Time period: Current status at time of survey

Numerators:
Number of women (or men) who respond "Yes" that HIV can be transmitted from a mother to her baby:
1) during pregnancy (women: v774a = 1; men: mv774a = 1)
2) during delivery (women: v774b = 1; men: mv774b = 1)
3) by breastfeeding (women: v774c = 1; men: mv774c = 1)
4) during pregnancy, delivery, and by breastfeeding (women: v774a = 1 & v774b = 1 & v774c = 1; men: mv774a = 1 & mv774b = 1 & mv774c = 1)
5) Number of women (or men) who respond "Yes" to the question:
6) "Are there any special medicines that a doctor or a nurse can give to a woman infected with HIV to reduce the risk of transmission to the baby?" (women: v824 = 1; men: mv824 = 1)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.
v774a	HIV transmitted during pregnancy (women)
v774b	HIV transmitted during delivery (women)
v774c	HIV transmitted during breastfeeding (women)
v824	Drugs to avoid HIV transmission to baby during pregnancy (women)
v005	Woman's individual sample weight
mv774a	HIV transmitted during pregnancy (men)
mv774b	HIV transmitted during delivery (men)
mv774c	HIV transmitted during breastfeeding (men)

| mv824 | Drugs to avoid HIV transmission to baby during pregnancy (men) |
| mv005 | Man's individual sample weight |

Calculation

The numerator divided by the denominator, expressed as a percentage. If a respondent has not heard of HIV, they are included in the denominator but excluded from the numerator.

Handling of Missing Values

Missing values are assumed to reflect a lack of knowledge about HIV or AIDS and are therefore not included in the numerator. Respondents can also indicate "don't know" which is treated as a lack of knowledge.

Note that women and men who have not heard of HIV or AIDS are not asked these questions but are still included in the denominator; if they have not heard of HIV or AIDS they are assumed not to have this knowledge.

Changes over Time

Previously DHS reported an indicator that combined knowledge that HIV can be transmitted by breastfeeding and that special drugs taken by mother during pregnancy can reduce risk of MTCT. The DHS-7 tabulation plan does not combine these indicators.

Indicators 1-4 have been removed in DHS-8. Indicator 5 can be found under *Medicines for HIV Treatment and Prevention.*

References

Mishra, V., P. Agrawal, S. Alva, Y. Gu, and S. Wang. 2009. *Changes in HIV-Related Knowledge and Behaviors in Sub-Saharan Africa.* DHS Comparative Reports No. 24. Calverton, Maryland, USA: ICF Macro. https://dhsprogram.com/publications/publication-CR24-Comparative-Reports.cfm

Wang, W., S. Alva, and S. Wang. 2012. *HIV-Related Knowledge and Behaviors among People Living with HIV in Eight High HIV Prevalence Countries in Sub-Saharan Africa*. DHS Analytical Studies No. 29. Calverton, Maryland, USA: ICF International https://dhsprogram.com/publications/publication-AS29-Analytical-Studies.cfm

Resources

API Indicator IDs:
Women:
`HA_KMTC_W_BRF, HA_KMTC_W_DRG, HA_KMTC_W_BFD`
(API link, STATcompiler link)

Men:
`HA_KMTC_M_BRF, HA_KMTC_M_DRG, HA_KMTC_M_BFD`

(API link, STATcompiler link)

MICS6 Indicator TM.30: Knowledge of mother-to-child transmission

Medicines for HIV Treatment and Prevention

Percentages of women and men who have heard of antiretroviral medicines (ARVs) that treat HIV, who know that the risk of mother-to-child transmission can be reduced by the mother taking special drugs, and who have heard of pre-exposure prophylaxis (PrEP); Among women and men who have heard of PrEP, percentage who approve of people taking PrEP to prevent acquiring HIV

Definition

1) Percentage of women and men age 15-49 who have heard of ARVs that treat HIV.
2) Percentage of women and men age 15-49 who know that the risk of mother-to-child transmission can be reduced by the mother taking special drugs.
3) Percentage of women and men age 15-49 who have heard of PrEP.
4) Among women and men age 15-49 who have heard of PrEP, the percentage who approve of people who take PrEP to reduce their risk of acquiring HIV.

Coverage:
Population base: Women and men age 15-49 (IR file, MR file)
Time period: Current status at time of the survey

Numerators:
1) Number of women (or men) who have heard of ARVs (women: v837 =1; men: mv837 = 1)
2) Number of women (or men) who respond "Yes" to the question, "Are there any special medicines that a doctor or a nurse can give to a woman infected with HIV to reduce the risk of transmission to the baby?" (women: v824 = 1; men: mv824 = 1)
3) Number of women (or men) who have heard of PrEP (women: v859 in 1:3; men: mv859 in 1:3)
4) Number of women (or men) who respond "Yes" to the question, "Do you approve of people who take a pill every day to prevent getting HIV?" (women: v859 =1; men: mv859 = 1)

Denominators:
a) Number of women (or men) age 15-49
b) Number of women (or men) age 15-49
c) Number of women (or men) age 15-49
d) Number of women (or men) age 15-49 who have heard of PrEP (women: v859 in 1:3; men: mv859 in 1:3)

Variables, IR file, MR file.
v837	Heard of ARVs to treat HIV (women)
v824	Drugs to avoid HIV transmission to baby during pregnancy (women)
v859	Knowledge and attitude to PrEP to prevent getting HIV (women)
v005	Woman's individual sample weight
mv837	Heard of ARVs to treat HIV (men)
mv824	Drugs to avoid HIV transmission to baby during pregnancy (men)
mv859	Knowledge and attitude to PrEP to prevent getting HIV (men)
mv005	Man's individual sample weight

Calculation

The numerator divided by the denominator, expressed as a percentage. If a respondent has not heard of HIV, they are included in the denominator but excluded from the numerator.

Changes over Time

Indicators 1, 3 and 4 were introduced in DHS-8.

Resources

DHS-8 Tabulation plan: Table 13.1

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Discriminatory Attitudes towards People Living with HIV

Percentage of women and men who have discriminatory attitudes towards people living with HIV

Definition

1) Percentage of women and men age 15-49 who do not think that children living with HIV should be able to attend school with children who are HIV negative.
2) Percentage of women and men age 15-49 who would not buy fresh vegetables from a shopkeeper who has HIV.
3) Percentage of women and men age 15-49 who have discriminatory attitudes towards people living with HIV.

Coverage:
Population base: Women and men age 15-49 [who have heard of HIV or AIDS] (IR file, MR file)
Time period: Current status at time of survey

Numerators:
1) Number of women (or men) who respond "No" to the question, "Do you think children living with HIV be able to attend school with children who do not have HIV?" (women: v857a = 0; men: mv857a = 0)
2) Number of women (or men) who respond "No" to the question, "Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had HIV?" (women: v825 = 0; men: mv825 = 0)
3) Number of women (or men) who respond "No" to either of the two questions listed above (women: v857a = 0 or v825 = 0; men: mv857a = 0 or mv825 = 0)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.
v751	Ever heard of HIV or AIDS (women)
v857a	Children with HIV should be allowed to attend school with children without HIV (women)
v825	Would buy vegetables from vendor with HIV (women)
v005	Woman's individual sample weight
mv751	Ever heard of HIV or AIDS (men)
mv857a	Children with HIV should be allowed to attend school with children without HIV (men)
mv825	Would buy vegetables from vendor with HIV (men)
mv005	Man's individual sample weight

Calculation

The numerator divided by the denominator, expressed as a percentage.

Handling of Missing Values

Respondents are considered to have discriminatory attitudes only if they respond "No" on either question. Missing values or responses that are "Don't know/Not sure/Depends" are not considered to represent discriminatory attitudes.

Changes over Time

Previous DHS questionnaires had a different list of questions to assess HIV-related stigma. The two included in the DHS-7 and DHS-8 questionnaire and tabulation plan are in line with UNAIDS Global AIDS Monitoring (GAM) indicator 6.1 on discriminatory attitudes.

As of DHS-8, the question on having heard of HIV or AIDS may be removed in surveys where knowledge of HIV is very high. In surveys where this question is removed, it is assumed that all respondents have heard of HIV or AIDS.

References

UNAIDS. 2017. *Global AIDS Monitoring 2018: Indicators for monitoring the 2016 United Nations Political Declaration on Ending AIDS* http://www.unaids.org/en/resources/documents/2018/Global-AIDS-Monitoring

Resources

DHS-8 Tabulation plan: Table 13.2

API Indicator IDs:
HA_AATT_W_VEG, HA_AATT_M_VEG
(API link, STATcompiler link)

UNAIDS Global AIDS Monitoring (GAM) indicator 6.1: "Discriminatory attitudes towards people living with HIV"
MICS6 Indicator TM.31: Discriminatory attitudes towards people living with HIV

Multiple Sexual Partners, Higher-Risk Sexual Partners, and Condom Use

Percentage of all women and men and of young women and men who had multiple sexual partners, higher-risk sexual partners, condom use with multiple partners, and condom use at last high-risk sex

Definition

1) Percentage of women and men age 15-49, and of young women and men age 15-24, who had two or more sexual partners in the past 12 months.
2) Percentage of women and men age 15-49, and of young women and men age 15-24, who had intercourse in the past 12 months with a person who was neither their spouse nor lived with them.
3) Percentage of women and men age 15-49, and of young women and men age 15-24, with 2+ partners in the past 12 months who used a condom at last sexual intercourse.
4) Among women and men age 15-49, and of young women and men age 15-24, who had intercourse in the past 12 months with a person who was neither their spouse nor lived with them, percentage who used a condom as last sexual intercourse with such a partner.

Coverage:
> Population base: Women and men age 15-49; Young women and men age 15-24 (IR file, MR file)
> Time period: 12 months preceding the survey

Numerators:
1) Number of women (or men) age 15-49, or young women (or men) age 15-24, who reported two or more sexual partners in the 12 months preceding the survey:
   Women: (v527 in 100:251,300:311 & v766b in 2:99)
   Men: (mv527 in 100:251,300:311 & mv766b in 2:99)
2) Number of women (or men) age 15-49, or young women (or men) age 15-24, who had sexual intercourse in the 12 months preceding the survey with a person who was neither their spouse nor lived with them:
   Women: risk1 = (v527 in 100:251,300:311 & v767a in 2:6, 96) (last partner)
                  risk2 = (v527 in 100:251,300:311 & v767b in 2:6, 96) (next-to-last partner)
                  risk3 = (v527 in 100:251,300:311 & v767c in 2:6, 96) (third-to-last partner)
                  Number of women with (risk1 or risk2 or risk3).
   Men: risk1 = (mv527 in 100:251,300:311 & mv767a in 2:6, 96) (last partner)
                  risk2 = (mv527 in 100:251,300:311 & mv767b in 2:6, 96) (next-to-last partner)
                  risk3 = (mv527 in 100:251,300:311 & mv767c in 2:6, 96) (third to last partner)
                  Number of men with (risk1 or risk2 or risk3)
3) Number of women (or men) age 15-49, or young women (or men) age 15-24, with two or more sexual partners in the past 12 months who used a condom at last sexual intercourse:
   Women: (v527 in 100:251,300:311 & v766b in 2:99 & v761 = 1)
   Men: (mv527 in 100:251,300:311 & mv766b in 2:99 & mv761 = 1)
4) Number of women (or men) age 15-49, or young women (or men) age 15-24, who used a condom the last time they had sexual intercourse with a person who was neither their spouse nor lived with them:
   Women: ((risk1 & v761 = 1) or

                    (not risk1 & risk2 & v761b = 1) or
                    (not risk1 & not risk2 & risk3 & v761c = 1))
   Men: ((risk1 & mv761 = 1) or
                    (not risk1 & risk2 & mv761b = 1) or
                    (not risk1 & not risk2 & risk3 & mv761c = 1))

Denominators:

a) Number of women (or men) age 15-49 (women: v012 in 15:49; men: mv012 in 15:49), or number of young women (or men) age 15-24 (women: v012 in 15:24; men: mv012 in 15:24)

b) Number of women (or men) age 15-49 (women: v012 in 15:49; men: mv012 in 15:49), or number of young women (or men) age 15-24 (women: v012 in 15:24; men: mv012 in 15:24)

c) Number of women (or men) age 15-49, or young women (or men) age 15-24, who reported two or more sexual partners in the 12 months preceding the survey (women: v527 in 100:251,300:311 & v766b in 2:99; men: mv527 in 100:251,300:311 & mv766b in 2:99)

d) Number of women (or men) age 15-49, or young women (or men) age 15-24, who had sexual intercourse in the 12 months preceding the survey with a person who was neither their spouse nor lived with them (women: v527 in 100:251,300:311 & risk1 or risk2 or risk3; men: mv527 in 100:251,300:311 & risk1 or risk2 or risk3)

Variables: IR file, MR file.

v012	Current age (women)
v527	Time since last sex (women)
v766b	Number of sex partners, including spouse, in last 12 months (women)
v767a	Relationship with most recent sex partner (women)
v767b	Relationship with 2nd to most recent sex partner (women)
v767c	Relationship with 3rd to most recent sex partner (women)
v761	Condom used during last sex with most recent partner (women)
v761b	Condom used during last sex with 2nd to most recent partner (women)
v761c	Condom used during last sex with 3rd to most recent partner (women)
v005	Woman's individual sample weight
mv012	Current age (men)
mv527	Time since last sex (men)
mv766b	Number of sex partners, including spouse, in last 12 months (men)
mv767a	Relationship with most recent sex partner (men)
mv767b	Relationship with 2nd to most recent sex partner (men)
mv767c	Relationship with 3rd to most recent sex partner (men)
mv761	Condom used during last sex with most recent partner (men)
mv761b	Condom used during last sex with 2nd to most recent partner (men)
mv761c	Condom used during last sex with 3rd to most recent partner (men)
mv005	Man's individual sample weight

Calculation

The numerator divided by the denominator, expressed as a percentage.

Handling of Missing Values

Time since last sex: If the time since last sex is reported as missing or "don't know" it is assumed to be more than 12 months ago.

Number of sexual partners in the past 12 months: If the number of partners in the past 12 months is missing or "don't know" the respondent is still considered to have had 2+ partners in the past 12 months as the direct question on number of partners in the past 12 months is only asked if at least 3 partners are listed in the sexual partner history. Otherwise the number of sexual partners is calculated from the exact number listed in the history. See *Notes and Considerations* below.

Relationship with partner: If the relationship to the partner is missing it is not considered as high-risk sex. If the response to a question concerning condom use with a partner is missing it is assumed that a condom was not used with that partner.

Notes and Considerations

Number of sexual partners in the past 12 months, respondent's relationship to sexual partner, and condom use are all self-reported and based on questions in the sexual partner history section of the individual questionnaire. If a respondent had sexual intercourse in the past 12 months, a series of questions is repeated for the respondent's most-recent, next-to-most recent, and third-to-most recent sexual partners. At the end of the series of questions for the most-recent and next-to-most recent partners, the respondent is asked, "Apart from this person, have you had sexual intercourse with any other person in the last 12 months?" Respondents who answer "Yes" to this question when it is asked at the end of the series of questions about the most-recent sexual partner are considered to have had two or more sexual partners in the past 12 months. At the end of the series of questions for the third-to-most recent partner, the respondent is asked "In total, with how many different people have you had sexual intercourse in the last 12 months?"

Changes over Time

In earlier final reports, percentage of women or men who had intercourse in the past 12 months with a person who was neither their spouse nor lived with them and who used a condom as last sexual intercourse with such a partner, was based on using a condom with any such partner in the last 12 months rather than the most recent such partner. Previous calculation was as follows:

Women:	((risk1 & v761 = 1) or
	(risk2 & v761b = 1) or
	(risk3 & v761c = 1))
Men:	((risk1 & mv761 = 1) or
	(risk2 & mv761b = 1) or
	(risk3 & mv761c = 1))

References

UNAIDS. 2017. *Global AIDS Monitoring 2018: Indicators for monitoring the 2016 United Nations Political Declaration on Ending AIDS* http://www.unaids.org/sites/default/files/media_asset/global-aids-monitoring_en.pdf#page=95

Resources

DHS-8 Tabulation plan: Table 13.3.1 and 13.3.2, and 13.14.1 and 13.14.2

API Indicator IDs:
Women:
`HA_HRSX_W_HRS, HA_HRSX_W_CND, HA_MSXP_W_2PP, HA_MSXP_W_CND`
([API link](), [STATcompiler link]())

Men:
`HA_HRSX_M_HRS, HA_HRSX_M_CND, HA_MSXP_M_2PP, HA_MSXP_M_CND`
Young women and men: `HA_MSPY_W_2PP, HA_MSPY_W_CND, HA_MSPY_M_2PP, HA_MSPY_M_CND`
([API link](), [STATcompiler link]())

UNAIDS Global AIDS Monitoring (GAM) indicator 1.14: "Condom use at last high-risk sex"

MICS6 Indicator TM.22: Multiple sexual partnerships
MICS6 Indicator TM.23: Condom use at last sex among people with multiple sexual partnerships
MICS6 Indicator TM.27: Sex with non-regular partners
MICS6 Indicator TM.28: Condom use with non-regular partners

Mean number of lifetime sexual partners

Definition

Mean number of lifetime sexual partners.

Coverage:
> Population base: Women and men age 15-49 who ever had sexual intercourse (IR file, MR file)
> Time period: Lifetime of the respondent

Numerator: Sum of number of lifetime sexual partners reported in response to the question, "In total, with how many different people have you had sexual intercourse in your lifetime?" Excludes non-numeric answers such as "don't know" (women: v836; men: mv836).

Denominator: Number of women (or men) age 15-49 who ever had sexual intercourse and who gave a numeric response to the question on number of lifetime sexual partners (women: v836 in 1:95; men: mv836 in 1:95)

Variables: IR file, MR file.
v836	Total lifetime number of sex partners (women)
v005	Woman's individual sample weight
mv836	Total lifetime number of sex partners (men)
mv005	Man's individual sample weight

Calculation

Numerator divided by the denominator.

Handling of Missing Values

Respondents with missing or non-numeric values for number of lifetime sexual partners are excluded from the numerator and denominator.

References

Lo, N.C., A. Lowe, and E. Bendavid. "Abstinence funding was not associated with reductions in HIV risk behavior in sub-Saharan Africa." *Health affairs* 35, no. 5 (2016): 856-863.

Resources

DHS-8 Tabulation plan: Tables 13.3.1 and 13.3.2

API Indicator IDs:
HA_MSXP_W_MNP, HA_MSXP_M_MNP
(API link, STATcompiler link)

Payment for Sexual Intercourse and Condom Use

Percentage of men who ever paid for sexual intercourse, percentage who paid for sexual intercourse in the past 12 months, and percentage reporting using a condom at last paid sexual intercourse (legacy indicator)

Definition

1) Percentage of men age 15-49 who ever paid for sexual intercourse.
2) Percentage of men age 15-49 who paid for sexual intercourse in the past 12 months.
3) Percentage of men age 15-49 reporting using a condom at last paid sexual intercourse in the past 12 months.

Coverage:
      Population base: Men age 15-49 (MR file)
      Time period: At any time prior to the survey. In the 12 months preceding the survey

Numerators:
1) Number of men age 15-49 who respond "Yes" in response to the question, "Have you ever paid anyone in exchange for having sexual intercourse?" (mv791 = 1)
2) Number of men age 15-49 who either:
   a) In response to a question about the relationship to each of their last three sexual partners in the past 12 months, reported that any of the three partners was a sex worker, or
   b) If no sex workers were reported in the detailed partner history, responds "Yes" to the question "In the last 12 months, did you pay anyone in exchange for having sexual intercourse?" (mv793 = 1)
3) Number of men age 15-49 who had paid for sex in the past 12 months and who either:
   a) Reported they used a condom at last sex with a sex partner in the sexual partner history who was reported to be a sex worker, or
   b) If no sex workers were reported in the detailed partner history, responded "Yes" to the question "The last time you paid someone in exchange for having sexual intercourse, was a condom used?" (mv793 = 1 & mv793a = 1)

Denominators:
a) Number of men age 15-49
b) Number of men age 15-49
c) Number of men age 15-49 who paid for sex in the past 12 months (mv793 = 1)

Variables: MR file.
mv791	Have ever paid anyone in exchange for sex
mv793	Paid for sex in last 12 months
mv793a	Condom used last time paid for sex in last 12 months
mv005	Man's individual sample weight

Calculation

The numerator divided by the denominator, expressed as a percentage.

Data for these indicators is collected in one of two ways: from the detailed questions about relationship to partner and condom use at last sex with each partner in the history of sexual partners in the past 12 months, or from direct questions on payment for sex and condom use at last paid sex for respondents did not report these events in the sexual partner history. Men are asked the direct question on paying for sexual intercourse in the past 12 months even if they reported it has been more than 12 months since the last time they had sex.

Handling of Missing Values

Men with missing values on the payment for sex question are considered not to have paid for sex. Men with missing values on the use of condom at last paid sex question are considered not to have used a condom with paid sex.

Notes and Considerations

These indicators pertain only to payment of money for sex. Transactional sex involving exchange of goods or services is not addressed.

Changes over Time

This indicator is no longer measured in DHS-8 and the relevant questions have been removed from the standard DHS-8 questionnaire.

References

Stephenson, R., A. Winter, and M. Elfstrom. 2013. "Community environments shaping transactional sex among sexually active men in Malawi, Nigeria, and Tanzania." *AIDS care* 25, no. 6: 784-792.

Resources

DHS-8 Tabulation plan: No longer presented in DHS reports.

API Indicator IDs:
HA_PYSX_M_EPD, HA_PYSX_M_PD1, HA_PYSX_M_CLS
(API link, STATcompiler link)

Coverage of Prior HIV Testing

Percentage of women and men who know where to get an HIV test, percent distribution by prior HIV testing status and whether they received the result of their last test, percentage ever tested for HIV, percentage who have been tested for HIV in the past 12 months and received the results of the last test

Definition

1) Percentage of women and men age 15-49 who know where to get an HIV test. (legacy indicator)
2) Percent distribution of women and men age 15-49 by prior HIV testing status and whether they received the result of their last test.
3) Percentage of women and men age 15-49 ever tested for HIV.
4) Percentage of women and men age 15-49 who have been tested for HIV in the past 12 months and received the results of the last test.

Coverage:
Population base: Women and men age 15-49
Time period: Lifetime of the respondent. 12 months preceding the survey

Numerators:
1) Number of women (or men) who know where to get an HIV test (women: v781 = 1 or v783 = 1; men: mv781 = 1 or mv783 = 1)
2) Percent distribution includes three mutually exclusive, exhaustive categories:
   a) Number of women (or men) who have ever been tested for HIV and received the result of their most recent HIV test (women: v781 = 1 & v828 = 1; men: mv781 = 1 & mv828 = 1)
   b) Number of women (or men) who have ever been tested for HIV and did not receive the result of their most recent HIV test (women: v781 = 1 & v828 ≠ 1; men: mv781 = 1 & mv828 ≠ 1)
   c) Number of women (or men) who have never been tested for HIV (women: v781 ≠ 1; men: mv781 ≠ 1)
3) Number of women (or men) who have ever received an HIV test (women: v781 = 1; men: mv781 = 1)
4) Number of women (or men) who have been tested for HIV in the past 12 months and received the result of their most recent HIV test (women: v828 = 1 & v826a in 0:11; men: mv828 = 1 & mv826a in 0:11)

Denominators: Number of women (or men) age 15-49

Variables: IR file, MR file.

v781	Ever been tested for HIV (women)
v783	Know a place to get HIV test (women)
v826a	Months ago most recent HIV test (women)
v828	Received result from last HIV test (women)
v005	Woman's individual sample weight
mv781	Ever been tested for HIV (men)
mv783	Know a place to get HIV test (men)
mv826a	Months ago most recent HIV test (men)

mv828   Received result from last HIV test (men)
mv005   Man's individual sample weight (men)

Calculation

The numerator divided by the denominator, expressed as a percentage.

Handling of Missing Values

Missing values on receiving an HIV test are interpreted as not tested, and missing values on receiving the test result are interpreted as not receiving the result.

Notes and Considerations

Only respondents who report they have never been tested for HIV are asked if they know where to get an HIV test. If a respondent has received an HIV test, this indicator assumes they know where to get an HIV test. It is assumed that respondents who report that they have never heard of HIV or AIDS have never been tested for HIV.

Changes over Time

Previous versions of this indicator included a condition that the HIV test was also offered by a provider (as opposed to requested by the respondent). This condition is no longer included.

In DHS-8, questions on knowledge of where to obtain a test were removed.

References

Staveteig, S., S.K. Head, T.N. Croft, and K.T. Kampa. 2016. *Factors associated with prior testing among HIV-positive adults in Sub-Saharan Africa*. DHS Comparative Reports No. 43. Rockville, Maryland, USA: ICF International. https://dhsprogram.com/publications/publication-CR43-Comparative-Reports.cfm

Staveteig, S., S. Wang, S.K. Head, S.E.K. Bradley, and E. Nybro. 2013. *Demographic patterns of HIV testing uptake in sub-Saharan Africa.* DHS Comparative Reports No. 30. Calverton, Maryland, USA: ICF International. https://dhsprogram.com/publications/publication-CR30-Comparative-Reports.cfm

Resources

DHS-8 Tabulation plan: Tables 13.5.1 and 13.5.2

API Indicator IDs:
Women:
`HA_CPHT_W_KNW, HA_CPHT_W_ETR, HA_CPHT_W_ETN, HA_CPHT_W_NEV, HA_CPHT_W_EVT, HA_CPHT_W_T1R`
(API link, STATcompiler link)

Men:

```
HA_CPHT_M_KNW, HA_CPHT_M_ETR, HA_CPHT_M_ETN, HA_CPHT_M_NEV, HA_CPHT_M_EVT,
HA_CPHT_M_T1R
```
([API link](#), [STATcompiler link](#))

MICS6 Indicator TM.32: People who know where to be tested for HIV
MICS6 Indicator TM.33: People who have been tested for HIV and know the results

Lifetime number of HIV tests

Definition

Percent distribution of women and men age 15-49 by the number of times tested for HIV in their lifetime

Coverage:
Population base: Women and men age 15-49
Time period: Lifetime of the respondent

Numerators: Number of women (or men) age 15-49 by the number of times tested for HIV in their lifetime (women: v781, v864; men mv781, mv864)

Denominators: Number of women (or men) age 15-49

Variables: IR file, MR file.

v781	Ever been tested for HIV (women)
v864	Number of HIV tests (women)
v005	Woman's individual sample weight
mv781	Ever been tested for HIV (men)
mv864	Number of HIV tests (men)
mv005	Man's individual sample weight (men)

Calculation

Numerator divided by denominator, multiplied by 100.

The number of lifetime HIV tests are categorized as never tested (v781 = 0 or mv781 = 0), 1, 2, 3, 4, 5, and 6 plus (v864 or mv864).

Handling of Missing Values

Missing values on ever having had an HIV test are interpreted as never tested.

Changes over Time

This is a new indicator in DHS-8.

Resources

DHS-8 Tabulation plan: Table 13.6

API Indicator IDs:
Women:
TBD

(API link TBD, STATcompiler link TBD)

Men:
`TBD`
(API link TBD, STATcompiler link TBD)

Pregnant Women Tested for HIV

Percentage of women tested for HIV during antenatal care according to whether they received their test results and percentage who received an HIV test during antenatal care or labor according to whether they received the test result

Definition

Percentage of women age 15-49 who gave birth in the 2 years preceding the survey who:
1) Received counseling on HIV during antenatal care. (legacy indicator)
2) Were tested for HIV during antenatal care and received their test results and post-test counseling. (legacy indicator)
3) Were tested for HIV during antenatal care and received their test results, but no post-test counseling. (legacy indicator)
4) Were tested for HIV during antenatal care and received their test results.
5) Were tested for HIV during antenatal care and did not receive their test results.
6) Received counseling on HIV and an HIV test during antenatal care and received the test result. (legacy indicator)
7) Received an HIV test during antenatal care <u>or</u> labor and received the test result.
8) Received an HIV test during antenatal care <u>or</u> labor and did not receive the test result.

Coverage:
Population base: Women who had a live birth in the 2 years preceding the survey (IR file)
Time period: During the most recent pregnancy resulting in a live birth in the two years preceding the survey

Numerators:
1) Number of women who received counseling on HIV during antenatal care (ANC). In this context, "counseling" means that someone talked with the respondent about all three of the following topics:
   - babies getting HIV from their mother
   - preventing the virus
   - getting tested for HIV
     (v838a = 1 & v838b = 1 & v838c = 1)

Number of women who received an HIV test during antenatal care and:
2) Received the test result and received post-test counseling (v841 = 1 & v855 = 1)
3) Received the test result and did not receive post-test counseling (v841 = 1 & v855 ≠ 1)
4) Received the test result (v841 = 1)
5) Did not receive the test result (v841 ≠ 1)

Number of women who received counseling on HIV and received an HIV test during ANC and:
6) received the results of the test (v838a = 1 & v838b = 1 & v838c = 1 & v840 = 1 & v841 = 1).

Number of women who received an HIV test during ANC <u>or</u> labor and:
7) Received the result of the HIV test

((v840 = 1 | v840a = 1) & (v841 = 1 | v841a = 1))
8) Did not receive the result of the HIV test
   ((v840 = 1 | v840a = 1) & (v841 ≠ 1 & v841a ≠ 1))

Denominator: Number of women who had a live birth in the two years preceding the survey (v201 > 0 & b19_1 < 24)

Variables: IR file.

v201	Total children ever born
b19_1	Current age of child in months (months since birth for dead children)
v838a	During antenatal visit talked about: HIV transmitted mother to child
v838b	During antenatal visit talked about: things to do to prevent getting HIV
v838c	During antenatal visit talked about: getting tested for HIV
v840	Tested for HIV as part of antenatal visit
v840a	Tested for HIV between the time went for delivery and before baby was born
v841	Got results of HIV test as part of antenatal visit
v841a	Got results of HIV test when tested before baby was born
v855	Received counseling after tested for HIV during antenatal care
v005	Woman's individual sample weight

Calculation

The numerator divided by the denominator, expressed as a percentage.

Handling of Missing Values

Respondents who have missing values on the questions about testing, receiving the result, or receiving post-test counseling are assumed not to have received these services.

Notes and Considerations

This indicator is about the pregnancy leading to a live birth in the two years preceding the survey. For women with more than one live birth in the two years preceding the survey, these indicators report information only for the pregnancy preceding the most recent live birth.

Changes over Time

In DHS-8, questions on HIV counseling during ANC and if post-test counseling was received were removed from the questionnaire. Indicators 1-3, and 6 are no longer shown.

Resources

DHS-8 Tabulation plan: Table 13.4

API Indicator IDs:
HA_CATH_W_CSL, HA_CATH_W_TRC, HA_CATH_W_TNC, HA_CATH_W_NRS, HA_CATH_W_CTR, HA_CATH_W_ATR, HA_CATH_W_ATN

(API link, STATcompiler link)

MICS6 Indicator TM.36: HIV testing during antenatal care

Male Circumcision

Percentage of men circumcised by type of circumcision

Definition

Percentage of men age 15-49 circumcised.

Numerators:
6) Number of men age 15-49 who are:
   a) Traditionally or medically circumcised (mv483 = 1)
7) Number of men age 15-49 who are (mutually exclusive categories):
   a) Traditionally circumcised only (mv483d = 1 & mv483e = 0)
   b) Medically circumcised only (mv483d = 0 & mv483e = 1)
   c) Both traditionally and medically circumcised (mv483d = 1 & mv483e = 1)
   d) Are not circumcised or don't know circumcision status (mv483 in 0,8)

Denominator: Number of men age 15-49

Variables: MR file.

mv483	Respondent circumcised
mv483d	Respondent traditionally circumcised
mv483e	Respondent medically circumcised
mv005	Man's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

"Don't know" circumcision status or missing is included in the denominator (assumes not circumcised) and as a separate category in the table.

Notes and Considerations

The male circumcision indicator corresponds to UNAIDS Global AIDS Monitoring (GAM) indicator 1.12 "Prevalence of male circumcision".

Changes over Time

Prior to DHS-VI, questions on circumcision in the DHS standard questionnaire did not include the text defining circumcision as complete removal of the foreskin and did not include a question on provider of circumcision.

In DHS-VI and DHS-7, type of circumcision was assessed through a single question on who performed the circumcision that allowed for only one response. Thus, respondents were able to report only one type of circumcision.

In the DHS-8 standard questionnaire, questions were added asking about traditional circumcision and medical circumcision separately. For the first time, this allows respondents to report both traditional circumcision and medical circumcision. In some settings, traditional circumcision practices do not remove the complete foreskin. In these settings, men who have undergone traditional circumcision may still be candidates for medical circumcision. The question on who performed the circumcision was removed.

References

UNAIDS. 2017. *Global AIDS Monitoring 2018: Indicators for monitoring the 2016 United Nations Political Declaration on Ending AIDS* http://www.unaids.org/en/resources/documents/2018/Global-AIDS-Monitoring

Resources

DHS-8 Tabulation plan: Table 13.9

API Indicator IDs:
HA_MCRC_M_MCC
(API link, STATcompiler link)

UNAIDS Global AIDS Monitoring (GAM) Indicator 1.12: "Prevalence of male circumcision"

MICS6 Indicator TM.37: Male circumcision

Prevalence of Sexually Transmitted Infections (STIs) and STI Symptoms

Percentage of women and men who had an STI in the past 12 months, had an abnormal genital discharge in the past 12 months, had a genital sore or ulcer in the past 12 months, had an STI or symptoms of an STI in the past 12 months

Definition

1) Percentage of women and men age 15-49 who had a sexually transmitted infection (STI) in the past 12 months.
2) Percentage of women and men age 15-49 who had an abnormal (or bad smelling) genital discharge in the past 12 months.
3) Percentage of women and men age 15-49 who had a genital sore or ulcer in the past 12 months.
4) Percentage of women and men age 15-49 who had an STI or symptoms of an STI in the past 12 months.

Coverage:
Population base: Women and men age 15-49 who have ever had sexual intercourse (IR file, MR file)
Time period: 12 months preceding the survey

Numerators:
1) Number of women (or men) age 15-49 who reported they had a disease they got through sexual contact in the past 12 months (women: v763a = 1; men: mv763a = 1)
2) Number of women age 15-49 who report having a bad-smelling or abnormal genital discharge (v763c = 1), or number of men age 15-49 who report having an abnormal discharge from the penis in the past 12 months (mv763c = 1)
3) Number of women (or men) age 15-49 who report they had a genital sore or ulcer in the past 12 months (women: v763b = 1; men: mv763b = 1)
4) Number of women (or men) age 15-49 who report they had an STI, or a genital discharge, or a genital sore or ulcer in the past 12 months (women: v763a = 1 or v763b = 1 or v763c = 1; men: mv763a = 1 or mv763b = 1 or mv763c = 1)

Denominator: Number of women (or men) age 15-49 who ever had sexual intercourse (women: v525 ≠ 0,99; men: mv525 ≠ 0,99)

Variables: IR file, MR file.
v525	Age at first sex (women)
v763a	Had any STI in last 12 months (women)
v763b	Had genital sore/ulcer in last 12 months (women)
v763c	Had genital discharge in last 12 months (women)
v005	Woman's individual sample weight
mv525	Age at first sex (men)
mv763a	Had any STI in last 12 months (men)
mv763b	Had genital sore/ulcer in last 12 months (men)
mv763c	Had genital discharge in last 12 months (men)

mv005   Man's individual sample weight

Calculation

The numerator divided by the denominator, expressed as a percentage.

Respondents with an STI or symptoms of an STI are those with an affirmative response to any of the following: self-reported STI, abnormal genital discharge, or genital sore/ulcer.

Handling of Missing Values

Those with missing responses on the question about age at first sex are assumed not to have had sexual intercourse. Those with missing or "don't know" responses on the questions about STI, genital discharge, or genital sore/ulcer are included in the denominator but excluded from the numerator for the corresponding indicator (assumed not to have an STI).

Notes and Considerations

All information is self-reported and does not reflect confirmed diagnosis of an STI. The question on self-reported STI is asked only of respondents to answer "yes" to a preceding question about knowledge of diseases that can be transmitted through sexual contact. Questions on genital discharge and genital sore/ulcer are asked of all respondents.

References

Kishor, S., and K. Johnson. "Reproductive health and domestic violence: Are the poorest women uniquely disadvantaged?." *Demography* 43, no. 2 (2006): 293-307.

Resources

DHS-8 Tabulation plan: Table 13.10

API Indicator IDs:
Women:
HA_STIS_W_STI, HA_STIS_W_DIS, HA_STIS_W_SOR, HA_STIS_W_AST
(API link, STATcompiler link)

Men:
HA_STIS_M_STI, HA_STIS_M_DIS, HA_STIS_M_SOR, HA_STIS_M_AST
(API link, STATcompiler link)

Care-Seeking Behavior for Sexually Transmitted Infections (STI)

Among women and men who reported an STI or symptoms of an STI in the past 12 months, the percentage who sought advice or treatment (legacy indicator)

Definition

Among women and men age 15-49 who reported a sexually transmitted infection (STI) or symptoms of an STI in the past 12 months, the percentage who sought advice or treatment.

Coverage:
Population base: Women and men age 15-49 years (IR file, MR file)
Time period: 12 months preceding the survey interview

Numerators:
1) Number of women (or men) age 15-49 who sought advice or treatment from a clinic/hospital/private doctor:
   women: any of v770a – l, n – s = 1; excludes pharmacy [usually v770m]
   men: any of mv770a – l, n – s = 1; excludes pharmacy [usually mv770m]
2) Number of women (or men) age 15-49 who sought advice or treatment from a shop/pharmacy:
   women: v770m [pharmacy] = 1 or v770t [shop] = 1;
   men: mv770m [pharmacy] = 1 or mv770t [shop] = 1
3) Number of women (or men) age 15-49 who sought advice or treatment from any other source:
   women: v770u = 1 or v770v = 1 or v770w = 1 or v770x = 1;
   men: mv770u = 1 or mv770v = 1 or mv770w = 1 or mv770x = 1
4) Number of women (or men) age 15-49 who sought no advice or treatment:
   women: v770 = 0; men: mv770 = 0

Denominator: Number of women (or men) age 15-49 with an STI or symptoms of an STI in the past 12 months (women: v763a = 1 or v763b = 1 or v763c = 1; men: mv763a = 1 or mv763b = 1 or mv763c = 1)

Variables: IR file, MR file.
v763a	Had any STI in last 12 months (women)
v763b	Had genital sore/ulcer in last 12 months (women)
v763c	Had genital discharge in last 12 months (women)
v770	Sought advice/treatment for last STI infection (women)
v770a	Sought STI advice/treatment from: government hospital
v770b – j	Sought STI advice/treatment from: CS public
v770k	Sought STI advice/treatment from: private hospital/clinic/doctor
v770l	Sought STI advice/treatment from: CS private
v770m	Sought STI advice/treatment from: CS private (pharmacy)
v770n – s	Sought STI advice/treatment from: CS private
v770t	Sought STI advice/treatment from: CS other (shop)
v770u – w	Sought STI advice/treatment from: CS other
v770x	Sought STI advice/treatment from: other
v005	Woman's individual sample weight

mv763a	Had any STI in last 12 months (men)
mv763b	Had genital sore/ulcer in last 12 months (men)
mv763c	Had genital discharge in last 12 months (men)
mv770	Sought advice/treatment for last STI infection (men)
mv770a	Sought STI advice/treatment from: government hospital
mv770b – j	Sought STI advice/treatment from: CS public
mv770k	Sought STI advice/treatment from: private hospital/clinic/doctor
mv770l	Sought STI advice/treatment from: CS private
mv770m	Sought STI advice/treatment from: CS private (pharmacy)
mv770n – s	Sought STI advice/treatment from: CS private
mv770t	Sought STI advice/treatment from: CS other (shop)
mv770u – w	Sought STI advice/treatment from: CS other
mv770x	Sought STI advice/treatment from: other
mv005	Man's individual sample weight

Calculation

Within each category of advice or treatment sought, and in the 'No advice or treatment' category, the numerator divided by the denominator, expressed as a percentage.

Handling of Missing Values

Missing values are assumed to reflect no advice or treatment sought (in the numerator) or no STI or symptoms of STI (in the denominator). Respondents can also indicate "don't know" about STI or STI symptoms, which is counted as no STI or STI symptoms and therefore not included in the denominator.

Changes over Time

The questions on treatment seeking for STIs were removed in the standard DHS-8 questionnaire.

Age at First Sexual Intercourse among Young People

Percentage of young women and men who had sexual intercourse before age 15 or age 18

Definition

1) Percentage of young women and young men age 15-24 who had sexual intercourse before age 15.
2) Percentage of young women and young men age 18-24 who had sexual intercourse before age 18.

Coverage:
        Population base: Young women and men age 15-24 (IR file, MR file)
        Time period: Current status at time of survey

Numerators:
1) Number of women (or men) age 15-24 who had sexual intercourse before age 15 (women: v012 in 15:24 & v531 in 1:14; men: mv012 in 15:24 & mv531 in 1:14)
2) Number of women (or men) age 18-24 who had sexual intercourse before age 18 (women: v012 in 18:24 & v531 in 1:17; men: mv012 in 18:24 & mv531 in 1:17)

Denominator:
a) Number of women (or men) age 15-24 (women: v012 in 15:24; men: mv012 in 15:24)
b) Number of women (or men) age 18-24 (women: v012 in 18:24; men: mv012 in 18:24)

Variables: IR file, MR file.

v012	Current age (women)
v531	Age at first sex (imputed) (women)
v005	Woman's individual sample weight
mv012	Current age (men)
mv531	Age at first sex (imputed) (men)
mv005	Man's individual sample weight

Calculation

The numerator divided by the denominator, expressed as a percentage.

Handling of Missing Values

Women and men with unknown and missing ages at first sexual intercourse are excluded from both the denominator and the numerators.

Notes and Considerations

Age at first sexual intercourse is reported as age in completed years.

Presented by age group, percentages are not calculated where the youngest member of the cohort defined by the age group has not yet reached the specified age at which first sexual intercourse occurred. For example, percentages for the cohort of women 20-24 at the time of the survey will not be calculated for age group categories 15-17 or 15-19 because some women in those age groups who have never had intercourse could still have their first intercourse before aging out of their age group categories.

Resources

DHS-8 Tabulation plan: Tables 13.12 and 4.6

API Indicator IDs:
Women:
`HA_AFSY_W_A15, HA_AFSY_W_A18`
([API link](#), [STATcompiler link](#))

Men:
`HA_AFSY_M_A15, HA_AFSY_M_A18`
([API link](#), [STATcompiler link](#))

MICS6 Indicator TM.24: Sex before age 15 among young people

Premarital Sexual Intercourse among Young People

Percentage of never-married young women and men who have never had sexual intercourse

Definition

Percentage of never-married women and men age 15-24 who have never had sexual intercourse.

Coverage:
>Population base: Never married women and men age 15-24 (IR file, MR file)
>Time period: Current status at time of survey

Numerator: Number of never-married women (or men) age 15-24 who have never had sexual intercourse (women: v012 in 15:24 & v501 = 0 & v525 ≠ 0,99; men: mv012 in 15:24 & mv501 = 0 & mv525 ≠ 0,99)

Denominators: Number of never married women (or men) age 15-24 (women: v012 in 15:24 & v501 = 0; men: mv012 in 15:24 & mv501 = 0)

Variables: IR file, MR file.

v012	Current age (women)
v501	Current marital status (women)
v525	Age at first sex (women)
v005	Woman's individual sample weight
mv012	Current age (men)
mv501	Current marital status (men)
mv525	Age at first sex (men)
mv005	Man's individual sample weight

Calculation

The numerator divided by the denominator, expressed as a percentage.

Handling of Missing Values

Missing values on age at first sex are considered as not having had sexual intercourse and are included in both the numerator and denominator.

Resources

DHS-8 Tabulation plan: Table 13.13

API Indicator IDs:
HA_PSXY_W_NSX, HA_PSXY_M_NSX
([API link](#), [STATcompiler link](#))

MICS6 Indicator TM.25: Young people who have never had sex

Among young women and men who have had sexual intercourse in the past 12 months, percentage who have been tested for HIV in the past 12 months and received the results

Definition

Among young women and men age 15-24 who have had sexual intercourse in the past 12 months, percentage who have been tested for HIV in the past 12 months and received the results.

Coverage:
>	Population base: Sexually active young women and men age 15-24 (IR file, MR file)
>	Time period: 12 months preceding the survey interview

Numerator: Number of sexually active young women and men age 15-24 who were tested for HIV in the past 12 months and received the result of their most recent HIV test
>	women: v012 in 15:24 & v527 in 100:251,300:311 & v828 = 1 & v826a in 0:11,
>	men: mv012 in 15:24 & mv527 in 100:251,300:311 & mv828 = 1 & mv826a in 0:11

Denominator: Number of women and men age 15-24 who had sexual intercourse in the past 12 months
>	women: v012 in 15:24 & v527 in 100:251,300:311,
>	men: mv012 in 15:24 & mv527 in 100:251,300:311

Variables: IR file, MR file.

v012	Current age (women)
v527	Time since last sex (women)
v828	Received result from last HIV test (women)
v826a	Months ago most recent HIV test (women)
v005	Woman's individual sample weight
mv012	Current age (men)
mv527	Time since last sex (men)
mv828	Received result from last HIV test (men)
mv826a	Months ago most recent HIV test (men)
mv005	Man's individual sample weight

Calculation

Numerator divided by the denominator, expressed as a percentage.

Handling of Missing Values

Missing values on time since last sex are excluded from the numerator and denominator. Missing values on ever tested for HIV, received test result, or time since last test are included in the denominator and excluded from the numerator.

Resources

DHS-8 Tabulation plan: Table 13.15

API Indicator IDs:
`HA_HVTY_W_TRR, HA_HVTY_M_TRR`
([API link](), [STATcompiler link]())

MICS6 Indicator TM.34: Sexually active young people who have been tested for HIV and know the results

Self-Testing for HIV

Percentage of women and men who have ever heard of HIV self-test kits and percentage who have ever used a self-test kit

Definition

1) Percentage of women and men age 15-49 who have ever heard of HIV self-test kits.
2) Percentage of women and men age 15-49 who have ever used a self-test kit.

Coverage:
   Population base: Women and men age 15-49 (IR file, MR file)
   Time period: Current status at time of survey

Numerators:
1) Number of women (or men) age 15-49 who have ever heard of HIV self-test kits
   (women: v856 in 1:3; men: mv856 in 1:3)
2) Number of women (or men) age 15-49 who have ever used an HIV self-test kit
   (women: v856 = 1; men: mv856 = 1)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.
v856   Knowledge and use of HIV test kits (women)
v005   Woman's individual sample weight
mv856   Knowledge and use of HIV test kits (men)
mv005   Man's individual sample weight

Calculation

Numerator divided by the denominator, expressed as a percentage.

Handling of Missing Values

Missing values on the question about knowledge of HIV self-test kits is assumed to represent a lack of knowledge and is excluded from the numerators but included in the denominator. If a "don't know" response is given to whether a test kit had been used (women: v856 = 3; men: mv856 = 3) it is assumed that a test kit has not been used.

Notes and Considerations

HIV self-testing is a process in which a person collects her or his own specimen (oral fluid or blood) and then performs a test and interprets the result, often in a private setting, either alone or in the presence of a trusted individual (WHO, 2016).

Changes over Time

The questions on the use of HIV self-test kits were introduced in DHS-7.

References

World Health Organization (WHO). 2016. *Guidelines on self-testing and partner notification: Supplement to consolidated guidelines on HIV testing services*. Geneva: WHO.
https://apps.who.int/iris/bitstream/handle/10665/251655/9789241549868-eng.pdf

Resources

DHS-8 Tabulation plan: Table 13.7

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Disclosure, Shame, and Stigma Experienced by People Living with HIV

Among women and men who self-reported as HIV positive, the percentage who have ever disclosed their positive HIV status to anyone, who feel ashamed because of their positive HIV status, and who reported experiencing stigma in community and healthcare settings in the last 12 months due to their HIV status

Definition

1) Percentage of women and men age 15-49 who self-reported as HIV positive and have disclosed their HIV status to anyone
2) Percentage of women and men age 15-49 who self-reported as HIV positive and feel ashamed of their HIV status
3) Percentage of women and men age 15-49 who self-reported as HIV positive and who say that people talk badly about them because of their HIV status in the past 12 months
4) Percentage of women and men age 15-49 who self-reported as HIV positive and who say that someone else disclosed their status without their permission in the past 12 months
5) Percentage of women and men age 15-49 who self-reported as HIV positive and have been verbally insulted/harassed/threatened because of their HIV status in the past 12 months
6) Percentage of women and men age 15-49 who self-reported as HIV positive and have experienced stigma in a community setting in the past 12 months
7) Percentage of women and men age 15-49 who self-reported as HIV positive and say that healthcare workers talked badly because of their HIV status in the past 12 months
8) Percentage of women and men age 15-49 who self-reported as HIV positive and say that healthcare workers verbally abused them because of their HIV status in the past 12 months

Coverage:
   Population base: Women and men age 15-49 self-reported as HIV positive (IR file, MR file)
   Time period: Current status at time of survey and 12 months prior to the survey

Numerators:
1) Percentage of women and men age 15-49 who self-reported as HIV positive and have disclosed their HIV status to others (women: v861 = 1 & v865 = 1; men: mv861 = 1 & mv865 = 1)
2) Percentage of women and men age 15-49 who self-reported as HIV positive and feels ashamed of their HIV status (women: v861 = 1 & v866 = 1; men: mv861 = 1 & mv866 = 1)
3) Percentage of women and men age 15-49 who self-reported as HIV positive and who say that people talk badly about them because of their HIV status (women: v861 = 1 & v867a = 1; men: mv861 = 1 & mv867a = 1)
4) Percentage of women and men age 15-49 who self-reported as HIV positive and who say that someone else disclosed their status without their permission (women: v861 = 1 & v867b = 1; men: mv861 = 1 & mv867b = 1)
5) Percentage of women and men age 15-49 who self-reported as HIV positive and have been verbally insulted/harassed/threatened because of their HIV status (women: v861 = 1 & v867c = 1; men: mv861 = 1 & mv867c = 1)

6) Percentage of women and men age 15-49 who self-reported as HIV positive and have experienced stigma in a community setting (women: v861 = 1 & (v867a = 1 or v867b = 1 or v867c = 1); men: mv861 = 1 & (mv867a = 1 or mv867b = 1 or mv867c = 1))

7) Percentage of women and men age 15-49 who self-reported as HIV positive and say that healthcare workers talked badly because of their HIV status (women: v861 = 1 & v867d = 1; men: mv861 = 1 & mv867d = 1)

8) Percentage of women and men age 15-49 who self-reported as HIV positive and say that healthcare workers verbally abused because of their HIV status (women: v861 = 1 & v867e = 1; men: mv861 = 1 & mv867e = 1)

Denominator: Number of women (or men) age 15-49 who reported the result of their most recent HIV test was HIV positive (women: v861 = 1; men: mv861 = 1)

Variables: IR file, MR file.

v861	Result of HIV test (women)
v865	Disclosed HIV status to others (women)
v866	Respondent feels ashamed of HIV status (women)
v867a	Things happened because HIV positive status: people talk badly (women)
v867b	Things happened because HIV positive status: someone else disclosed status (women)
v867c	Things happened because HIV positive status: verbally insulted/harassed/threatened (women)
v867d	Things happened because HIV positive status: healthcare workers talked badly (women)
v867e	Things happened because HIV positive status: healthcare workers verbally abused (women)
v005	Woman's individual sample weight
mv861	Result of HIV test (men)
mv865	Disclosed HIV status to others (men)
mv866	Respondent feels ashamed of HIV status (men)
mv867a	Things happened because HIV positive status: people talk badly (men)
mv867b	Things happened because HIV positive status: someone else disclosed status (men)
mv867c	Things happened because HIV positive status: verbally insulted/harassed/threatened (men)
mv867d	Things happened because HIV positive status: healthcare workers talked badly (men)
mv867e	Things happened because HIV positive status: healthcare workers verbally abused (men)
mv005	Man's individual sample weight

Calculation

Numerator divided by denominator, expressed as a percentage.

Handling of Missing Values

Missing values are excluded from the numerator but included in the denominator.

Notes and Considerations

The denominators for these indicators are all based on self-reports of HIV status. Evidence suggests that some respondents who know that they have HIV choose not to disclose this information during the interview. Instead, they may report that the result of their most recent HIV test was negative or unknown, or that they have not been tested for HIV. Therefore, these indicators should be interpreted with caution as they may not be representative of all individuals who know they have HIV.

Changes over Time

These are new indicators for DHS-8.

References

Stangl AL, Lilleston P, Mathema H, Pliakas T, Krishnaratne S, Sievwright K et al. Development of parallel measures to assess HIV stigma and discrimination among people living with HIV, community members and health workers in the HPTN 071 (PopART) trial in Zambia and South Africa. J Int AIDS Soc. 2019;22(12):e25421 (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6912047/).

Kim, A. A., I. Mukui, P. W. Young, J. Mirjahangir, S. Mwanyumba, J. Wamicwe, N. Bowen, L. Wiesner, L, Ng'ang'a, and K. M. De Cock for the KAIS Study Group. 2016. Undisclosed HIV Infection and ART Use in the Kenya AIDS Indicator Survey 2012: Relevance to Targets for HIV Diagnosis and Treatment in Kenya. AIDS 30:2685-2695.

Fishel, J. D., B. Barrère, and S. Kishor. 2014. Validity of Data on Self-reported HIV Status in Malawi and Uganda and Implications for Measurement of ARV Coverage. DHS Methodological Reports No. 10. Rockville, Maryland, USA: ICF International.

Resources

DHS-8 Tabulation plan: Table 13.8.1 and 13.8.2

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

UNAIDS Global AIDS Monitoring (GAM) Indicator 6.2: "Internalized stigma reported by people living with HIV"
UNAIDS Global AIDS Monitoring (GAM) Indicator 6.3: "Stigma and discrimination experienced by people living with HIV in community settings"

14) HIV Prevalence

This chapter is for surveys where HIV testing has been performed and is primarily based on respondents who received the test. The first indicators are used to report the response rate of testing by background characteristics. The remaining indicators report the HIV prevalence rates by social, economic, demographic, and behavioral characteristics of the tested respondents, for all respondents and for young people age 15-24 years. Separate indicators also assess the prevalence rate according to circumcision of men, and to ascertain concordance in HIV status among couples.

Coverage of HIV Testing

Percent distribution of women and men eligible for HIV testing

Definition

Percent distribution of women and men age 15-49 eligible for HIV testing who were tested, refused to provide blood, were absent at the time of blood collection, or had other/missing results, by completeness of individual interview.

Coverage:
> Population base: Women and men age 15-49 eligible for HIV testing (PR file, AR file)
> Time period: Current status at time of survey

Numerators:
Number of de facto women (or men) age 15-49 eligible for HIV testing who:
1) Were DBS tested (women: ha63 = 1 & hiv03 ≠ 8, na, men: hb63 = 1 & hiv03 ≠ 8, na)
2) Refused to provide blood (women: ha63 = 3, men: hb63 = 3)
3) Were absent at the time of blood collection (women: ha63 = 2, men: hb63=2)
4) Had other/missing results (women: ha63 in 4, 5, 6, 9 or hiv03 in 8, na, men: hb63 in 4, 5, 6, 9 or hiv03 in 8, na)
By completeness of individual interview (women: ha65 = 1, men: hb65 = 1)

Numerator 1 includes women (or men) whose blood specimen completed the HIV testing algorithm at the lab for the survey with a final HIV test result of positive, negative, or inconclusive.

Denominator:
Number of de facto women (or men) age 15-49 eligible for HIV testing (household selected for HIV testing and hv103 = 1). In some surveys, HIV testing is conducted in a sub-sample of households, usually those selected for the men's survey (hv027 = 1)

Variables: PR file, AR file.
hv001	Cluster number
hv002	Household number
hv027	Household selected for male interview
hvidx	Line number
hv103	Slept last night
ha63	Result of measurement – HIV (women)
ha65	Result of woman's individual interview
hb63	Result of measurement – HIV (men)
hb65	Result of man's individual interview
hivclust	Cluster
hivnumb	Household
hivline	Line
hiv03	Blood test result

Calculation

The HIV test results data (AR file) should first be merged to the household members dataset (PR file) by cluster number (hv001/hivclust), household number (hv002/hivnumb) and line number (hvidx/hivline).

Numerator 1) includes all blood specimens tested at the lab and for which there is a final result, i.e., positive, negative, or inconclusive. If the woman or man provided a blood specimen for HIV testing (ha63 = 1 or hb63 = 1) but either there was no laboratory test result (hiv03 = na) or there was insufficient sample to complete the testing protocol (hiv03 = 8) then the result of testing is updated from numerator 1 (blood specimen tested) to numerator 4 (other/missing result).

Numerator 4) includes: 1) other results of blood collection (e.g., technical problem in the field), 2) lost specimens, 3) non-corresponding bar codes, and 4) laboratory results such as blood not tested for technical reason or not enough blood to complete the algorithm.

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Individuals who consented to the HIV test and provided a blood specimen for testing, but who do not have a corresponding final HIV test result are considered "not tested". They are excluded from the denominator and numerator of the HIV prevalence estimate. Thus missing data on blood specimen tested (ha63/hb63) are included in numerator 4 (other/missing result).

Notes and Considerations

HIV prevalence estimates for surveys conducted by The DHS Program are derived from centralized laboratory testing on blood samples collected from respondents during the survey fieldwork. Response rates are calculated among all persons listed in the household roster as de facto household members in the age range defined as eligible for the survey interview and HIV testing. HIV testing is often conducted in a subsample of selected households. The population eligible for survey interview and HIV testing in this response rate is restricted to the population in households selected for the subsample with HIV testing. This is often the same group of households in the subsample for male interview. As a general rule, only those who agree to be interviewed, and successfully complete the interview, are offered HIV testing.

Technical reasons for the absence of an HIV test result include a poor quality or insufficient blood specimen that could not be tested or inability to link the individual tested with their HIV test result due to loss of the specimen or incorrect labeling of the specimen.

The coverage of HIV testing indicators are produced unweighted as they reflect the coverage of the survey, not a population estimate.

An overall HIV test response rate can also be calculated by multiplying the individual HIV response rate by the response rate for the household interview.

The indicators are presented separately by sex and for both sexes combined. For both sexes combined the data are restricted to women and men age 15-49.

References

UNAIDS/WHO Working Group on Global HIV/AIDS and STI Surveillance. 2005. Guidelines for measuring national HIV prevalence in population-based surveys. http://apps.who.int/iris/handle/10665/43349

World Health Organization (WHO). 2015. Consolidated Guidelines on HIV Testing Services. Geneva: WHO. https://www.who.int/publications/i/item/978-92-4-155058-1

Resources

DHS-8 Tabulation plan: Tables 14.1 and 14.2

API Indicator IDs:
Women:
`HA_CHVT_W_DBI, HA_CHVT_W_DBN, HA_CHVT_W_RFI, HA_CHVT_W_RFN, HA_CHVT_W_ABI, HA_CHVT_W_ABN, HA_CHVT_W_OTI, HA_CHVT_W_OTN`
(API link, STATcompiler link)

Men:
`HA_CHVT_M_DBI, HA_CHVT_M_DBN, HA_CHVT_M_RFI, HA_CHVT_M_RFN, HA_CHVT_M_ABI, HA_CHVT_M_ABN, HA_CHVT_M_OTI, HA_CHVT_M_OTN`
(API link, STATcompiler link)

Both sexes:
`HA_CHVT_B_DBI, HA_CHVT_B_DBN, HA_CHVT_B_RFI, HA_CHVT_B_RFN, HA_CHVT_B_ABI, HA_CHVT_B_ABN, HA_CHVT_B_OTI, HA_CHVT_B_OTN`
(API link, STATcompiler link)

HIV Prevalence

Among women and men interviewed and tested, percentage HIV positive

Definition

For surveys without testing to distinguish between HIV-1 and HIV-2:
1) Among the de facto women (or men) age 15-49 who were interviewed and tested, percentage HIV positive.

For surveys with testing to distinguish between HIV-1 and HIV-2:
2) Among the de facto women (or men) age 15-49 who were interviewed and tested, percentage HIV-1 positive.
3) Among the de facto women (or men) age 15-49 who were interviewed and tested, percentage HIV-2 positive.
4) Among the de facto women (or men) age 15-49 who were interviewed and tested, percentage HIV-1 or HIV-2 positive.

Indicators are also calculated for young people age 15-24.

Coverage:
Population base: Women (or men) age 15-49 interviewed and tested (IR file, MR file, AR file)
Time period: Current status at time of survey

Numerators:
For surveys without testing to distinguish between HIV-1 and HIV-2:
1) Number of de facto women (or men) age 15-49 who are HIV positive (hiv03 = 1)

For surveys with testing to distinguish between HIV-1 and HIV-2:
2) Number of de facto women (or men) age 15-49 who are HIV-1 positive (hiv03 in 1, 3)
3) Number of de facto women (or men) age 15-49 who are HIV-2 positive (hiv03 = 2)
4) Number of de facto women (or men) age 15-49 who are HIV-1 or HIV-2 positive (hiv03 in 1, 2, 3)

Denominator: Number of de facto women (or men) age 15-49 interviewed and tested (hiv03 in 0:7,9). This is the number of women and men who completed an individual interview, whose blood specimen completed the HIV testing algorithm for the survey with a final HIV test result, i.e., positive, negative, or inconclusive

Variables: IR file, MR file, AR file.
v001	Cluster number (women)
v002	Household number (women)
v003	Line number (women)
mv001	Cluster number (men)
mv002	Household number (men)
mv003	Line number (men)
hivclust	Cluster
hivnumb	Household

hivline   Line
hiv03   Blood test result
hiv05   HIV Sample weight

Calculation

The HIV test results data (AR file) should first be merged to the women's dataset (IR file) or the men's dataset (MR file) by cluster number (v001/mv001/hivclust), household number (v002/mv002/hivnumb) and line number (v003/mv003/hivline). This file also contains a sample weight variable with a separate non-response adjustment for participation in the survey HIV test (HIV05).

Cases are weighted by the HIV sample weight (hiv05), not the women's or men's sample weights.

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Individuals who consented to the HIV test and provided a blood specimen for testing, but who do not have a corresponding final HIV test result are considered "not tested". They are excluded from the denominator and numerator of the HIV prevalence estimate.

Notes and Considerations

The HIV prevalence reflects current HIV infection on the day the blood sample was taken. In surveys which include both centralized laboratory testing for HIV and rapid testing for HIV in the household, the survey prevalence is based on the results of the laboratory testing only.

In DHS-7 and DHS-8, for surveys with testing to distinguish between HIV-1 and HIV-2, those found positive for either HIV-1 or HIV-2 (hiv03 in 1,2,3) are considered as HIV positive in these indicators.

Prior to DHS-7, for surveys with testing to distinguish between HIV-1 and HIV-2, only those tested and found positive for HIV-1 (including those found positive for HIV-1 only, as well as those found positive for both HIV-1 and HIV-2) (hiv03 in 1,3) are considered as HIV positive in these indicators.

The indicators are presented separately by sex and for both sexes combined. For both sexes combined the data are restricted to women and men age 15-49 (or 15-24 for indicators for young people).

Changes over Time

In the first three DHS surveys including HIV testing (Mali 2001, Dominican Republic 2001, and Zambia 2001-02), HIV test results cannot be linked to specific survey respondents. In all subsequent surveys, the HIV status can be linked to an individual survey respondent.

In surveys from 2003-2014, The DHS Program used the HIV testing algorithm consistent with that published in the 2005 UNAIDS/WHO Guidelines for measuring national HIV prevalence in population-based surveys. In surveys starting in 2015, The DHS Program used a new HIV testing algorithm based on the 2015 WHO HIV testing guidelines (WHO, 2015). Two significant changes include (1) specimens with

discrepant results on the first two HIV tests are no-longer rendered positive by a third "tie-breaker" assay, and (2) all specimens with positive results on the first two HIV assays now receive a third "confirmatory" assay and are rendered positive only if the third assay is also positive.

The change in algorithm can impact the integrity of trends in HIV prevalence over time. Specifically, the change in the HIV testing algorithm can augment decreases in HIV prevalence, or moderate increases. The degree to which the trend is impacted is difficult to assess quantitatively and depends on the quality of the HIV testing in the particular surveys in question.

References

UNAIDS/WHO Working Group on Global HIV/AIDS and STI Surveillance. 2005. Guidelines for measuring national HIV prevalence in population-based surveys. http://apps.who.int/iris/handle/10665/43349

World Health Organization (WHO). 2015. Consolidated Guidelines on HIV Testing Services. Geneva: WHO. https://www.who.int/publications/i/item/978-92-4-155058-1

Resources

DHS-8 Tabulation plan: Tables 14.3, 14.4, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.11

API Indicator IDs:
Women:
```
HA_HIVP_W_HIV, HA_HIVP_W_HVE, HA_HIVP_W_HVR, HA_HIVP_W_HVL, HA_HIVP_W_HVU,
HA_HIVY_W_HIV, HA_HIVY_W_HVE, HA_HIVY_W_HVR, HA_HIVY_W_HVL, HA_HIVY_W_HVU
```
(API link, STATcompiler link)

Men:
```
HA_HIVP_M_HIV, HA_HIVP_M_HVE, HA_HIVP_M_HVR, HA_HIVP_M_HVL, HA_HIVP_M_HVU,
HA_HIVY_M_HIV, HA_HIVY_M_HVE, HA_HIVY_M_HVR, HA_HIVY_M_HVL, HA_HIVY_M_HVU
```
(API link, STATcompiler link)

Both sexes:
```
HA_HIVP_B_HIV, HA_HIVP_B_HVE, HA_HIVP_B_HVR, HA_HIVP_B_HVL, HA_HIVP_B_HVU,
HA_HIVY_B_HIV, HA_HIVY_B_HVE, HA_HIVY_B_HVR, HA_HIVY_B_HVL, HA_HIVY_B_HVU
```
(API link, STATcompiler link)

WHO 100 Core Health Indicators: HIV prevalence rate

Prior HIV Testing

Percent distribution of women and men who tested HIV positive and who tested HIV negative according to HIV testing status prior to the survey

Definition

1) Percent distribution of women and men age 15-49 who tested HIV positive according to HIV testing status prior to the survey.
2) Percent distribution of women and men age 15-49 who tested HIV negative according to HIV testing status prior to the survey.

Coverage:
> Population base: Women (or men) age 15-49 tested for HIV in the survey blood test, according to HIV testing status prior to the survey (IR file, MR file, AR file)
> Time period: Current status at time of survey

Numerators:
1) Number of women (or men) age 15-49 who tested HIV positive (hiv03 in 1:3) in the survey blood test, according to HIV testing status prior to the survey
2) Number of women (or men) age 15-49 who tested HIV negative (hiv03 in 0, 7, 9) in the survey blood test, according to HIV testing status prior to the survey

HIV testing status prior to the survey is defined as:
- Ever tested for HIV and received the result of the most recent test (women: v781 = 1 & v828 = 1; men: mv781 = 1 & mv828 = 1):
  - Tested HIV positive during the most recent test prior to the survey (women: v861 = 1; men: mv861 = 1)
  - Tested HIV positive during the most recent test prior to the survey and is currently taking ART (women: v861 = 1 & v863 = 1; men: mv861 = 1 & mv863 = 1)
  - Tested HIV positive during the most recent test prior to the survey and is not currently taking ART (women: v861 = 1 & v863 in 0,8,9; men: mv861 = 1 & mv863 in 0,8,9)
  - Tested HIV negative during the most recent test prior to the survey (women: v861 in 2,5,9; men: mv861 in 2,5,9)
  - HIV test result prior to the survey was indeterminate (women: v861 = 3; men: mv861 = 3)
  - Declined to report HIV test result done prior to the survey (women: v861 = 4; men: mv861 = 4)
- Ever tested for HIV and did not receive the result of the most recent test (women: v781 = 1 & v828 ≠ 1; men: mv781 = 1 & mv828 ≠ 1)
- Not previously tested (women: v781 ≠ 1, men: mv781 ≠ 1)

Denominators:
a) Number of women (or men) age 15-49 who tested HIV positive (hiv03 in 1:3) in the survey blood test
b) Number of women (or men) age 15-49 who tested HIV negative (hiv03 in 0, 7, 9) in the survey blood test

IR file, MR file, AR file.

v001	Cluster number (women)
v002	Household number (women)
v003	Line number (women)
v781	Ever been tested for HIV (women)
v826a	Months ago most recent HIV test (women)
v828	Received result from last HIV test (women)
v861	Result of most recent HIV test (women)
v863	Currently taking ARVs (women)
mv001	Cluster number (men)
mv002	Household number (men)
mv003	Line number (men)
mv781	Ever been tested for HIV (men)
mv826a	Months ago most recent HIV test (men)
mv828	Received result from last HIV test (men)
mv861	Result of most recent HIV test (men)
mv863	Currently taking ARVs (men)
hivclust	Cluster
hivnumb	Household
hivline	Line
hiv03	Blood test result
hiv05	HIV Sample weight

Calculation

The HIV test results data (AR file) should first be merged to the women's dataset (IR file) or the men's dataset (MR file) by cluster number (v001/mv001/hivclust), household number (v002/mv002/hivnumb) and line number (v003/mv003/hivline). Cases are weighted by the HIV sample weight (hiv05), not the women's or men's sample weights.

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing data or "don't know" responses on whether tested for HIV are treated as never tested. Missing data or "don't know" responses on whether received results are treated as having not received results. Missing data and "don't know" responses for the time since the last test are treated as being 12 or more months before the survey. Missing data and "don't know" responses for result the last test result are treated as HIV negative. Missing data and "don't know" responses for taking ARTs are treated as no.

Notes and Considerations

In DHS-7 and DHS-8, for surveys with testing to distinguish between HIV-1 and HIV-2, those found positive for either HIV-1 or HIV-2 (hiv03 in 1,2,3) are considered as HIV positive in these indicators.

Prior to DHS-7, for surveys with testing to distinguish between HIV-1 and HIV-2, only those tested and found positive for HIV-1 (including those found positive for HIV-1 only, as well as those found positive for both HIV-1 and HIV-2) (hiv03 in 1,3) are considered as HIV positive in these indicators.

Resources

DHS-8 Tabulation plan: Table 14.10

API Indicator IDs:
Women:
`HA_PHVT_W_PTD, HA_PHVT_W_PTR, HA_PHVT_W_PTN, HA_PHVT_W_NPT, HA_PHVT_W_DKM`
(API link, STATcompiler link)

Men:
`HA_PHVT_M_PTD, HA_PHVT_M_PTR, HA_PHVT_M_PTN, HA_PHVT_M_NPT, HA_PHVT_M_DKM`
(API link, STATcompiler link)

Both sexes:
`HA_PHVT_B_PTD, HA_PHVT_B_PTR, HA_PHVT_B_PTN, HA_PHVT_B_NPT, HA_PHVT_B_DKM`
(API link, STATcompiler link)

HIV Prevalence by Male Circumcision

Among men who were tested for HIV, percentage HIV positive by circumcision status

Definition

Among men age 15-49 who were tested for HIV the percentage of:
1) Men traditionally or medically circumcised who were HIV positive.
2) Men traditionally circumcised who were HIV positive.
3) Men medically circumcised who were HIV positive.
4) Men traditionally and medically circumcised who were HIV positive.
5) All uncircumcised or don't know circumcision status men who were HIV positive.

Coverage:

Population base: Men age 15-49 who were tested for HIV (MR file, AR file)
Time period: Current status at time of survey

Numerators:

1) Number of men age 15-49 who were traditionally or medically circumcised and are HIV positive according to the survey blood test (mv483 = 1 & hiv03 in 1:3)
2) Number of men age 15-49 who were traditionally circumcised and are HIV positive according to the survey blood test (mv483d = 1 & mv483e = 0 & hiv03 in 1:3)
3) Number of men age 15-49 who are medically circumcised and are HIV positive according to the survey blood test (mv483d = 0 & mv483e = 1 & hiv03 in 1:3)
4) Number of men age 15-49 who are traditionally and medically circumcised and are HIV positive according to the survey blood test (mv483d = 1 & mv483e = 1 & hiv03 in 1:3)
5) Number of men age 15-49 who are uncircumcised or don't know their circumcision status and are HIV positive according to the survey blood test (mv483 in 0,8 & hiv03 in 1:3)

Denominators:

a) Number of men age 15-49 who were tested for HIV in the survey and were traditionally or medically circumcised (mv483 = 1 & hiv03 in 0:7,9)
b) Number of men age 15-49 who were tested for HIV in the survey and were traditionally circumcised (mv483d = 1 & mv483e = 0 & hiv03 in 0:7,9)
c) Number of men age 15-49 who were tested for HIV in the survey and are medically circumcised (mv483d = 0 & mv483e = 1 & hiv03 = in 0:7,9)
d) Number of men age 15-49 who were tested for HIV in the survey and are traditionally and medically circumcised (mv483d = 1 & mv483e = 1 & hiv03 = in 0:7,9)
e) Number of men age 15-49 who were tested for HIV in the survey and are uncircumcised or don't know their circumcision status (mv483 in 0,8 & hiv03 = in 0:7,9)

Variables: MR file, AR file.

mv001	Cluster number
mv002	Household number
mv003	Line number
mv483	Respondent circumcised

mv483d	Respondent traditionally circumcised
mv483e	Respondent medically circumcised
hivclust	Cluster
hivnumb	Household
hivline	Line
hiv03	Blood test result
hiv05	HIV Sample weight

Calculation

The HIV test results data (AR file) should first be merged to the men's dataset (MR file) by cluster number (mv001/hivclust), household number (mv002/hivnumb) and line number (mv003/hivline). Cases are weighted by the HIV sample weight (hiv05), not the men's sample weights.

Numerator divided by the denominator multiplied by 100.

Handling of Missing Values

Missing data and "don't know" responses on whether the man is circumcised are treated as not circumcised. Missing data and "don't know" responses on who performed the circumcision are excluded from numerators 1 and 2 but included in numerator 3 in addition to those reporting other practitioners.

Notes and Considerations

Prior to DHS-VI, questions on circumcision in the DHS standard questionnaire did not include the text defining circumcision as complete removal of the foreskin and did not include a question on provider of circumcision.

In DHS-VI and DHS-7, type of circumcision was assessed through a single question on who performed the circumcision that allowed for only one response. Thus, respondents were able to report only one type of circumcision.

In the DHS-8 standard questionnaire, questions were added asking about traditional circumcision and medical circumcision separately. For the first time, this allows respondents to report both traditional circumcision and medical circumcision. In some settings, traditional circumcision practices do not remove the complete foreskin. In these settings, men who have undergone traditional circumcision may still be candidates for medical circumcision. The question on who performed the circumcision was removed.

In DHS-7 and DHS-8, for surveys with testing to distinguish between HIV-1 and HIV-2, those found positive for either HIV-1 or HIV-2 (hiv03 in 1,2,3) are considered as HIV positive in these indicators.

Prior to DHS-7, for surveys with testing to distinguish between HIV-1 and HIV-2, only those tested and found positive for HIV-1 (including those found positive for HIV-1 only, as well as those found positive for both HIV-1 and HIV-2) (hiv03 in 1,3) are considered as HIV positive in these indicators.

Resources

DHS-8 Tabulation plan: Table 14.11

API Indicator IDs:
`HA_HPMC_M_HVC, HA_HPMC_M_HVU`
([API link](), [STATcompiler link]())

HIV Prevalence among Couples

Percent distribution of couples living in the same household by HIV status

Definition

Percent distribution of couples living in the same household, both of whom were tested for HIV in the survey, by HIV status of each partner.

Coverage:
  Population base: Couples living in the same household, both of whom were tested for HIV (CR file, AR file).
  Time period: Current status at time of survey.

Numerators:
Number of couples living in the same household where:
1) Both were HIV positive (w_hiv03 in 1:3 & m_hiv03 in 1:3)
2) The man was HIV positive and the woman was HIV negative (w_hiv03 ≠ 1:3 & m_hiv03 in 1:3)
3) The woman was HIV positive and the man was HIV negative (w_hiv03 in 1:3 & m_hiv03 ≠ 1:3)
4) Both were HIV negative (w_hiv03 ≠ 1:3 & m_hiv03 ≠ 1:3)

See *Calculation* below for creation of w_hiv03 and m_hiv03.

Denominator: Number of couples living in the same household, both of whom were tested for HIV (w_hiv03 in 0:3 & m_hiv03 in 0:3)

Variables: CR file, AR file.
v001	Cluster number (women)
v002	Household number (women)
v003	Line number (women)
mv001	Cluster number (men)
mv002	Household number (men)
mv003	Line number (men)
hivclust	Cluster
hivnumb	Household
hivline	Line
hiv03	Blood test result
hiv05	HIV Sample weight

Calculation

The HIV test results data (AR file) should first be merged to the data for the female member of the couple in the CR file by cluster number (v001/hivclust), household number (v002/hivnumb) and line number (v003/hivline), merging in just the HIV test results variable (hiv03). The merged variables hiv03 should be renamed as w_hiv03. Then merge the AR file to the data for the male member of the couple in the CR file by cluster number (mv001/hivclust), household number (mv002/hivnumb) and line number (mv003/hivline), merging in the HIV test results variable (hiv03) and the HIV sample weight (hiv05). The

merged variables hiv03 should be renamed as m_hiv03. See *Matching and Merging Datasets* in *Chapter 1*.

Cases are weighted by the HIV sample weight from the man's HIV test results data (hiv05), not the women's or men's sample weights.

Numerator divided by the denominator, multiplied by 100.

Notes and Considerations

The couples recode (CR file) contains a dataset of merged variables combining data from the women's dataset (IR file) and the men's dataset (MR file). The data are merged on the following variables: Cluster number (v001/mv001), household number (v002/mv002) and husband's/man's line number (v034/mv003). Note that the husband's line number (v034) from the women's data is matched to the man's line number (mv003) in the men's data.

Changes over Time

In DHS-7 and DHS-8, for surveys with testing to distinguish between HIV-1 and HIV-2, those found positive for either HIV-1 or HIV-2 (hiv03 in 1,2,3) are considered as HIV positive in these indicators.

Prior to DHS-7, for surveys with testing to distinguish between HIV-1 and HIV-2, only those tested and found positive for HIV-1 (including those found positive for HIV-1 only, as well as those found positive for both HIV-1 and HIV-2) (hiv03 in 1,3) are considered as HIV positive in these indicators.

Resources

DHS-8 Tabulation plan: Table 14.12

API Indicator IDs:
HA_HPAC_B_CPP, HA_HPAC_B_CPN, HA_HPAC_B_CNP, HA_HPAC_B_CNN
(API link, STATcompiler link)

15) Women's Empowerment

This chapter provides indicators of women's empowerment, develops two empowerment indices, and relates those indices to select demographic and health outcomes.

The DHS Woman's Questionnaire collects data on the general background characteristics of female respondents (e.g., age, education, wealth quintile and employment status) and also data more specifically related to women's empowerment such as receipt of cash earnings, the magnitude of a woman's earnings relative to those of her husband, control over the use of her own earnings and those of her husband. The chapter includes indicators of woman's empowerment according to the general background characteristics of female respondents.

The Woman's Questionnaire also collects data on a woman's participation in household decision making and on her attitude toward wife beating. Two separate indices of empowerment are developed based on the number of household decisions in which the respondent participates and her opinion on the number of reasons that justify wife beating. The ranking of women on these two indices can then be related to selected demographic and health outcomes including contraceptive use, ideal family size and unmet need for contraception as well as the receipt of health care services during pregnancy, at delivery and in the postnatal period, and the mortality of children.

Employment and Cash Earnings

Percentage of currently married women and men employed in the past 12 months, and percent distribution of currently married women and men employed in the past 12 months by type of earnings

Definition

1) Percentage of currently married women and men age 15-49 who were employed at any time in the past 12 months.
2) Percent distribution of currently married women and men employed in the past 12 months by type of earnings.

Coverage:

> Population base: Currently married women (or men) age 15-49 (IR file, MR file)
> Time period: 12 months preceding the survey

Numerators:

1) Number of currently married women (or men) age 15-49 who were employed at any time in the past 12 months (women: v502 = 1 & v731 in 1:3; men: mv502 = 1 & mv731 in 1:3)
2) Number of currently married women (or men) age 15-49 who were employed at any time in the past 12 months (women: v502 = 1 & v731 in 1:3; men: mv502 = 1 & mv731 in 1:3) distributed by type of earnings:
   a) cash only (women: v741 = 1; men: mv741 = 1)
   b) cash and in-kind (women: v741 = 2; men: mv741 = 2)
   c) in-kind only (women: v741 = 3; men: mv741 = 3)
   d) not paid (women: v741 = 0; men: mv741 = 0)
   e) missing (women: v741 = 9; men: mv741 = 9)

Denominators:

a) Number of currently married women (or men) age 15-49 (women: v502 = 1; men: mv502 = 1)
b) Number of currently married women (or men) age 15-49 employed in the past 12 months (women: v502 = 1 & v731 in 1:3; men: mv502 = 1 & mv731 in 1:3)

Variables: IR file, MR file.

v502	Currently/formerly/never in union (women)
v731	Worked in last 12 months (women)
v741	Type of earnings from respondent's work (women)
v005	Women's sample weight
mv502	Currently/formerly/never in union (men)
mv731	Worked in last 12 months (men)
mv741	Type of earnings from respondent's work (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator multiplied by 100.

Handling of Missing Values

Missing and "don't know" responses on whether worked in last 12 months are excluded from both numerator and denominator. Missing and "don't know" responses on type of earnings are reported in a separate category in the percent distribution.

Changes over Time

There have been no significant changes over time in the questions that contribute to this indicator or the indicator.

Resources

DHS-8 Tabulation plan: Table 15.1

API Indicator IDs:
Women:
EM_EMPM_W_EMP, EM_ERNM_W_CSH, EM_ERNM_W_CAK, EM_ERNM_W_KND, EM_ERNM_W_NPD,
EM_ERNM_W_DKM

Men:
EM_EMPM_M_EMP, EM_ERNM_M_CSH, EM_ERNM_M_CAK, EM_ERNM_M_KND, EM_ERNM_M_NPD, EM_ERNM_M_DKM
(API link, STATcompiler link)

Control over Women's Cash Earnings

Percent distribution of currently married women receiving cash earnings for employment in the 12 months preceding the survey by person who decides how wife's cash earnings are used, and percent distribution by whether she earned more or less than her husband

Definition

1) Percent distribution of currently married women age 15-49 receiving cash earnings for employment in the 12 months preceding the survey by person who decides how wife's cash earnings are used.
2) Percent distribution of currently married women age 15-49 by whether she earned more, the same, or less than her husband.

Coverage:
Population base: Currently married women age 15-49 (IR file)
Time period: 12 months preceding the survey

Numerators:
1) Number of currently married women age 15-49 receiving cash earnings for employment in the 12 months preceding the survey distributed by person who decides how wife's cash earnings are used:
   a) mainly wife (v739 = 1)
   b) wife and husband (v739 = 2)
   c) mainly husband (v739 = 4)
   d) other (v739 in 3,5)
   e) missing (v739 = 9)
2) Number of currently married women age 15-49 receiving cash earnings for employment in the 12 months distributed by whether she earned more or less than her husband:
   a) more (v746 = 1)
   b) less (v746 = 2)
   c) about the same (v746 = 3)
   d) husband has no earnings (v746 = 4 or v743f = 7)
   e) don't know (v746 = 8)
   f) missing (v746 = 9)

Denominator: Number of currently married women age 15-49 employed in the past 12 months who received cash earnings (v731 in 1:3 & v741 in 1,2)

Variables: IR file.
v502	Currently/formerly/never in union
v731	Worked in last 12 months
v739	Person who usually decides how to spend respondent's earnings
v741	Type of earnings from respondent's work
v743f	Person who usually decides what to do with money husband earns
v746	Respondent earns more than husband/partner
v005	Women's sample weight

Calculation

Numerator divided by the denominator multiplied by 100.

Handling of Missing Values

Missing and "don't know" responses on whether worked in last 12 months or whether paid in cash are excluded from both numerator and denominator. Missing and "don't know" responses on how wife's earnings are spent, or wife's cash earnings compared with husband's cash earnings are reported in separate categories in the percent distribution.

Notes and Considerations Assumptions

Employed women receiving cash earnings includes women who were paid in cash only and women paid in cash and kind.

Changes over Time

There have been no significant changes over time in the questions that contribute to this indicator or the indicator.

References

Jennings, L., M. Na, M. Cherewick, M. Hindin, B. Mullany, and S. Ahmed. 2014. "Women's empowerment and male involvement in antenatal care: analyses of Demographic and Health Surveys (DHS) in selected African countries." *BMC pregnancy and childbirth* 14, no. 1: 297.

Buvinic, M., M. O'Donnell, J. C. Knowles, and S. Bourgault. 2020. Measuring Women's Economic Empowerment: A Compendium of Selected Tools. Washington, DC and London, UK: Data2X and Center for Global Development. https://www.cgdev.org/sites/default/files/measuring-womens-economic-empowerment.pdf.

Laszlo, S., K. Grantham, E. Oskay, and T. Zhang. 2020. "Grappling with the Challenges of Measuring Women's Economic Empowerment in Intrahousehold Settings." *World Development* 132: 104959. https://doi.org/10.1016/j.worlddev.2020.104959.

Resources

DHS-8 Tabulation plan: Tables 15.2.1

API Indicator IDs:
EM_WERN_W_WIF, EM_WERN_W_JNT, EM_WERN_W_HUS, EM_WERN_W_OTH, EM_WERN_W_DKM
EM_RERN_W_MOR, EM_RERN_W_LES, EM_RERN_W_SAM, EM_RERN_W_NON, EM_RERN_W_DKM
(API link, STATcompiler link)

Control over Men's Cash Earnings

Percent distribution of currently married men receiving cash earnings by person who decides how husband's cash earnings are used, and percent distribution of currently married women whose husbands receive cash earnings, by person who decides how husband's cash earnings are used

Definition

1) Percent distribution of currently married men age 15-49 receiving cash earnings by person who decides how husband's cash earnings are used.
2) Percent distribution of currently married women age 15-49 whose husbands receive cash earnings, by person who decides how husband's cash earnings are used.

Coverage:
  Population base: Number of currently married men and women age 15-49 (MR file, IR file)
  Time period: 12 months preceding the survey

Numerators:
1) Number of currently married men age 15-49 receiving cash earnings (mainly wife, wife and husband, mainly husband, other, missing) (mv739)
2) Number of currently married women age 15-49 whose husbands received cash earnings (mainly wife, wife and husband, mainly husband, other, missing) (v743f)

Denominators:
a) Number of currently married men age 15-49 receiving cash earnings for work in the past 12 months (mv502 = 1 & mv731 in 1:2 & mv741 in 1:2)
b) Number of currently married women age 15-49 whose husband received cash earnings in the past 12 months (v502 = 1 & v746 ≠ 4 & v743f ≠ 7)

Variables: MR file, IR file.
mv502	Currently/formerly/never in union (men)
mv731	Respondent worked in last 12 months (men)
mv739	Person who usually decides how to spend respondent's earnings (men)
mv741	Type of earnings from respondent's work (men)
mv005	Man's sample weight
v502	Currently/formerly/never in union (women)
v743f	Person who usually decides what to do with money husband earns (women)
v746	Respondent earns more than husband/partner (women)
v005	Woman's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing and "don't know" responses on whether worked in last 12 months or whether paid in cash are excluded from both numerator and denominator. Missing and "don't know" responses on how husband's earnings are spent are reported in a separate category in the percent distribution.

Notes and Considerations Assumptions

Employed women and men receiving cash earnings includes women and men who were paid in cash only or were paid in cash and kind.

Changes over Time

There have been no significant changes over time in the questions that contribute to this indicator or the indicator.

References

Jennings, L., M. Na, M. Cherewick, M. Hindin, B. Mullany, and S. Ahmed. 2014. "Women's empowerment and male involvement in antenatal care: analyses of Demographic and Health Surveys (DHS) in selected African countries." *BMC pregnancy and childbirth* 14, no. 1: 297.

Resources

DHS-8 Tabulation plan: Tables 15.2.2

API Indicator IDs:
Women:
`EM_MERN_W_WIF, EM_MERN_W_JNT, EM_MERN_W_HUS, EM_MERN_W_OTH, EM_MERN_W_DKM`

Men:
`EM_MERN_M_WIF, EM_MERN_M_JNT, EM_MERN_M_HUS, EM_MERN_M_OTH, EM_MERN_M_DKM`
(API link, STATcompiler link)

Ownership of Assets

Percent distribution of women and men by ownership of housing and land

Definition

1) Percent distribution of women and men age 15-49 by ownership of housing.
2) Percent distribution of women and men age 15-49 by ownership of land.

Coverage:
      Population base: Women and men age 15-49 (IR file, MR file)
      Time period: Current status at time of survey

Numerators:
1) Number of women (or men) age 15-49 by ownership of housing (alone, jointly, alone and jointly, do not own a house, missing) (women: v745a; men: mv745a)
2) Number of women (or men) age 15-49 by ownership of land (alone, jointly, alone and jointly, do not own a house, missing) (women: v745b; men: mv745b)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.
v745a	Owns a house alone or jointly (women)
v745b	Owns land alone or jointly (women)
v005	Women's sample weight
mv745a	Owns a house alone or jointly (men)
mv745b	Owns land alone or jointly (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator multiplied by 100.

Handling of Missing Values

Missing values for ownership of housing or land are included in separate categories in the percent distribution.

Changes over Time

There have been no significant changes over time in the questions that contribute to this indicator or the indicator.

References
Doss, C., C. Kovarik, A. Peterman, A. Quisumbing, and M. van den Bold. 2015 "Gender inequalities in ownership and control of land in Africa: myth and reality." *Agricultural Economics* 46, no. 3: 403-434.

Kieran, C., K. Sproule, C. Doss, A. Quisumbing, and S. Mi Kim. 2015. "Examining gender inequalities in land rights indicators in Asia." *Agricultural Economics* 46, no. S1: 119-138.

Resources

DHS-8 Tabulation plan: Table 15.3.1 and 15.3.2

API Indicator IDs:
Women:
```
WE_OWNA_W_HAL, WE_OWNA_W_HJN, WE_OWNA_W_HAJ, WE_OWNA_W_HNO, WE_OWNA_W_HDK
WE_OWNA_W_LAL, WE_OWNA_W_LJN, WE_OWNA_W_LAJ, WE_OWNA_W_LNO, WE_OWNA_W_LDK
```
(API link, STATcompiler link)

Men:
```
WE_OWNA_M_HAL, WE_OWNA_M_HJN, WE_OWNA_M_HAJ, WE_OWNA_M_HNO, WE_OWNA_M_HDK
WE_OWNA_M_LAL, WE_OWNA_M_LJN, WE_OWNA_M_LAJ, WE_OWNA_M_LNO, WE_OWNA_M_LDK
```
(API link, STATcompiler link)

Ownership of Title or Deed for House or Land

Percent distribution of women (or men) who own a house or own land by whether the house or land owned has a title deed, and whether or not the woman/man's name appears on the title deed

Definition

1) Among women (or men) age 15-49 who own a house, percent distribution by whether the house owned has a title deed and whether or not the woman's (or man's) name appears on the title deed.
2) Among women (or men) age 15-49 who own land, percent distribution by whether the land owned has a title deed and whether or not the woman's (or man's) name appears on the title deed.

Coverage:

Population base: Women (or men) age 15-49 who own a house or own land (IR file, MR file)
Time period: Current status at time of survey

Numerators:

1) Number of women (or men) who own a house by whether the house owned has a title deed:
    a) If so whether or not the woman's (or man's) name appears on the title deed (women: v745c = 1, 2; men: mv745c = 1, 2)
    b) Does not have a title deed (women: v745c = 0; men: mv745c = 0)
    c) Don't know/missing (women: v745c in 3,8,9; men: mv745c in 3,8,9)
2) Number of women (or men) who own land by whether the land owned has a title deed:
    a) If so whether or not the woman's (or man's) name appears on the title deed (women: v745d = 1, 2; men: mv745d = 1, 2)
    b) Does not have a title deed (women: v745d = 0; men: mv745d = 0)
    c) Don't know/missing (women: v745d in 3,8,9; men: mv745d in 3,8,9)

Denominators:

a) Number of women (or men) age 15-49 who own a house (women: v745a in 1:4; men: mv745a in 1:4)
b) Number of women (or men) age 15-49 who own land (women: v745b in 1:4; men: mv745b in 1:4)

Variables: IR file, MR file.

v745a	Owns a house alone or jointly (women)
v745b	Owns land alone or jointly (women)
v745c	Title deed on house own by respondent (women)
v745d	Title deed on land own by respondent (women)
v005	Women's sample weight
mv745a	Owns a house alone or jointly (men)
mv745b	Owns land alone or jointly (men)
mv745c	Title deed on house own by respondent (men)
mv745d	Title deed on land own by respondent (men)
mv005	Men's sample weight

Calculation

Numerator divided by denominator multiplied by 100.

Handling of Missing Values

Missing values for ownership of title of housing or land are included in separate categories in the percent distribution.

Changes over Time

There have been no significant changes over time in the questions that contribute to this indicator or the indicator.

References

Jennings, L., M. Na, M. Cherewick, M. Hindin, B. Mullany, and S. Ahmed. 2014. "Women's empowerment and male involvement in antenatal care: analyses of Demographic and Health Surveys (DHS) in selected African countries." *BMC pregnancy and childbirth* 14, no. 1: 297.

Resources

DHS-8 Tabulation plan: Tables 15.4.1, 15.4.2, 15.5.1 and 15.5.2

API Indicator IDs:
Women:
TBD
(API link TBD, STATcompiler link TBD)
Men:
TBD
(API link TBD, STATcompiler link TBD)

Ownership and Use of Bank Accounts and Mobile Phones

Percentage of women and men who have and use an account in a bank or other financial institution, percentage who deposited or withdrew money from their own bank account in the last 12 months, percentage who own a mobile phone, percentage who own a mobile smartphone, and percentage who used a mobile phone for financial transactions in the last 12 months

Definition

1) Percentage of women (or men) age 15-49 who have and use an account in a bank or other financial institution.
2) Among women (or men) age 15-49 who have and use an account in a bank or other financial institution, the percentage who deposited or withdrew money from their own bank account in the last 12 months.
3) Percentage of women (or men) age 15-49 who own a mobile phone.
4) Percentage of women (or men) age 15-49 who own a mobile smartphone.
5) Percentage of women (or men) age 15-49 women (or men) who used a mobile phone for financial transactions in the last 12 months.
6) Percentage of women (or men) age 15-49 who have and use a bank account or used a mobile phone for financial transactions in the last 12 months.

Coverage:
Population base: Women (or men) age 15-49 (IR file, MR file)
Time period: Current status at time of survey and last 12 months preceding the survey

Numerators:
1) Number of women (or men) age 15-49 who have and use an account in a bank or other financial institution (women: v170 = 1; men: mv170 = 1)
2) Number of women (or men) age 15-49 who have and use an account in a bank or other financial institution and have deposited or withdrew money from their own bank account in the last 12 months (women: v170 = 1 & v177 = 1; men: mv170 = 1 & mv177 = 1)
3) Number of women (or men) age 15-49 who own a mobile phone (women: v169a = 1; men: mv169a = 1)
4) Number of women (or men) age 15-49 who own a mobile phone that is a smartphone (women: v169c = 1; men: mv169c = 1)
5) Number of women (or men) age 15-49 who used a mobile phone for financial transactions in the last 12 months (women: v169b = 1; men: mv169b = 1)
6) Number of women (or men) age 15-49 who have and use a bank account or used a mobile phone for financial transactions in the last 12 months (women: v170 = 1 or v169b = 1; men: mv170 = 1 or mv169b = 1)

Denominator:
Number of women (or men) age 15-49

Variables: IR file, MR file.

v170	Has an account in a bank or other financial institution (women)
v177	Money put/taken from bank account last 12 months (women)
v169a	Owns a mobile telephone (women)
v169b	Use mobile telephone for financial transactions (women)
v169c	Owns a smart phone (women)
v005	Women's sample weight
mv170	Has an account in a bank or other financial institution (men)
mv177	Money put/taken from bank account last 12 months (men)
mv169a	Owns a mobile telephone (men)
mv169b	Use mobile telephone for financial transactions (men)
mv169c	Owns a smart phone (men)
mv005	Men's sample weight

Calculation

Numerator divided by denominator multiplied by 100.

Handling of Missing Values

Missing values on ownership of a bank account or a mobile phone are assumed to indicate a lack of the asset and are excluded from the numerator. Missing values on use of a mobile phone for financial transactions are excluded from the numerator.

Changes over Time

The percentage of women (or men) age 15-49 who own a mobile smartphone and the percentage who deposited or withdrew money from their bank account, was not calculated prior to DHS-8 as these data were not collected. Use of a mobile phone for financial transactions was previously calculated only among those who reported owning a mobile phone. In DHS-8, this indicator is calculated among all women (or men).

Resources

DHS-8 Tabulation plan: Table 15.6.1 and 15.6.2

API Indicator IDs:
Women:
`CO_MOBB_W_BNK, CO_MOBB_W_MOB, CO_MOBB_W_MBF`
([API link](#), [STATcompiler link](#))

Men:
`CO_MOBB_M_BNK, CO_MOBB_M_MOB, CO_MOBB_M_MBF`
([API link](#), [STATcompiler link](#))

MICS6 Indicator SR.10: Ownership of mobile phone

Participation in Decision Making

Percent distribution of currently married women and men by person who usually makes decisions about various issues

Definition

Percent distribution of currently married women (or men) age 15-49 by person who usually makes decisions about:
1) Own health care.
2) Large household purchases.
3) Visits to family or relatives (women only).

Coverage:

>   Population base: Currently married women (or men) and currently married men age 15-49 (IR file, MR file)
>   Time period: Current status at time of survey

Numerators:

Number of currently married women (or men) age 15-49 by person who usually makes decisions about:
1) Own health care (women: v743a; men: mv743a)
2) Large household purchases (women: v743b; men: mv743b)
3) Visits to family or relatives (women: v743d)

Denominator: Number of currently married women (or men) age 15-49 (women: v502 = 1; men: mv502 = 1)

Variables: IR file, MR file.

v502	Currently/formerly/never in union (women)
v743a	Person who usually makes decisions about: respondent's health care (women)
v743b	Person who usually makes decisions about: large household purchases (women)
v743d	Person who usually decides on visits to family or relatives (women)
v005	Women's sample weight
mv502	Currently/formerly/never in union (men)
mv743a	Person who usually makes decisions about: respondent's health care (men)
mv743b	Person who usually makes decisions about: large household purchases (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator multiplied by 100.

Handling of Missing Values

Missing values for the person who usually makes decisions about each of the issues is included in a separate category in the percent distribution.

Notes and Considerations

The question on who makes decisions about visits to family or relatives is only asked to women so does not apply for men.

Changes over Time

When these questions were first introduced into the DHS standard questionnaire, they were asked from both married and unmarried women. From about 2004, the questions were restricted to only currently married women. In addition, till about 2014, women were also asked who usually made decisions about making daily household purchases. This decision item was removed from the questionnaire in the 2014 questionnaire revision.

From about 2004, the standard Man's Questionnaire had a question that asked men "In a couple who do you think should have the greater say in each of the following decisions: the husband, the wife, or both equally" followed by five different types of decisions. This set of questions was asked of both married and unmarried men and was meant to capture men's gender role attitudes and not what actually happens in a household. In the 2014 revision of the questionnaire, this set of questions was dropped and was replaced by the same questions that are asked of women on who usually makes decisions in the household. As for women, the questions were restricted to only currently married men.

Prior to DHS-V, the response option of "Respondent and someone else jointly" was included. This response option is still sometimes included on a country-specific basis.

References

Hanmer, L., and J. Klugman. 2016 "Exploring women's agency and empowerment in developing countries: Where do we stand?." *Feminist Economics* 22, no. 1: 237-263.

Jennings, L., M. Na, M. Cherewick, M. Hindin, B. Mullany, and S. Ahmed. 2014. "Women's empowerment and male involvement in antenatal care: analyses of Demographic and Health Surveys (DHS) in selected African countries." *BMC pregnancy and childbirth* 14, no. 1: 297.

Kishor, S. and L. Subaiya. 2008*. Understanding Women's Empowerment: A Comparative Analysis of Demographic and Health Surveys (DHS) Data.* DHS Comparative Reports No. 20. Calverton, Maryland, USA: Macro International Inc. https://dhsprogram.com/publications/publication-cr20-comparative-reports.cfm

Upadhyay, U. D., J. D. Gipson, M. Withers, S. Lewis, E. J. Ciaraldi, A. Fraser, M. J. Huchko, and N. Prata. 2014. "Women's Empowerment and Fertility: A Review of the Literature." *Social Science & Medicine* 115: 111-120. https://doi.org/10.1016/j.socscimed.2014.06.014.

Ewerling, F., F. C. Wehrmeister, C. G. Victora, A. Raj, L. McDougal, and A. J. Barros. 2021. "Is Women's Empowerment Associated with Coverage of Rmnch Interventions in Low-and Middle-Income Countries? An Analysis Using a Survey-Based Empowerment Indicator, the Swper." *Journal of Global Health* 11. https://doi.org/10.7189/jogh.11.04015.

Resources

DHS-8 Tabulation plan: Table 15.7

API Indicator IDs:
Women:
```
WE_DMKH_W_WIF, WE_DMKH_W_JNT, WE_DMKH_W_HUS, WE_DMKH_W_ELS, WE_DMKH_W_OTH,
WE_DMKH_W_DKM, WE_DMKP_W_WIF, WE_DMKP_W_JNT, WE_DMKP_W_HUS, WE_DMKP_W_ELS,
WE_DMKP_W_OTH, WE_DMKP_W_DKM, WE_DMKV_W_WIF, WE_DMKV_W_JNT, WE_DMKV_W_HUS,
WE_DMKV_W_ELS, WE_DMKV_W_OTH, WE_DMKV_W_DKM
```
([API link](#), [STATcompiler link](#))

Men:
```
WE_DMKH_M_WIF, WE_DMKH_M_JNT, WE_DMKH_M_HUS, WE_DMKH_M_ELS, WE_DMKH_M_OTH,
WE_DMKH_M_DKM, WE_DMKP_M_WIF, WE_DMKP_M_JNT, WE_DMKP_M_HUS, WE_DMKP_M_ELS,
WE_DMKP_M_OTH, WE_DMKP_M_DKM
```
([API link](#), [STATcompiler link](#))

SDG Indicator 5.6.1

Percentage of currently married women and men who usually make specific decisions either alone or jointly with their husband/wife

Definition

Percentage of currently married women and men age 15-49 who usually make specific decisions either alone or jointly with their husband or wife for:
1) Own health care.
2) Large household purchases.
3) Visits to family or relatives.
4) All three (or two [men]) decisions.
5) None of the decisions.

Coverage:
Population base: Currently married women (or men) age 15-49 (IR file, MR file)
Time period: Current status at time of survey

Numerators:
Number of currently married women (or men) age 15-49 who usually make specific decisions alone or jointly with their husband (or wife) for:
1) Own health care (women: v743a in 1:2; men: mv743a in 1:2)
2) Large household purchases (women: v743b in 1:2; men: mv743b in 1:2)
3) Visits to family or relatives (women: v743d in 1:2)
4) All three decisions (women: v743a in 1:2 & v743b in 1:2 & v743d in 1:2); All two decisions (men: mv743a in 1:2 & mv743b in 1:2)
5) None of the decisions (women: v743a ≠ 1,2 & v743b ≠ 1,2 & v743d ≠ 1,2; men: mv743a ≠ 1,2 & mv743b ≠ 1,2)

Denominator:
Number of currently married women (or men) age 15-49 (women: v502 = 1; men: mv502 = 1)

Variables: IR file, MR file.
v502	Currently/formerly/never in union (women)
v743a	Person who usually makes decisions about: respondent's health care (women)
v743b	Person who usually makes decisions about: large household purchases (women)
v743d	Person who usually makes decisions about: visits to family or relatives (women)
v005	Women's sample weight
mv502	Currently/formerly/never in union (men)
mv743a	Person who usually makes decisions about: respondent's health care (men)
mv743b	Person who usually makes decisions about: large household purchases (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator multiplied by 100.

Handling of Missing Values

Missing values on who usually make specific decisions are assumed to be someone other than the respondent and are excluded from the numerators for the first four indicators but is included in numerator for the fifth indicator.

Changes over Time

See *Changes over Time* for *Participation in Decision Making.*

References

Kishor, S., and L. Subaiya. 2008*. Understanding Women's Empowerment: A Comparative Analysis of Demographic and Health Surveys (DHS) Data*. DHS Comparative Reports No. 20. Calverton, Maryland, USA: Macro International Inc.
https://www.dhsprogram.com/publications/publication-CR20-Comparative-Reports.cfm

Kishor, S., Ed. 2005. *A Focus on Gender: Collected Papers on Gender Using DHS Data*. Calverton, Maryland, USA: ORC Macro.
https://www.dhsprogram.com/publications/publication-OD32-Other-Documents.cfm

Resources

DHS-8 Tabulation plan: Tables 15.8.1 and 15.8.2

API Indicator IDs:
Women:
WE_DMAK_W_OHC, WE_DMAK_W_MPC, WE_DMAK_W_FAM, WE_DMAK_W_3DC, WE_DMAK_W_NON
(API link, STATcompiler link)

Men:
WE_DMAK_M_OHC, WE_DMAK_M_MPC, WE_DMAK_M_2DC, WE_DMAK_M_NON
(API link, STATcompiler link)

Attitude towards Wife Beating

Percentage of all women and men who agree that a husband is justified in hitting or beating his wife for specific reasons

Definition

Percentage of all women and men age 15-49 who agree that a husband is justified in hitting or beating his wife for specific reasons:
1) Burning food.
2) Arguing with him.
3) Going out without telling him.
4) Neglecting the children.
5) Refusing to have sexual intercourse with him.
6) At least one reason.

Coverage:
       Population base: All women (or men) age 15-49 (IR file, MR file)
       Time period: Current status at time of survey

Numerators:
Number of women (or men) age 15-49 who agree that a husband is justified in hitting or beating his wife for:
1) Burning food (women: v744e = 1; men: mv744e = 1)
2) Arguing with him (women: v744c = 1; men: mv744c = 1)
3) Going out without telling him (women: v744a = 1; men: mv744a = 1)
4) Neglecting the children (women: v744b = 1; men: mv744b = 1)
5) Refusing to have sexual intercourse with him (women: v744d = 1; men: mv744d = 1)
6) At least one reason (women: any of v744a – e = 1; men: any of mv744a – e = 1)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.

v744a	Beating justified if wife goes out without telling husband (women)
v744b	Beating justified if wife neglects the children (women)
v744c	Beating justified if wife argues with husband (women)
v744d	Beating justified if wife refuses to have sex with husband (women)
v744e	Beating justified if wife burns the food (women)
v005	Women's sample weight
mv744a	Beating justified if wife goes out without telling husband (men)
mv744b	Beating justified if wife neglects the children (men)
mv744c	Beating justified if wife argues with husband (men)
mv744d	Beating justified if wife refuses to have sex with husband (men)
mv744e	Beating justified if wife burns the food (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator multiplied by 100.

Handling of Missing Values

Missing values on attitudes towards wife beating are excluded from the numerator but included in the denominator.

Changes over Time

The list of reasons and/or wording of specified reasons justifying wife beating has varied over time. Some countries also add more reasons and some countries modify the wording of the standard reasons. In some surveys the questions are only asked to married women or men.

References

Asaolu, I., H. Alaofè, J.K.L. Gunn, A. Adu, A. Monroy, J. Ehiri, M.H. Hayden, and K. Ernst. 2018. "Measuring Women's Empowerment in sub-Saharan Africa: Exploratory and Confirmatory Factor Analyses of the Demographic and Health Surveys." Frontiers in psychology 9: 994.

Hanmer, L., and J. Klugman. 2016 "Exploring women's agency and empowerment in developing countries: Where do we stand?". *Feminist Economics* 22, no. 1: 237-263.

Jennings, L., M. Na, M. Cherewick, M. Hindin, B. Mullany, and S. Ahmed. 2014. "Women's empowerment and male involvement in antenatal care: analyses of Demographic and Health Surveys (DHS) in selected African countries." *BMC pregnancy and childbirth* 14, no. 1: 297.

Kishor, S., and L. Subaiya. 2008. *Understanding Women's Empowerment: A Comparative Analysis of Demographic and Health Surveys (DHS) Data*. DHS Comparative Reports No. 20. Calverton, Maryland, USA: Macro International Inc. https://dhsprogram.com/publications/publication-cr20-comparative-reports.cfm

Upadhyay, U. D., J. D. Gipson, M. Withers, S. Lewis, E. J. Ciaraldi, A. Fraser, M. J. Huchko, and N. Prata. 2014. "Women's Empowerment and Fertility: A Review of the Literature." *Social Science & Medicine* 115: 111-120. https://doi.org/10.1016/j.socscimed.2014.06.014.

Ewerling, F., F. C. Wehrmeister, C. G. Victora, A. Raj, L. McDougal, and A. J. Barros. 2021. "Is Women's Empowerment Associated with Coverage of Rmnch Interventions in Low-and Middle-Income Countries? An Analysis Using a Survey-Based Empowerment Indicator, the Swper." *Journal of Global Health* 11. https://doi.org/10.7189/jogh.11.04015.

Resources

DHS-8 Tabulation plan: Tables 15.9.1 and 15.9.2

API Indicator IDs:

Women:
```
WE_AWBT_W_BFD, WE_AWBT_W_ARG, WE_AWBT_W_OUT, WE_AWBT_W_NEG, WE_AWBT_W_REF,
WE_AWBT_W_AGR
```
(API link, STATcompiler link)

Men:
```
WE_AWBT_M_BFD, WE_AWBT_M_ARG, WE_AWBT_M_OUT, WE_AWBT_M_NEG, WE_AWBT_M_REF,
WE_AWBT_M_AGR
```
(API link, STATcompiler link)

MICS6 Indicator PR.15: Attitudes towards domestic violence

Attitudes towards Negotiating Safer Sexual Relations with Husband

Percentage of women and men who believe that a woman is justified in refusing to have sexual intercourse with her husband if she knows that he has sexual intercourse with other women, and percentage who believe that a woman is justified in asking that they use a condom if she knows that her husband has a sexually transmitted infection (STI)

Definition

1) Percentage of women (or men) age 15-49 who believe that a woman is justified in refusing to have sexual intercourse with her husband if she knows that he has sexual intercourse with other women.
2) Percentage of women (or men) age 15-49 who believe that a woman is justified in asking that they use a condom if she knows that her husband has a sexually transmitted infection (STI).

Coverage:
   Population base: Women (or men) age 15-49 (IR file, MR file)
   Time period: Current status at time of survey

Numerators:
1) Number of women (or men) age 15-49 who believe that a woman is justified in refusing to have sexual intercourse with her husband if she knows that he has sexual intercourse with other women (women: v633b = 1; men: mv633b = 1)
2) Number of women (or men) age 15-49 who believe that a woman is justified in asking that they use a condom if she knows that her husband has a sexually transmitted infection (STI) (women: v822 = 1; men: mv822 = 1)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.
v633b	Wife justified refusing sex: husband has sex with other women (women)
v822	Wife justified asking husband to use condom if he has STI (women)
v005	Women's sample weight
mv633b	Wife justified refusing sex: husband has sex with other women (men)
mv822	Wife justified asking husband to use condom if he has STI (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator multiplied by 100.

Handling of Missing Values

Missing values on attitudes towards negotiating safer sexual relations with husband are excluded from the numerator but included in the denominator.

Changes over Time

The number of reasons for a wife to justify refusing sexual intercourse to her husband that have been included in the standard DHS questionnaire has changed over time and was reduced to two in the 2014 revision of the questionnaire. It was also about this time that these questions began to be asked from men.

References

Hanmer, L., and J. Klugman. 2016 "Exploring women's agency and empowerment in developing countries: Where do we stand?". *Feminist Economics* 22, no. 1: 237-263.

Kishor, S., and L. Subaiya. 2008. *Understanding Women's Empowerment: A Comparative Analysis of Demographic and Health Surveys (DHS) Data*. DHS Comparative Reports No. 20. Calverton, Maryland, USA: Macro International Inc. https://dhsprogram.com/publications/publication-cr20-comparative-reports.cfm

Resources

DHS-8 Tabulation plan: Table 15.10

API Indicator IDs:
WE_JRSX_W_SEX, WE_JRSX_W_STI
(API link, STATcompiler link)

Ability to Negotiate Sexual Relations with Husband

Percentage of currently married women who can say no to their husband if they do not want to have sexual intercourse, and percentage who can ask their husband to use a condom

Definition

1) Percentage of currently married women age 15-49 who can say no to their husband if they do not want to have sexual intercourse.
2) Percentage of currently married women age 15-49 who can ask their husband to use a condom.

Coverage:
> Population base: Currently married women age 15-49 (IR file)
> Time period: Current status at time of survey

Numerators:
1) Currently married women age 15-49 who can say no to their husband if they do not want to have sexual intercourse (v502 = 1 & v850a = 1)
2) Currently married women age 15-49 who can ask their husband to use a condom (v502 = 1 & v850b = 1)

Denominator: Number of currently married women age 15-49 (v502 = 1)

Variables: IR file.
v502   Currently/formerly/never in union
v850a   Respondent can refuse sex
v850b   Respondent can ask partner to use a condom
v005   Women's sample weight

Calculation

Numerator divided by the denominator multiplied by 100.

Handling of Missing Values

Missing values on whether the respondent is able to negotiate safer sexual relations are excluded from the numerator but included in the denominator.

Changes over Time

Although several surveys have included these or similar questions over time, they became standard in the DHS only at the time of the 2008 questionnaire revision.

References

Hanmer, L., and J. Klugman. 2016 "Exploring women's agency and empowerment in developing countries: Where do we stand?". *Feminist Economics* 22, no. 1: 237-263.

Kishor, S., and L. Subaiya. 2008. *Understanding Women's Empowerment: A Comparative Analysis of Demographic and Health Surveys (DHS) Data*. DHS Comparative Reports No. 20. Calverton, Maryland, USA: Macro International Inc. https://dhsprogram.com/publications/publication-cr20-comparative-reports.cfm

Resources

DHS-8 Tabulation plan: Table 15.11
SDG Indicator 5.6.1

API Indicator IDs:
TBD
(API link TBD, STATcompiler link TBD)

Indicators of Women's Empowerment

Percentage of currently married women who participate in all decision making, and percentage who disagree with all of the reasons justifying wife-beating

Definition

1) Percentage of currently married women age 15-49 who usually make all three specific decisions either alone or jointly with their husband for:
   a) Own health care.
   b) Large household purchases.
   c) Visits to family or relatives.
2) Percentage of currently married women age 15-49 who disagree with all of the specific reasons justifying wife-beating:
   a) Burning food.
   b) Arguing with him.
   c) Going out without telling him.
   d) Neglecting the children.
   e) Refusing to have sexual intercourse with him.

Coverage:
> Population base: Currently married women age 15-49 (IR file, MR file)
> Time period: Current status at time of survey

Numerators:
1) Number of currently married women age 15-49 who usually make specific decisions alone or jointly with their husband for:
   a) Own health care (v743a in 1:2), and
   b) Large household purchases (v743b in 1:2), and
   c) Visits to family or relatives (v743d in 1:2)
2) Number of currently married women age 15-49 (v502 = 1) who disagree with all of the specific reasons justifying wife-beating:
   a) Burning food (v744e ≠ 1), and
   b) Arguing with him (v744c ≠ 1), and
   c) Going out without telling him (v744a ≠ 1), and
   d) Neglecting the children (v744b ≠ 1), and
   e) Refusing to have sexual intercourse with him (v744d ≠ 1)

Denominator: Number of currently married women age 15-49 (v502 = 1)

Variables: IR file.
v502	Currently/formerly/never in union
v743a	Person who usually decides on respondent's health care
v743b	Person who usually decides on large household purchases
v743d	Person who usually decides on visits to family or relatives
v744a	Beating justified if wife goes out without telling husband

v744b	Beating justified if wife neglects the children
v744c	Beating justified if wife argues with husband
v744d	Beating justified if wife refuses to have sex with husband
v744e	Beating justified if wife burns the food
v005	Women's sample weight

Calculation

Numerator divided by the denominator multiplied by 100.

Handling of Missing Values

Missing values on who usually make specific decisions are assumed to be someone other than the respondent and are excluded from the numerators. Missing values on attitudes towards wife beating are assumed to not be agreeing and are included in the numerators and the denominator.

Notes and Considerations

See *Notes and Considerations* for *Participation in Decision Making* and *Attitude towards Wife Beating.*

Changes over Time

See *Changes over Time* for *Participation in Decision Making* and *Attitude towards Wife Beating.*

References

Kishor, S., and L. Subaiya. 2008. *Understanding Women's Empowerment: A Comparative Analysis of Demographic and Health Surveys (DHS) Data*. DHS Comparative Reports No. 20. Calverton, Maryland, USA: Macro International Inc. https://dhsprogram.com/publications/publication-cr20-comparative-reports.cfm

Ewerling, F., F. C. Wehrmeister, C. G. Victora, A. Raj, L. McDougal, and A. J. Barros. 2021. "Is Women's Empowerment Associated with Coverage of Rmnch Interventions in Low-and Middle-Income Countries? An Analysis Using a Survey-Based Empowerment Indicator, the Swper." *Journal of Global Health* 11. https://doi.org/10.7189/jogh.11.04015.

Upadhyay, U. D., J. D. Gipson, M. Withers, S. Lewis, E. J. Ciaraldi, A. Fraser, M. J. Huchko, and N. Prata. 2014. "Women's Empowerment and Fertility: A Review of the Literature." *Social Science & Medicine* 115: 111-120. https://doi.org/10.1016/j.socscimed.2014.06.014.

Resources

DHS-8 Tabulation plan: Table 15.13W

API Indicator IDs:
`WE_WEMP_W_DWB, WE_DMAK_W_3DC`
(API link, STATcompiler link)

Percentage of currently married women who make their own informed decisions regarding sexual relations, contraceptive use, and reproductive health care

Definition

Percentage of currently married women age 15-49 who usually makes decisions about own healthcare, either alone or jointly, and can say no to their husband if they do not want to have sexual intercourse, and makes the decision, either alone or jointly, whether or not to use contraception.

Coverage:
  Population base: Currently married women age 15-49 (IR file)
  Time period: Current status at time of survey

Numerator:
Number of currently married women age 15-49 who:
1) usually make specific decisions alone or jointly with their husband for own health care (v743a in 1:2), and
2) can say no to their husband if they do not want to have sexual intercourse (v502 = 1 & v850a = 1), and
3) usually makes the decision, either alone or jointly to use contraception or not (v632 = 1,3)

Denominator: Number of currently married women age 15-49 (v502 = 1)

Variables: IR file.
v502   Currently/formerly/never in union
v743a   Person who usually makes decisions about: respondent's health care
v850a   Respondent can refuse sex
v632   Decision maker for using contraception or not
v005   Women's sample weight

Calculation

Numerators divided by the denominator multiplied by 100.

Handling of Missing Values

Missing values on who usually make specific decisions are assumed to be someone other than the respondent and are excluded from the numerators.

Notes and Considerations

See *Notes and Considerations* for *Participation in Decision Making* and *Ability to Negotiate Sexual Relations with Husband.*

Changes over Time

See *Changes over Time* for *Participation in Decision Making* and *Ability to Negotiate Sexual Relations with Husband.*

Prior to about 2000, decision maker for using contraception was not collected from women who were using contraception.

References

MacQuarrie, K. L. D., and A. Aziz. 2022. "Women's Decision-Making and Contraceptive Use in Pakistan: An Analysis of Demographic and Health Survey Data." *Sexual and Reproductive Health Matters* 29 (2). https://doi.org/10.1080/26410397.2021.2020953.

Resources

DHS-8 Tabulation plan: Table 15.12

API Indicator IDs:
WE_IDMH_W_RSX, WE_IDMH_W_CUS, WE_IDMH_W_HLC, WE_IDMH_W_RCH
(API link, STATcompiler link)

16) Water, Sanitation and Hygiene

The focus of this chapter is to describe the environment as it pertains to drinking water, sanitation, and hygiene (WASH) in which women, children and men live. A distinction is made between urban and rural settings where many of these indicators usually differ.

In combination with Chapter 2 (Housing and Population), this WASH indicators are useful for assessing the level of economic and social development of the population.

Household Drinking Water

Percent distribution of households and de jure population by source of drinking water

Definition

1) Percent distribution of households and de jure population by source of drinking water
2) Percentage of households and de jure population using an improved source of drinking water.
3) Percentage of households and de jure population using an unimproved source of drinking water.
4) Percentage of households and de jure population using surface water as the source of drinking water.

Coverage:

Population base:
a) Households (HR file)
b) De jure household population (HR file or PR file)
Time period: Current status at time of survey

Numerators:

1) Number of households or de jure population (HR file: hv012; PR file: hv201 = 1) by source of drinking water (hv201).
2) Number of households or de jure population (HR file: hv012; PR file: hv201 = 1) using an improved source of drinking water (hv201 in 11:14,21,31,41,51,61,62,71):
   a) piped into dwelling piped to yard/plot (hv201 in 11, 12)
   b) public tap/standpipe (hv201 = 13)
   c) piped to neighbor (hv201 = 14)
   d) tube well or borehole (hv201 = 21)
   e) protected well (hv201 = 31)
   f) protected spring (hv201 = 41)
   g) rainwater (hv201 = 51)
   h) tanker truck, cart with small tank (hv201 in 61, 62)
   i) bottled water (hv201 = 71)
3) Number of households or de jure population (HR file: hv012; PR file: hv201 = 1) using an unimproved source of drinking water (hv201 in 32,42,43,96)
   a) unprotected well (hv201 = 32)
   b) unprotected spring (hv201 = 42)
   c) other (hv201 = 96)
4) Number of households or de jure population using surface water (river/dam/lake/pond/stream/canal/irrigation channel) (hv201 = 43)

Denominators:

a) Number of households
b) Number of de jure population (hv012 – see *Calculation*)

Variables: HR file, PR file.

hv012   Number of de jure members (if using HR file)

hv102	Usual resident (if using PR file)
hv201	Source of drinking water
hv005	Household sample weight

Calculation

Percent distribution of de jure population by source of drinking water can be calculated using the HR file and simply weighting the data by the sample weight (hv005/1000000) multiplied by the number of de jure household members (hv012). Alternatively, the PR file can be used, selecting the de jure members (hv102 = 1) and weighting just by the sample weight (hv005/1000000).

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households and de jure population with missing information are included as separate categories.

Notes and Considerations

Drinking water source classifications improved, unimproved, and other are based on those defined by the WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation during the Millenium Development Goals (MDG) monitoring period.

The standard recode for hv201 includes the following categories of improved and Unimproved water sources:

Improved categories
11 piped into dwelling
12 piped to yard/plot
13 public tap/standpipe
14 piped to neighbor
21 tube well or borehole
31 protected well
41 protected spring
51 rainwater
61 tanker truck
62 cart with small tank
71 bottled water

Unimproved categories
32 unprotected well
42 unprotected spring
43 surface water (river/dam/lake/pond/stream/canal/irrigation channel)
96 other

Note that in the process of creating the new SDG indicators, in 2017, the JMP changed the definition of improved sources of drinking water (see *Changes over Time*).

Percent distribution adds up to 100 percent.

Changes over Time

The improved source category "Piped to neighbor" was introduced in the standard DHS-7 household questionnaire.

In earlier phases of DHS, if a spring or well was not specified as protected, it was considered unimproved.

In DHS-VI, the question on the source of water for cooking and handwashing was not included in the questionnaire, and bottled water was considered an improved source.

During the Millenium Development Goals (MDG) monitoring period, the JMP considered the following to be improved drinking water sources: piped water, public taps/standpipes, boreholes or tube wells, protected dug wells, protected springs, rainwater, and bottled water (if an improved water source was used for cooking and handwashing). The categorization of sources as improved or unimproved was:
    41) Improved: hv201 in 11:14,21,31,41,51 or (hv201 = 71 & hv202 in 11:14,21,31,41,51,71)
    42) Unimproved: hv201 in 32,42,43,61,62 or (hv201 = 71 & hv202 not in 11:14,21,31,41,51,71)
    43) Other source: hv201 = 96

In 2017, the JMP expanded the definition of improved sources to also include packaged or delivered water. As of late 2018, this change has been implemented in DHS surveys. This update has changed the categorization of tanker truck or cart with small tank (both delivered water) to improved sources and also includes all bottled water as an improved source irrespective of the source of water for cooking and handwashing.

References

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2021. *Progress on household drinking water, sanitation and hygiene 2000–2020: Five years into the SDGs.*. https://www.who.int/publications/i/item/9789240030848

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2018. *JMP Methodology: 2017 Update & SDG Baselines* https://washdata.org/sites/default/files/documents/reports/2018-04/JMP-2017-update-methodology.pdf

World Health Organization. 2018. *Global reference list of 100 core health indicators*. Geneva: World Health Organization. License: CC BY-NC-SA 3.0 IGO. https://www.who.int/publications/i/item/2018-global-reference-list-of-100-core-health-indicators-(-plus-health-related-sdgs)

Core questions on drinking water, sanitation and hygiene for household surveys: 2018 update. New York: United Nations Children's Fund (UNICEF) and World Health Organization, 2018. https://washdata.org/sites/default/files/documents/reports/2019-03/JMP-2018-core-questions-for-household-surveys.pdf

Resources

DHS-8 Tabulation plan: Table 16.1 and Table 16.2

API Indicator IDs:
Households:
Improved sources:
```
WS_SRCE_H_IMP, WS_SRCE_H_PIP, WS_SRCE_H_PYD, WS_SRCE_H_POY, WS_SRCE_H_TAP,
WS_SRCE_H_PNB, WS_SRCE_H_TUB, WS_SRCE_H_PWL, WS_SRCE_H_PSG, WS_SRCE_H_RNW,
WS_SRCE_H_TNK, WS_SRCE_H_CRT, WS_SRCE_H_BOT, WS_SRCE_H_VND, WS_SRCE_H_SCH,
WS_SRCE_H_FLT
```
(API link, STATcompiler link)

Unimproved sources:
```
WS_SRCE_H_NIM, WS_SRCE_H_UWU, WS_SRCE_H_UWL, WS_SRCE_H_USU, WS_SRCE_H_USG,
WS_SRCE_H_SRF, WS_SRCE_H_OTH
```
(API link, STATcompiler link)

De jure population:
Improved sources:
```
WS_SRCE_P_IMP, WS_SRCE_P_PIP, WS_SRCE_P_PYD, WS_SRCE_P_POY, WS_SRCE_P_TAP,
WS_SRCE_P_PNB, WS_SRCE_P_TUB, WS_SRCE_P_PWL, WS_SRCE_P_PSG, WS_SRCE_P_RNW,
WS_SRCE_P_TNK, WS_SRCE_P_CRT, WS_SRCE_P_BOT, WS_SRCE_P_VND, WS_SRCE_P_SCH,
WS_SRCE_P_FLT
```
(API link, STATcompiler link)

Unimproved sources:
```
WS_SRCE_P_NIM, WS_SRCE_P_UWU, WS_SRCE_P_UWL, WS_SRCE_P_USU, WS_SRCE_P_USG,
WS_SRCE_P_SRF, WS_SRCE_P_OTH
```
(API link, STATcompiler link)

WHO 100 Core Health Indicators: Population using safely managed drinking water services

MICS6 Indicator WS.1: Use of improved drinking water sources
MICS6 Indicator WS.2: Use of basic drinking water services

SDG 1.4.1 Proportion of population living in households with access to basic services
SDG 6.1.1 Proportion of population using safely managed drinking water services

Percent distribution of households and de jure population by time to obtain drinking water

Definition

Percent distribution of households and de jure population by round trip time to obtain drinking water.

Coverage:
Population base:
a) Households (HR file)
b) De jure household population (HR file or PR file)
Time period: Current status at time of survey

Numerators:
Number of households or de jure population (HR file: hv012; PR file: hv201 = 1) by round trip time to obtain drinking water:
1) Water on premises (hv204 = 996 or hv204 = 0)
2) 30 minutes or less (hv204 in 1:30)
3) More than 30 minutes (hv204 in 31:900)

Denominators:
a) Number of households
b) Number of de jure population (hv012 – see *Calculation*)

Variables: HR file, PR file.
hv012	Number of de jure members (if using HR file)
hv102	Usual member (if using PR file)
hv204	Time to get to water source (minutes)
hv005	Household sample weight

Calculation

Percent distribution of de jure population by time to source of drinking water can be calculated using the HR file and simply weighting the data by the sample weight (hv005/1000000) multiplied by the number of de jure household members (hv012). Alternatively, the PR file can be used, selecting the de jure members (hv102 = 1) and weighting just by the sample weight (hv005/1000000).

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households and population with a missing or "don't know" response are included as separate categories.

Notes and Considerations

The time to obtain drinking water is the sum of minutes it takes to go to the water source, the time spent waiting to obtain water, the time collecting the water and the time to return from the water source. The classifications for the time to obtain water are: water on the premises, 30 minutes or less, more than 30 minutes, and don't know. The classification piped into dwelling/yard/plot includes piped to a neighbor.

Percent distribution adds up to 100 percent.

Changes over Time

As part of the SDG period, the JMP has introduced criteria for safely managed, basic, and limited drinking water service that require information on the time required to obtain the drinking water. The classifications for the time to obtain water are: water on the premises (including water with a collection time of zero minutes), a collection time of 30 minutes or less, and a collection time of more than 30 minutes. As of September 2018, this change has been implemented in DHS surveys.

Before September 2018, water on the premises did not include a round trip time of 0 minutes, and round-trip categories were less than 30 minutes, and 30 minutes or more. These categories were changed to 30 minutes or less, and more than 30 minutes.

References

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2021. *Progress on household drinking water, sanitation and hygiene 2000–2020: Five years into the SDGs.* https://www.who.int/publications/i/item/9789240030848

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2018. *JMP Methodology: 2017 Update & SDG Baselines* https://washdata.org/sites/default/files/documents/reports/2018-04/JMP-2017-update-methodology.pdf

Core questions on drinking water, sanitation and hygiene for household surveys: 2018 update. New York: United Nations Children's Fund (UNICEF) and World Health Organization, 2018. https://washdata.org/sites/default/files/documents/reports/2019-03/JMP-2018-core-questions-for-household-surveys.pdf

Resources

DHS-8 Tabulation plan: Table 16.1.

API Indicator IDs:
Households:
WS_TIME_H_ONP, WS_TIME_H_L30, WS_TIME_H_M30, WS_TIME_H_DKM
(API link, STATcompiler link)

De jure population:
WS_TIME_P_ONP, WS_TIME_P_L30, WS_TIME_P_M30, WS_TIME_P_DKM

(API link, STATcompiler link)

MICS6 Indicator WS.2: Use of basic drinking water services

SDG 1.4.1 Proportion of population living in households with access to basic services
SDG 6.1.1 Proportion of population using safely managed drinking water services

Drinking water service ladder

Percent distribution of de jure population by drinking water service ladder

Definition

1) Percentage of de jure population with basic service, which is drinking water from an improved source, provided either water is on the premises or round-trip collection time is 30 minutes or less.
2) Percentage of de jure population with limited service, which is drinking water from an improved source, provided round-trip collection time is more than 30 minutes or is unknown.
3) Percentage of de jure population with unimproved service, which is drinking water from an unprotected dug well or unprotected spring.
4) Percentage of de jure population with surface water as drinking water.

Coverage:
>   Population base: De jure household population (HR file or PR file)
>   Time period: Current status at time of survey

Numerators:
1) Number of de jure population (HR file: hv012; PR file: hv201 = 1) with an improved source of drinking water (hv201 in 11:14,21,31,41,51,61,62,71), provided either water is on the premises or roundtrip collection time is 30 minutes or less (hv204 in 0:30 or hv204 = 996)
2) Number of de jure population (hv201 = 1) with an improved source of drinking water (hv201 in 11:14,21,31,41,51,61,62,71), provided round-trip collection time more than 30 minutes (hv204 in 31:900, 998)
3) Number of de jure population (hv201 = 1) with an unimproved source of drinking water (hv201 = 32, 42, 96) but excluding surface water (hv201 = 43)
4) Number of de jure population (hv201 = 1) whose source of drinking water is surface water (hv201 = 43)

Denominator: Number of de jure population (hv012 – see *Calculation*)

Variables: HR file, PR file.
hv012	Number of de jure members (if using HR file)
hv102	Usual resident (if using PR file)
hv201	Source of drinking water
hv204	Time to get to water source (minutes)
hv005	Household sample weight

Calculation

See Calculation for *Percent distribution of households and de jure population by source of drinking water* and *Percent distribution of households and de jure population by time to obtain drinking water*.

Percent distribution adds up to 100 percent.

Handling of Missing Values

De jure population with a missing or "don't know" response for time to water source are included in the denominator but are not counted as having basic service; if de jure population uses an improved source and the collection time is missing or is "don't know", they are counted as having limited service.

Notes and Considerations

Drinking water source classifications improved and unimproved are based on those defined by the WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation during the Millenium Development Goals (MDG) monitoring period.

See Notes and Considerations for *Percent distribution of households and de jure populations source of drinking water* and *Percent distribution of households and de jure population by time to obtain drinking water.*

Changes over Time

Indicators on the percentage of household and de jure population with basic and limited drinking water service were added in September 2018 (DHS-7). See Changes over Time for *Percent distribution of households and de jure populations source of drinking water* and *Percent distribution of households and de jure population by time to obtain drinking water.*

In DHS-8, the full drinking water service ladder was introduced to align better with JMP guidance; accordingly, the indicators are presented for the de jure population and not for households.

References

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2021. Progress on household drinking water, sanitation and hygiene 2000–2020: Five years into the SDGs. http://www.who.int/water_sanitation_health/publications/jmp-2017/en/

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2018. *JMP Methodology: 2017 Update & SDG Baselines* https://washdata.org/sites/default/files/documents/reports/2018-04/JMP-2017-update-methodology.pdf

World Health Organization. 2018. *Global reference list of 100 core health indicators.* Geneva: World Health Organization. License: CC BY-NC-SA 3.0 IGO. https://www.who.int/publications/i/item/2018-global-reference-list-of-100-core-health-indicators-(-plus-health-related-sdgs)

Core questions on drinking water, sanitation and hygiene for household surveys: 2018 update. New York: United Nations Children's Fund (UNICEF) and World Health Organization, 2018. https://washdata.org/sites/default/files/documents/reports/2019-03/JMP-2018-core-questions-for-household-surveys.pdf

Resources

DHS-8 Tabulation plan: Table 16.2

API Indicator IDs:
Households:
`WS_SRCE_H_BAS, WS_SRCE_H_LTD`
([API link](#), [STATcompiler link](#))

De jure population:
`WS_SRCE_P_BAS, WS_SRCE_P_LTD`
([API link](#), [STATcompiler link](#))

WHO 100 Core Health Indicators: Population using safely managed drinking water services

MICS6 Indicator WS.1: Use of improved drinking water sources
MICS6 Indicator WS.2: Use of basic drinking water services

SDG 1.4.1 Proportion of population living in households with access to basic services
SDG 6.1.1 Proportion of population using safely managed drinking water services

Person Collecting Drinking Water

Percentage of de jure population without drinking water on premises, and percent distribution of de jure population in households without drinking water on premises by the person who usually collects drinking water used in the household

Definition

1) Percentage of de jure population without drinking water on the premises.
2) Percent distribution of de jure population in households without drinking water on premises by the person who usually collects drinking water used in the household: Adult female age 15 or older, adult male age 15 or older, female child under age 15, male child under age 15, or person not in household.

Coverage:

> Population base: De jure household population (HR file or PR file)
> Time period: Current status at time of survey

Numerators:

1) Number of de jure population (HR file: hv012; PR file: hv201 = 1) without drinking water on the premises (hv201 ≠ in 11, 12, 13 & hv235 = 3 & hv204 ≠ 0) excluding those with piped water to a neighbor (hv201 ≠ 13) and those with a reported time to collect water greater than zero (hv204 in 1:990)
2) Number of de jure population (HR file: hv012; PR file: hv201 = 1) without drinking water on the premises (hv201 ≠ in 11, 12, 13 & hv235 = 3 & hv204 ≠ 0) by person who usually collects drinking water (hv236a, hvidx, hv104, hv105) excluding those with piped water to a neighbor (hv201 ≠ 13) and those with a reported time to collect water greater than zero (hv204 in 1:990)

Denominators:

a) De jure population (HR file: hv012; PR file: hv201 = 1)
b) De jure population without drinking water on the premises (HR file: hv012; PR file: hv201 = 1 & hv201 ≠ in 11, 12, 13 & hv235 = 3 & hv204 ≠ 0)

Variables: HR file, PR file.

hvidx	Line number
hv012	Number of de jure members (if using HR file)
hv102	Usual resident (if using PR file)
hv104	Sex of household members
hv105	Age of household members
hv201	Source of drinking water
hv204	Time to get to water source (minutes)
hv235	Location of source for water
hv236a	Line number of person fetching water
hv005	Household sample weight

Calculation

Numerator divided by denominator, multiplied by 100. Percent distribution adds up to 100 percent.

Handling of Missing Values

Unsure, don't know or missing information are included in the denominator.

Notes and Considerations

Those without drinking water on the premises excludes water piped to a neighbor and those reporting a round trip collection time of zero minutes.

Changes over Time

In DHS-V, information was collected on the person who usually fetches water for the household based on the following categories: adult woman, adult man, female child under 15 years old, male child under 15 years old, other (hv236). Whether or not the person was in the household was not determined. The relevant questions to collect such information was dropped in DHS-VI.

In DHS-8, information on the person who usually collects water for the household is again collected, but with an important difference. Now, the individual is named by the respondent to the household questionnaire and their line number is selected from among the individuals listed in the household roster (hv236a). This enables the age, sex, and other characteristics of this individual to be determined. If the person is not listed in the household roster, this information is collected.

References

Core questions on drinking water, sanitation and hygiene for household surveys: 2018 update. New York: United Nations Children's Fund (UNICEF) and World Health Organization, 2018. https://washdata.org/sites/default/files/documents/reports/2019-03/JMP-2018-core-questions-for-household-surveys.pdf

Resources

DHS-8 Tabulation plan: Table 16.3

API Indicator IDs:
WS_PCDW_P_NDW, WS_PCDW_P_AFM, WS_PCDW_P_AML, WS_PCDW_P_CFM, WS_PCDW_P_CML, WS_PCDW_P_NHH
(API link, STATcompiler link)

Availability of sufficient drinking water

Percentage of de jure population with sufficient water available when needed

Definition

Percentage of de jure population with drinking water available in sufficient quantities in last month

Coverage:
Population base: De jure household population (HR file or PR file)
Time period: month before the survey

Numerators: Number of de jure population (HR file: hv012; PR file: hv201 = 1) with sufficient availability of drinking water in the month preceding the survey (hv201b = 0)

Denominator: Number of de jure population in households

Variables: HR file, PR file.
hv012   Number of de jure members (if using HR file)
hv102   Usual resident (if using PR file)
hv201b   Water for drinking not sufficient in the last month
hv005   Household sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Population with don't know or missing information are included in the denominator.

Notes and Considerations

The question is specifically phrased about the availability of drinking water and not water for other purposes.

Changes over Time

Information pertaining to the availability of water was introduced in DHS-7. At that time, the statistics were restricted to households/populations using piped or tube well/borehole water as a source for drinking water, plus households/populations using bottled water for drinking and piped or tube well/borehole water for cooking and handwashing. In addition, the reference period was the 2 weeks preceding the survey, and lack of availability was defined as water not being available for at least 1 day.

In DHS-8, the indicator was revised to match MICS6 more closely such that the relevant question is now asked of all households, regardless of drinking water source, and the time frame asked about is one month. In addition, data are tabulated for the de jure population and not households.

References

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2017. *Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines.* License: CC BY-NC-SA 3.0 IGO. https://apps.who.int/iris/handle/10665/258617

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2018. *JMP Methodology: 2017 Update & SDG Baselines* https://washdata.org/sites/default/files/documents/reports/2018-04/JMP-2017-update-methodology.pdf

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Resources

DHS-8 Tabulation plan: Table 16.4

API Indicator IDs
WS_ASDW_P_WAS
(API link, STATcompiler link)

MICS6 Indicator WS.3: Availability of drinking water

SDG 1.4.1 Proportion of population living in households with access to basic services
SDG 6.1.1 Proportion of population using safely managed drinking water services

Treatment of Household Drinking Water

Percentage of de jure population using methods to treat drinking water and percentage using an appropriate treatment method

Definition

1) Percentages of de jure population that are using various methods to treat drinking water.
2) Percentage of de jure population that are using an appropriate treatment method.

Coverage:

> Population base: De jure household population (HR file or PR file)
> Time period: Current status at time of survey

Numerators:

1) Number of de jure population (HR file: hv012; PR file: hv201 = 1) by water treatment prior to drinking category:
   a) Boil (hv237a = 1)
   b) Add bleach or chlorine (hv237b = 1)
   c) Strain through cloth (hv237c = 1)
   d) Ceramic, sand or other filter (hv237d = 1)
   e) Solar disinfection (hv237e = 1)
   f) Let it stand and settle (hv237f = 1)
   g) Other (hv237g = 1 or hv237h = 1 or hv237j = 1 or hv237k = 1 or hv237x = 1)
   h) No treatment (hv237 = 0)
2) Number of de jure population using an appropriate treatment method (hv237a = 1 or hv237b = 1 or hv237d = 1 or hv237e = 1)

Denominator: Number of de jure population (hv012 – see *Calculation*)

Variables: HR file, PR file.

hv012	Number of de jure members (if using HR file)
hv102	Usual resident (if using PR file)
hv237	Anything done to water to make safe to drink
hv237a	Water usually treated by: boil
hv237b	Water usually treated by: add bleach/chlorine
hv237c	Water usually treated by: strain through a cloth
hv237d	Water usually treated by: use water filter
hv237e	Water usually treated by: solar disinfection
hv237f	Water usually treated by: let it stand and settle
hv237g	Water usually treated by: CS
hv237h	Water usually treated by: CS
hv237j	Water usually treated by: CS
hv237k	Water usually treated by: CS
hv237x	Water usually treated by: other
hv005	Household sample weight

Calculation

The percentage of de jure population using methods to treat water can be calculated using the HR file and simply weighting the data by the sample weight (hv005/1000000) multiplied by the number of de jure household members (hv012). Alternatively, the PR file can be used, selecting the de jure members (hv102 = 1) and weighting just by the sample weight (hv005/1000000).

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Population with missing information are included as separate categories.

Notes and Considerations

Respondents may report multiple treatment methods so the sum of treatment may exceed 100.

Appropriate water treatment methods are: boil, add bleach or chlorine, ceramic, sand or other filter, and solar disinfection.

Changes over Time

In DHS-8, information on water treatment methods is reported for the de jure population only, according to background characteristics. In DHS-7 and earlier phases, information on water treatment was reported for households and the de jure population, by residence.

References

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2017. *Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines.* License: CC BY-NC-SA 3.0 IGO. https://apps.who.int/iris/handle/10665/258617

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2018. *JMP Methodology: 2017 Update & SDG Baselines* https://washdata.org/sites/default/files/documents/reports/2018-04/JMP-2017-update-methodology.pdf

Core questions on drinking water, sanitation and hygiene for household surveys: 2018 update. New York: United Nations Children's Fund (UNICEF) and World Health Organization, 2018. https://washdata.org/sites/default/files/documents/reports/2019-03/JMP-2018-core-questions-for-household-surveys.pdf

Resources

DHS-8 Tabulation plan: Table 16.5

API Indicator IDs:

De jure population:
```
WS_WTRT_P_BOL, WS_WTRT_P_BLC, WS_WTRT_P_STN, WS_WTRT_P_CER, WS_WTRT_P_SOL,
WS_WTRT_P_OTH, WS_WTRT_P_NTR, WS_WTRT_P_DKM, WS_WTRT_P_APP
```
([API link](#), [STATcompiler link](#))

Type of Sanitation Facility

Percent distribution of households and de jure population by type of sanitation facility, by improved and unimproved sanitation facility and open defecation

Definition

1) Percent distribution of households and de jure population by type of sanitation facility
2) Percentage of households and de jure population using an improved sanitation facility.
3) Percentage of households and de jure population using an unimproved sanitation facility.
4) Percentage of households and de jure population using no facility – open defecation.

Coverage:

Population base:
a) Households (HR file)
b) De jure household population (HR file or PR file)
Time period: Current status at time of survey

Numerators:

1) Number of households or de jure population by type of sanitation facility (hv205)
2) Number of households or de jure population using an improved sanitation facility (hv205 in 11,12,13,15,21,22,41)
   a) flush - to piped sewer system (hv205 = 11)
   b) flush - to septic tank (hv205 = 12)
   c) flush - to pit latrine (hv205 = 13)
   d) flush - don't know where (hv205 = 15)
   e) pit latrine - ventilated improved pit (VIP) (hv205 = 21)
   f) pit latrine - with slab (hv205 = 22)
   g) composting toilet (hv205 = 41)
3) Number of households or de jure population using an unimproved sanitation facility (hv205 in 14,23,42,43,96)
   a) flush - to somewhere else (hv205 = 14)
   b) pit latrine - without slab / open pit (hv205 = 23)
   c) bucket toilet (hv205 = 42)
   d) hanging toilet/latrine (hv205 = 43)
   e) other (hv205 = 96)
4) Number of households or de jure population using open defecation (no facility/bush/field) (hv205 = 31)

Denominators:

a) Number of households
b) Number of de jure population (hv012 – see *Calculation*)

Variables: HR file, PR file.

hv012   Number of de jure members (if using HR file)
hv102   Usual resident (if using PR file)

hv205   Type of toilet facility
hv005   Household sample weight

Calculation

Percent distribution of de jure population by type of sanitation facility can be calculated using the HR file and simply weighting the data by the sample weight (hv005/1000000) multiplied by the number of de jure household members (hv012). Alternatively, the PR file can be used, selecting the de jure members (hv102 = 1) and weighting just by the sample weight (hv005/1000000).

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households and population with missing information are included as separate categories.

Notes and Considerations

Sanitation classifications for improved or unimproved are based on those defined by the WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation for the SDG monitoring period (see *References*).

Percent distribution adds up to 100 percent.

Changes over Time

In 2017, the JMP changed the definition of improved sanitation to also include shared facilities and made explicit that facilities that flush/pour flush to an unknown location are considered improved. As of late 2018, these changes were implemented in DHS surveys. Before this was implemented, whether or not a facility is shared was used to distinguish improved sanitation from unimproved, and facilities that flush to an unknown location were categorized as unimproved facilities.

During the Millenium Development Goals (MDG) monitoring period, the JMP considered the following to be improved sanitation: non-shared facilities that flush/pour flush to piped sewer system, septic tank, or pit latrine; ventilated improved pit latrine, pit latrine with a slab, and composting toilet. Facilities that flushed to a known location but not to a sewer system, septic tank, or pit latrine (i.e., those that flush to "somewhere else") were classified as unimproved. The coding of improved and unimproved sanitation was as follows:
   44) Improved sanitation (hv205 in 11,12,13,21,22,41 & hv225 = 0)
   45) Unimproved sanitation:
        46) Shared facility (hv205 in 11,12,13,21,22,41 & hv225 = 1)
        47) Unimproved facility (hv205 in 14,15,23,42,43,96)
        48) Open defecation (no facility/bush/field) (hv205 = 31)

References

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2017. *Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines.* License: CC BY-NC-SA 3.0 IGO. https://apps.who.int/iris/handle/10665/258617

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Resources

DHS-8 Tabulation plan: Table 16.6

API Indicator IDs:
Households
Improved sanitation facility:
`WS_TLET_H_IMP, WS_TLET_H_FSW, WS_TLET_H_FSP, WS_TLET_H_FPT, WS_TLET_H_VIP, WS_TLET_H_PSL, WS_TLET_H_COM, WS_TLET_H_IMO`
(API link, STATcompiler link)

Unimproved sanitation facility:
`WS_TLET_H_NIM, WS_TLET_H_NFL, WS_TLET_H_NPT, WS_TLET_H_NBK, WS_TLET_H_NHG, WS_TLET_H_OTH`
(API link, STATcompiler link)

Open defecation:
`WS_TLET_H_NFC`
(API link, STATcompiler link)

De jure population
Improved sanitation facility:
`WS_TLET_P_IMP, WS_TLET_P_FSW, WS_TLET_P_FSP, WS_TLET_P_FPT, WS_TLET_P_VIP, WS_TLET_P_PSL, WS_TLET_P_COM, WS_TLET_P_IMO`
(API link, STATcompiler link)

Unimproved sanitation facility:
`WS_TLET_P_NIM, WS_TLET_P_NFL, WS_TLET_P_NPT, WS_TLET_P_NBK, WS_TLET_P_NHG, WS_TLET_P_OTH`
(API link, STATcompiler link)

Open defecation:

`WS_TLET_P_NFC`
([API link](#), [STATcompiler link](#))

WHO 100 Core Health Indicators: Population using safely managed sanitation services

MICS6 Indicator WS.8: Use of improved sanitation facilities
MICS6 Indicator WS.9: Use of basic sanitation services

SDG 1.4.1 Proportion of population living in households with access to basic services
SDG 6.2.1 Proportion of population using (a) safely managed sanitation services and (b) hand-washing facility with soap and water

Percent distribution of households and de jure population with a toilet/latrine facility by location of facility

Definition

Percent distribution of households and de jure population with a toilet/latrine facility by location of facility.

Population base:
a) Households (HR file)
b) De jure household population (HR file or PR file)
Time period: Current status at time of survey

Numerator: Number of households or de jure population with a toilet/latrine facility (hv205 ≠ 31) by location of facility (hv238a)

Denominators:
a) Number of households with a toilet/latrine facility (hv205 ≠ 31)
b) Number of de jure population in households with a toilet/latrine facility (hv205 ≠ 31 and use hv012 – see *Calculation*)

Variables: HR file, PR file.

hv012	Number of de jure members (if using HR file)
hv102	Usual resident (if using PR file)
hv205	Type of toilet facility
hv238a	Location of toilet facility
hv005	Household sample weight

Calculation

Percent distribution of de jure population by location of facility can be calculated using the HR file and simply weighting the data by the sample weight (hv005/1000000) multiplied by the number of de jure household members (hv012). Alternatively, the PR file can be used, selecting the de jure members (hv102 = 1) and weighting just by the sample weight (hv005/1000000).

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households and population with missing information are included as separate categories.

Notes and Considerations

Percent distribution adds up to 100 percent.

Changes over Time

Information on the location of the facility was introduced in DHS-7.

References

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2017. *Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines.* License: CC BY-NC-SA 3.0 IGO. https://apps.who.int/iris/handle/10665/258617

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2018. *JMP Methodology: 2017 Update & SDG Baselines* https://washdata.org/sites/default/files/documents/reports/2018-04/JMP-2017-update-methodology.pdf

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Resources

DHS-8 Tabulation plan: Table 16.6

API Indicator IDs:
Households:
WS_TLOC_H_DWL, WS_TLOC_H_YRD, WS_TLOC_H_ELS, WS_TLOC_H_DKM
(API link, STATcompiler link)

De jure population:
WS_TLOC_P_DWL, WS_TLOC_P_YRD, WS_TLOC_P_ELS, WS_TLOC_P_DKM
(API link, STATcompiler link)

SDG 1.4.1 Proportion of population living in households with access to basic services
SDG 6.2.1 Proportion of population using (a) safely managed sanitation services and (b) hand-washing facility with soap and water

Sanitation service ladder

Definition

Percent distribution of de jure population by sanitation service ladder: basic service, limited service, unimproved, and open defecation

Coverage:

Population base: De jure household population (HR file or PR file)
Time period: Current status at time of survey

Numerators:

1) Number of de jure population with an improved sanitation facility (hv205 in 11:15,21,22,41) that is not shared with other households (hv225 = 0)
2) Number of de jure population with an improved sanitation facility (hv205 in 11:15,21,22,41) that is shared with other households (hv225 = 1)
3) Number of de jure population with an unimproved sanitation facility (hv205 = 14,23,42,43,96)
4) Number of de jure population using open defecation (hv205 = 31)

Denominator: Number of de jure population (hv012 – see *Calculation*)

Variables: HR file, PR file.

hv012   Number of de jure members (if using HR file)
hv102   Usual resident (if using PR file)
hv205   Type of toilet facility
hv225   Share toilet with other households
hv005   Household sample weight

Calculation

See *Calculation* for *Percent distribution of households and de jure population by type of sanitation facility*.

Handling of Missing Values

De jure population with a missing or "don't know" response for sharing toilet with other households are included in the denominator and in the numerator as having a limited sanitation service if they are using an improved facility.

Notes and Considerations

See *Notes and Considerations* for *Percent distribution of households and de jure populations by sanitation facility*.

Changes over Time

Indicators on the percentage of household and de jure population with basic and limited sanitation service were added in September 2018 (DHS-7). See *Changes over Time* for *Percent distribution of households and de jure populations by sanitation facility*.

In DHS-8, the full sanitation service ladder was introduced to align better with JMP guidance; accordingly, the indicators are presented for the de jure population and not for households.

References

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2021. Progress on household drinking water, sanitation and hygiene 2000–2020: Five years into the SDGs. https://www.who.int/publications/i/item/9789240030848

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2018. *JMP Methodology: 2017 Update & SDG Baselines* https://washdata.org/sites/default/files/documents/reports/2018-04/JMP-2017-update-methodology.pdf

World Health Organization. 2018. *Global reference list of 100 core health indicators.* Geneva: World Health Organization. License: CC BY-NC-SA 3.0 IGO. https://www.who.int/publications/i/item/2018-global-reference-list-of-100-core-health-indicators-(-plus-health-related-sdgs)

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Resources

DHS-8 Tabulation plan: Table 16.7

API Indicator IDs:
Households:
WS_TLET_H_BAS, WS_TLET_H_LTD
(API link, STATcompiler link)

De jure population:
WS_TLET_P_BAS, WS_TLET_P_LTD
(API link, STATcompiler link)

WHO 100 Core Health Indicators: Population using safely managed sanitation services

MICS6 Indicator WS.8: Use of improved sanitation facilities
MICS6 Indicator WS.9: Use of basic sanitation services

SDG 1.4.1 Proportion of population living in households with access to basic services
SDG 6.2.1 Proportion of population using (a) safely managed sanitation services and (b) hand-washing facility with soap and water

Management of Household Excreta

Emptying and removal of wastes from on-site sanitation facilities

Definition

Percent distribution of de jure population in households with septic tanks and improved latrines by method of emptying and removal, and percentage of on-site sanitation facilities for which excreta was safely disposed of in situ, percentage of on-site sanitation facilities for which excreta was disposed of unsafely, and percentage of on-site sanitation facilities for which excreta was removed for treatment

Coverage:
> Population base: De jure household population (HR file or PR file) with on-site sanitation facilities
> Time period: Current status at time of survey

Numerators:
1) Number of de jure population by method of emptying and disposal of wastes from septic tanks and other onsite sanitation facilities (hv256 & hv257)
2) Number of de jure population for which excreta was safely dispose of in situ (hv257 = 2 or hv255 in 0, 8)
3) Number of de jure population for which excreta was disposed of unsafely (hv257 in 3, 4, 6)
4) Number of de jure population for which excreta was removed for treatment (hv256 = 1 & hv257 in 1, 8; or hv256 in 2, 8 & hv257 = 8)

Denominator:
Number of de jure population in households with on-site sanitation facilities (flush to septic tank, flus to pit latrine, VIP latrine, pit latrine with slab, composting toilet)

Variables: HR file, PR file.
hv012	Number of de jure members (if using HR file)
hv102	Usual resident (if using PR file)
hv205	Type of toilet facility
hv255	Septic tank has been emptied
hv256	Septic tank emptied by a service provider
hv257	Where septic tanked emptied to
hv005	Household sample weight

Calculation

Percent distribution of de jure population by method of emptying and disposal of wastes can be calculated by dividing the numerator by the denominator, multiplied by 100.

Handling of Missing Values

Population with missing information are included as separate categories.

Notes and Considerations

Percent distribution adds up to 100 percent.

On-site sanitation facilities are those where the excreta are stored in a septic tank, pit latrine, or composting toilet. Safe disposal of excreta on-site includes septic tanks and latrines in which wastes have been buried in a covered pit, never emptied, and don't know if ever emptied. Unsafe disposal of excreta on-site includes septic tanks and latrines in which wastes have been emptied to uncovered pits, open ground, water body, or other locations. Excreta removed for treatment includes septic tanks and latrines in which wastes have been removed by a service provider to a treatment plan or an unknown location or were removed by a non-service provider to an unknown location

Changes over Time

Information on the emptying and removal of waste from onsite sanitation facilities was introduced in DHS-8. This information is a component of determining if sanitation services are safely managed which is part of SDG 6.2.1 Proportion of population using (a) safely managed sanitation services and (b) hand-washing facility with soap and water.

References

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2017. *Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines.* License: CC BY-NC-SA 3.0 IGO. https://apps.who.int/iris/handle/10665/258617

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Resources

DHS-8 Tabulation plan: Table 16.8

API Indicator IDs
```
WS_ERWA_P_STP, WS_ERWA_P_SDK, WS_ERWA_P_PIT, WS_ERWA_P_OPN, WS_ERWA_P_OTH,
WS_ERWA_P_DKW, WS_ERWA_P_NEV, WS_ERWA_P_DKE, WS_ERWA_P_SAF, WS_ERWA_P_UNS,
WS_ERWA_P_TRT, WS_MHEX_P_SEW, WS_MHEX_P_SAF, WS_MHEX_P_UNS, WS_MHEX_P_TRT
```
(API link, STATcompiler link)

MICS6 Indicator WS.10: Safe disposal in situ of excreta from on-site sanitation facilities

SDG 6.2.1 Proportion of population using (a) safely managed sanitation services and (b) hand-washing facility with soap and water

Management of household excreta

Definition

1) Percent distribution of de jure population by management of excreta from household sanitation facilities.
2) Percentage connected to sewer, safely disposed of on-site, or removed for treatment offsite.

Population base: De jure household population (HR file or PR file)
Time period: Current status at time of survey

Numerators:
1) Number of de jure population with household sanitation facilities connected to the sewer (hv205 = 11)
2) Number of de jure population for using on site sanitation facilities, by disposal method (hv205, hv255, hv257)
3) Number of de jure population using improved sanitation facilities, on-site status unknown (hv205 = 15
4) Number of de jure population using unimproved sanitation facilities (hv205 in 14, 23, 41, 51, 96)
5) Number of de jure population practicing open defecation (hv205 = 61)
6) Number of de jure population with sanitation facilities connected to the sewer, safely disposed of on-site, or removed for treatment off-site. (hv205 = 11; or hv205 in 12, 13, 21, 22, 31 & hv255 in 2, 8; or hv255 = 1 & hv256 = 2; or hv205 in 12, 13, 21, 22, 31 & hv255 = 1 & hv257 in 1, 8)

Denominators:
Number of de jure population in households with on-site sanitation facilities (flush to septic tank, flus to pit latrine, VIP latrine, pit latrine with slab, composting toilet)

Variables: HR file, PR file.
hv012   Number of de jure members (if using HR file)
hv102   Usual resident (if using PR file)
hv205   Type of toilet facility
hv255   Septic tank has been emptied
hv256   Septic tank emptied by a service provider
hv257   Where septic tanked emptied to
hv005   Household sample weight

Calculation

Percent distribution of de jure population includes numerators 1-5

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Population with missing information are included as separate categories.

Notes and Considerations

Percent distribution adds up to 100 percent.

On-site sanitation facilities are those where the excreta are stored in a septic tank, pit latrine, or composting toilet.

Changes over Time

Information on management of household excreta was introduced in DHS-8 and is a component of determining if sanitation services are safely managed which is part of SDG 6.2.1 Proportion of population using (a) safely managed sanitation services and (b) hand-washing facility with soap and water.

References

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2017. *Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines.* License: CC BY-NC-SA 3.0 IGO. https://apps.who.int/iris/handle/10665/258617

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Resources

DHS-8 Tabulation plan: Table 16.9

API Indicator IDs:
WS_MHEX_P_SEW, WS_MHEX_P_SAF, WS_MHEX_P_UNS, WS_MHEX_P_TRT,
WS_MHEX_P_UNK, WS_MHEX_P_NON, WS_MHEX_P_NFC, WS_MHEX_P_SSR
(API link, STATcompiler link)

MICS6 Indicator WS.11: Removal of excreta for treatment off-site

SDG 6.2.1 Proportion of population using (a) safely managed sanitation services and (b) hand-washing facility with soap and water

Percent distribution of youngest children under age 2 living with the mother, by the manner of disposal of child's last fecal matter, and the percentage of children whose stools are disposed of appropriately

Definition

1) Percent distribution of youngest children under age 2 living with the mother, by the manner of disposal of child's last fecal matter.
2) Percentage of children whose stools are disposed of appropriately.

Coverage:
Population base: Youngest child under age 2 living with the mother (KR file)
Time period: Disposal of child's most recent fecal matter

Numerators:
1) Number of youngest children under age 2 living with mother distributed by way in which youngest child's fecal matter is disposed of in the following manner: Child uses toilet or latrine, fecal matter put or rinsed into toilet or latrine, buried, put or rinsed into drain or ditch, thrown into garbage, left in the open, other, or missing (v465)
2) Numbers of youngest children under age 2 living with mother whose last fecal matter is disposed of appropriately: if the child used a toilet or latrine or if the fecal matter was put or rinsed into a toilet or latrine (v465 in 1:2)

Denominator: Number of youngest children under age 2 living with mother (see *Calculation* below)

Variables: KR file.
b9   Child lives with whom
b19   Current age of child in months
v465   Disposal of youngest child's stools when not using toilet
v005   Women's individual sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Denominator:
To select the cases for the denominator, first filter or keep only children living with the mother born in the preceding 24 months (keep/select if b19 < 24 & b9 = 0), then keep only the youngest child (keep/select if the first entry in the dataset (_n = 0) or the first for this respondent (caseid ≠ caseid[_n-1]) as the youngest child is the first listed for the respondent in the data file). The commands in Stata and SPSS are given below:

```
* keep if under 24 months and living with mother
keep if b19 < 24 & b9 == 0
* and keep the last born of those.
* if caseid is the same as the prior case, then not the last born
keep if _n == 1 | caseid != caseid[_n-1]
```

```
* keep if under 24 months and living with mother.
select if (b19 < 24 & b9 = 0).
* and keep the last born of those.
* if caseid is the same as the prior case, then not the last born.
select if (caseid <> lag(caseid)).
```

Handling of Missing Values

Missing values are excluded from the numerator but included in the denominator.

Notes and Considerations

Children's stools are considered to be disposed of appropriately if the child used a toilet or latrine or if the fecal matter was put or rinsed into a toilet or latrine

Changes over Time

The numerator has changed over time; in DHS-8, fecal matter that is buried is no longer considered an appropriate disposal method. The denominator has changed over time from children under age 5 to children under 3, and in DHS-7 and DHS-8, to children under age 2. The response categories are those proposed by the WHO/UNICEF Joint Monitoring Programme (see page 15 of *Core questions on drinking-water and sanitation for household surveys*, dated August 2006, by WHO and UNICEF).

References

World Bank. 2015. Management of child feces: current disposal practices. Water and sanitation program: Research brief
https://www.wsp.org/sites/wsp/files/publications/WSP-CFD-Summary-Brief.pdf

Core questions on drinking water, sanitation and hygiene for household surveys: 2018 update. New York: United Nations Children's Fund (UNICEF) and World Health Organization, 2018.
https://apps.who.int/iris/handle/10665/43489

Resources

DHS-8 Tabulation plan: Table 16.10

API Indicator IDs:
CH_DSTL_C_TLT, CH_DSTL_C_RTL, CH_DSTL_C_BUR, CH_DSTL_C_RDR, CH_DSTL_C_GBG, CH_DSTL_C_OPN, CH_DSTL_C_OTH
(API link, STATcompiler link)

Handwashing

Percentage of jure population for whom the place used for handwashing was observed, and among that population, percentage with water, soap, and cleansing agents other than soap available

Definition

1) Percentage of de jure population for whom the place most often used for handwashing was observed, and by whether its location is fixed or mobile.
2) Among the de jure population for whom a place for handwashing was observed, percentage with water, soap, and cleansing agents other than soap available.

Coverage:

       Population base: De jure household population (HR file or PR file)

       Time period: Current status at time of survey

Numerators:

1) Number of de jure population where a place for handwashing was observed:
   a) Fixed (hv230a = 1)
   b) Mobile (hv230a = 2)
   c) Total (hv230a in 1,2)
2) Number of de jure population where a place for handwashing was observed (hv230a in 1,2) with:
   a) Water (hv230b = 1)
   b) Soap (hv232 = 1)
   c) Cleansing agent other than soap (hv232b = 1)

Denominators:

a) Number of de jure population (hv012 – see *Calculation*)
b) Number of de jure population in which a place for handwashing was observed (hv230a in 1,2) (hv012 – see *Calculation*)

Variables: HR file, PR file.

hv012	Number of de jure members (if using HR file)
hv102	Usual resident (if using PR file)
hv230a	Place where household members wash their hands
hv230b	Presence of water at handwashing place
hv232	Items present: Soap or detergent
hv232b	Items present: Ash, mud, sand
hv005	Household sample weight

Calculation

The percent distribution of the de jure population can be calculated using the HR file and simply weighting the data by the sample weight (hv005/1000000) multiplied by the number of de jure household members (hv012). Alternatively, the PR file can be used, selecting the de jure members (hv102 = 1) and weighting just by the sample weight (hv005/1000000).

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households with missing information on a place for washing or on availability of water, soap, or other cleansing agent are assumed not to have those characteristics.

Notes and Considerations

Percent distribution adds up to 100 percent.

Changes over Time

Questions on handwashing were introduced in DHS-VI, with a single coding category used to indicate a place handwashing was "Observed". In DHS-7, an additional coding category was added to indicate the type of place for handwashing that was observed. The two categories are "Observed, fixed place" and "Observed, mobile".

In order to conform to the JMP guidelines, this indicator is now presented for the de jure population - previously this was tabulated for households rather than for population. As part of the SDG monitoring, the JMP has introduced criteria for basic and limited handwashing facilities that take into consideration the availability of soap and/or water. In the context of the SDGs, the presence of cleansing agents other than soap (e.g., ash, mud, or sand) are not taken into consideration. As of September 2018, these changes have been implemented in DHS surveys.

References

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Resources

DHS-8 Tabulation plan: Table 16.11

API Indicator IDs:
Households:
`WS_HNDW_H_FXD, WS_HNDW_H_MOB, WS_HNDW_H_OBS, WS_HNDW_H_WAT, WS_HNDW_H_SOP,`
`WS_HNDW_H_CLN, WS_HNDW_H_DKM`
(API link, STATcompiler link)

De jure population:
`WS_HNDW_P_FXD, WS_HNDW_P_MOB, WS_HNDW_P_OBS, WS_HNDW_P_WAT, WS_HNDW_P_SOP,`
`WS_HNDW_P_CLN, WS_HNDW_P_DKM`
(API link, STATcompiler link)

MICS6 Indicator WS.7: Handwashing facility with water and soap

SDG 1.4.1 Proportion of population living in households with access to basic services
SDG 6.2.1 Proportion of population using (a) safely managed sanitation services and (b) hand-washing facility with soap and water

Percentage of de jure population with basic or limited handwashing facilities

Definition

1) Percentage of de jure population with a basic handwashing facility.
2) Percentage of de jure population with a limited handwashing facility.

Coverage:

Population base: De jure household population (HR file or PR file)

Time period: Current status at time of survey

Numerators:

1) Number of households or de jure population for whom there is a handwashing facility observed on the premises or no facility available (hv230a in 1,2,3) with soap and water (hv230b = 1 & hv232 = 1)
2) Number of households or de jure population for whom there is a handwashing facility observed on the premises or no facility available (hv230a in 1,2,3) without soap and/or water (hv230b = 0 or hv232 = 0)

Denominators:

a) Number of households
b) Number of de jure population (hv012 – see *Calculation*)

Variables: HR file, PR file.

hv012	Number of de jure members (if using HR file)
hv102	Usual resident (if using PR file)
hv230a	Place where household members wash their hands
hv230b	Presence of water at hand washing place
hv232	Items present: Soap or detergent
hv005	Household sample weight

Calculation

The percent distribution of the de jure population can be calculated using the HR file and simply weighting the data by the sample weight (hv005/1000000) multiplied by the number of de jure household members (hv012). Alternatively, the PR file can be used, selecting the de jure members (hv102 = 1) and weighting just by the sample weight (hv005/1000000).

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Households with missing information on a place for washing or on availability of water, soap, or other cleansing agent are excluded from the numerator, but included in the denominator.

Notes and Considerations

Note that the denominator includes the de jure population from households with no handwashing facility but excludes the de jure population from households who do not provide permission to see the handwashing facility or where it is not seen for some other reason.

Changes over Time

See *Changes over Time* for *Percentage of the de jure population for whom handwashing was observed*.

As part of the SDG period, the JMP has introduced criteria for basic and limited handwashing facilities that take into consideration the availability of soap and/or water. In the context of the SDGs, the presence of cleansing agents other than soap (e.g., ash, mud, or sand) are not taken into consideration. As of September 2018, this change has been implemented in DHS surveys.

References

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2017. *Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines.* License: CC BY-NC-SA 3.0 IGO. https://apps.who.int/iris/handle/10665/258617

World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). 2018. *JMP Methodology: 2017 Update & SDG Baselines* https://washdata.org/sites/default/files/documents/reports/2018-04/JMP-2017-update-methodology.pdf

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Resources

DHS-8 Tabulation plan: Table 16.11

API Indicator IDs:
Households:
WS_HNDW_H_BAS, WS_HNDW_H_LTD
(API link, STATcompiler link)

De jure population:
WS_HNDW_P_BAS, WS_HNDW_P_LTD
(API link, STATcompiler link)

MICS6 Indicator WS.7: Handwashing facility with water and soap

SDG 1.4.1 Proportion of population living in households with access to basic services
SDG 6.2.1 Proportion of population using (a) safely managed sanitation services and (b) hand-washing facility with soap and water

Menstrual hygiene

Among women whose most recent menstrual period was in the last year, percentage who used specified materials to collect or absorb blood from the most recent menstrual period; and among women whose most recent menstrual period was in the last year and were at home during their last menstrual period, percentage who were able to wash and change in privacy while at home and percentage who were able to both wash and change in privacy and who used appropriate materials during their last menstruation

Definition

1) Percentage of women age 15-49 whose most recent menstrual period was in the last year and who used specified materials to collect or absorb blood from their most recent menstrual period
2) Percentage of women age 15-49 whose most recent menstrual period was in the last year and who were able to wash and change in privacy at home during their last menstrual period
3) Percentage of women age 15-49 whose most recent menstrual period was in the last year and who were able to wash and change in privacy at home during their last menstrual period and who used appropriate materials during last menstruation

Coverage:

Population base: Women age 15-49 with their most recent menstrual period in the last year (IR file)

Time period: Preceding one year prior to the survey

Numerators:

1) Number of women by use of specified materials to collect or absorb blood (v247a-v247x)
2) Number of women who able to change in privacy (v248 = 1)
3) Number of women who able to change in privacy and who used appropriate materials during their last menstruation (v248 = 1 & any v247a-v247g = 1)

Denominators:

1) and 2) Number of women whose most recent menstrual period was in the last year (v215 in 100:399)
3) Number of women whose most recent menstrual period was in the last year and who were home during their last menstrual period (v215 in 100:399 & v248 in 0:1)

Variables: IR file.

v247a	Collection of menstrual blood: reusable sanitary pads
v247b	Collection of menstrual blood: disposable sanitary pads
v247c	Collection of menstrual blood: tampons sanitary pads
v247d	Collection of menstrual blood: menstrual cup
v247e	Collection of menstrual blood: cloth
v247f	Collection of menstrual blood: toilet paper
v247g	Collection of menstrual blood: cotton wool
v247h	Collection of menstrual blood: underwear only
v247x	Collection of menstrual blood: other

v247y	Collection of menstrual blood: nothing
v248	Able to change in privacy during last menstrual cycle
v215	Time since last menstrual period
v005	Women's sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Notes and Considerations

Women who had their last menstrual period more than 12 months ago and those who reported they are in menopause/had a hysterectomy, never menstruated, or had their last menstrual period before their last pregnancy are excluded from the denominator.

Appropriate materials for collecting or absorbing menstrual blood are reusable sanitary pads, disposable sanitary pads, tampons, menstrual cup, cloth, toilet paper, and/or cotton wool.

Changes over Time

Collection of information on menstrual hygiene began in DHS-8.

References

Core questions on drinking water, sanitation and hygiene for household surveys: 2018 update. New York: United Nations Children's Fund (UNICEF) and World Health Organization, 2018. https://washdata.org/sites/default/files/documents/reports/2019-03/JMP-2018-core-questions-for-household-surveys.pdf

Resources
DHS-8 Tabulation plan: Table 16.12

API Indicator IDs:
WS_MHYG_W_RSP, WS_MHYG_W_DSP, WS_MHYG_W_TAM, WS_MHYG_W_CUP, WS_MHYG_W_CLT, WS_MHYG_W_TLP,
WS_MHYG_W_COT, WS_MHYG_W_UWO, WS_MHYG_W_OTH, WS_MHYG_W_NON, WS_MHYG_W_PRV, WS_MHYG_W_PRA
(API link, STATcompiler link)

MICS Indicator WS.12: Menstrual hygiene management

17) Domestic Violence

Data on domestic violence in DHS surveys comes from an optional module of questions. Thus, indicators in this chapter are available for some, but not all countries. Additionally, The DHS Program, in accordance with the WHO guidelines "Putting Women First: Ethical and Safety Recommendations for Research on Domestic Violence against Women" World Health Organization, 2001, randomly selects only one woman per household among all eligible women in the household selected for the individual questionnaire for this module. Thus, the number of women who have information for domestic violence will always be less than the number of women selected for the complete DHS individual interview.

Historically, a large part of the domestic violence module was implemented only for ever-married women and had questions about violence perpetrated by the current husband/partner for women who are currently married and the most recent husband/partner for women who are currently divorced, separated or widowed. Starting with surveys implemented in 2021 using the DHS-8 domestic violence module, the module now includes never-married women who, through two new screening questions, say that they currently have or have had an intimate partner. Note that ever-married women are women who self-report as being married, divorced, separated, or widowed, or living with or having ever lived with a man as if married. Never-married women self-define who is an intimate partner. Nonetheless, interviewers are trained to be careful to not include casual relationships without longer-term intimacy when asking never-married women if they have or had an intimate partner. The inclusion of never-married women in the intimate partner related violence indicators imply that these indicators can no longer be called spousal violence indicators but are more accurately called intimate partner violence indicators.

Also note that for these questions, the term 'husband' applies to ever-married women and includes the man a woman says she is married to or the man (partner) a woman says she lives with as if married. Thus, the combined term 'husband/intimate partner' includes current or most recent husbands of ever-married women (and men they live with as if married) and the current intimate partner of never-married women. The term 'previous husband/intimate partner' is a husband (or partner she is living with as if married) other than the current husband (or man she is living with as if married) for currently married women, any intimate partner for never-married women who do not currently have an intimate partner, and a husband/partner other than the most recent husband/partner for divorced, separated, or widowed women.

Subsampling and weights

Data users should be aware that in most DHS surveys that collect these data, the domestic violence module is most often implemented only in a subsample of the households selected for the full DHS survey. Further, for ethical reasons, only one woman per household is randomly selected for the domestic violence module among all women eligible for the woman's questionnaire. Additionally, the domestic violence module can be entirely skipped if, despite all the interviewer's efforts, complete privacy for the duration of the module is not possible. The domestic violence weight (d005) takes these factors into account and should be used when using the DHS domestic violence module data.

References

Hindin, M. J., S. Kishor, and D. L. Ansara. 2008. *Intimate Partner Violence among Couples in 10 DHS Countries: Predictors and Health Outcomes.* DHS Analytical Studies No. 18. Calverton, Maryland, USA: Macro International Inc.
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Kishor, S. and S. E. K. Bradley. 2012. *Women's and Men's Experience of Spousal Violence in Two African Countries: Does Gender Matter?* DHS Analytical Studies No. 27. Calverton, Maryland, USA: ICF International.
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https://www.who.int/gender/violence/womenfirtseng.pdf

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Experience of Physical Violence by Any Perpetrator

Percentage of women who have experienced physical violence by any perpetrator, and who have experienced physical violence by any perpetrator in the past 12 months

Definition

1) Percentage of women age 15-49 who have experienced physical violence since age 15.
2) Percentage of women age 15-49 who have experienced physical violence in the past 12 months.

Coverage:

> Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) (IR file)
> Time period: Current status at time of survey

Numerators:

1) Number of women who have experienced any form of physical violence asked about (see variable list below) by:
   a) Any husband/partner ever if ever-married and any intimate partner ever for never-married women who report an intimate partner (any of d105a – g, j in 1:4 or d130a in 1:4); or
   b) Anyone other than any husband/partner for ever-married women or any intimate partner of never-married women since they were age 15 years (d115y = 0); or
   c) Anyone during any pregnancy, if ever pregnant (d118y = 0)
2) Number of women who have experienced any physical violence in the 12 months (often or sometimes) preceding the survey:
   a) Often: (any of d105a – g, j = 1 or d117a = 1)
   b) Sometimes: (any of d105a – g, j = 2 or d117a = 2)
   c) Often or sometimes: (any of d105a – g, j in 1:2 or d117a in 1:2 or d130a = 1)

Denominator: Number of women age 15-49 selected and interviewed for the domestic violence module (v044 = 1)

Variables: IR file.

v044	Selected for Domestic Violence module
d105a	Ever been pushed, shook or had something thrown by husband/partner
d105b	Ever been slapped by husband/partner
d105c	Ever been punched with fist or hit by something harmful by husband/partner
d105d	Ever been kicked or dragged by husband/partner
d105e	Ever been strangled or burnt by husband/partner
d105f	Ever been attacked with a knife, gun or other weapon by husband/partner
d105g	Ever CS physical violence by husband/partner
d105j	Ever had arm twisted or hair pulled by husband/partner
d115y	No person other than husband/partner ever physically hurt respondent
d117a	Frequency of being hit in last 12 months by other than husband/partner
d118y	Respondent was not hurt by anyone during a pregnancy
d130a	Previous husband/partner: ever hit, slap, kick, or physically hurt respondent

d005   Weight for Domestic Violence

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with missing information on physical violence are included in the denominator but not the numerator.

Notes and Considerations

The number of questions from which information is taken for the numerator varies by the current marital or intimate partner status of women. Ever-married women and never-married women who report an intimate partner are asked many more questions about their experience of physical violence than never-married women who do not report any intimate partner because there are several questions on the different types of physical violence perpetrated by women's husbands/intimate partners in addition to violence perpetrated by anyone else. Women who were first married or had an intimate partner before age 15 and report violence only by their husbands/intimate partners, could have experienced the violence before they were 15.

For some types of violence women are also asked if they experienced the violence frequently or sometimes in the past 12 months. For violence committed by a previous husband/intimate partner, the respondent is asked when the violence last took place, but a question on frequency in the past 12 months is not asked, and the information is included for the combined "often or sometimes" indicator, but not for the separate "often" or "sometimes" indicators. No information on frequency of violence is available for violence during pregnancy.

Changes over Time

The questions on physical violence have not changed significantly over time. Till about 2005-06, however, the groups of acts of physical violence were organized somewhat differently. However, since most of the same acts were covered, this indicator is likely to be fairly comparable over time. Another change worth noting is that more recently, from about 2010-11, a question was added for women married more than once that asks specifically about their experience of physical violence by a previous husband/partner. Before this addition, physical violence by a previous husband/partner could only be reported in response to a more general question on women's experience of physical violence by anyone other than the current husband/partner. For that question, "previous husband/partner" was one of several possible answer codes. From 2021, current or previous husband/partner also includes intimate partners reported by never-married women. Nonetheless, always, but particularly when making comparisons over time, users are strongly advised to check the questions in each survey.

From 2021, the question about violence by the current or most recent husband/partner corresponding to the recode variable d105f was changed from "threaten or attack you with a knife, gun, or other weapon?" to "attack you with a knife, gun, or other weapon?"

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Table DV.1

API Indicator IDs:
`DV_EXPV_W_EVR, DV_EXPV_W_12O, DV_EXPV_W_12S, DV_EXPV_W_12M`
([API link](#), [STATcompiler link](#))

Persons Committing Physical Violence

Among women who have experienced physical violence since age 15, percentage who report specific persons who committed the violence

Definition

Among women age 15-49 who have experienced physical violence since age 15, percentage who report specific persons who committed the violence.

Coverage:

Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) (IR file) who have experienced physical violence since age 15

Time period: Current status at time of survey

Numerators:

Number of women age 15-49 who have experienced physical violence since age 15 who report specific persons who committed the violence:

1) Current husband/partner or intimate partner ((v502 = 1 or d100 = 1) & (any of d105a – g, j in 1:4 or d118a = 1)).
2) Former husband/partner or intimate partner
   a) if currently or formerly married ((v502 in 1:2 & (d115j = 1 or d118j = 1 or d130a in 1:4)), or
   b) if never-married and formerly had an intimate partner (v502 = 0 & d100 = 2)
   c) if formerly married ((v502 = 2 & (any of d105a – g, j in 1:4)
3) Current boyfriend (d115k = 1 or d118k = 1)
4) Former boyfriend (d115l = 1 or d118l = 1)
5) Father/step-father (d115c = 1 or d118c = 1)
6) Mother/step-mother (d115b = 1 or d118b = 1)
7) Sister/brother (d115f = 1 or d118f = 1)
8) Daughter/son (d115d = 1 or d118d = 1)
9) Other relative (d115g = 1 or d118g = 1)
10) Mother-in-law (d115o = 1 or d118o = 1)
11) Father-in-law (d115p = 1 or d118p = 1)
12) Other in-law (d115q = 1 or d118q = 1)
13) Teacher (d115v = 1 or d118v = 1)
14) Employer/someone at work (d115w = 1 or d118w = 1)
15) Police/soldier (d115xe = 1 or d118xe = 1)
16) Other (d115x = 1 or d118x = 1)

Denominator: Number of women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) who have experienced physical violence since age 15 (see numerators 1 and 2 for *Percentage of women who have experienced physical violence, and who have experienced physical violence in the past 12 months*)

Variables: IR file.

v044   Selected for Domestic Violence module
v502   Currently/formerly/never in union

d100	Ever had an intimate relationship with a man
d105a	Ever been pushed, shook or had something thrown by husband/partner
d105b	Ever been slapped by husband/partner
d105c	Ever been punched with fist or hit by something harmful by husband/partner
d105d	Ever been kicked or dragged by husband/partner
d105e	Ever been strangled or burnt by husband/partner
d105f	Ever been attacked with knife/gun or other weapon by husband/partner
d105g	Ever CS physical violence by husband/partner
d105j	Ever had arm twisted or hair pulled by husband/partner
d115b	Mother: Person who has ever physically hurt respondent
d115c	Father: Person who has ever physically hurt respondent
d115d	Daughter/son: Person who has ever physically hurt respondent
d115f	Sister/brother: Person who has ever physically hurt respondent
d115g	Other relative: Person who has ever physically hurt respondent
d115j	Former partner: Person who has ever physically hurt respondent
d115k	Current boyfriend: Person who has ever physically hurt respondent
d115l	Former boyfriend: Person who has ever physically hurt respondent
d115o	Mother-in-law: Person who has ever physically hurt respondent
d115p	Father-in-law: Person who has ever physically hurt respondent
d115q	Other in-law: Person who has ever physically hurt respondent
d115v	Teacher: Person who has ever physically hurt respondent
d115w	Employer: Person who has ever physically hurt respondent
d115x	Other: Person who has ever physically hurt respondent
d115xe	Police: Person who has ever physically hurt respondent
d115y	No person other than husband/partner ever physically hurt respondent
d118a	Husband/partner: Person who hurt respondent during a pregnancy
d118b	Mother-in-law: Person who hurt respondent during a pregnancy
d118c	Father/step-father: Person who hurt respondent during a pregnancy
d118d	Daughter: Person who hurt respondent during a pregnancy
d118f	Sister/brother: Person who hurt respondent during a pregnancy
d118g	Other relative: Person who hurt respondent during a pregnancy
d118j	Former partner: Person who hurt respondent during a pregnancy
d118k	Current boyfriend: Person who hurt respondent during a pregnancy
d118l	Former boyfriend: Person who hurt respondent during a pregnancy
d118o	Mother-in-law: Person who hurt respondent during a pregnancy
d118p	Father-in-law: Person who hurt respondent during a pregnancy
d118q	Other-in-law: Person who hurt respondent during a pregnancy
d118v	Teacher: Person who hurt respondent during a pregnancy
d118w	Employer: Person who hurt respondent during a pregnancy
d118x	Other: Person who hurt respondent during a pregnancy
d118xe	Police: Person who hurt respondent during a pregnancy
d118y	Respondent was not hurt by anyone during a pregnancy (0 = was hurt)
d130a	Previous husband: ever hit, slap, kick, or physically hurt respondent
d005	Weight for Domestic Violence

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Women with missing information on persons committing physical violence are included in the denominator but not the numerators. Women with missing information on ever experience of physical violence are excluded from the numerators and denominator.

Notes and Considerations

See *Notes and Considerations* for *Percentage of women who have experienced physical violence, and who have experienced physical violence in the past 12 months.*

Changes over Time

See *Changes over Time* for *Percentage of women who have experienced physical violence, and who have experienced physical violence in the past 12 months*

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Table DV.2

API Indicator IDs:
DV_PCPV_W_CHP, DV_PCPV_W_FHP, DV_PCPV_W_CBF, DV_PCPV_W_FBF, DV_PCPV_W_FTH,
DV_PCPV_W_MTH, DV_PCPV_W_SIB, DV_PCPV_W_CHD, DV_PCPV_W_REL, DV_PCPV_W_MLW,
DV_PCPV_W_FLW, DV_PCPV_W_OLW, DV_PCPV_W_TCH, DV_PCPV_W_EMP, DV_PCPV_W_POL,
DV_PCPV_W_OTH
(API link, STATcompiler link)

Experience of Sexual Violence by Any Perpetrator

Percentage of women who have ever experienced sexual violence by any perpetrator, and who experienced sexual violence by any perpetrator in the 12 months preceding the survey

Definition

1) Percentage of women age 15-49 who have ever experienced sexual violence by any perpetrator.
2) Percentage of women age 15-49 who have experienced sexual violence by any perpetrator in the 12 months preceding the survey.

Coverage:

Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044= 1) (IR file)
Time period: Current status at time of survey

Numerators:

1) Number of women who have ever experienced any form of sexual violence asked about (see variable list below), as a child or as an adult:
   a) By any husband/partner ever if ever-married and any intimate partner ever for never-married women who report an intimate partner (any of d105h, i, k in 1:4 or d130b in 1:4), or
   b) By anyone other than any husband/partner for ever-married women or any intimate partner for never-married women or by anyone for never-married women with no intimate partner (d125 = 1)
2) Number of women who have experienced any form of sexual violence in the 12 months preceding the survey (any of d105h, i, k in 1:2 or d130b = 1 or d124 = 1)

Denominator: Number of women age 15-49 selected and interviewed for the domestic violence module (v044 = 1)

Variables: IR file.

v044	Selected for Domestic Violence module
d105h	Ever been physically forced into unwanted sex by husband/partner
d105i	Ever been forced into other unwanted sexual acts by husband/partner
d105k	Ever been physically forced to perform sexual acts respondent didn't want to
d124	Ever forced to have sex by anyone other than husband/partner in last 12 months
d125	Ever forced to perform unwanted sexual acts
d130b	Previous husband: physically forced to have sex or to perform sexual acts
d005	Women's sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with missing information on sexual violence are included in the denominator but not the numerator.

Notes and Considerations

The number of questions from which information is taken for the numerator varies by the current marital status of women. Ever-married women and never-married women who have ever had an intimate partner are asked more questions about their experience of sexual violence than never-married women because there are several questions on the different types of sexual violence perpetrated by husbands/intimate partners in addition to violence perpetrated by anyone else.

Changes over Time

There have been several changes over time to the wording and number of questions on women's experience of sexual violence. The change that has a significant effect on comparability over time is the following: In some countries, a version of the module that included a question on whether first sex was wanted or not was implemented. The estimate of sexual violence in these surveys included women who said that their first sex was unwanted. This question is no longer included in the DHS domestic violence module. Thus, when examining trends over time for this variable, the user should check to see if the earlier survey(s) included the question on unwanted first sex or not. If it was included, the percentage of women who have experienced sexual violence should be rerun to exclude the question on first sex being unwanted. Only then will the previous survey estimate be comparable to the estimate from the more recent survey.

Additionally, ever-married women now are asked about sexual violence by a non-husband/partner whether or not they reported sexual violence by any husband/partner. In earlier surveys, only ever-married women who had not reported sexual violence by their current or most recent husband/partner were asked about sexual violence by anyone other than their husband/partner.

In about 2010-11, a question was added for women married more than once that asks specifically about their experience of sexual violence by a previous husband/partner. Before this addition, sexual violence by a previous husband/partner could only be reported in response to a more general question on women's experience of sexual violence by anyone, and "previous husband/partner" was one of several possible answer codes. Additionally, spousal sexual violence by the most recent husband/partner is, since about 2009, being measured through three questions instead of two.

Finally, from 2021, never-married women selected for the domestic violence module who report ever having had an intimate partner are also asked all the same questions on intimate partner violence as ever-married women.

Given these changes, when making comparisons over time of sexual violence, users are strongly advised to check the questions in each survey.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Table DV.4

API Indicator IDs:
`DV_EXSV_W_EVR`, `DV_EXSV_W_12M`
([API link](#), [STATcompiler link](#))

Experience of Sexual Violence by Non-Intimate Partners

Percentage of women who have ever experienced sexual violence by any person who is not their husband or intimate partner, and who experienced sexual violence by any person who is not their husband or intimate partner in the 12 months preceding the survey

Definition

1) Percentage of women age 15-49 who have ever experienced sexual violence by any person who is not their husband/intimate partner.
2) Percentage of women age 15-49 who have experienced sexual violence by any person who is not their husband/intimate partner in the 12 months preceding the survey.

Coverage:
Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044= 1) (IR file)
Time period: Current status at time of survey

Numerators:
1) Number of women who have ever experienced sexual violence as a child or as an adult by anyone other than any husband/partner for ever-married women or any intimate partner for never-married women or by anyone for never-married women with no intimate partner (d125 = 1)
2) Number of women who have experienced any form of sexual violence by anyone other than any husband/intimate partner in the 12 months preceding the survey (d124 = 1)

Denominator: Number of women age 15-49 selected and interviewed for the domestic violence module (v044 = 1)

Variables: IR file.
v044	Selected for Domestic Violence module
d124	Ever forced to have sex by anyone other than husband/partner in last 12 months
d125	Ever forced to perform unwanted sexual acts
d005	Women's sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with missing information on sexual violence are included in the denominator but not the numerator.

Changes over Time

There have been several changes over time to the wording and number of questions on women's experience of sexual violence. The change that has a significant effect on comparability over time is the following: In some countries, a version of the module that included a question on whether first sex was wanted or not was implemented. The estimate of sexual violence in these surveys included women who said that their first sex was unwanted. This question is no longer included in the DHS domestic violence module. Thus, when examining trends over time for this variable, the user should check to see if the earlier survey(s) included the question on unwanted first sex or not. If it was included, the percentage of women who have experienced sexual violence should be rerun to exclude the question on first sex being unwanted. Only then will the previous survey estimate be comparable to the estimate from the more recent survey.

The question on having ever performed an unwanted sexual act is no longer included in the standard module.

Additionally, ever-married women now are asked about sexual violence by a non-husband/partner whether or not they reported sexual violence by any husband/partner. In earlier surveys, only ever-married women who had not reported sexual violence by their current or most recent husband/partner were asked about sexual violence by anyone other than their husband/partner.

Finally, from 2021, never-married women selected for the domestic violence module who report ever having had an intimate partner are also asked all the same questions on intimate partner violence as ever-married women. In earlier surveys, for never-married women, the answer codes 'Current boyfriend' or 'Former boyfriend' would have included sexual violence committed by an intimate partner. In other words, till the revisions to the module in 2021, no distinction was made between a boyfriend who was an intimate partner and one who was not.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Table DV.6

API Indicator IDs:
DV_EXSV_W_EVR, DV_EXSV_W_12M
(API link, STATcompiler link)

Persons Committing Sexual Violence

Among women who have experienced sexual violence, percentage who report specific persons who committed the violence

Definition

Among women age 15-49 who have experienced sexual violence, percentage who report specific persons who committed the violence.

Coverage:

Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) who have ever experienced sexual violence (IR file)
Time period: Current status at time of survey

Numerator:

Number of women age 15-49 who have experienced sexual violence who report specific persons who committed the violence:
1) Current husband/intimate partner (d105h in 1:4 or d105i in 1:4 or d105k in 1:4)
2) Former husband/intimate partner (d130b in 1:4)
3) Current/former boyfriend (d127d = 1 or d127e = 1)
4) Father/step-father (d127a = 1)
5) Brother/step-brother (d127b = 1)
6) Other relative (d127c = 1)
7) In-law (d127f = 1)
8) Own friend/acquaintance (d127g = 1)
9) Family friend (d127h = 1)
10) Teacher (d127i = 1)
11) Employer/someone at work (d127k = 1)
12) Police/soldier (d127l = 1)
13) Priest/religious leader (d127m = 1)
14) Stranger (d127n = 1)
15) Other (d127x = 1)
16) Missing (d127 = 99)

Denominator: Number of women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) who have ever experienced sexual violence (see numerator 1 for *Percentage of women who have ever experienced sexual violence by any perpetrator, and who experienced sexual violence by any perpetrator in the 12 months preceding the survey*) and are:
a) Ever-married or ever had an intimate partner (v502 in 1:2 or d100 in 1:2)
b) Never-married and never had an intimate partner (v502 = 0 or d100 = 0)

Variables: IR file.

v044	Selected for Domestic Violence module
v502	Currently/formerly/never in union
d100	Ever had an intimate relationship with a man
d105h	Ever been physically forced into unwanted sex by husband/partner
d105i	Ever been forced into other unwanted sexual acts by husband/partner
d105k	Ever been physically forced to perform sexual acts respondent didn't want to
d127a	Father/step-father: person who forced to have sexual intercourse/acts
d127b	Brother/step-brother: person who forced to have sexual intercourse/acts
d127c	Other relative: person who forced to have sexual intercourse/acts
d127d	Current boyfriend: person who forced to have sexual intercourse/acts
d127e	Former boyfriend: person who forced to have sexual intercourse/acts
d127f	In-law: person who forced to have sexual intercourse/acts
d127g	Own friend/acquaintance: person who forced to have sexual intercourse/acts
d127h	Family friend: person who forced to have sexual intercourse/acts
d127i	Teacher: person who forced to have sexual intercourse/acts
d127j	Schoolmate/classmate: person who forced to have sexual intercourse/acts
d127k	Employer/someone at work: person who forced to have sexual intercourse/acts
d127l	Police/soldier: person who forced to have sexual intercourse/acts
d127m	Priest/religious leader: person who forced to have sexual intercourse/acts
d127n	Stranger: person who forced to have sexual intercourse/acts
d127o	CS: person who forced to have sexual intercourse/acts
d127x	Other: person who forced to have sexual intercourse/acts
d127	Person who forced respondent into sexual act
d130b	Previous husband/partner: physically forced to have sex or to perform sexual acts
d005	Weight for Domestic Violence

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with missing information on persons committing sexual violence are included in the denominator and are in a separate category for the numerators. Women with missing information on ever experience of sexual violence are excluded from the numerators and denominator.

Notes and Considerations

See also *Notes and Considerations* for *Percentage of women who have ever experienced sexual violence, and who experienced sexual violence in the 12 months preceding the survey*.

Changes over Time

In 2021, the question on perpetrators (other than the husband/partner) of sexual violence asked of women who reported sexual violence by a non-husband/intimate partner, was changed to allow women

to report multiple perpetrators. The earlier question allowed women to report only the person who perpetrated the violence the very first time they had experienced sexual violence. In that version, the maximum number of perpetrators of sexual violence that can be reported varies between ever-married and never-married women with or without an intimate partner. Ever-married women can report up to three perpetrators of sexual violence—their current or most recent husband, a former husband/partner if married more than once, and/or a non-husband/partner who was the one who perpetrated the violence the first time it occurred. Never-married women can report only one perpetrator, namely the person who perpetrated the sexual violence the time it first occurred.

See also *Changes over Time* for *Percentage of women who have ever experienced sexual violence, and who experienced sexual violence in the 12 months preceding the survey*.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Table DV.5

API Indicator IDs:
```
DV_PCSV_W_CHP, DV_PCSV_W_FHP, DV_PCSV_W_BFR, DV_PCSV_W_FTH, DV_PCSV_W_BRH,
DV_PCSV_W_REL, DV_PCSV_W_ILW, DV_PCSV_W_OFR, DV_PCSV_W_FFR, DV_PCSV_W_TCH,
DV_PCSV_W_EMP, DV_PCSV_W_POL, DV_PCSV_W_RLG, DV_PCSV_W_STR, DV_PCSV_W_OTH,
DV_PCSV_W_DKM
```
(API link, STATcompiler link)

Age at First Experience of Sexual Violence

Percentage of women who have experienced sexual violence by exact ages

Definition

1) Percentage of women age 15-49 who have experienced sexual violence by specific exact ages.
2) Percentage of women age 15-49 who have not experienced sexual violence.

Coverage:
  By age
        Population base:
            a) By age: all women age 15-49 selected and interviewed for the domestic violence module (v044= 1)
            b) By perpetrator:
                    a. All ever-married women and never-married women age 15-49 reporting an intimate partner selected and interviewed for the domestic violence module (v044= 1 & (v502 in 1:2 or d100 in 1:2))
                    b. All women age 15-49 selected and interviewed for the domestic violence module (v044= 1)
        Time period: Current status at the time of survey

Numerators:
1) Number of women age 15-49 whose first experience of sexual violence occurred before they attained the specified age (10, 12, 15, 18, 22) (d126 in 1:49 & d126 < specified age or (d109a in 0:49 & d126 in 0:49 & d126 < d109a))
2) Number of women age 15-49 who have not experienced sexual violence. This is the number of women not included in numerator 1 for Percentage of women who have ever experienced sexual violence *by any perpetrator, and who experienced sexual violence by any perpetrator in the 12 months preceding the survey*

Denominator: Number of women age 15-49 selected and interviewed for the domestic violence module (v044 = 1)

Variables: IR file.
v044   Selected for Domestic Violence module
v502   Currently/formerly/never in union
d100   Ever had an intimate relationship with a man
d109a   Age when first forced to have sexual acts by husband or partner
d126   Age at first forced sexual act
d005   Weight for Domestic Violence

Calculation

All respondents are asked about their experience of sexual violence in their lifetime. Those who report any experience of violence are also asked the age at which the sexual violence first occurred. These two

pieces of information (a "yes" on one or more of the sexual violence questions and the age at first experience of sexual violence) are used to determine the percentage of all women who have experienced violence by the specified age.

From 2021, age at first experience of sexual violence can also be calculated separately by the type of perpetrator (i.e., husband/intimate partner and non-intimate partner).

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with missing or don't know information on age at first sexual violence are included in the denominator but not the numerator; their age at first experience of sexual violence is considered as unknown but not before the specified age.

Notes and Considerations

Women who have experienced violence by an exact age are the women who have experienced sexual violence at any age before the specified age. Thus, for example, women who have experienced violence by exact age 15 include those who have experienced violence before exact age 10 and exact age 12.

Note also that the number of questions from which information is taken for the numerator varies by the current marital status of women. Ever-married/partnered women are asked more questions about sexual violence than never-married women who do not report an intimate partner because there are several questions on the different types of sexual violence perpetrated by ever-married women's husbands/intimate partners in addition to violence perpetrated by anyone else. Additionally, since 2021, ever-married women and never married women who report sexual violence are asked for age at first experience separately by type of perpetrator (husband/intimate partner and anyone other than husband/intimate partner).

Changes over Time

In several earlier surveys, women who reported sexual violence by only a current/most recent husband/partner were not asked about the age at which the sexual violence first occurred. This makes it difficult to look at trends over time.

Till recently, all women who reported sexual violence were asked who the first perpetrator of the sexual violence was and what their age was at this first experience. From 2021, ever-married women and never married women who have ever had an intimate partner who report sexual violence by an intimate partner are asked about their age at which they first experienced intimate partner sexual violence; additionally, if they report sexual violence by a non-intimate partner, they are asked another question about their age at that time. There is no change for never-married women who did not report an intimate partner.

See *Changes over Time* for *Percentage of women who have ever experienced sexual violence, and who experienced sexual violence in the 12 months preceding the survey*.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Table DV.7

API Indicator IDs:
`DV_AFSV_W_A10, DV_AFSV_W_A12, DV_AFSV_W_A15, DV_AFSV_W_A18, DV_AFSV_W_A22, DV_AFSV_W_NON`
([API link](#), [STATcompiler link](#))

Percentage of women who have experienced physical violence only, sexual violence only, physical and sexual violence, and physical or sexual violence

Definition

1) Percentage of women age 15-49 who have experienced physical violence only.
2) Percentage of women age 15-49 who have experienced sexual violence only.
3) Percentage of women age 15-49 who have experienced physical and sexual violence.
4) Percentage of women age 15-49 who have experienced physical or sexual violence.

Coverage:

Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1)

Time period: Current status at the time of survey

Numerators:

1) Number of women who <u>have</u> experienced any form of physical violence asked about by anyone (see numerator 1 for *Percentage of women who have experienced physical violence by any perpetrator, and who have experienced physical violence by any perpetrator in the past 12 months*) and <u>have not</u> experienced any form of sexual violence, as a child or as an adult, by anyone (number of women <u>not</u> included in numerator 1 for *Percentage of women who have ever experienced sexual violence by any perpetrator, and who experienced sexual violence by any perpetrator in the 12 months preceding the survey*)

2) Number of women who <u>have</u> ever experienced any form of sexual violence, as a child or as an adult, by anyone (see numerator 1 for *Percentage of women who have ever experienced sexual violence by any perpetrator, and who experienced sexual violence by any perpetrator in the 12 months preceding the survey*) and <u>have not</u> experienced any form of physical violence asked about by anyone (women <u>not</u> in numerator 1 for *Percentage of women who have experienced physical violence by any perpetrator, and who have experienced physical violence by any perpetrator in the past 12 months*)

3) Number of women who have experienced any form of physical violence asked about by anyone (see numerator 1 for *Percentage of women who have experienced physical violence by any perpetrator, and who have experienced physical violence by any perpetrator in the past 12 months*) <u>and</u> have experienced any form of sexual violence, as a child or as an adult, by anyone (see numerator 1 *Percentage of women who have ever experienced sexual violence by any perpetrator, and who experienced sexual violence by any perpetrator in the 12 months preceding the survey*)

4) Number of women who have experienced any form of physical violence asked about by anyone (see numerator 1 for *Percentage of women who have experienced physical violence by any perpetrator, and who have experienced physical violence by any perpetrator in the past 12 months*) <u>or</u> have experienced any form of sexual violence, as a child or as an adult, by anyone (see numerator 1 for *Percentage of women who have ever experienced sexual violence by any perpetrator, and who experienced sexual violence by any perpetrator in the 12 months preceding the survey*)

Denominator: Number of women age 15-49 selected and interviewed for the domestic violence module (v044 = 1)

See variables for:

Percentage of women who have experienced physical violence, and who have experienced physical violence in the past 12 months

Percentage of women who have ever experienced sexual violence, and who experienced sexual violence in the 12 months preceding the survey

Calculation

Numerator divided by denominator, multiplied by 100.

Numerators can be summarized as:

1) Women who say "yes" to one or more of questions on experience of physical violence and say "no" to all questions on experience of sexual violence
2) Women who say "yes" to one or more questions on experience of sexual violence and say "no" to all questions on experience of physical violence.
3) Women who say "yes" to one or more of questions on experience of physical violence and say "yes" to one or more questions on experience of sexual violence
4) Women who say "yes" to one or more questions on experience of physical violence and/or say "yes" to one or more questions on experience of sexual violence

Handling of Missing Values

Women with missing information on physical and/or sexual violence are included in the denominator but not the numerators.

Notes and Considerations

The number of questions from which information is taken for the numerator in each case varies by the current marital status of women. Ever-married women and never-married women who report ever having an intimate partner are asked many more questions about physical and/or sexual violence than never-married women who do not report ever having an intimate partner because women who have a husband/intimate partner are asked several questions on intimate partner violence in addition to violence perpetrated by anyone who is not a husband/intimate partner.

Changes over Time

See *Changes over Time* in the indicator descriptions for *Experience of Physical Violence* and *Experience of Sexual Violence*.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Table DV.8

API Indicator IDs:
`DV_FMVL_W_PHS, DV_FMVL_W_SEX, DV_FMVL_W_PAS, DV_FMVL_W_POS`
([API link](#), [STATcompiler link](#))

Experience of Physical Violence during Pregnancy

Percentage of women who have experienced violence during pregnancy

Definition

Percentage of women age 15-49 who have experienced violence during pregnancy

Coverage:
　　Population base: All women age 15-49 who have ever been pregnant and selected and interviewed for the domestic violence module (IR file)
　　Time period: Current status at the time of survey

Numerator: Number of women age 15-49 who say that they have ever experienced physical violence during any pregnancy (d118y = 0)

Denominator: Number of women age 15-49 selected and interviewed for the domestic violence module who have ever been pregnant (v044 = 1 and (pre-DHS-8: v201 > 0 or v213 = 1 or v228 = 1; DHS-8: v246 > 0 or v213 = 1))

Variables: IR file.

v044	Selected for Domestic Violence module
v201	Total children ever born
v213	Currently pregnant
v228	Ever had a terminated pregnancy
d118y	Respondent was not hurt by anyone during a pregnancy
d005	Weight for Domestic Violence

Calculation

Women who have ever been pregnant were asked if during any of their pregnancies anyone had ever hit, slapped, kicked or done anything else to hurt them physically. The number of women who say "yes" to this question as a proportion of those who have ever been pregnant multiplied by 100.

Handling of Missing Values

Women with missing information on violence during pregnancy are included in the denominator but not the numerator.

Notes and Considerations

This indicator includes information only on physical violence during pregnancy.

Changes over Time

There have been no changes over time in this variable.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Table DV.3

API Indicator IDs:
`DV_VPRG_W_VPG`
([API link](#), [STATcompiler link](#))

Intimate Partner Controlling Behavior

Percentage of women who have ever had a husband or intimate partner whose husbands/intimate partners have ever demonstrated specific types of controlling behaviors ever and in the 12 months preceding the survey

Definition

1) Percentage of ever-married women age 15-49 whose current husband/partner for currently married women and most recent husband/partner for divorced, separated, or widowed women, or current or most recent intimate partner for never-married women age 15-49 who report having had an intimate partner who has ever displayed one or more of the following controlling behaviors:
   a) jealous or angry if she talks to other men;
   b) frequently accuses her of being unfaithful;
   c) does not permit her to meet her female friends;
   d) tries to limit her contact with her family;
   e) insists on knowing where she is at all times;

2) Percentage of ever-married women age 15-49 whose current husband/partner for currently married women and most recent husband/partner for divorced, separated, or widowed women, or current or most recent intimate partner for never-married women age 15-49 who report having ever had an intimate partner displays 3 or more of the specific behaviors.

3) Percentage of ever-married women age 15-49 whose current husband/partner for currently married women and most recent husband/partner for divorced, separated, or widowed women, or current or most recent intimate partner for never-married women age 15-49 who report ever having had an intimate partner displays none of the specific behaviors.

4) Percentage of ever-married women age 15-49 whose current husband/partner for currently married women and most recent husband/partner for divorced, separated, or widowed women, or current or most recent intimate partner for never-married women age 15-49 who report having ever had an intimate partner who has displayed one or more of the following controlling behaviors in the 12 months preceding the survey.

Coverage:
Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) who report being ever-married or ever having had an intimate partner (v502 in 1:2 or d100 in 1:2) (IR file)
Time period: Current status at time of survey

Numerators:
1) Number of women who say "yes" when asked about each of the five different types of the specified marital control behaviors displayed by their husbands/partners:
   a) Is jealous or angry if she talks to other men (d101a = 1)
   b) Frequently accuses her of being unfaithful (d101b = 1)
   c) Does not permit her to meet her female friends (d101c = 1)

d) Tries to limit her contact with her family (d101d = 1)
e) Insists on knowing where she is at all times (d101e = 1)
2) Number of women who say "yes" to at least three of the five different types of specified marital control behaviors displayed by their husbands/partners (At least three of d101a – e = 1)
3) Number of women who say "no" to all of the five different types of specified marital control behaviors displayed by their husbands/partners (None of d101a – e = 1)
4) Number of women who say "often" or "sometimes" when, for each type of controlling behavior that they said their husband/intimate partner displays, they are asked how frequently this happened during the past 12 months:
a) Often (d101a – e = 1)
b) Sometimes (d101a – e = 2)
c) Ever in the past 12 months (d101a – e in 1:2)

Denominator: Number of ever-married women and never-married women who report ever having had an intimate partner selected and interviewed for the domestic violence module (v044 = 1 & (v502 in 1:2 or d100 in 1:2))

Variables: IR file.

v044	Selected for Domestic Violence module
v502	Currently/formerly/never in union
d100	Ever had an intimate relationship with a man
d101a	Husband/partner jealous if respondent talks with other men
d101b	Husband/partner accuses respondent of unfaithfulness
d101c	Husband/partner does not permit respondent to meet female friends
d101d	Husband/partner tries to limit respondent's contact with family
d101e	Husband/partner insists on knowing where respondent is
d101f	Husband/partner doesn't trust respondent with money
d005	Weight for Domestic Violence

Calculation

Women who say "yes" to the relevant questions as a proportion of all eligible women multiplied by 100.

Handling of Missing Values

Women with missing information on one or more of the questions used for the indicator are included in the denominator but not the numerator.

Notes and Considerations

Ever-married women include women who have ever had a partner who they lived with as-if married. For women who have had one or more husbands/intimate partners, only behaviors of the most recent husband/intimate partner are included.

Changes over Time

Before 2011, the list of marital control behaviors included a sixth one, namely "He does/did not trust you with any money?" (d101f). This item is no longer in the core module. Also note that in some countries, minor modifications to the wording of each kind of behavior are sometimes made and, in some countries, additional behaviors may be asked about.

From 2021, the questions on intimate partner controlling behaviors are also asked of never-married women who report an intimate partner. Hence the relevant variables are no longer being described as 'marital' behaviors. Additionally, all eligible women reporting any controlling behavior by their husband/intimate partner are also now asked about experience of such behavior in the past 12 months.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Tables DV. 9 and DV.10

API Indicator IDs:
DV_MCTL_W_JLS, DV_MCTL_W_ACC, DV_MCTL_W_FFR, DV_MCTL_W_FAM, DV_MCTL_W_WHR, DV_MCTL_W_MON, DV_MCTL_W_3BH, DV_MCTL_W_NON
(API link, STATcompiler link)

Intimate Partner Physical Violence

Percentage of women who have ever had a husband or intimate partner who have ever experienced physical violence committed by their current or most recent husband/intimate partner or in the 12 months preceding the survey

Definition

Percentage of ever-married women age 15-49 and never-married women age 15-49 who have ever had an intimate partner who have experienced physical violence ever or in the 12 months preceding the survey by their current or most recent husband/intimate partner.

Coverage:

> Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) who report being ever-married or ever having had an intimate partner (v502 in 1:2 or d100 in 1:2) (IR file)
> Time period: Current status at time of survey

Numerators:

1) Number of women who say "yes" to ever experiencing one or more of the following acts of physical violence by their husbands/intimate partners:
   a) Pushed her, shook her, or threw something at her (d105a in 1:4)
   b) Slapped her (d105b in 1:4)
   c) Twisted her arm or pulled her hair (d105j in 1:4)
   d) Punched her with his fist or with something that could hurt her (d105c in 1:4)
   e) Kicked her, dragged her, or beat her up (d105d in 1:4)
   f) Tried to choke her or burn her on purpose (d105e in 1:4)
   g) Attacked her with a knife, gun, or other weapon (d105f in 1:4)
   h) Any physical violence (any of d105a – f, j in 1:4)
2) Number of women who say "often" or "sometimes" when, for each act of intimate partner physical violence that they said they have ever experienced, they are asked how frequently this happened during the past 12 months:
   a) Often (d105a – f, j = 1)
   b) Sometimes (d105a – f, j = 2)
   c) Ever in the past 12 months (d105a – f, j in 1:2)

Denominator: Number of ever-married women age 15-49 and never-married women age 15-49 who have ever had an intimate partner selected and interviewed for the domestic violence module (v044 = 1 & (v502 in 1:2 or d100 in 1:2))

Variables: IR file.

v044	Selected for Domestic Violence module
v502	Currently/formerly/never in union
d100	Ever had an intimate relationship with a man
d105a	Ever been pushed, shook or had something thrown by husband/partner
d105b	Ever been slapped by husband/partner

d105c	Ever been punched with fist or hit by something harmful by husband/partner
d105d	Ever been kicked or dragged by husband/partner
d105e	Ever been strangled or burnt by husband/partner
d105f	Ever been attacked with knife/gun or other weapon by husband/partner
d105g	Ever CS physical violence by husband/partner
d105j	Ever had arm twisted or hair pulled by husband/partner
d005	Weight for Domestic Violence

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with missing information on one or more of the questions used for the indicator are included in the denominator but not the numerator.

Notes and Considerations

Ever-married women include women who have ever had a partner who they lived with as-if married. For women who have had one or more husbands/intimate partners, only violence committed by the most recent husband/intimate partner is included.

The percentage of women who have experienced each specific act of physical violence can also be calculated using the same logic: in the numerator are women who say "yes" to ever experiencing the act as a proportion of all women with a husband/intimate partner. Similarly, the percentage of women who have experienced any specific act of intimate partner sexual violence at all in the past 12 months are the proportion of all ever-married women and never-married women who say that they experienced the specific act "often" or "sometimes" in the past 12 months.

Changes over Time

There are no notable systematic changes over time in the questions used to calculate these variables, although before 2005, the acts of physical violence were organized somewhat differently across the questions asked. Additionally, in some countries, minor modifications to the wording of each kind of act specified are sometimes made and, in some countries, additional acts may be asked about. In 2021, the item "Threatened or attacked her with a knife, gun, or other weapon" was changed to "Attacked her with a knife, gun, or other weapon". Always, but especially when making comparisons over time, users are strongly advised to check the questions in each survey.

In some surveys before 2011, widowed women were asked about ever experience of spousal physical violence but were excluded from the questions on violence during the 12 months preceding the survey. This filter was removed in 2010-11.

From 2021, the questions on intimate partner physical violence are also asked of never-married women who report an intimate partner. Hence the labeling of the violence variables is no longer spousal physical violence but intimate partner physical violence.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Tables DV.9, DV.11, and DV.12

API Indicator IDs:
DV_FSVL_W_PHS, DV_FSVL_W_PSH, DV_FSVL_W_SLP, DV_FSVL_W_TWS, DV_FSVL_W_PCH,
DV_FSVL_W_KIK, DV_FSVL_W_CHK, DV_FSVL_W_KNF, DV_SPVL_W_PHS
([API link](), [STATcompiler link]())

Intimate Partner Sexual Violence

Percentage of women who have ever had a husband or intimate partner who have ever experienced sexual violence committed by their current or most recent husband/intimate partner or in the 12 months preceding the survey

Definition

Percentage of ever-married women age 15-49 and never-married women age 15-49 who have ever had an intimate partner who have experienced sexual violence ever or in the 12 months preceding the survey by their current or most recent husband/intimate partner.

Coverage:

> Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) who report being ever-married or ever having had an intimate partner (v502 in 1:2 or d100 in 1:2) (IR file)
> Time period: Current status at time of survey

Numerators:

1) Number of women who say "yes" to ever experiencing one or more of the following acts of sexual violence perpetrated by their husbands/intimate partners:
    a) Physically forced her to have sexual intercourse with him when she did not want to (d105h in 1:4)
    b) Physically forced her to perform any other sexual acts she did not want to (d105k in 1:4)
    c) Forced her with threats or in any other way to perform sexual acts she did not want to (d105i in 1:4)
    d) Any sexual violence (any of d105h, i, k in 1:4)
2) Number of women who say "often" or "sometimes" when, for each act of intimate partner sexual violence that they said they have ever experienced, they are asked how frequently this happened during the past 12 months:
    a) Often (d105h, i, k = 1)
    b) Sometimes (d105h, i, k = 2)
    c) Ever in the past 12 months (d105h, i, k in 1:2)

Denominator: Number of ever-married women age 15-49 and never-married women age 15-49 who have ever had an intimate partner selected and interviewed for the domestic violence module (v044 = 1 & (v502 in 1:2 or d100 in 1:2))

Variables: IR file.

v044	Selected for Domestic Violence module
v502	Currently/formerly/never in union
d100	Ever had an intimate relationship with a man
d105h	Ever been physically forced into unwanted sex by husband/partner
d105i	Ever been forced into other unwanted sexual acts by husband/partner
d105k	Ever been physically forced to perform sexual acts respondent didn't want to
d005	Weight for Domestic Violence

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with missing information on one or more of the questions used for the indicator are included in the denominator but not the numerator.

Notes and Considerations

Ever-married women include women who have ever had a partner who they lived with as-if married. For women who have had one or more husbands/intimate partners, only violence by the most recent husband/intimate partner is included.

The percentage of women who have experienced each specific act of sexual violence can also be calculated using the same logic: in the numerator are women who say "yes" to ever experiencing the act as a proportion of all ever-married women. Similarly, the percentage of women who have experienced any specific act of intimate partner sexual violence at all in the past 12 months are the proportion of all ever-married women and never-married women who say that they experienced the specific act "often" or "sometimes" in the past 12 months.

Changes over Time

In the past, sexual violence by a current or most recent husband/partner was measured based on only two specified acts of sexual violence. More recently, there were changes made to the wording of the acts and an additional act of sexual violence was added. However, since the third act was originally subsumed under the earlier two, the changes in wording and the addition of third act does not seem to affect the indicator.

In some surveys before 2011, widowed women were asked about ever experience of spousal sexual violence but were excluded from the questions on violence during the 12 months preceding the survey. This filter was removed in 2010-11.

From 2021, the questions on what used to be called spousal sexual violence are also asked of never-married women who report an intimate partner. Hence the labeling of the violence variables is no longer spousal sexual violence but intimate partner sexual violence.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Tables DV.9, DV.11, and DV.12

API Indicator IDs:

`DV_FSVL_W_SEX, DV_FSVL_W_FRC, DV_FSVL_W_ACT, DV_FSVL_W_SXO, DV_SPVL_W_SEX`
([API link](), [STATcompiler link]())

Intimate Partner Emotional Violence

Percentage of women who have ever had a husband or intimate partner who have ever experienced emotional violence committed by their current or most recent husband/intimate partner or in the 12 months preceding the survey

Definition

Percentage of ever-married women age 15-49 and never-married women age 15-49 who have ever had an intimate partner who have experienced spousal emotional violence ever or in the 12 months preceding the survey by their current or most recent husbands/partners.

Coverage:

Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) who report being ever-married or ever having had an intimate partner (v502 in 1:2 or d100 in 1:2) (IR file)
Time period: Current status at time of survey

Numerators:

1) Number of women who say "yes" to ever experiencing one or more of the following acts of emotional violence by their husbands/intimate partners:
   a) Said or did something to humiliate her in front of others (d103a in 1:4)
   b) Threatened to hurt or harm her or someone she cared about (d103b in 1:4)
   c) Insulted her or made her feel bad about herself (d103c in 1:4)
   d) Any emotional violence (any of d103a, b, c in 1:4)
2) Number of women who say "often" or "sometimes" when, for each act of intimate partner emotional violence that they said they have ever experienced, they are asked how frequently this happened during the past 12 months:
   a) Often (d103a, b, c = 1)
   b) Sometimes (d103a, b, c = 2)
   c) Ever in the past 12 months (d103a, b, c in 1:2)

Denominator: Number of ever-married women age 15-49 and never-married women age 15-49 who have ever had an intimate partner selected and interviewed for the domestic violence module (v044 = 1 & (v502 in 1:2 or d100 in 1:2))

Variables: IR file.
v044   Selected for Domestic Violence module
v502   Currently/formerly/never in union
d100   Ever had an intimate relationship with a man
d103a   Ever been humiliated by husband/partner
d103b   Ever been threatened with harm by husband/partner
d103c   Ever been insulted or made to feel bad by husband/partner
d005   Weight for Domestic Violence

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with missing information on one or more of the questions used for the indicator are included in the denominator but not the numerator.

Notes and Considerations

Ever-married women include women who have ever had a partner who they lived with as-if married. For women who have had one or more husbands/intimate partners, only violence by the most recent husband/intimate partner is included.

The percentage of women who have experienced each specific act of physical violence can also be calculated using the same logic: in the numerator are women who say "yes" to ever experiencing the act as a proportion of all women with a husband/intimate partner. Similarly, the percentage of women who have experienced any specific act of intimate partner sexual violence at all in the past 12 months are the proportion of all ever-married women and never-married women who say that they experienced the specific act "frequently" or "sometimes" in the past 12 months.

Changes over Time

This indicator was measured based on only two questions between about 2000 and 2005; thereafter, a third act of emotional violence was added to the domestic violence module. Additionally, in some countries, minor modifications to the wording of each kind of act specified are sometimes made and, in some countries, additional acts may be asked about. Always, but especially when making comparisons over time, users are strongly advised to check the questions used in each survey.

In some surveys before 2011, widowed women were asked about ever experience of spousal physical violence but were excluded from the questions on violence during the 12 months preceding the survey. This filter was removed in 2010-11.

From 2021, the questions on what used to be called spousal emotional violence are also asked of never-married women who report an intimate partner. Hence the labeling of the violence variables is no longer spousal emotional violence but intimate partner emotional violence.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Tables DV.9, DV.11, and DV.12

API Indicator IDs:
DV_FSVL_W_EMT, DV_FSVL_W_HUM, DV_FSVL_W_HRT, DV_FSVL_W_BAD, DV_SPVL_W_EMT
([API link](), [STATcompiler link]())

Combinations of Types of Intimate Partner Violence: Ever Experienced

Percentage of ever-married women and never-married women who report an intimate partner who have ever experienced physical violence and sexual violence, physical violence and sexual violence and emotional violence, physical violence or sexual violence, physical violence or sexual violence or emotional violence by their current or most recent husbands/partners

Definition

Percentage of ever-married women age 15-49 who have ever experienced:
1) physical violence and sexual violence by their current husbands/partners if currently married or most recent husbands/partners if divorced, separated, or widowed.
2) physical violence and sexual violence and emotional violence by their current husbands/partners if currently married or most recent husbands/partners if divorced, separated, or widowed.
3) physical violence or sexual violence by their current husbands/partners if currently married or most recent husbands/partners if divorced, separated, or widowed.
4) physical violence or sexual violence or emotional violence by their current husbands/partners if currently married or most recent husbands/partners if divorced, separated, or widowed.

Percentage of never-married women age 15-49 who report an intimate partner who have ever experienced:
1) physical violence and sexual violence by their current intimate partner or most recent intimate partner if they do not currently have an intimate partner but have ever had one.
2) physical violence and sexual violence and emotional violence by their current intimate partner or most recent intimate partner if they do not currently have an intimate partner but have ever had one.
3) physical violence or sexual violence by their current intimate partner or most recent intimate partner if they do not currently have an intimate partner but have ever had one.
4) physical violence or sexual violence or emotional violence by their current intimate partner or most recent intimate partner if they do not currently have an intimate partner but have ever had one.

Coverage:
> Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) who report being ever-married or ever having had an intimate partner (v502 in 1:2 or d100 in 1:2) (IR file)
> Time period: Current status at time of survey

Numerators:
Numbers of women who say "yes" to ever experiencing:
1) One or more of the specified acts of intimate partner physical violence (any of d105a – f, j in 1:4) and one or more of the specified acts of intimate partner sexual violence (any of d105h, i, k in 1:4)
2) One or more of the specified acts of intimate partner physical violence (any of d105a – f, j in 1:4) and one or more of the specified acts of intimate partner sexual violence (any of d105h, i, k in 1:4) and one or more of the specified acts of intimate partner emotional violence (any of d103a, b, c in 1:4)

3) One or more of the specified acts of intimate partner physical violence (any of d105a – f, j in 1:4) or one or more of the specified acts of intimate partner sexual violence (any of d105h, i, k in 1:4)
4) One or more of the specified acts of intimate partner physical violence (any of d105a – f, j in 1:4) or one or more of the specified acts of intimate partner sexual violence (any of d105h, i, k in 1:4) or one or more of the specified acts of intimate partner emotional violence (any of d103a, b, c in 1:4)

Denominator: Number of ever-married women age 15-49 and never-married women age 15-49 who have ever had an intimate partner selected and interviewed for the domestic violence module (v044 = 1 & (v502 in 1:2 or d100 in 1:2))

Variables: IR file.

v044	Selected for Domestic Violence module
v502	Currently/formerly/never in union
d100	Ever had an intimate relationship with a man
d103a	Ever been humiliated by husband/partner
d103b	Ever been threatened with harm by husband/partner
d103c	Ever been insulted or made to feel bad by husband/partner
d105a	Ever been pushed, shook or had something thrown by husband/partner
d105b	Ever been slapped by husband/partner
d105c	Ever been punched with fist or hit by something harmful by husband/partner
d105d	Ever been kicked or dragged by husband/partner
d105e	Ever been strangled or burnt by husband/partner
d105f	Ever been attacked with knife/gun or other weapon by husband/partner
d105g	Ever CS physical violence by husband/partner
d105h	Ever been physically forced into unwanted sex by husband/partner
d105i	Ever been forced into other unwanted sexual acts by husband/partner
d105j	Ever had arm twisted or hair pulled by husband/partner
d105k	Ever been physically forced to perform sexual acts respondent didn't want to
d005	Weight for Domestic Violence

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with missing information on one or more of the questions used for the indicator are included in the denominator but not the numerator.

Notes and Considerations

Ever-married women include women who have ever had a partner who they lived with as-if married. For women who have had one or more husbands/intimate partners, only violence by the most recent husband/intimate partner is included.

Changes over Time

See *Changes over Time* for the indicators *Intimate Partner Physical Violence*, *Intimate Partner Sexual Violence,* and *Intimate Partner Emotional Violence.*

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Tables DV.9, DV.11 and DV.12

API Indicator IDs:
DV_SPVL_W_PAS, DV_SPVL_W_ALL, DV_SPVL_W_POS, DV_SPVL_W_ANY
(API link, STATcompiler link)

Combinations of Types of Intimate Partner Violence: 12 months preceding the Survey

Percentage of ever-married women and never-married women who report an intimate partner who have experienced physical violence and sexual violence, physical violence and sexual violence and emotional violence, physical violence or sexual violence, physical violence or sexual violence or emotional violence by their current or most recent husbands/partners in the 12 months preceding the survey

Definition
Percentage of ever-married women age 15-49 who have experienced:
1) physical violence and sexual violence by their current or most recent husbands/partners in the 12 months preceding the survey.
2) physical violence and sexual violence and emotional violence by their current or most recent husbands/partners in the 12 months preceding the survey.
3) physical violence or sexual violence by their current or most recent husbands/partners in the 12 months preceding the survey.
4) physical violence or sexual violence or emotional violence by their current or most recent husbands/partners in the 12 months preceding the survey.

Percentage of never-married women age 15-49 who reported an intimate partner who experienced:
1) physical violence and sexual violence by their current or most recent intimate partners in the 12 months preceding the survey.
2) physical violence and sexual violence and emotional violence by their current or most recent intimate partners in the 12 months preceding the survey.
3) physical violence or sexual violence by their current or most recent intimate partners in the 12 months preceding the survey.
4) physical violence or sexual violence or emotional violence by their current or most recent intimate partners in the 12 months preceding the survey.

Coverage:
Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) who report being ever-married or ever having had an intimate partner (v502 in 1:2 or d100 in 1:2) (IR file)
Time period: Current status at time of survey

Numerator:
Number of women who say "yes" to experiencing in the 12 months preceding the survey:
1) One or more of the specified acts of intimate partner physical violence (any of d105a – f, j in 1:2) and one or more of the specified acts of intimate partner sexual violence (any of d105h, i, k in 1:2)
2) One or more of the specified acts of intimate partner physical violence (any of d105a – f, j in 1:2) and one or more of the specified acts of intimate partner sexual violence (any of d105h, i, k in 1:2) and one or more of the specified acts of intimate partner emotional violence (any of d103a, b, c in 1:2)
3) One or more of the specified acts of intimate partner physical violence (any of d105a – f, j in 1:2) or one or more of the specified acts of intimate partner sexual violence (any of d105h, i, k in 1:2)

4) One or more of the specified acts of intimate partner physical violence (any of d105a – f, j in 1:2) or one or more of the specified acts of intimate partner sexual violence (any of d105h, i, k in 1:2) or one or more of the specified acts of intimate partner emotional violence (any of d103a, b, c in 1:2)

Denominator: Number of ever-married women age 15-49 and never-married women age 15-49 who have ever had an intimate partner selected and interviewed for the domestic violence module (v044 = 1 & (v502 in 1:2 or d100 in 1:2))

Variables: IR file.

v044	Selected for Domestic Violence module
v502	Currently/formerly/never in union
d100	Ever had an intimate relationship with a man
d103a	Ever been humiliated by husband/partner
d103b	Ever been threatened with harm by husband/partner
d103c	Ever been insulted or made to feel bad by husband/partner
d105a	Ever been pushed, shook or had something thrown by husband/partner
d105b	Ever been slapped by husband/partner
d105c	Ever been punched with fist or hit by something harmful by husband/partner
d105d	Ever been kicked or dragged by husband/partner
d105e	Ever been strangled or burnt by husband/partner
d105f	Ever been attacked with knife/gun or other weapon by husband/partner
d105g	Ever CS physical violence by husband/partner
d105h	Ever been physically forced into unwanted sex by husband/partner
d105i	Ever been forced into other unwanted sexual acts by husband/partner
d105j	Ever had arm twisted or hair pulled by husband/partner
d105k	Ever been physically forced to perform sexual acts respondent didn't want to
d005	Weight for Domestic Violence

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with missing information on one or more of the questions used for the indicator are included in the denominator but not the numerator.

Notes and Considerations

Ever-married women include women who have ever had a partner who they lived with as-if married. For women who have had one or more husbands/intimate partners, only violence by the most recent husband/intimate partner is included.

Changes over Time

See *Changes over Time* for the indicators *Intimate Partner Physical Violence*, *Intimate Partner Sexual Violence,* and *Intimate Partner Emotional Violence.*

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Table DV.9

API Indicator IDs:
DV_SPV1_W_PAS, DV_SPV1_W_ALL, DV_SPV1_W_POS, DV_SPV1_W_ANY
([API link](#), [STATcompiler link](#))

Types of Intimate Partner Violence by Any Intimate Partner in the Last 12 Months

Percentage of women who have ever had a husband or intimate partner who have experienced emotional, physical or sexual violence by any husband/intimate partner in the last 12 months

Definition

Percentage of ever-married women who have experienced:
1) emotional violence by any husband/partner in the 12 months preceding the survey.
2) physical violence by any husband/partner in the 12 months preceding the survey.
3) sexual violence by any husband/partner in the 12 months preceding the survey.
4) physical violence and sexual violence by any husband/partner in the 12 months preceding the survey.
5) physical violence and sexual violence and emotional violence by any husband/partner in the 12 months preceding the survey.
6) physical violence or sexual violence by any husband/partner in the 12 months preceding the survey.
7) physical violence or sexual violence or emotional violence by any husband/partner in the 12 months preceding the survey.

Percentage of never-married women who have ever had an intimate partner who have experienced:
1) emotional violence by any current or past intimate partner in the 12 months preceding the survey.
2) physical violence by any current or past intimate partner in the 12 months preceding the survey.
3) sexual violence by any current or past intimate partner in the 12 months preceding the survey.
4) physical violence and sexual violence by any current or past intimate partner in the 12 months preceding the survey.
5) physical violence and sexual violence and emotional violence by any current or past intimate partner in the 12 months preceding the survey.
6) physical violence or sexual violence by any current or past intimate partner in the 12 months preceding the survey.
7) physical violence or sexual violence or emotional violence by any current or past intimate partner in the 12 months preceding the survey.

Coverage:
Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) who report being ever-married or ever having had an intimate partner (v502 in 1:2 or d100 in 1:2) (IR file)
Time period: Current status at time of survey

Numerator:
Numbers of women who say "yes" to experiencing in the 12 months preceding the survey:
1) One or more of the specified acts of intimate partner physical violence (any of d105a – f, j in 1:2), or physical violence by any previous husband/intimate partner (d130a = 1)
2) One or more of the specified acts of intimate partner sexual violence (any of d105h, i, k in 1:2), or sexual violence by any previous husband/intimate partner (d130b = 1)

3) One or more of the specified acts of intimate partner emotional violence (any of d103a, b, c in 1:2) by their current or most recent husband/intimate partner, or emotional violence by any previous husband/intimate partner (d130c = 1)
4) One or more of the specified acts of intimate partner physical violence (any of d105a – f, j in 1:2) or physical violence by any previous husband/intimate partner (d130a = 1) <u>and</u>
one or more of the specified acts of intimate partner sexual violence (any of d105h, i, k in 1:2) or sexual violence by any previous husband/intimate partner (d130b = 1)
5) One or more of the specified acts of intimate partner physical violence (any of d105a – f, j in 1:2) or physical violence by any previous husband/intimate partner (d130a = 1) <u>and</u>
one or more of the specified acts of intimate partner sexual violence (any of d105h, i, k in 1:2) or sexual violence by any previous husband/partner (d130b = 1) <u>and</u>
one or more of the specified acts of intimate partner emotional violence (any of d103a, b, c in 1:2) or emotional violence by any previous husband (d130c = 1)
6) One or more of the specified acts of intimate partner physical violence (any of d105a – f, j in 1:2) or physical violence by any previous husband/intimate partner (d130a = 1) <u>or</u>
one or more of the specified acts of intimate partner sexual violence (any of d105h, i, k in 1:2) or sexual violence by any previous husband/intimate partner (d130b = 1)
7) One or more of the specified acts of intimate partner physical violence (any of d105a – f, j in 1:2) or physical violence by any previous husband/intimate partner (d130a = 1) <u>or</u>
one or more of the specified acts of intimate partner sexual violence (any of d105h, i, k in 1:2) or sexual violence by any previous husband/intimate partner (d130b = 1) <u>or</u>
one or more of the specified acts of intimate partner emotional violence (any of d103a, b, c in 1:2) or emotional violence by any previous husband/intimate partner (d130c = 1)

Denominator: Number of ever-married women age 15-49 and never-married women age 15-49 who have ever had an intimate partner selected and interviewed for the domestic violence module (v044 = 1 & (v502 in 1:2 or d100 in 1:2))

Variables: IR file.

v044	Selected for Domestic Violence module
v502	Currently/formerly/never in union
d100	Ever had an intimate relationship with a man
d103a	Ever been humiliated by husband/partner
d103b	Ever been threatened with harm by husband/partner
d103c	Ever been insulted or made to feel bad by husband/partner
d105a	Ever been pushed, shook or had something thrown by husband/partner
d105b	Ever been slapped by husband/partner
d105c	Ever been punched with fist or hit by something harmful by husband/partner
d105d	Ever been kicked or dragged by husband/partner
d105e	Ever been strangled or burnt by husband/partner
d105f	Ever been attacked with knife/gun or other weapon by husband/partner
d105g	Ever CS physical violence by husband/partner
d105h	Ever been physically forced into unwanted sex by husband/partner
d105i	Ever been forced into other unwanted sexual acts by husband/partner
d105j	Ever had arm twisted or hair pulled by husband/partner
d105k	Ever been physically forced to perform sexual acts respondent didn't want to
d130a	Previous husband: ever hit, slap, kick, or physically hurt respondent
d130b	Previous husband: physically forced to have sex or to perform sexual acts

d130c	Previous husband: humiliate, threaten to hurt, insult or make feel bad
d005	Weight for Domestic Violence

Calculation

Numerator divided by denominator multiplied by 100.

Handling of Missing Values

Women with missing information on one or more of the questions used for the indicator are included in the denominator but not the numerator.

Notes and Considerations

Ever-married women include women who have ever had a partner who they lived with as-if married.

The indicator for intimate partner physical violence or sexual violence or emotional violence in the past 12 months corresponds to the SDG indicator 5.2.1.

Changes over Time

In about 2010-11, separate questions were added for women married more than once that ask specifically about their experience of physical violence and of sexual violence by any previous husband/partner. Before this addition, physical violence and sexual violence by a previous husband/partner could only be reported in response to more general questions on women's experience of physical violence and of sexual violence by anyone other than the current husband/partner. A separate question on emotional violence by any previous husband/partner was added to the module only in 2017.

From 2021, the questions on what used to be called spousal emotional violence are also asked of never-married women who report an intimate partner. Hence the labeling of the violence variables is no longer spousal emotional violence but intimate partner emotional violence.

See *Changes over Time* for the indicators *Intimate Partner Physical Violence*, *Intimate Partner Sexual Violence,* and *Intimate Partner Emotional Violence.*

References

SDG Indicator 5.2.1 metadata: https://unstats.un.org/sdgs/metadata/files/Metadata-05-02-01.pdf

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Table DV.13

API Indicator IDs:
DV_SPV1_W_PHS, DV_SPV1_W_SEX, DV_SPV1_W_EMT, DV_SPV1_W_PAS, DV_SPV1_W_ALL, DV_SPV1_W_POS, DV_SPV1_W_ANY
(API link, STATcompiler link)

SDG Indicator 5.2.1: Proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months.

WHO 100 Core Health Indicators: Intimate partner violence prevalence

Experience of Spousal Violence by Duration of Marriage

Among married women married only once, the percentage who first experienced spousal physical or sexual violence by specific exact years since marriage (legacy indicator)

Definition

1) Among currently married women age 15-49 who have been married only once, the percentage who first experienced physical or sexual violence committed by their current husband/partner by specific exact years since marriage.
2) Percentage of currently married women age 15-49 who have been married only once who have not experienced spousal sexual or physical violence.

Coverage:
Population base: All currently married women age 15-49 who have been married only once (IR file)
Time period: Current status at time of survey

Numerators:
1) Number of currently married women age 15-49 who have been married only once (v502 = 1 & v503 = 1) and who first experienced physical or sexual violence committed by their current husband/partner by specified exact durations of marriage (before marriage, 2 years, 5 years, 10 years) (d109 = 95, d109 < 2, d109 < 5, d109 < 10)
2) Number of currently married women age 15-49 who have been married only once (v502 = 1 & v503 = 1) and who have not experienced sexual or physical violence (none of d105a – k in 1:4)

Denominator: Number of currently married women age 15-49 who have been married only once (v502 = 1 & v503 = 1)

Variables: IR file.
v502	Currently/formerly/never in union
v503	Number of unions
d105a	Ever been pushed, shook or had something thrown by husband/partner
d105b	Ever been slapped by husband/partner
d105c	Ever been punched with fist or hit by something harmful by husband/partner
d105d	Ever been kicked or dragged by husband/partner
d105e	Ever been strangled or burnt by husband/partner
d105f	Ever been attacked with knife/gun or other weapon by husband/partner
d105g	Ever CS physical violence by husband/partner
d105h	Ever been physically forced into unwanted sex by husband/partner
d105i	Ever been forced into other unwanted sexual acts by husband/partner
d105j	Ever had arm twisted or hair pulled by husband/partner
d105k	Ever been physically forced to perform sexual acts respondent didn't want to
d005	Weight for Domestic Violence

Calculation

Numerator divided by denominator multiplied by 100.

Handling of Missing Values

"Don't know" and missing responses to the timing when women first experienced physical or sexual violence committed by their current husband/partner are not considered as being before the specified exact durations of marriage and are included in the denominator but excluded from the numerators.

Changes over Time

In DHS-8, the question on when the first experience of violence occurred perpetrated by the husband was removed. This indicator is no longer tabulated.

References

See *References* for this chapter.

Resources

API Indicator IDs:
DV_SPVM_W_BEF, DV_SPVM_W_M2Y, DV_SPVM_W_M5Y, DV_SPVM_W_M10, DV_SPVM_W_NON
(API link, STATcompiler link)

Injuries to Women Due to Intimate Partner Violence

Among ever-married women and never-married women who report an intimate partner who have experienced violence committed by their current or most recent husband/intimate partner, the percentage who have been injured as a result of the violence

Definition

Among ever-married women age 15-49 and never-married women who report an intimate partner who have experienced violence committed by their current or most recent husband/intimate partner, the percentage who have been injured as a result of the violence, by type of injury.

Coverage:

Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) who report being ever-married or ever having had an intimate partner (v502 in 1:2 or d100 in 1:2) who reported experiencing one or more types of physical or sexual violence by their current husband (if currently married), most recent husband (if divorced, separated, or widowed) or by their current or most recent intimate partner (IR file)
Time period: Current status at time of survey

Numerator:
Number of women 15-49 who say "yes" to experiencing the following types of injuries:
1) Cuts, bruises, or aches (d110a = 1)
2) Eye injuries, sprains, dislocations or burns (d110b = 1)
3) Deep wounds, broken bones, broken teeth or any other serious injury (d110d = 1)
4) Any of these injuries (d110a = 1 or d110b = 1 or d110d = 1)

Denominator: Number of ever-married women age 15-49 and never-married women age 15-49 who have ever had an intimate partner selected and interviewed for the domestic violence module (v044 = 1 & (v502 in 1:2 or d100 in 1:2)) who have experienced, by their current or most recent husband/intimate partner:
a) physical violence (any of d105a – f, j in 1:4)
b) sexual violence (any of d105h, i, k in 1:4)
c) physical or sexual violence (any of d105a – f, j in 1:4 or any of d105h, i, k in 1:4)

Variables: IR file.

v044	Selected for Domestic Violence module
v502	Currently/formerly/never in union
d100	Ever had an intimate relationship with a man
d105a	Ever been pushed, shook or had something thrown by husband/partner
d105b	Ever been slapped by husband/partner
d105c	Ever been punched with fist or hit by something harmful by husband/partner
d105d	Ever been kicked or dragged by husband/partner
d105e	Ever been strangled or burnt by husband/partner
d105f	Ever been attacked with knife/gun or other weapon by husband/partner

d105g	Ever CS physical violence by husband/partner
d105h	Ever been physically forced into unwanted sex by husband/partner
d105i	Ever been forced into other unwanted sexual acts by husband/partner
d105j	Ever had arm twisted or hair pulled by husband/partner
d105k	Ever been physically forced to perform sexual acts respondent didn't want to
d110a	Ever had bruises because of husband/partner's actions
d110b	Ever had eye injuries, sprains, dislocations or burns because of husband/partner's actions
d110d	Ever had wounds, broken bones, broken teeth or other serious injury because of husband/partner's actions

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with missing information on types of injuries are included in the denominator but not in the numerator.

Notes and Considerations

Experience of injuries can be calculated by type of intimate partner violence experienced and by whether the violence took place ever and in the past 12 months.

Changes over Time

The questions on injuries were substantially modified in 2005; thus, data on injuries from earlier surveys are not strictly comparable with data from later surveys.

Also, since only women who say "yes" to the experience of physical or sexual violence by the most recent intimate partner are asked the questions on injuries experienced as a result of the violence and changes to those questions affects the eligibility for the questions on injuries. See also *Changes over Time* for the indicators *Intimate partner Physical Violence* and *Intimate partner Sexual Violence* to see how eligibility for this question may have changed over time.

As always, when making comparisons over time, users are strongly advised to check the questions used in each survey.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Table DV.14

API Indicator IDs:

`DV_INJR_W_CUT, DV_INJR_W_INJ, DV_INJR_W_WND, DV_INJR_W_ANY`

([API link](), [STATcompiler link]())

Initiation of Intimate Partner Violence by Women

Percentage of ever-married women and never-married women who report an intimate partner who have committed physical violence against their current or most recent husband/intimate partner when he was not already beating or physically hurting her, ever and in the past 12 months

Definition

1) Percentage of women age 15-49 who report being ever-married or ever having had an intimate partner and who have ever committed physical violence against their current husband/intimate partner if married or against the most recent husband/intimate partner if divorced, separated, widowed when he was not already beating or physically hurting her
2) Percentage of women age 15-49 who report being ever-married or ever having had an intimate partner and who have committed physical violence in the 12 months preceding the survey against their current husband/intimate partner if married or against the most recent husband/intimate partner if divorced, separated, widowed when he was not already beating or physically hurting her

Coverage:
 Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) who report being ever-married or ever having had an intimate partner (v502 in 1:2 or d100 in 1:2) (IR file)
 Time period: Current status at time of survey.

Numerators: Number of ever-married women age 15-49 and never-married women age 15-49 who report an intimate partner and who have committed physical violence against their current or most recent husband/intimate partner when he was not already beating or physically hurting her:
1) Ever (d112 = 1)
2) In the 12 months preceding the survey (d112a in 1:2)

Denominator: Number of ever-married women age 15-49 and never-married women age 15-49 who have ever had an intimate partner selected and interviewed for the domestic violence module (v044 = 1 & (v502 in 1:2 or d100 in 1:2))

Variables: IR file.
v044	Selected for Domestic Violence Module
v502	Currently/formerly/never in union
d100	Ever had an intimate relationship with a man
d112	Respondent ever physically hurt husband/partner when he was not hurting her
d112a	Frequency of physically hurting husband/partner in last 12 months
d005	Weight for Domestic Violence

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women with missing information on whether they initiated violence against their husbands/intimate partners are excluded from the numerators but included in the denominator. Women with missing information on the frequency of initiating violence are excluded from the numerator but included in the denominator for the indicator on initiation of violence in the past 12 months.

Notes and Considerations

The question on violence perpetrated by women against their husbands/intimate partners focuses on physical violence initiated by women and does not include the violence that may occur when women retaliate during an episode of on-going violence by their husband/intimate partner.

Changes over Time

Since 2021, never-married women who report an intimate partner are also asked the question on initiating physical violence against their current or most recent intimate partner.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Tables DV.15 and DV.16

API Indicator IDs:
`DV_VIOW_W_EVR, DV_VIOW_W_12M`
([API link](#), [STATcompiler link](#))

Help Seeking to Stop the Violence

Percent distribution of women who have experienced physical or sexual violence by help-seeking behavior

Definition

Percent distribution of women age 15-49 who have ever experienced physical or sexual violence by anyone by their help-seeking behavior:
1) sought help to stop the violence
2) never sought help but told someone
3) never sought help and never told anyone

Coverage:

Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) who have ever experienced any physical or sexual violence by anyone (IR file)
Time period: Current status at time of survey

Numerators:

1) Number of women age 15-49 who say "yes" to the question on whether they have ever sought help to stop the violence (d119y = 0)
2) Number of women age 15-49 who say "no" to the question on whether they have ever sought help to stop the violence but say "yes" to the question on whether they have ever told anyone about the violence (d128 = 1)
3) Number of women age 15-49 who say "no" to the question on whether they have ever sought help to stop the violence and say "no" to the question on whether they have ever told anyone about the violence (d128 = 0)

Denominator: Number of women age 15-49 selected and interviewed for the domestic violence module (v044 = 1 & (v502 in 1:2 or d100 in 1:2) who have experienced any physical or sexual violence (any of d105a – k in 1:4 or d130a in 1:4 or d130b in 1:4 or d115y = 0 or d118y = 0 or d124 = 1 or d125 = 1))

Variables: IR file.

v044	Selected for Domestic Violence module
v502	Currently/formerly/never in union
d100	Ever had an intimate relationship with a man
d105a	Ever been pushed, shook or had something thrown by husband/partner
d105b	Ever been slapped by husband/partner
d105c	Ever been punched with fist or hit by something harmful by husband/partner
d105d	Ever been kicked or dragged by husband/partner
d105e	Ever been strangled or burnt by husband/partner
d105f	Ever been attacked with knife/gun or other weapon by husband/partner
d105g	Ever CS physical violence by husband/partner
d105h	Ever been physically forced into unwanted sex by husband/partner
d105i	Ever been forced into other unwanted sexual acts by husband/partner
d105j	Ever had arm twisted or hair pulled by husband/partner

d105k	Ever been physically forced to perform sexual acts respondent didn't want to
d115y	No person other than husband/partner ever physically hurt respondent
d117a	Frequency of being hit in last 12 months by other than husband/partner
d118y	Respondent was not hurt by anyone during a pregnancy
d124	Ever forced to have sex by anyone other than husband/partner in last 12 months
d125	Ever forced to perform unwanted sexual acts
d130a	Previous husband: ever hit, slap, kick, or physically hurt respondent
d130b	Previous husband: physically forced to have sex or to perform sexual acts
d119y	Respondent did not seek help from anyone (0 = sought help)
d128	Ever told anyone else about violence
d005	Weight for Domestic Violence

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Women who have missing information on the variable are excluded from the numerator but included in the denominator and are accounted for in a separate category.

Notes and Considerations

Help seeking questions are asked only from women who report any physical or sexual violence. Women experiencing only emotional violence are not asked questions on help seeking.

Changes over Time

Before 2005, women reporting violence were asked questions about help seeking only for physical violence. From 2005, the help seeking questions were asked from all women reporting physical or sexual violence. The question on telling someone about the violence even if they had not sought help was also added in 2005.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Table DV.17

API Indicator IDs:
DV_STPV_W_HLP, DV_STPV_W_TLD, DV_STPV_W_NTL, DV_STPV_W_DKM
([API link](#), [STATcompiler link](#))

Sources for Help to Stop the Violence

Percentage of women age who have experienced physical or sexual violence and sought help by sources from which they sought help

Definition

Percentage of women age 15-49 who have ever experienced physical or sexual violence and sought help by sources from which they sought help.

Coverage:

Population base: All women age 15-49 selected and interviewed for the domestic violence module (v044 = 1) who have ever experienced any physical or sexual violence by anyone and sought help to stop the violence (IR file)
Time period: Current status at time of survey

Numerators:

Number of women age 15-49 who say "yes" to the question on whether they have ever sought help to stop the violence (d119y = 0) by source of help sought:
1) Own family (any of d119b – h, m, n = 1)
2) Husband/partner's family (any of d119i, o – r = 1) (now includes intimate partner's family for never-married women)
3) Husband/partner (d119a or d119j = 1) (now includes intimate partner for never-married women)
4) Boyfriend (d119k or d119l = 1)
5) Friend (any of d119s, t, xd = 1)
6) Neighbor (d119u = 1)
7) Religious leader (d119xf = 1)
8) Doctor/medical personnel (d119xh = 1)
9) Police (d119xe = 1)
10) Lawyer (d119xg = 1)
11) Social work organization (d119xb = 1)
12) Other (any of d119v, w, x, xa, xc, xi, xj, xk = 1)

Denominator: Number of women age 15-49 selected and interviewed for the domestic violence module (v044 = 1 & (v502 in 1:2 or d100 in 1:2) who have experienced any physical or sexual violence (any of d105a – k in 1:4 or d130a in 1:4 or d130b in 1:4 or d115y = 0 or d118y = 0 or d124 = 1 or d125 = 1)) and sought help to stop the violence (d119y = 0).

Variables: IR file.

v044	Selected for Domestic Violence module
d105a	Ever been pushed, shook or had something thrown by husband/partner
d105b	Ever been slapped by husband/partner
d105c	Ever been punched with fist or hit by something harmful by husband/partner
d105d	Ever been kicked or dragged by husband/partner
d105e	Ever been strangled or burnt by husband/partner
d105f	Ever been attacked with knife/gun or other weapon by husband/partner
d105g	Ever CS physical violence by husband/partner

d105h	Ever been physically forced into unwanted sex by husband/partner
d105i	Ever been forced into other unwanted sexual acts by husband/partner
d105j	Ever had arm twisted or hair pulled by husband/partner
d105k	Ever been physically forced to perform sexual acts respondent didn't want to
d115y	No person other than husband/partner ever physically hurt respondent
d117a	Frequency of being hit in last 12 months by other than husband/partner
d118y	Respondent was not hurt by anyone during a pregnancy
d124	Ever forced to have sex by anyone other than husband/partner in last 12 months
d125	Ever forced to perform unwanted sexual acts
d130a	Previous husband: ever hit, slap, kick, or physically hurt respondent
d130b	Previous husband: physically forced to have sex or to perform sexual acts
d119a	Husband/partner: Person respondent went to seek help
d119b	Mother: Person respondent went to seek help
d119c	Father: Person respondent went to seek help
d119d	Daughter: Person respondent went to seek help
d119e	Son: Person respondent went to seek help
d119f	Sister: Person respondent went to seek help
d119g	Brother: Person respondent went to seek help
d119h	Own family: Person respondent went to seek help
d119i	Husband/partner family: Person respondent went to seek help
d119j	Current/former husband/partner: Person respondent went to seek help
d119k	Current/former boyfriend: Person respondent went to seek help
d119l	Former boyfriend alone: Person respondent went to seek help
d119m	Step-mother: Person respondent went to seek help
d119n	Step-father: Person respondent went to seek help
d119o	Mother-in-law: Person respondent went to seek help
d119p	Father-in-law: Person respondent went to seek help
d119q	Other female in-law: Person respondent went to seek help
d119r	Other male in-law: Person respondent went to seek help
d119s	Female friend: Person respondent went to seek help
d119t	Male friend: Person respondent went to seek help
d119u	Neighbor: Person respondent went to seek help
d119v	Teacher: Person respondent went to seek help
d119w	Employer: Person respondent went to seek help
d119x	Other: Person respondent went to seek help
d119xa	Stranger: Person respondent went to seek help
d119xb	Social service organization: Person respondent went to seek help
d119xc	CS: Person respondent went to seek help
d119xd	Friend: Person respondent went to seek help
d119xe	Police: Person respondent went to seek help
d119xf	Religious leader: Person respondent went to seek help
d119xg	Lawyer: Person respondent went to seek help
D119xh	Doctor: Person respondent went to seek help
d119xi	CS: Person respondent went to seek help
d119xj	CS: Person respondent went to seek help
d119xk	CS: Person respondent went to seek help
d119y	Respondent did not seek help from anyone (0 = sought help)
d005	Weight for Domestic Violence

Calculation

Numerator divided by denominator multiplied by 100.

Handling of Missing Values

Women who have missing information on the variable are excluded from the numerator but included in the denominator.

Notes and Considerations

Help seeking questions are asked only from women who report physical or sexual violence. Women experiencing only emotional violence are not asked questions on help seeking.

Women may report more than one source from which they sought help.

Changes over Time

Before 2005, women reporting violence were asked questions about help seeking only for physical violence. From 2005, the help seeking questions were asked from all women reporting physical or sexual violence. The question on telling someone about the violence even if they had not sought help was also added in 2005.

References

See *References* for this chapter.

Resources

DHS-8 Tabulation plan: Table DV.18

API Indicator IDs:
`DV_STPS_W_FAM, DV_STPS_W_HFM, DV_STPS_W_HSB, DV_STPS_W_BFR, DV_STPS_W_FRD, DV_STPS_W_NEI, DV_STPS_W_RLG, DV_STPS_W_DRM, DV_STPS_W_POL, DV_STPS_W_LWY, DV_STPS_W_SWO, DV_STPS_W_OTH`
(API link, STATcompiler link)

18) Adult and Maternal Mortality

This chapter presents indicators for the calculation of adult mortality rates for both sexes, and for both pregnancy-related and maternal mortality rates and ratios for women. Indicators of age-specific rates are provided for the adult mortality rates and the pregnancy-related and maternal mortality rates, as well as age-standardized total rates. The difference between pregnancy-related mortality and maternal mortality is described in *Notes and Considerations* for *Age-specific pregnancy-related and maternal mortality rates, and total pregnancy-related and maternal mortality rate*.

In addition to indicators for adult mortality rates for 5-year age groups, the chapter also includes a summary measure (35q15) that represents the probability of a person dying between exact ages 15 and 50—that is, between his or her 15th and 50th birthdays.

Indicators for the pregnancy-related mortality ratio and the maternal mortality ratio are given, as well as indicators for the lifetime risk or pregnancy-related and maternal mortality.

The chapter provides indicators estimated from sibling history data collected in the sibling survival module (commonly referred to as the adult and maternal mortality module) that is part of the Woman's Questionnaire. The adult and maternal mortality module is an optional module and data are only available for surveys that included this module. It is recommended that the module be used in surveys no more frequently than every ten years.

Adult Mortality Rates

Age-specific adult mortality rates, and age 15-49 mortality rate

Definition

1) Age-specific adult mortality rates.
2) Age 15-49 years total mortality rate.

Coverage:

Population base: Women and men age 15-49 years (IR file)

Time period: Seven-year periods preceding the survey, excluding the month of interview. Typically, 0-6 years preceding the survey (v008-1 to v008-84), but other time periods may also be calculated such as 7-13 years, 0-13 years, 0-10 years preceding the survey. Description below is for 0-6 years preceding the survey

Numerator:

Number of siblings of respondents who died in the period 0-6 years prior to the interview by five-year age group at time of death, disaggregated by sex.

Deaths are tabulated according to period of death and the age of sibling at the time of the death:

Period of death: The period of death is calculated as the difference in months between the date of interview and the date of death of the sibling, both in century month code (CMC) format. Deaths of siblings are included if they occurred within the period of interest (v008-84 <= mm8 <= v008-1).

Age of sibling at the time of the death: The difference in months between the date of death of the sibling and the date of birth of the sibling, both in CMC. The difference is then divided by 60 and truncated to whole numbers to form the age groups (int((m8 - m4) / 60)). Deaths are tabulated by age group.

Denominator:

Number of person-years of exposure of siblings of respondents during the period 0-6 years prior to the survey by five-year age group, disaggregated by sex.

Person-years of exposure are calculated as the sum of the number of months exposed in the five-year age group during the time period divided by 12. A sibling can contribute exposure to two or three five-year age groups during an 84-month period.

Variables: IR file.

v008	CMC Date of interview
mm1	Sex of sibling
mm2	Survival status of sibling
mm4	Sibling's date of birth (CMC)
mm8	Date of death of sibling (CMC)

v005   Women's individual sample weight

Calculation

The data for calculating adult mortality are based on reports of siblings from the survey respondents, collected in the sibling history. The sibling history is stored as part of the individual recode dataset (IR file). Before using the sibling history, it is necessary to transform the sibling history data into a dataset where the sibling, rather than the survey respondent, is the unit of analysis. In Stata this is done with the reshape long command and in SPSS with the `varstocases` command.

Period:
First determine the limits of the time period and the total exposure in the time period. The limits for the 0-6 year period are the date of interview minus 60 months and the date of interview minus one month (lowlim = v008 - 84, upplim = v008 - 1). If the sibling had died the upper limit is replaced with the date of death of the sibling (upplim = mm8 if mm2 = 0). The total exposure is the difference between the upper and lower limits plus one month (exposure = upplim - lowlim + 1). If the total exposure is negative because the sibling died before the start of the period the total exposure is 0 (exposure = 0 if exposure < 0), and the sibling will not be included in the numerator or denominator.

Numerator (deaths):
For each dead sibling:
49) Number of deaths of siblings in the period (death1 = (mm2 = 0 & exposure > 0)).
50) Age at death is determined directly from the response by classification into 5 year age groups (agegroup = int((m8 - m4) / 60)).
51) Period of death is determined by using the sibling's date of death.
Deaths at ages less than 15 years (agegroup < 3) or more than 49 years (agegroup > 9) are not tabulated as are deaths occurring earlier or later than the period (lowlim <= mm8 <= upplim).

Denominator (exposure):
The exposure in each age group is then calculated for each of up to 3 five-year age groups (for periods of up to 10 years – beyond 10 years additional age groups would be needed).

Highest age group:
- A surviving sibling's age at the end of the period determines the highest age group. The highest age group is calculated by subtracting the sibling's date of birth from the upper limit of the period (for 0-6 year period this is the date of interview minus one in CMC), dividing the difference by 60 and truncating to a whole number (agegrp1 = int((upplim - mm4) / 60), where upplim = v008 - 1. For dead siblings this will be the same as agegroup above).
- The exposure or number of months spent in the highest age group is the difference in months between the age at the end of the period of exposure (date of interview less one month) and the lower age limit of the age group plus one month (expo1 = upplim - (mm4 + agegrp1*60) + 1). If the sibling had died, the total exposure may be reduced as some exposure occurred outside the period of interest – the exposure for the age group is reduced to the total exposure (expo1 = min(exposure, expo1)).
- The remaining exposure is the total exposure minus the exposure in the highest age group (rem_exposure = exposure - expo1).

Middle age group:
- A surviving sibling's age at the end of the period less 60 months determines the middle age group (agegrp2 = agegrp1 - 1). The middle age group can also be calculated by subtracting the sibling's date of birth from the end of the period minus 60 months (date of interview minus 61 in CMC), dividing the difference by 60 and truncating to a whole number (agegrp2 = int((upplim - 60 - mm4) / 60), however the first calculation is simpler and is mathematically identical.
- The exposure or number of months spent in the middle age group is the difference in months between the age at the end of the period of exposure less 60 months (date of interview minus 61 months for living siblings) and the lower age limit of the age group plus one month. More easily, the exposure is the minimum of the remaining exposure and 60 (expo2 = min(rem_exposure, 60)).
- If the sum of number of months exposed in both the highest and middle age groups is less than 84, then the sibling contributes exposure to both the middle age group and the lowest age group. The remaining exposure is the total exposure minus the exposure in the highest and middle age groups, or just the remaining exposure after the highest age group minus the exposure in the middle age group (rem_exposure = rem_exposure - expo2).

Lowest age group:
- The lowest age group is one less than the middle age group (agegrp3 = agegrp2 - 1).
- The contribution to the lowest age group is just the remaining exposure (expo3 = rem_exposure).

For other periods (7-13 years and 0-13 years prior to survey): The limits of the periods and the durations of the periods are adjusted accordingly. For the 0-13 year period, there are two middle age groups.

Tabulation: Each sibling is tabulated up to three times, once according to her/his highest age group accumulating the exposure she/he contributes to that group, once in the middle age group accumulating middle age group exposure, and once in the lowest age group accumulating lowest age group exposure. In Stata and SPSS this can be achieved by transforming the sibling history data into a dataset of age groups using reshape long in Stata or `varstocases` in SPSS and counting the deaths in the highest age group (death1, setting death2 = 0 and death3 = 0 for the middle and lower age groups) before transforming the data.

For ever-married samples, all women factors are applied in the tabulation of both the numerators and the denominators.

Once the numerators and denominators are properly established, age-specific mortality rates are obtained by the division of the numerators by the corresponding denominators and multiplying by 1000. The general mortality rate for age 15-49 is obtained by multiplying the age-specific mortality rates by the proportion of respondents in the five-year age group and then summing the age-distribution-adjusted mortality rates.

Example: Calculation of working variables for individual siblings based on DHS model dataset

sibling	mm1	mm2	mm4	mm8	lowlim	upplim	exposure	agegrp1	expo1	death1	agegrp2	expo2	agegrp3	expo3
1	1	1	876		1302	1385	84	8	30	0	7	54	6	0
2	1	1	912		1302	1385	84	7	54	0	6	30	5	0
3	1	1	960		1302	1385	84	7	6	0	6	60	5	18
4	2	1	1044		1302	1385	84	5	42	0	4	42	3	0
5	2	1	1068		1302	1385	84	5	18	0	4	60	3	6
6	1	1	1080		1302	1385	84	5	6	0	4	60	3	18
7	2	0	1111	1356	1302	1356	55	4	6	1	3	49	2	0
8	2	1	1056		1302	1385	84	5	30	0	4	54	3	0
9	1	1	1092		1302	1385	84	4	54	0	3	30	2	0
10	1	1	1152		1302	1385	84	3	54	0	2	30	1	0

The above example provides the results of the calculations of the working variables for the first 10 records in the DHS model IR dataset, based on a date of interview (v008) of June 2015 (cmc 1386). The total exposure is 84 months for all siblings except those that have died. In the example, the 7th sibling died in December 2012 (mm8 = 1356) and was only exposed 55 months in the period. For the 1st case the sibling contributes 30 months in age group 8 (40-44), and 54 months in age group 7 (35-39). The 3rd case contributes 6 months in age group 7 (35-39), 60 months in age group 6 (30-34) and 18 months in age group 5 (25-29). The 7th case contributes 6 months and 1 death in age group 4 (20-24) and 49 months in age group 3 (15-19).

To tabulate the deaths and exposure by age group and sex, the age group, exposure and death data above is transformed into a file by age group as below, selecting only age groups 3 – 9 to exclude any exposure outside of the age range 15-49.

sibling	index	sex	agegrp	expo	death
1	1	1	8	30	0
1	2	1	7	54	0
1	3	1	6	0	0
…	…	…	…	…	…
6	1	1	5	6	0
6	2	1	4	60	0
6	3	1	3	18	0
7	1	0	4	6	1
7	2	0	3	49	0
…	…	…	…	…	…

From this file the deaths and exposure at each age group and sex are tabulated and the adult mortality rate is calculated as the ratio of the deaths over the exposure.

Handling of Missing Values

Siblings whose sex or survival status is missing or unknown to the respondent are excluded from both numerators and denominators. Dates of birth are calculated from current age for living siblings and age at death and number of years ago sibling died for dead siblings. Dates of birth and death are imputed where age, age at death, or number of years ago is missing or unknown, taking into consideration the sibling's birth order.

Notes and Considerations

The DHS adult and maternal mortality questionnaire module collects information from respondents (female and, in some surveys, male) about all of their siblings born to the same mother, starting with the oldest. For living siblings, the upper and lower bounds of the date of birth in the recode data file are calculated by subtracting the age from the date of interview for the upper bound, and the upper bound minus 11 months for the lower bound. For dead siblings, the upper and lower bounds of the date of birth are calculated by subtracting the sum of the responses on age at death and the number of years ago the death occurred from the date of interview for the upper bound, and the upper bound minus 23 months for the lower bound. To calculate the upper and lower bound of the date of death, the number of years ago the death occurred is subtracted from the date of interview for the upper bound, and the upper bound minus 11 months for the lower bound. After these calculations, month of date of birth and date of death are assigned by midpoint imputation between lower and upper bounds of the dates calculated and making sure that the birth order and minimum birth intervals are maintained between dates of birth of the siblings.

The age distribution of siblings is very different than the age distribution of the population since only eligible women (and in some surveys, men) can report on their siblings. For example, if a girl or boy is sixteen years old and has only siblings younger than 15 years, she or he will not be represented. The same holds true at the upper end of the eligible age range. Thus, the age distribution of siblings is a curve with minimums at the ends of the eligible age range of respondents and a maximum at about the midpoint of the eligible age range (30 to 35 years). In order to properly calculate general or total rates, age-specific rates must be adjusted to a more representative age distribution. The distribution of respondents is used for this adjustment.

One might think that the calculation of mortality rates is biased because the (living) respondent is not included. Similarly, people with no siblings are not included since there is no one to report on them. However, it has been shown by James Trussell and German Rodriguez (1990) that these two potential biases cancel each other out, under the assumption that mortality rates are unrelated to the size of the sibship.

Another important issue is location. The DHS Program does not collect information on the residence of siblings who died nor on the residence, during the exposure period, of living and dead siblings. The residence of respondents at the time of interview is not necessarily the same as that of their siblings. Therefore, The DHS Program usually does not publish adult mortality rates by region or residence.

References

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Resources

DHS-8 Tabulation plan: Table MM.1

API Indicator IDs:
Female:
MM_AMRT_W_DTH, MM_AMRT_W_EXP, MM_AMRT_W_AMR

Male:
MM_AMRT_M_DTH, MM_AMRT_M_EXP, MM_AMRT_M_AMR
(API link, STATcompiler link)

Probability of dying between the ages of 15 and 50 for women and men

Definition

The probability of dying between the ages of 15 and 50 for women and men during the seven years preceding the survey.

Coverage:
    Population base: Women and men age 15-49 (IR file)
    Time period: 7 years preceding the survey

Numerators: See *Numerators* for *Adult Mortality Rates*

Denominator: See *Denominators* for *Adult Mortality Rates*

Variables: IR file.
v008   CMC Date of interview
mm1   Sex of sibling
mm2   Survival status of sibling
mm4   Sibling's date of birth (CMC)
mm8   Date of death of sibling (CMC)
v005   Women's individual sample weight

Calculation

The adult mortality rates are first calculated as described in *Adult Mortality Rates.* The probability that an individual will die in an age group x (q_x) is calculated as:

$$q_x = \frac{n.m_x}{1 + (n - a_x).m_x}$$

where the m_x are the adult mortality rates for each age group, n is the width of the age group (5 years), and a_x is the average number of years lived in the age group by those dying in the age group. A simple assumption would be to use 2.5 for a_x, but in real populations, within the age range 15-49, it is more than 2.5 and it increases as age increases. As an approximation The DHS Program uses 2.6 for a. Thus, the formula used is:

$$q_x = \frac{5m_x}{1 + 2.4m_x}$$

The probability of dying between exact ages 15 and 50 is then

$$_{35}q_{15} = 1 - \prod(1 - q_x)$$

Handling of Missing Values

See *Handling of Missing Values* for *Adult Mortality Rates*

Notes and Considerations

See *Notes and Considerations* for *Adult Mortality Rates*

References

Moultrie T.A., R.E. Dorrington, A.G. Hill, K. Hill, I.M. Timæus and B. Zaba (eds). 2013. Tools for Demographic Estimation. Paris: International Union for the Scientific Study of Population. http://demographicestimation.iussp.org/content/estimation-adult-mortality-sibling-histories

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Resources

DHS-8 Tabulation plan: Table MM.2

API Indicator IDs:
MM_AMPB_W_AMP, MM_AMPB_M_AMP
(API link, STATcompiler link)

Age-specific pregnancy-related and maternal mortality rates, and total pregnancy-related and maternal mortality rate

Definition

1) Age-specific pregnancy-related mortality rates.
2) Age-specific maternal mortality rates.
3) Total pregnancy-related mortality rate.
4) Total maternal mortality rate.

Pregnancy-related and maternal mortality rates are the ratio of pregnancy-related deaths or maternal deaths to the women-years of exposure for women aged 15–49 years.
See *Notes and Considerations* for the definitions of pregnancy-related mortality and maternal mortality.
See also *Pregnancy-related mortality ratio and maternal mortality ratio*.

Coverage:

Population base: Women age 15-49 years (IR file)
Time period: Seven-year periods of time preceding the survey, excluding the month of interview. Typically 0-6 years preceding the survey (v008-1 to v008-84), but other time periods may also be calculated such as 7-13 years, 0-13 years, 0-10 years preceding the survey

Numerators:

1) Number of female siblings of respondents who died during pregnancy, delivery or within two months of delivery (mm1 = 2 & mm2 = 0 & mm9 in 2:6) in the period 0-6 years prior to the interview by five-year age group at time of death
2) Number of female siblings of respondents who died during pregnancy, delivery or within 42 days of delivery (mm1 = 2 & mm2 = 0 & mm9 in 2:6 & mm12 in 100:141,198,199), excluding due to accidents or violence (mm16 ≠ 1 & mm16 ≠ 2), in the period 0-6 years prior to the interview by five-year age group at time of death

Denominator: Number of years of exposure of female siblings of respondents during the period 0-6 years prior to the survey by five-year age group

Variables: IR file.

v008	CMC Date of interview
mm1	Sex of sibling
mm2	Survival status of sibling
mm4	Sibling's date of birth (CMC)
mm8	Date of death of sibling (CMC)
mm9	Sibling's death and pregnancy
mm12	Amount of time between sibling's delivery and death
mm16	Sibling's death due to violence or accident
v005	Women's individual sample weight

Calculation

Deaths are tabulated in a similar way to the adult age-specific mortality rates (see *Calculation* for *Adult Mortality Rates*, but are restricted to:

5) Deaths to female siblings who died during pregnancy, delivery or within two months of delivery (mm1 = 2 & mm2 = 0 & mm9 in 2:6).

6) Deaths to female siblings who died during pregnancy, delivery or within 42 days of delivery, excluding deaths due to accidents or violence (mm1 = 2 & mm2 = 0 & mm9 in 2:6 & mm12 in 100:141,198,199 & mm16 ≠ 1 & mm16 ≠ 2).

Denominator: Women-years of exposure are calculated in exactly the same way as for adult age-specific mortality. See *Calculation* for *Adult Mortality Rates*.

Once the numerators and denominators are calculated, age-specific pregnancy-related and maternal mortality rates are obtained by the division of the numerators by the corresponding denominators and multiplying by 1000. The total pregnancy-related and maternal mortality rates (for age 15-49) are obtained by multiplying the age-specific mortality rates by the proportion of respondents in the five-year age group and then summing the age distribution-adjusted pregnancy-related and maternal mortality rates.

Handling of Missing Values

Siblings whose maternal status at the time of death are unknown to the respondent or are missing are assumed not to be pregnancy-related or maternal deaths.

For maternal deaths, if the number of days after delivery is missing or the response was "don't know", it is already known that the death was within 2 months, and it is assumed to be within the first 42 days.

If the response to whether the death was caused by an accident or violence is missing or the response was "don't know", the death is assumed to have not been due to an accident or violence.

See also *Handling of Missing Values* for *Adult Mortality Rates*.

Notes and Considerations

The World Health Organization (WHO) defines pregnancy-related deaths and maternal deaths as follows:

52) Pregnancy-related death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death.

53) Maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

The DHS Program indicators differ from these definitions in two ways:

7) for the pregnancy-related mortality, the period of two months (rather than 42 days) following termination of pregnancy is used to provide consistent trend data with previously reported estimates of maternal mortality from earlier surveys (see *Changes over Time*),
8) for maternal mortality, a survey such as DHS cannot capture the definition of maternal mortality precisely due to the complexity of the issues but limits the period following termination of pregnancy to 42 days, and, as a proxy for the accidental or incidental causes, excludes deaths reported due to accidents or violence.

The DHS adult and maternal mortality module collects information from respondents about the maternal status of the death of their sisters born to the same mother by asking if the sister died while pregnant, during delivery or within two months after the end of a pregnancy or a childbirth. Younger (and male) respondents may not know that their older sister was even pregnant if the sister was several years older or died during pregnancy or from an induced abortion, thus biasing pregnancy-related and maternal mortality rates downward. Women who intend to have an induced abortion may also not disclose their pregnancy status to family members. On the other hand, deaths due to non-maternal causes, such as accidents and illnesses, will be included as pregnancy-related deaths if they occurred during pregnancy or within two months after the end of the pregnancy or childbirth. Simulation models show that up to one-third of classified as pregnancy-related may not be due to maternal causes, resulting in an upward bias. The final result of both these biases, which operate simultaneously, is unknown.

Another important issue is location. The DHS does not collect information on the residence of neither sisters who died nor of the residence during the exposure period of both living and dead sisters. The residence at the time of interview of respondents is not necessarily the same as that of their sisters. Therefore, DHS usually does not publish pregnancy-related and maternal mortality rates by area.

Pregnancy-related and maternal mortality rates are subject to high levels of sampling error due to their relatively rare occurrence.

Age-adjusted pregnancy-related and maternal mortality rates are expressed per 1,000 women age 15-49 and represent the risk of pregnancy-related death or death due to maternal causes per 1,000 women.

Changes over Time

In DHS-7, The DHS Program changed the definition and calculation of maternal mortality. The new definition of maternal mortality more closely agrees with the WHO definition of mortality. The prior definition of maternal mortality corresponds with the WHO definition of pregnancy-related mortality. When comparing estimates over time, the pregnancy-related mortality estimates from surveys since 2015 should be compared with those labeled maternal mortality in survey reports prior to 2015. Do not compare maternal mortality for surveys after 2015 with those from before 2015 as the definitions are different.

For more information on the definitions of pregnancy-related mortality and maternal mortality, and how they compare with the WHO definitions, see The DHS Program YouTube video series on Maternal and Pregnancy-Related Mortality, including:
- Maternal Mortality Ratio (MMR) Indicator Snapshot
- Differences Between Maternal and Pregnancy-Related Mortality

- [Interpreting Trends in Pregnancy-Related Mortality](#)

In addition, The DHS Program made changes to the Adult and Maternal Mortality Module in order to collect a more complete list of all siblings of respondents. The changes include asking more questions to capture information about siblings who may have died, live elsewhere, or have a different father but the same mother. See the Adult and Maternal Mortality Module in the DHS Questionnaire Modules at https://www.dhsprogram.com/publications/publication-DHSQM-DHS-Questionnaires-and-Manuals.cfm.

In DHS-IV and earlier surveys, siblings whose maternal status at the time of death were unknown to the respondent or were missing in the data set were allocated to maternal deaths in the proportion they were to deaths of any maternal status. For each age group of siblings, the number of deaths of known maternal status was divided by the number of deaths of any status to get the proportion of maternal deaths. This proportion was then multiplied by the number of deaths of unknown status to calculate the number of deaths to add to the known maternal deaths to get the total number of maternal deaths in each age group.

Also, in DHS-IV and earlier surveys, maternal deaths of sisters 50 years and older were added to the number of maternal deaths of sisters 45-49 years.

References

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Resources

DHS-8 Tabulation plan: Tables MM.3 and C.10

API Indicator IDs:

`MM_MMRT_W_PDT, MM_MMRT_W_MDT, MM_MMRT_W_EXP, MM_MMRT_W_PRT, MM_MMRT_W_MRT`
([API link](), [STATcompiler link]())

WHO. Maternal mortality ratio: http://www.who.int/healthinfo/statistics/indmaternalmortality/en/

The DHS Program YouTube video series:
Maternal and Pregnancy-Related Mortality
https://www.youtube.com/playlist?list=PLagqLv-gqpTO6YQasXjBnRvPGJpB6jePf
Maternal Mortality Ratio (MMR) Indicator Snapshot: https://youtu.be/Z_VraFDfGxQ
Differences Between Maternal and Pregnancy-Related Mortality: https://youtu.be/HPT2usn0v-o
Interpreting Trends in Pregnancy-Related Mortality: https://youtu.be/imJq-XmC3e4

Percentage of female deaths that are pregnancy-related deaths and maternal deaths

Definition

1) Percentage of female deaths to women age 15-49 that are pregnancy-related deaths.
2) Percentage of female deaths to women age 15-49 that are maternal deaths.

Coverage:

Population base: Women age 15-49 years (IR file)
Time period: Seven-year periods of time preceding the survey (v008-1 to v008-84), excluding the month of interview

Numerators:

1) Number of female siblings of respondents who died during pregnancy, delivery or within two months of delivery in the period 0-6, 7-13, and 0-13 years prior to the interview by five-year age group at time of death
2) Number of female siblings of respondents who died during pregnancy, delivery or within 42 days of delivery, excluding due to accidents or violence, in the period 0-6, 7-13, and 0-13 years prior to the interview by five-year age group at time of death.

Denominator: Number of female siblings of respondents who died within the period of interest

Variables: IR file.

v008	CMC Date of interview
mm1	Sex of sibling
mm2	Survival status of sibling
mm4	Sibling's date of birth (CMC)
mm8	Date of death of sibling (CMC)
mm9	Sibling's death and pregnancy
mm12	Amount of time between sibling's delivery and death
mm16	Sibling's death due to violence or accident
v005	Women's individual sample weight

Calculation

Numerator: Pregnancy-related and maternal deaths are tabulated in a similar way to the adult age-specific mortality rates (see *Calculation* for *Adult Mortality Rates*), but are restricted to:
Deaths to female siblings who died during pregnancy, delivery or within two months of delivery (mm1 = 2 & mm2 = 0 & mm9 in 2:6).
Deaths to female siblings who died during pregnancy, delivery or within 42 days of delivery, excluding deaths due to accidents or violence (mm1 = 2 & mm2 = 0 & mm9 in 2:6 & mm12 in 100:141,198,199 & mm16 ≠ 1 & mm16 ≠ 2).

Denominator: Female deaths are tabulated in the same way as the numerator for the adult age-specific mortality rates for females (see *Calculation* for *Adult Mortality Rates*) (mm1 = 2 & mm2 = 0).

The total proportion of female deaths that are pregnancy-related or maternal is calculated by dividing the total pregnancy-related mortality rate or maternal mortality rate by the general 15-49 adult mortality rate of women (see *Age-specific pregnancy-related and maternal mortality rates, and total pregnancy-related and maternal mortality rate*).

Handling of Missing Values

See *Handling of Missing Values* for *Age-specific pregnancy-related and maternal mortality rates, and total pregnancy-related and maternal mortality rate*.

Changes over Time

See *Changes over Time* for *Age-specific pregnancy-related and maternal mortality rates, and total pregnancy-related and maternal mortality rate*.

References

See *References* for *Age-specific pregnancy-related and maternal mortality rates, and total pregnancy-related and maternal mortality rate*.

Resources

DHS-8 Tabulation plan: Tables MM.3

API Indicator IDs:
MM_MMRT_W_FDP, MM_MMRT_W_FDM
(API link, STATcompiler link)

Pregnancy-related mortality ratio and maternal mortality ratio

Definition

Pregnancy-related mortality ratio (PRMR): Number of pregnancy-related deaths per 100 000 live births.
Maternal mortality ratio (MMR): Number of maternal deaths per 100 000 live births.

Coverage:

Population base: Women age 15-49 years (IR file)
Time period: Seven-year periods of time preceding the survey, excluding the month of interview. Typically, 0-6 years preceding the survey (v008-1 to v008-84), but other time periods may also be calculated such as 7-13 years, 0-13 years, 0-10 years preceding the survey

Numerators:

1) Total pregnancy-related mortality rate for the period
2) Total maternal mortality rate for the period

Denominator: Age-adjusted general fertility rate (GFR) for the same time period

See below for the calculation of the pregnancy-related and maternal mortality ratios.

Variables: IR file.

v008	CMC Date of interview
mm1	Sex of sibling
mm2	Survival status of sibling
mm4	Sibling's date of birth (CMC)
mm8	Date of death of sibling (CMC)
mm9	Sibling's death and pregnancy
mm12	Amount of time between sibling's delivery and death
mm16	Sibling's death due to violence or accident
v005	Women's individual sample weight

Calculation

See *Age-specific pregnancy-related and maternal mortality rates, and total pregnancy-related and maternal mortality rate* for the calculation of these rates.

The pregnancy-related mortality ratio (PRMR) and the maternal mortality ratio (MMR) are calculated by dividing the total pregnancy-related mortality rate and the total maternal mortality rate by the general fertility rate for the same period and are expressed per 100,000 births.

Note that the general fertility rate is age-standardized by multiplying the age-specific fertility rates by the proportion of women surveyed in each age group, and then summing the products. The general fertility rate is calculated for the same time period as for the pregnancy-related mortality rate and the maternal mortality rate. See *General Fertility Rate* in *Chapter 5*.

Handling of Missing Values

Siblings whose maternal status at the time of death are unknown to the respondent or are missing are assumed not to be pregnancy-related or maternal deaths.

For maternal deaths, if the number of days after delivery is missing or the response was "don't know", it is already known that the death was within 2 months and it is assumed to be within the first 42 days.

If the response to whether the death was caused by an accident or violence is missing or the response was "don't know", the death is assumed to have not been due to an accident or violence.

See also *Handling of Missing Values* for Adult Mortality Rates.

Notes and Considerations

The World Health Organization (WHO) defines pregnancy-related deaths and maternal deaths as follows:
54) Pregnancy-related death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death.
55) Maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

The DHS Program indicators differ from these definitions in two ways:
1) for the pregnancy-related mortality, the period of two months (rather than 42 days) following termination of pregnancy is used to provide consistent trend data with previously reported estimates of maternal mortality from earlier surveys (see *Changes over Time*),
2) for maternal mortality, a survey such as DHS cannot capture the definition of maternal mortality precisely due to the complexity of the issues but limits the period following termination of pregnancy to 42 days, and, as a proxy for the accidental or incidental causes, excludes deaths reported due to accidents or violence.

The DHS adult and maternal mortality module collects information from respondents about the maternal status of the death of their sisters born to the same mother by asking if the sister died while pregnant, during delivery or within two months after the end of a pregnancy or a childbirth. Younger (and male) respondents may not know that their older sister was even pregnant if the sister was several years older or died during pregnancy or from an induced abortion, thus biasing pregnancy-related and maternal mortality rates downward. Women who intend to have an induced abortion may also not disclose their pregnancy status to family members. On the other hand, deaths due to non-maternal causes, such as accidents and illnesses, will be included as pregnancy-related deaths if they occurred during pregnancy or within two months after the end of the pregnancy or childbirth. Simulation models show that up to one-third of classified as pregnancy-related may not be due to maternal causes, resulting in an upward bias. The final result of both these biases, which operate simultaneously, is unknown.

Another important issue is location. The DHS does not collect information on the residence of neither sisters who died nor of the residence during the exposure period of both living and dead sisters. The

residence at the time of interview of respondents is not necessarily the same as that of their sisters. Therefore, DHS usually does not publish pregnancy-related and maternal mortality rates by area.

Expressed per 100,000 live births; calculated as the age-adjusted maternal mortality rate times 100 divided by the age-adjusted general fertility rate.

Maternal mortality rates and ratios are subject to high levels of relative sampling error due to their relatively rare occurrence. For example, a maternal mortality ratio of 500 maternal deaths per 100,000 births has the same sampling error as an infant mortality rate of 5 infant deaths per 1000 births. For a sample of about 15,000 respondents, the 95% confidence interval of the MMR would be about 406 to 594 maternal deaths per 100,000 births.

Changes over Time

In DHS-7, The DHS Program changed the definition and calculation of maternal mortality. The new definition of maternal mortality more closely agrees with the WHO definition of mortality. The prior definition of maternal mortality corresponds with the WHO definition of pregnancy-related mortality. When comparing estimates over time, the pregnancy-related mortality estimates from surveys since 2015 should be compared with those labeled maternal mortality in survey reports prior to 2015. Do not compare maternal mortality for surveys after 2015 with those from before 2015 as the definitions are different.

For more information on the definitions of pregnancy-related mortality and maternal mortality, and how they compare with the WHO definitions, see The DHS Program YouTube video series on Maternal and Pregnancy-Related Mortality, including:
56) Maternal Mortality Ratio (MMR) Indicator Snapshot
57) Differences Between Maternal and Pregnancy-Related Mortality
58) Interpreting Trends in Pregnancy-Related Mortality

In addition, The DHS Program made changes to the Adult and Maternal Mortality Module in order to collect a more complete list of all siblings of respondents. The changes include asking more questions to capture information about siblings who may have died, live elsewhere, or have a different father but the same mother. See the Adult and Maternal Mortality Module in the DHS Questionnaire Modules at https://www.dhsprogram.com/publications/publication-DHSQM-DHS-Questionnaires-and-Manuals.cfm.

In DHS-IV and earlier surveys, siblings whose maternal status at the time of death were unknown to the respondent or were missing in the data set were allocated to maternal deaths in the proportion they were to deaths of any maternal status. For each age group of siblings, the number of deaths of known maternal status was divided by the number of deaths of any status to get the proportion of maternal deaths. This proportion was then multiplied by the number of deaths of unknown status to calculate the number of deaths to add to the known maternal deaths to get the total number of maternal deaths in each age group.

Also, in DHS-IV and earlier surveys, maternal deaths of sisters 50 years and older were added to the number of maternal deaths of sisters 45-49 years.

References

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http://demographicestimation.iussp.org/content/estimation-adult-mortality-sibling-histories

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Stanton, Cynthia, Noureddine Abderrahim, and Kenneth Hill. 1997. *DHS maternal mortality indicators: An assessment of data quality and implications for data use*. DHS Analytical Reports No. 4. Calverton, Maryland, USA: Macro International. https://www.dhsprogram.com/publications/publication-AR4-Analytical-Studies.cfm

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WHO/UNICEF. 1997. The sisterhood method for estimating maternal mortality: Guidance notes for potential users. http://whqlibdoc.who.int/hq/1997/WHO_RHT_97.28.pdf

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Resources

DHS-8 Tabulation plan: Tables MM.4 and C.10

API Indicator IDs:
MM_MMRO_W_PMR, MM_MMRO_W_MMR, MM_MMRO_W_LTP, MM_MMRO_W_LTR
([API link](#), [STATcompiler link](#))

SDG Indicator 3.1.1: Maternal mortality ratio

WHO 100 Core Health Indicators: Maternal mortality ratio

MICS6 Indicator TM.21: Maternal mortality ratio

WHO. Maternal mortality ratio: http://www.who.int/healthinfo/statistics/indmaternalmortality/en/

The DHS Program YouTube video series:
Maternal and Pregnancy-Related Mortality
https://www.youtube.com/playlist?list=PLagqLv-gqpTO6YQasXjBnRvPGJpB6jePf
Maternal Mortality Ratio (MMR) Indicator Snapshot: https://youtu.be/Z_VraFDfGxQ
Differences Between Maternal and Pregnancy-Related Mortality: https://youtu.be/HPT2usn0v-o
Interpreting Trends in Pregnancy-Related Mortality: https://youtu.be/imJq-XmC3e4

Lifetime risk of pregnancy-related death and maternal death

Definition

1) Lifetime risk of pregnancy-related death: The probability of a 15-year-old girl eventually dying from a pregnancy-related cause, assuming she is subjected throughout her lifetime to the risks of pregnancy-related death estimated for the population.
2) Lifetime risk of maternal death: The probability of a 15-year-old girl eventually dying from a maternal cause, assuming she is subjected throughout her lifetime to the risks of maternal death estimated for the population.

Coverage:
      Population base: Women age 15-49 years (IR file)
      Time period: Seven-year periods of time preceding the survey, excluding the month of interview. Typically, 0-6 years preceding the survey (v008-1 to v008-84), but other time periods may also be calculated such as 7-13 years, 0-13 years, 0-10 years preceding the survey

See below for the calculation of the lifetime risk of pregnancy-related or maternal death.

Variables: IR file.
v008	CMC Date of interview
mm1	Sex of sibling
mm2	Survival status of sibling
mm4	Sibling's date of birth (CMC)
mm8	Date of death of sibling (CMC)
mm9	Sibling's death and pregnancy
mm12	Amount of time between sibling's delivery and death
mm16	Sibling's death due to violence or accident
v005	Women's individual sample weight

Calculation

See *Age-specific pregnancy-related and maternal mortality rates, and total pregnancy-related and maternal mortality rate* for the calculation of these rates, and *Pregnancy-related mortality ratio and maternal mortality ratio* for the calculation of the PRMR and MMR.

The lifetime risk of pregnancy-related death or maternal death is calculated as $1-(1-PRMR)^{TFR}$ or $1-(1-MMR)^{TFR}$, respectively, where TFR represents the total fertility rate for the seven years preceding the survey. See *Total Fertility Rate* in *Chapter 5*.

The total fertility rate is calculated for the same time period as for the pregnancy-related mortality rate and the maternal mortality rate.

Handling of Missing Values

See *Handling of Missing Values* for *Age-specific pregnancy-related and maternal mortality rates, and total pregnancy-related and maternal mortality rate*.

Notes and Considerations

See *Notes and Considerations* for *Age-specific pregnancy-related and maternal mortality rates, and total pregnancy-related and maternal mortality rate*.

Changes over Time

See *Changes over Time* for *Age-specific pregnancy-related and maternal mortality rates, and total pregnancy-related and maternal mortality rate*.

References

See *References* for *Age-specific pregnancy-related and maternal mortality rates, and total pregnancy-related and maternal mortality rate*.

Resources

DHS-8 Tabulation plan: Tables MM.4 and C.10

API Indicator IDs:
MM_MMRO_W_LTP, MM_MMRO_W_LTR
([API link](), [STATcompiler link]())

Completeness of data on survival status of sisters and brothers, age of living siblings and age at death and years since death of dead siblings.

Definition

Completeness of data on survival status of sisters and brothers reported by interviewed women, age of living siblings and age at death (AD) and years since death (YSD) of dead siblings.

Number and percentage of siblings:
1) All siblings
2) Living siblings
3) Dead siblings
4) Siblings with survival status unknown

Number and percentage of living siblings:
5) Age reported
6) Age missing

Number and percentage of dead siblings:
7) Age at death and years since death reported
8) Missing only age at death
9) Missing only years since death
10) Missing age at death and years since death.

Coverage:
    Population base: Women age 15-49 years (IR file)
    Time period: Current status at time of interview

Numerators:
1) Number of all siblings
2) Number of living siblings (mm2 = 1)
3) Number of dead siblings (mm2 = 0)
4) Number of siblings with survival status unknown (mm2 ≠ 1,2)

Of living siblings:
5) Number of living siblings with age reported (mm2 = 1 & mm3 in 0:97)
6) Number of living siblings with age missing (mm2 = 1 & mm3 in 98,99)

Of dead siblings:
7) Number of living siblings with age at death and years since death reported (mm2 = 0 & mm6 in 0:97 & mm7 in 0:97)
8) Number of living siblings missing only age at death (mm2 = 0 & mm6 in 0:97 & mm7 in 98,99)
9) Number of living siblings missing only years since death (mm2 = 0 & mm6 in 98,99 & mm7 in 0:97)

10) Number of living siblings missing age at death and years since death (mm2 = 0 & mm6 in 98,99 & mm7 in 98,99)

Denominators:
a) For numerators 1-4: Number of all siblings
b) For numerators 5-6: Number of living siblings (mm2 = 1)
c) For numerators 7-10: Number of dead siblings (mm2 = 0)

Variables: IR file.

mm1	Sex of sibling
mm2	Survival status of sibling
mm3	Sibling's current age
mm6	Years since sibling died
mm7	Sibling's age at death
mm15	Sibling's year of death

Calculation

For percentages, numerator divided by denominator, multiplied by 100.

Indicators are produced unweighted.

Handling of Missing Values

Missing survival status, age, years since death or age at death are presented in separate categories.

Resources

DHS-8 Tabulation plan: Table C.8

Sibship Size and Sex Ratio of Siblings

Mean sibship size and sex ratio of siblings at birth

Definition

1) Mean sibship size
2) Sex ratio of siblings at birth

Coverage:
Population base: Women age 15-49 years (IR file).
Time period: Current status at time of interview.

Numerators:
1) Number of siblings of respondent (mm1 in 1,2), plus number of respondents with a valid number of siblings (mmc1 in 0:90)
2) Number of male siblings of respondents (mm1 = 1)

Denominator:
a) Number of respondents with a valid number of siblings (mmc1 in 0:90)
b) Number of female siblings of respondents (mm1 = 2)

Variables: IR file.
mm1   Sex of sibling
mmc1   Number of siblings of respondent
v005   Women's sample weight

Calculation

1) Numerator divided by denominator.
2) Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing values for number of siblings are excluded from numerator and denominator.

Notes and Considerations

Mean sibship size includes respondent. Sex ratio of siblings at birth excludes the respondent.

Resources

DHS-8 Tabulation plan: Table C.9

19) Female Genital Cutting

This chapter addresses female genital cutting (FGC)—also called female circumcision and female genital mutilation (FGM). Data on FGC in DHS surveys comes from an optional module of questions. FGC involves cutting some part of the clitoris or labia, usually as part of a traditional ceremony or rite of passage into adolescence.

Knowledge of Female Circumcision

Percentage of women and men who have heard of female circumcision

Definition

Percentage of women (or men) age 15-49 who have heard of female circumcision.

Coverage:
>Population base: Women (or men) age 15-49 (IR file, MR file)
>Time period: Current status at time of survey

Numerator: Number of women (or men) age 15-49 who have heard of female circumcision (women: g100 = 1 or g101 = 1; men: mg100 = 1 or mg101 = 1)

Denominator: Number of women (or men) age 15-49

Variables: IR file, MR file.
g100	Ever heard of female circumcision (women)
g101	Ever heard of genital cutting (probed) (women)
v005	Women's sample weight
mg100	Ever heard of female circumcision (men)
mg101	Ever heard of genital cutting (probed) (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing values are not included in the numerator but kept in the denominator.

Notes and Considerations

A respondent is asked whether they have heard of female circumcision. If they responded that they have not heard of female circumcision, they are asked a further probing question asking whether they have heard of a practice where a female's genitals are cut. This is why both questions (variables g100 and g101) must be taken into account when estimating the prevalence of respondents who have ever heard of FGC.

Changes over Time

In DHS-6 on, the FGC variables have become standardized, and the variable series often starts with g100 – "Ever heard of female circumcision". In previous surveys and with some exceptions in more recent surveys, other variable names have been used. See below for a summary of the name of the variable

equivalent to g100. The variable prefix (i.e., 'fg' for variable fg100) of the variables shown in the table below be the prefix for the following FGC variables in any survey.

First variable in variable series	Individual data files from past surveys (please see the section on *Recode File Names* in *Chapter 1* to understand the naming of data files)
fg100	BJIR41, BFIR43, EGIR4A, EGIR42, ETIR41, ETIR51, GNIR52, MLIR41, NGIR4B, SNIR4H, TZIR4I
s901	BFIR31
s801	EGIR33, EGIR51
v901	GNIR41
s1001	CMIR44, KEIR3A, TZIR3A
s551	MLIR32, NIIR31
g121_01	SNIR6D
s227	SDIR02
s1101	SZIR51
s730f	UGIR7B

References

Hayford, S. R. 2005. "Conformity and Change: Community Effects on Female Genital Cutting in Kenya". *Journal of Health and Social Behavior*. 46(2): 121–140.
https://asu.pure.elsevier.com/en/publications/conformity-and-change-community-effects-on-female-genital-cutting

Resources

DHS-8 Tabulation plan: Table FGC.1

API Indicator IDs:
Women:
FG_KFCC_W_HFC

Men:
FG_KFCC_M_HFC
(API link, STATcompiler link)

Prevalence of Female Circumcision

Percentage of women circumcised and percent distribution of circumcised women by type of circumcision

Definition

Percentage of women age 15-49 circumcised and percent distribution of circumcised women by type of circumcision.

Numerators:
1) Number of women age 15-49 circumcised (g102 = 1)
2) Number of women age 15-49 circumcised (g102 = 1) by type of circumcision:
   a) Flesh removed from genital area (g103 = 1 & g105 ≠ 1)
   b) Genital area just nicked without removing any flesh (g104 = 1 & g105 ≠ 1)
   c) Genital area sewn closed (g105 = 1)

Denominator:
a) Number of women age 15-49
b) Number of women age 15-49 who are circumcised (g102 = 1)

Variables: IR file.

g100	Ever heard of female circumcision
g101	Ever heard of genital cutting (probed)
g102	Respondent circumcised
g103	Flesh removed from genital area
g104	Genital area just nicked without removing any flesh
g105	Genital area sewn closed
v005	Women's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing values are included with "don't know" responses and are included in the denominator.

Notes and Considerations

Only women who have heard of FGC are asked whether they have experienced FGC. Types of circumcision percentages as well as those who "don't know" add up to 100 percent.

Changes over Time

See *Changes over Time* for *Percentage of women who have heard of female circumcision*.

References

Yoder, P.Stanley , N. Abderrahim, and A. Zhuzhuni. 2004. *Female Genital Cutting in the Demographic and Health Surveys: A Critical and Comparative Analysis*. DHS Comparative Reports No 7. Calverton, Maryland: ORC Macro. https://dhsprogram.com/publications/publication-cr7-comparative-reports.cfm

Resources

DHS-8 Tabulation plan: Table FGC.2

API Indicator IDs:
FG_PFCC_W_WCC, FG_PFCT_W_CNF, FG_PFCT_W_CFR, FG_PFCT_W_SWN, FG_PFCT_W_DKM
(API link, STATcompiler link)

SDG indicator 5.3.2: Proportion of girls and women aged 15-49 years who have undergone female genital mutilation/cutting, by age

WHO 100 Core Health Indicators: Prevalence of female genital mutilation/cutting
MICS6 Indicator PR.9: Prevalence of FGM among women

Age at Circumcision

Percent distribution of circumcised women by age at circumcision

Definition

Percent distribution of circumcised women age 15-49 by age at circumcision.

Coverage:
  Population base: Circumcised women age 15-49 (IR file)
  Time period: Current status at time of survey

Numerators:
Number of circumcised women age 15-49 (g102 = 1) by age at circumcision:
1) Women circumcised before age 5 (g106 in 0:4 or g106 = 95)
2) Women circumcised at age 5-9 (g106 in 5:9)
3) Women circumcised at age 10-14 (g106 in 10:14)
4) Women circumcised at age 15+ (g106 in 15:49)
5) Circumcised women with age at circumcision unknown or missing (g106 = 98)

Denominator: Number of circumcised women age 15-49 (g102 = 1)

Variables: IR file.
g100   Ever heard of female circumcision
g101   Ever heard of genital cutting (probed)
g102   Respondent circumcised
g106   Age at circumcision (in years)
v005   Women's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Respondents who have missing values are assumed to not know the age at which they were circumcised and are included in the denominator.

Notes and Considerations

Women may not report a specific age, but instead report that they were circumcised during infancy. This is coded as variable g106 = 95.

Percent distribution adds up to 100 percent.

References

Yoder, P.Stanley , N. Abderrahim, and A. Zhuzhuni. 2004. *Female Genital Cutting in the Demographic and Health Surveys: A Critical and Comparative Analysis*. DHS Comparative Reports No 7. Calverton, Maryland: ORC Macro. https://dhsprogram.com/publications/publication-cr7-comparative-reports.cfm

Resources

DHS-8 Tabulation plan: Table FGC.3

API Indicator IDs:
FG_AFCC_W_A00, FG_AFCC_W_A05, FG_AFCC_W_A10, FG_AFCC_W_A15, FG_AFCC_W_DKM
(API link, STATcompiler link)

Prevalence of Circumcision: Girls 0-14

Percentage of girls circumcised

Definition

Percentage of girls age 0-14 circumcised.

Coverage:
    Population base: Girls age 0-14 (IR file, BR file)
    Time period: Current status at time of survey

Numerators: Number of girls age 0-14 circumcised (g121 = 1)

Denominator: Number of girls age 0-14

Variables: IR file, BR file.
gidx_01 - _20   Daughter's index to birth history
g121_01 - _20   Is daughter circumcised
g122_01 - _20   Daughter's age at circumcision
v005   Women's sample weight
b8   Current age of child (BR file)

Calculation

The data for the calculating prevalence of circumcision among girls age 0-14 are based on reports of daughters from the female survey respondents. This information is stored as part of the individual recode dataset (IR file). Some surveys collect information on every daughter of the respondent. These variables will be labeled with an underscore to identify daughters (e.g. g121_01).

Before using the information regarding daughters, it is necessary to transform the data into a daughter file where the daughter, rather than the survey respondent, is the unit of analysis. In Stata this is done with the reshape long command and in SPSS with the `varstocases` command. This is only necessary if information was collected about more than the youngest daughter.

After transforming the dataset into a daughter file, the BR file must be merged with this file to verify the daughter's age.

Handling of Missing Values

Missing values are included with "don't know" responses and are included in the denominator.

Notes and Considerations

The denominator includes all living daughters age 0-14 of all women who participate in the FGC module. The number of daughters age 0-14 is taken from the woman's birth history. In the FGC module, no data

is collected on the circumcision status of daughters of women who have never heard of FGC, though in this indicator they are all assumed to be 'not circumcised.'

Circumcision status of girls is reported by their mothers.

Changes over Time

Prior to August 2013, daughters of women who had not heard of FGC were excluded from this indicator, and thus from the denominator of the estimate of FGC prevalence among daughters age 0-14. In order to compare trends between surveys, if the prior survey report was completed before August 2013, the indicator for the prior survey must include daughters of women who have not heard of FGC.

References

Yoder, P. Stanley , N. Abderrahim, and A. Zhuzhuni. 2004. *Female Genital Cutting in the Demographic and Health Surveys: A Critical and Comparative Analysis*. DHS Comparative Reports No 7. Calverton, Maryland: ORC Macro. https://dhsprogram.com/publications/publication-cr7-comparative-reports.cfm

Resources

DHS-8 Tabulation plan: Tables FGC.4 and FGC.5

API Indicator IDs:
FG_INFB_C_TOT
(API link, STATcompiler link)

MICS6 Indicator PR.11: Prevalence of FGM among girls

Age at Circumcision: Girls 0-14

Percent distribution of girls by age at circumcision

Definition

Percent distribution of girls age 0-14 by age at circumcision.

Coverage:
> Population base: Number of girls age 0-14 circumcised (IR file)
> Time period: Current status at time of survey

Numerators:
Number of girls age 0-14 by age at circumcision:
1) Girls circumcised before age 1 (g122 = 0)
2) Girls circumcised at age 1-4 (g122 in 1:4)
3) Girls circumcised at age 5-9 (g122 in 5:9)
4) Girls circumcised at age 10-14 (g122 in 10:14)
5) Girls not circumcised (g121 = 0)

Denominator: Number of girls age 0-14 circumcised

Variables: IR file.
g121   Is daughter circumcised
g122   Daughter's age at circumcision
v005   Women's sample weight

Calculation

The data for the calculating prevalence of circumcision among girls age 0-14 are based on reports of daughters from the female survey respondents. This information is stored as part of the individual recode dataset (IR file). Some surveys collect information on every daughter of the respondent. These variables will be labeled with an underscore to identify daughters (e.g. g121_01).

Before using the information regarding daughters, it is necessary to transform the data into a daughter file where the daughter, rather than the survey respondent, is the unit of analysis. In Stata this is done with the reshape long command and in SPSS with the `varstocases` command. This is only necessary if information was collected about more than the youngest daughter.

Handling of Missing Values

Missing values and "don't know" responses for whether a daughter is circumcised are considered not circumcised in this indicator.

Notes and Considerations

The denominator includes all living daughters age 0-14 of all women who participate in the FGC module. The number of daughters age 0-14 is taken from the woman's birth history. In the FGC module, no data is collected on the circumcision status of daughters of women who have never heard of FGC, though in this indicator they are all assumed to be 'not circumcised.'

Circumcision status of girls is reported by their mothers. Age groups and those not circumcised add up to 100 percent.

Changes over Time

Prior to August 2013, daughters of women who had not heard of FGC were excluded from this indicator, and thus from the denominator of the estimate of FGC prevalence among daughters age 0-14. In order to compare trends between surveys, if the prior survey report was completed before August 2013, the indicator for the prior survey must include daughters of women who have not heard of FGC.

Resources

DHS-8 Tabulation plan: Table FGC.4

API Indicator IDs:
FG_ACCG_C_A00, FG_ACCG_C_A01, FG_ACCG_C_A05, FG_ACCG_C_A10, FG_ACCG_C_DKM, FG_ACCG_C_NON
(API link, STATcompiler link)

Aspects of Circumcision

Percent distribution of circumcised girls and women by person performing the circumcision and type of circumcision

Definition

Percent distribution of circumcised girls age 0-14 and women age 15-49 according to person performing the circumcision and type of circumcision.

Coverage:
> #### Population base:
> a) Circumcised girls age 0-14
> b) Circumcised women age 15-49 (IR file)
> Time period: Current status at time of survey

Numerators:
1) Number of circumcised girls age 0-14 (g121 = 1) or women age 15-49 (g102 = 1) where the person performing the circumcision was:
   a) Traditional agent (girls: g124 in 21:26, women: g107 in 21:26)
      - A traditional circumciser (girls: g124 = 21, women: g107 = 21)
      - A traditional birth attendant (girls: g124 = 22, women: g107 = 22)
      - Other traditional agent (girls: g124 = 26, women: g107 = 26)
   b) Other (g124 = 96)
   c) Medical professional (girls: g124 in 11:16, women: g107 in 11:16)
      - Doctor (girls: g124 = 11, women: g107 = 11)
      - Nurse/Midwife (girls: g124 = 12, women: g107 = 12)
      - Other health professions (girls: g124 = 16, women: g107 = 16)

2) Number of circumcised girls age 0-14 (g121 = 1) or women age 15-49 (g102 = 1) where type of circumcision was:
   a) Sewn close (girls: g123 = 1, women: g105 = 1)
   b) Not sewn close (girls: g123 = 0, women: g105 = 0)

Denominator:
a) Number of circumcised girls age 0-14 (g121 = 1)
b) Number of circumcised women age 15-49 (g102 = 1)

Variables: IR file.
g102   Respondent circumcised (women)
g105   Genital area sewn closed (women)
g107   Person who performed circumcision (women)
g123   Was daughter genital area sewn closed (girls)
g121   Is daughter circumcised (girls)
g124   Who performed daughter's circumcision (girls)
v005   Women's sample weight

Calculation

The data for who performed the circumcision and type of circumcision of girls age 0-14 are based on reports of daughters from the female survey respondents. This information is stored as part of the individual recode dataset (IR file). Some surveys collect information on every daughter of the respondent. These variables will be labeled with an underscore to identify daughters (e.g., g124_01).

Before using the information regarding daughters, it is necessary to transform the data into a daughter file where the daughter, rather than the survey respondent, is the unit of analysis. In Stata this is done with the reshape long command and in SPSS with the `varstocases` command. This is only necessary if information was collected about more than the youngest daughter.

For calculating these indicators for women age 15-49, divide the numerator by the denominator, then multiply by 100.

All categories of person performing circumcision and the "don't know/missing" responses add up to 100 percent. Types of circumcision and the "don't know/missing" responses add up to 100 percent.

Handling of Missing Values

Missing values are included with "don't know" responses and included in a separate category as well as in the denominator.

Notes and Considerations

The denominator includes all circumcised daughters age 0-14 of all women who participate in the FGC module. The number of daughters age 0-14 is taken from the woman's birth history. In the FGC module, no data is collected about circumcision of daughters of women who have never heard of FGC.

Changes over Time

Prior to August 2013, daughters of women who had not heard of FGC were excluded from this indicator, and thus from the denominator of the estimate of FGC prevalence among daughters age 0-14. In order to compare trends between surveys, if the prior survey report was completed before August 2013, the indicator for the prior survey must include daughters of women who have not heard of FGC.

Resources

DHS-8 Tabulation plan: Tables FGC.6 and FGC.7

API Indicator IDs:
Girls:
```
FG_PPCG_C_TRD, FG_PPCG_C_TCC, FG_PPCG_C_TBA, FG_PPCG_C_OTR, FG_PPCG_C_MED,
FG_PPCG_C_DOC, FG_PPCG_C_NRS, FG_PPCG_C_OHP, FG_PPCG_C_DKM
FG_INFB_C_SWN, FG_INFB_C_NSW, FG_INFB_C_DKM
```
([API link](#), [STATcompiler link](#))

Women:
```
FG_PPCW_W_TRD, FG_PPCW_W_TCC, FG_PPCW_W_TBA, FG_PPCW_W_OTR, FG_PPCW_W_MED,
FG_PPCW_W_DOC, FG_PPCW_W_NRS, FG_PPCW_W_OHP, FG_PPCW_W_OTH, FG_PPCW_W_DKM
FG_PFCT_W_CFR, FG_PFCT_W_CNF, FG_PFCT_W_SWN, FG_PFCT_W_DKM
```
([API link](), [STATcompiler link]())

Opinions of Women and Men about Circumcision

Percent distribution of women and men who have heard of female circumcision by opinion on whether their religion requires female circumcision

Definition

Percent distribution of women (or men) age 15-49 who have heard of female circumcision by opinion on whether their religion requires female circumcision.

Coverage:
> Population base: Women (or men) age 15-49 (IR file, MR file)
> Time period: Current status at time of survey

Numerators:
Number of women (or men) age 15-49 who have heard of female circumcision (women: g100 = 1 or g101 = 1; men: mg100 = 1 or mg101 = 1) by whether their religion requires female circumcision:
1) Required (women: g118 = 1; men: mg118 = 1)
2) Not required (women: g118 = 0; men: mg118 = 0)

Denominator: Number of women (or men) age 15-49 who have heard of circumcision (women: g100 = 1 or g101 = 1; men: mg100 = 1 or mg101 = 1)

Variables: IR file, MR file.
g100	Ever heard of female circumcision (women)
g101	Ever heard of genital cutting (probed) (women)
g118	Female circumcision required by religion (women)
v005	Women's sample weight
mg100	Ever heard of female circumcision (men)
mg101	Ever heard of genital cutting (probed) (men)
mg118	Female circumcision required by religion (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100. All categories and the "don't know/missing" responses add up to 100 percent.

Handling of Missing Values

Missing values are included with "don't know" responses and included in a separate category as well as in the denominator.

Resources

DHS-8 Tabulation plan: Table FGC.8

API Indicator IDs:

Women:

`FG_OFCR_W_REQ, FG_OFCR_W_NRQ, FG_OFCR_W_DKM`

([API link](#), [STATcompiler link](#))

Men:

`FG_OFCR_M_REQ, FG_OFCR_M_NRQ, FG_OFCR_M_DKM`

([API link](#), [STATcompiler link](#))

Opinions about Whether the Practice of Circumcision Should Continue

Percent distribution of women and men who have heard of female circumcision by their opinion on whether the practice of circumcision should be continued

Definition

Percent distribution of women (or men) age 15-49 who have heard of female circumcision by their opinion on whether the practice of circumcision should be continued.

Coverage:
> Population base: Number of women (or men) age 15-49 (IR file, MR file).
> Time period: Current status at time of survey.

Numerators:
Number of women (or men) age 15-49 who have heard of female circumcision (women: g100 = 1 or g101 = 1, men: mg100 = 1 or mg101 = 1) by their opinion on whether the practice of circumcision should be:
1) Continued (women: g119 = 1, men: mg119 = 1)
2) Not continued (women: g119 = 2, men: mg119 = 2)
3) Depends (women: g119 = 3, men: mg119 = 3)

Denominator: Number of women (or men) age 15-49 who have heard of circumcision (women: g100 = 1 or g101 = 1; men: mg100 = 1 or mg101 = 1)

Variables: IR file, MR file.

g100	Ever heard of female circumcision (women)
g101	Ever heard of genital cutting (probed) (women)
g119	Female circumcision: continue or be stopped (women)
v005	Women's sample weight
mg100	Ever heard of female circumcision (men)
mg101	Ever heard of genital cutting (probed) (men)
mg119	Female circumcision: continue or be stopped (men)
mv005	Men's sample weight

Calculation

Numerator divided by the denominator, multiplied by 100.

Handling of Missing Values

Missing values and "don't know" responses may be included with "it depends" responses (g119=3) as well as in the denominator.

References

Gage, A. J., and R. V. Rossem. 2006. "Attitudes toward the discontinuation of female genital cutting among men and women in Guinea." *International Journal of Gynecology & Obstetrics*. 92(1):92-96.

Resources

DHS-8 Tabulation plan: Table FGC.9

API Indicator IDs:
Women:
`FG_OFCC_W_CNT, FG_OFCC_W_NCN, FG_OFCC_W_DKM`
([API link](#), [STATcompiler link](#))

Men:
`FG_OFCC_M_CNT, FG_OFCC_M_NCN, FG_OFCC_M_DKM`
([API link](#), [STATcompiler link](#))

MICS6 Indicator PR.10: Approval for FGM

20) Fistula

This chapter addresses obstetric fistula, a topic only addressed with the inclusion of a fistula module in a survey. Obstetric fistula is a complication that arises from obstructed or prolonged labor that creates a hole or opening in the birth canal. Prolonged obstructed labor that does not receive prompt medical care stops the blood supply to the tissues of the vagina, bladder, and/or rectum. Unrelieved obstructed labor can compress a woman's bladder, urethra, rectum, and vaginal wall between the fetal head and maternal pubis. This compression and the resultant loss of blood supply produces necrosis of the compressed tissues. Necrosis then causes uncontrolled leakage of urine from the bladder through the vagina (vesico-vaginal fistula) and leakage of stool from the vagina (recto-vaginal fistula) (HERA and ICRH 2010).

References

Health Research for Action (HERA) and International Center for Reproductive Health (ICRH). 2010. *Thematic Evaluation of National Programs and UNFPA Experience in the Campaign to End Fistula: Assessment of Global/Regional Activities*. "Volume I: Global/Regional Report, Final Report – March 2010." Reet, Belgium: HERA and ICRH.

Knowledge and Symptoms of (Obstetric) Fistula

Percentage of women who have ever heard of and have experienced fistula

Definition

1) Percentage of women age 15-49 who have ever heard of fistula.
2) Percentage of women age 15-49 who have ever experienced fistula.

Coverage:
Population base: Women age 15-49 years (IR file)
Time period: Current status at time of survey

Numerators:
1) Number of women age 15-49 who have ever heard of fistula (fistula_v1 = 1)
2) Number of women age 15-49 who have ever experienced fistula (fistula_v2 = 1)

Denominator: Number of women age 15-49 at the time of the survey

Variables: IR file.
fistula_v1   Ever experienced constant leakage of urine or stool from the vagina
fistula_v2   Ever heard of fistula
v005   Women's sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

The total includes woman with missing information.

Notes and Considerations

There are no standard variables names for these variables. These variables will likely be included in the data file as country-specific variables. Country-specific variables begin with an "s", though in this chapter we use "fistula_v*" to denote variables as they are not standard. Country-specific variables should be checked. These tables are not standard across all surveys over time. There is some variation in the presentation of these results among final reports.

Changes over Time

A standardized fistula module was developed in 2006. DHS surveys conducted prior to the finalization of this module did not include these standardized questions. Additionally, prior surveys did not consistently ask fistula-related questions to all women. Thus, the denominators in tables in prior final reports vary by survey. For example, some surveys used a contingency question to filter women based on whether they

had ever heard of fistula and only women responded affirmatively were asked if they had experienced fistula themselves. Additionally, the question that is used to assess self-reported prevalence of fistula was not standard and interpretation of results and cross-country comparison should be made with caution only after reviewing the survey instrument.

References

Biadgilign, S., Y. Lakew, A. A. Reda, and K. Deribe. 2013. "A population based survey in Ethiopia using questionnaire as proxy to estimate obstetric fistula prevalence: results from demographic and health survey. *Reproductive health* 10(1):14. https://reproductive-health-journal.biomedcentral.com/articles/10.1186/1742-4755-10-14

Johnson, K., and A. Peterman. 2008. *Incontinence Data from the Demographic and Health Surveys: Comparative Analysis of a Proxy Measurement of Vaginal Fistula and Recommendations for Future Population-Based Data Collection*. DHS Analytical Studies No. 17. Calverton, Maryland, USA: Macro International Inc. https://www.dhsprogram.com/publications/publication-as17-analytical-studies.cfm

Mallick, L. 2015. *Comparative analysis of a proxy measurement of vaginal fistula: Supplement to DHS Analytical Studies No. 17*. Rockville, Maryland, USA: ICF International. https://dhsprogram.com/publications/publication-OD67-Other-Documents.cfm

Mallick, L., and V. Tripathi. 2018. "The association between female genital fistula symptoms and gender-based violence: A multicountry secondary analysis of household survey data*. Tropical Medicine & International Health* 23(1): 106-119. https://onlinelibrary.wiley.com/doi/full/10.1111/tmi.13008

Resources

DHS-8 Tabulation plan: Table F.1 (tables could be included in Chapter 9 Reproductive Health if there is no chapter dedicated to the topic of Fistula)

API Indicator IDs:
`FI_EXFI_W_EEX, FI_EXFI_W_HRD`
(API link, STATcompiler link)

Reported Causes of Fistula Symptoms

Percent distribution of women who report having or having had fistula symptoms, by reported cause of fistula and percent distribution of number of days after delivery that symptoms began

Definition

1) Percent distribution of women age 15-49 who report having or having had fistula symptoms, by reported cause of fistula.
2) Percent distribution of women age 15-49 who report having or having had fistula symptoms, by number of days after the cause that symptoms began.

Coverage:
> Population base: Women age 15-49 reporting past or current experience of fistula symptoms (fistula_v1 = 1) (IR file)
> Time period: Lifetime of the respondent

Numerators:
1) Number of women age 15-49 who report having or having had fistula symptoms (fistula_v1 = 1) caused by (Note: country-specific response options and variables will vary. The categories below are included in the standard DHS Fistula Module):
   a) After delivered a baby (fistula_v3 = 1)
      - Normal labor and delivery (fistula_v4 = 1)
      - Difficult labor and delivery (fistula_v4 = 2)
   b) After delivered a stillbirth (fistula_v3 = 2)
      - Normal labor and delivery (fistula_v4 = 1)
      - Difficult labor and delivery (fistula_v4 = 2)
   c) Sexual assault (fistula_v5 = 1)
   d) Pelvic surgery (fistula_v5 = 2)
   e) Other (fistula_v5 = 6)

2) Number of women age 15-49 who report having or having had fistula-like symptoms (fistula_v1 = 1) by number of days after the cause the symptoms began:
   a) 0-1 day (fistula_v6 in 0:1)
   b) 2-4 days (fistula_v6 in 2:4)
   c) 5-7 days (fistula_v6 in 5:7)
   d) 8+ days (fistula_v6 in 8:90)

Denominator: Number of women age 15-49 who report having or having had fistula-like symptoms (fistula_v1 = 1)

Variables: IR file
fistula_v1   Ever experienced constant leakage of urine or stool from the vagina
fistula_v3   Problem started after delivered a baby or had stillbirth
fistula_v4   Problem started after a normal or difficult labor

fistula_v5   Cause of fistula
fistula_v6   Days after cause that leakage started
v005   Women's sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Handling of Missing Values

Missing values are included with "don't know" responses as separate categories in the distribution.

Notes and Considerations

See *Notes and Considerations* for *Percentage of women who have ever heard of fistula*.

Changes over Time

See *Changes over Time* for *Percentage of women who have ever heard of fistula*.

References

See *References* for *Percentage of women who have ever heard of fistula*.

Resources

DHS-8 Tabulation plan: F.2 (tables could be included in Chapter 9) Reproductive Health if there is no chapter dedicated to the topic of Fistula)

API Indicator IDs
```
FI_RCFI_W_NBA, FI_RCFI_W_NSB, FI_RCFI_W_DBA, FI_RCFI_W_DSB, FI_RCFI_W_APS,
FI_RCFI_W_ASA, FI_RCFI_W_INJ, FI_RCFI_W_OTH, FI_DAFI_W_D00, FI_DAFI_W_D02,
FI_DAFI_W_D05, FI_DAFI_W_D08
```
(API link, STATcompiler link)

Type of Provider for Treatment of Fistula Symptoms

Percent distribution of women who sought treatment by type of provider and percent of women who did not seek treatment

Definition

1) Percent distribution of women age 15-49 who had fistula symptoms and sought treatment, by type of provider.
2) Percent distribution of women age 15-49 who had fistula symptoms and did not seek treatment.

Coverage:
>   Population base: Women age 15-49 reporting past or current fistula symptoms (fistula_v1 = 1) (IR file)
>   Time period: Lifetime of the respondent

Numerators:
1) Number of women age 15-49 who report having or having had fistula symptoms (fistula_v1 = 1) who sought treatment (fistula_v7 = 1), provided by (Note: country-specific response options and variables will vary. The categories below are included in the standard DHS Fistula Module):
   a) Doctor (fistula_v9 = 1)
   b) Nurse/midwife (fistula_v9 = 2)
   c) Community/village health worker (fistula_v9 = 3)
   d) Other (fistula_v9 = 6)
2) Number of women age 15-49 who report having or having had fistula symptoms (fistula_v1 = 1) and did not seek treatment (fistula_v7 = 0)

Denominator: Number of women age 15-49 who report having or having had fistula symptoms (fistula_v1 = 1)

Variables: IR file
fistula_v1   Ever experienced constant leakage of urine or stool from the vagina
fistula_v7   Sought treatment for fistula
fistula_v9   Type of provider treatment sought from
v005   Women's sample weight

Calculation

Numerator divided by denominator, multiplied by 100. Categories plus "don't know/missing" responses add up to 100 percent of women who experienced fistula symptoms.

Handling of Missing Values

Missing values are included with "don't know" responses as separate categories in the distribution.

Notes and Considerations

See *Notes and Considerations* for *Percentage of women who have ever heard of fistula*.

Changes over Time

See *Changes over Time* for *Percentage of women who have ever heard of fistula*.

References

See *References* for *Percentage of women who have ever heard of fistula*

Resources

DHS-8 Tabulation plan: F.3 (tables could be included in Chapter 9 Reproductive Health if there is no chapter dedicated to the topic of Fistula)

API Indicator IDs
`FI_CSFI_W_TRT, FI_PVFT_W_DOC, FI_PVFT_W_NUR, FI_PVFT_W_VHW, FI_PVFT_W_OTH`
([API link](#), [STATcompiler link](#))

Outcome of Treatment of Fistula Symptoms

Among women who experienced symptoms of fistula and sought treatment, the percent distribution by outcome of treatment, and percentage who had operation

Definition

1) Among women age 15-49 who experienced symptoms of fistula and sought treatment, the percent distribution by outcome of treatment.
2) Among women age 15-49 who experienced symptoms of fistula and sought treatment, the percentage who had an operation.

Coverage:

> Population base: Women age 15-49 reporting past or current fistula symptoms (fistula_v1 = 1) and sought treatment (fistula_v7 = 1) (IR file)
> Time period: Lifetime of the respondent

Numerators:

1) Number of women age 15-49 who experienced fistula symptoms (fistula_v1 = 1) and sought treatment (fistula_v7=1) by outcome:
    a) Treatment stopped the leakage completely (fistula_v11 = 1)
    b) Treatment didn't stop the leakage completely but reduced it (fistula_v11 = 2)
    c) Treatment didn't stop the leakage at all (fistula_v11 = 3)
    d) Didn't receive treatment (fistula_v11 = 4)
2) Number of women age 15-49 who had fistula operation (fistula_v10 = 1)

Denominator: Number of women age 15-49 who experienced fistula symptoms and sought treatment (fistula_v1 = 1 & fistula_v7 = 1)

Variables: IR file.

fistula_v1	Ever experienced constant leakage of urine or stool from the vagina
fistula_v7	Sought treatment for fistula
fistula_v10	Operation to fix fistula
fistula_v11	Treatment stopped the leakage completely
v005	Women's sample weight

Calculation

Numerator divided by denominator, multiplied by 100. Categories and "don't know/missing" responses add up to 100 percent of the women who experienced fistula symptoms and sought treatment.

Handling of Missing Values

Missing and "don't know" responses are included in denominator.

Notes and Considerations

See *Notes and Considerations* for *Percentage of women who have ever heard of fistula*.

Changes over Time

See *Changes over Time* for *Percentage of women who have ever heard of fistula*.

References

See *References* for *Percentage of women who have ever heard of fistula*.

Resources

DHS-8 Tabulation plan: F.4 (tables could be included in Chapter 9 Reproductive Health if there is no chapter dedicated to the topic of Fistula)

API Indicator IDs
`FI_CSFI_W_OPR, FI_OCFI_W_LSC, FI_OCFI_W_LRS, FI_OCFI_W_LNR`
(API link, STATcompiler link)

Reasons for Not Seeking Treatment for Fistula Symptoms

Among women who reported ever having fistula symptoms but not seeking treatment, percentage by reasons for not seeking treatment

Definition

Among women age 15-49 who experienced symptoms of fistula and did not seek treatment, the percent distribution by reasons for not seeking treatment.

Coverage:
> Population base: Women age 15-49 reporting past or current fistula symptoms (fistula_v1 = 1) and did not seek treatment (fistula_v7 = 0) (IR file)
> Time period: Lifetime of the respondent

Numerators:
Number of women age 15-49 who experienced fistula symptoms (fistula_v1 = 1) and did not seek treatment (fistula_v7=0) by reason for not seeking treatment:
1) Did not know problem can be fixed (fistula_v8a = 1)
2) Did not know where to go (fistula_v8b = 1)
3) Too expensive (fistula_v8c = 1)
4) Too far (fistula_v8d = 1)
5) Poor quality of care (fistula_v8e = 1)
6) Could not get permission (fistula_v8f = 1)
7) Embarrassment (fistula_v8g = 1)
8) Problem disappeared (fistula_v8h = 1)
9) Other (fistula_v8i = 1)

Denominator: Number of women age 15-49 who experienced fistula symptoms and did not seek treatment (fistula_v1 = 1 & fistula_v7 = 0)

Variables: IR file.
fistula_v1	Ever experienced constant leakage of urine or stool from the vagina
fistula_v7	Sought treatment for fistula
fistula_v8a	Reasons not sought treatment: did not know problem can be fixed
fistula_v8b	Reasons not sought treatment: did not know where to go
fistula_v8c	Reasons not sought treatment: too expensive
fistula_v8d	Reasons not sought treatment: too far
fistula_v8e	Reasons not sought treatment: poor quality of care
fistula_v8f	Reasons not sought treatment: could not get permission
fistula_v8g	Reasons not sought treatment: embarrassment
fistula_v8h	Reasons not sought treatment: problem disappeared
fistula_v8i	Reasons not sought treatment: other
v005	Women's sample weight

Calculation

Numerator divided by denominator, multiplied by 100.

Respondents may report multiple reasons so the sum of reasons may exceed 100.

Handling of Missing Values

Missing values are included in the denominator.

Notes and Considerations

See *Notes and Considerations* for *Percentage of women who have ever heard of fistula*.

Changes over Time

See *Changes over Time* for *Percentage of women who have ever heard of fistula*.

References

See *References* for *Percentage of women who have ever heard of fistula*.

Resources

DHS-8 Tabulation plan: F.5 (tables could be included in Chapter 9 Reproductive Health if there is no chapter dedicated to the topic of Fistula)

API Indicator IDs
```
FI_NCFI_W_DKF, FI_NCFI_W_DKW, FI_NCFI_W_EXP, FI_NCFI_W_FAR, FI_NCFI_W_QOC,
FI_NCFI_W_PER, FI_NCFI_W_EMB, FI_NCFI_W_DIS, FI_NCFI_W_OTH
```
(API link, STATcompiler link)