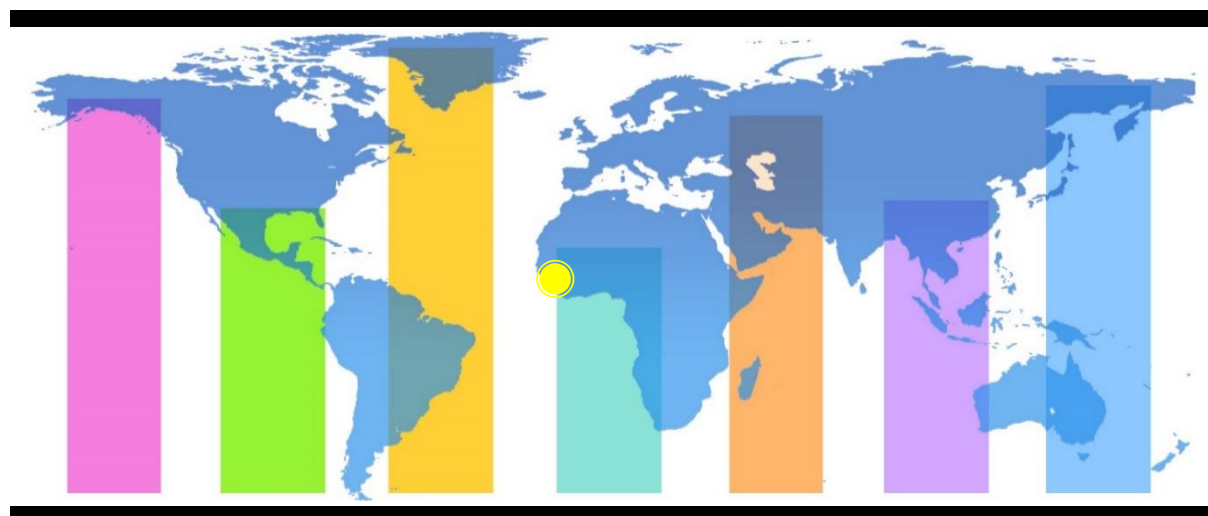


Sierra Leone



**Demographic and Health
Survey**

2019

Key Indicators



**MINISTRY OF HEALTH
AND SANITATION**
THE REPUBLIC OF SIERRA LEONE

Sierra Leone

Demographic and Health Survey 2019

Key Indicators Report

Statistics Sierra Leone
Freetown, Sierra Leone

The DHS Program
ICF
Rockville, Maryland, USA

November 2019



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The 2019 Sierra Leone Demographic and Health Survey (2019 SLDHS) was implemented by Statistics Sierra Leone on behalf of the Sierra Leone Ministry of Health and Sanitation. The funding for the 2019 SLDHS was provided by the United States Agency for International Development (USAID), Global Fund, Department for International Development (DFID), United Nations Population Fund (UNFPA), World Health Organization (WHO), and the World Bank. ICF provided technical assistance through The DHS Program, a USAID-funded project that provides support and technical assistance in the implementation of population and health surveys in countries worldwide.

Additional information about the 2019 SLDHS may be obtained from the headquarters of Statistics Sierra Leone (Stats SL), Tower Hill, Freetown, Sierra Leone (telephone: +232 79 212761; email: info@statistics.sl; internet: www.statistics.sl).

Information about The DHS Program may be obtained from ICF, 530 Gaither Road, Suite 500, Rockville, MD 20850, USA (telephone: +1-301-407-6500; fax: +1-301-407-6501; email: info@DHSprogram.com; internet: www.DHSprogram.com).

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ACRONYMS AND ABBREVIATIONS

ACT	artemisinin-based combination therapy
AIDS	acquired immune deficiency syndrome
ANC	antenatal care
ARI	acute respiratory infection
ASFR	age-specific fertility rate
BCG	bacille Calmette-Guérin
CAPI	computer-assisted personal interviewing
CBR	crude birth rate
CPR	contraceptive prevalence rate
CSPRO	Censuses and Surveys Processing System
DFID	Department for International Development
DHS	Demographic and Health Survey
DPT	diphtheria, pertussis, and tetanus vaccine
EA	enumeration area
HepB	hepatitis B
Hib	<i>Haemophilus influenzae</i> type B
HIV	human immunodeficiency virus
IFSS	internet file streaming system
IPV	inactivated poliomyelitis vaccine
ITN	insecticide-treated net
IUD	intrauterine contraceptive device
IYCF	infant and young child feeding
LAM	lactational amenorrhoea method
LLIN	long-lasting insecticidal net
MOHS	Ministry of Health and Sanitation
NN	neonatal mortality
ORS	oral rehydration salts
PCV	pneumococcal conjugate vaccine
PNC	postnatal care
PNN	postneonatal mortality
PSU	primary sampling unit
RDT	rapid diagnostic test
SD	standard deviation
SDG	Sustainable Development Goal
SDM	standard days method
SLDHS	Sierra Leone Demographic and Health Survey
SP	sulfadoxine-pyrimethamine

Stats SL	Statistics Sierra Leone
STI	sexually transmitted infection
TFR	total fertility rate
UNFPA	United Nations Population Fund
USAID	United States Agency for International Development
WHO	World Health Organization

FOREWORD

The Government of Sierra Leone, through the Ministry of Health and Sanitation and Statistics Sierra Leone (Stats SL), together with its development partners, conducted the 2019 Sierra Leone Demographic and Health Survey (2019 SLDHS).

The SLDHS provides an opportunity to inform policy and provide data for planning, implementation, monitoring, and evaluation of national health programmes. It is designed to provide up-to-date information on health indicators, including nutritional status of children, early childhood and maternal mortality, maternal and child health, fertility levels, nuptiality, sexual activity, fertility preferences, awareness and use of family planning methods, breastfeeding practices, awareness and behaviours regarding HIV/AIDS and other sexually transmitted infections, and prevalence of HIV.

The SLDHS is conducted every 5 years in Sierra Leone. The first survey was conducted in 2008 and the second in 2013. Although the next one was planned for 2018, actual data collection took place in early 2019; hence, the survey is appropriately named the 2019 SLDHS. This report presents only preliminary results. Key findings include a decline in fertility rates and improvement in nutrition indicators, such as stunting, wasting, and underweight. Details of maternal and child health care indicators also suggest improvement. Details of other indicators including maternal and child can be found in this Key Indicator Report (KIR).

On behalf of the Government of Sierra Leone, both Stats SL and MoHS wish to express appreciation to all those involved in the implementation of the 2019 SLDHS in various ways, including financial and technical support, and in the preparation of this Key Indicators report.

Special thanks go to the following:

- The Government and the people of Sierra Leone for providing the funding and the environment to support the survey.
- The World Bank, Department for International Development (DFID), and the local U.S. Agency for International Development (USAID) in Sierra Leone, for contributing funds to organise and conduct the 2019 SLDHS.
- World Health Organisation (WHO), Global Fund, and United Nations Population Fund (UNFPA), for providing additional funds.
- National Aids Secretariat (NAS) and the Central Public Health Reference Laboratory (CPHRL) of the Ministry of Health and Sanitation for providing funds and technical support, respectively, in the implementation of biomarker collection and HIV testing, storage, and analyses.
- ICF, for providing technical support, training of fieldwork staff, consultations, recommendations, and analyses of the data collected.

The DHS would not have been possible without the good work and dedication of the project staff at various levels of expertise. In particular, we wish to express our appreciation to the national coordinator, regional and district coordinators, biomarker monitors and data managers, supervisors, interviewers, nurses, HIV counsellors, and support staff for their active participation in and contribution to this work.

Above all, we appreciate the cooperation of all of the survey respondents countrywide who have made the 2019 SLDHS a success.

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1 INTRODUCTION

The 2019 Sierra Leone Demographic and Health Survey (SLDHS) is the third Demographic and Health Survey (DHS) conducted in Sierra Leone, and follows those implemented in 2008 and 2013. Statistics Sierra Leone implemented the survey. Data collection took place from May 14, 2019, to August 31, 2019. Funding for the 2019 SLDHS was provided by the United States Agency for International Development (USAID), the World Bank, the Global Fund, the United Nations Population Fund (UNFPA), and the Department for International Development (DFID). ICF provided technical assistance through The DHS Program, which assists countries in the collection of data to monitor and evaluate population, health, and nutrition programmes.

This Key Indicators report presents a first look at selected findings from the 2019 SLDHS. A comprehensive analysis of the data will be presented in a final report in March 2020.

1.1 SURVEY OBJECTIVES

The primary objective of the 2019 SLDHS is to provide up-to-date estimates of basic demographic and health indicators. Specifically, the 2019 SLDHS collected information on fertility, awareness and use of family planning methods, breastfeeding practices, nutritional status of women and children, maternal and child health, adult and childhood mortality, women's empowerment, domestic violence, female genital cutting, prevalence, awareness and behaviour regarding HIV/AIDS and other sexually transmitted infections (STIs), and other health-related issues such as smoking.

The information collected through the 2019 SLDHS is intended to assist policymakers and programme managers in designing and evaluating programmes and strategies for improving the health of the country's population. The 2019 SLDHS also provides indicators relevant to the Sustainable Development Goals (SDGs) for Sierra Leone.

2 SURVEY IMPLEMENTATION

2.1 SAMPLE DESIGN

The sampling frame used for the 2019 SLDHS is the Population and Housing Census of the Republic of Sierra Leone, which was conducted in 2015 by Statistics Sierra Leone (Stats SL). Administratively, Sierra Leone is divided into provinces. Each province is subdivided into districts, each district is further divided into chiefdoms/census wards, and each chiefdom/census ward is divided into sections. During the 2015 Population and Housing Census each locality was subdivided into convenient areas called census enumeration areas (EAs). The primary sampling unit (PSU), referred to as a cluster for the 2019 SLDHS, is defined on the basis of EAs from the 2015 EA census frame. The 2015 Population and Housing Census provided the list of EAs which served as a foundation to estimate the number of households, and distinguish EAs as urban or rural for the survey sample frame.

The sample for the 2019 SLDHS was a stratified sample selected in two stages. Stratification was achieved by separating each district into urban and rural areas. In total, 31 sampling strata were created. Samples were selected independently in every stratum via a two-stage selection process. Implicit stratifications were achieved at each of the lower administrative levels by sorting the sampling frame before sample selection according to administrative order and by using a probability proportional-to-size selection during the first sampling stage.

In the first stage, 578 EAs were selected with probability proportional to EA size. EA size was the number of households residing in the EA. A household listing operation was carried out in all selected EAs, and the resulting lists of households served as a sampling frame for the selection of households in the second stage. In the second stage's selection, a fixed number of 24 households was selected in every cluster through equal probability systematic sampling, resulting in a total sample size of approximately 13,872 selected households. The household listing was carried out using tablets, and random selection of households was carried out through computer programming. The survey interviewers interviewed only the pre-selected households. To prevent bias, no replacements and no changes of the pre-selected households were allowed in the implementing stages.

Due to the non-proportional allocation of the sample to the different districts and the possible differences in response rates, sampling weights were calculated, added to the data file, and applied so that the results would be representative at the national level as well as the domain level. Because the 2019 SLDHS sample was a two-stage stratified cluster sample selected from the sampling frame, sampling weights were calculated based on sampling probabilities separately for each sampling stage and for each cluster.

The 2019 SLDHS included all women age 15-49 in the sample households. Those who were either permanent residents of the selected households or visitors who stayed in the households the night before the survey were eligible to be interviewed. The men's survey was conducted in one-half of the sample households, and all men age 15-59 in these households were included. In this subsample, one eligible woman in each household was randomly selected to be asked additional questions about domestic violence. Similarly, biomarker information was collected only in those households selected for the men's survey. The biomarkers included in this survey were height and weight for women age 15-49, men 15-59, and children age 0-59 months, haemoglobin testing for women age 15-49, men 15-59, and children age 6-59 months, and testing for HIV for women 15-49 and men 15-59.

The survey was successfully carried out in 578 clusters.

2.2 QUESTIONNAIRES

Five questionnaires were used for the 2019 SLDHS: the Household Questionnaire, the Woman's Questionnaire, the Man's Questionnaire, the Biomarker Questionnaire, and the Fieldworker Questionnaire. The questionnaires, based on The DHS Program's standard Demographic and Health Survey (DHS-7)

questionnaires, were adapted to reflect the population and health issues relevant to Sierra Leone. Comments were solicited from various stakeholders representing government ministries and agencies, non-governmental organisations, and international donors. The survey protocol was reviewed and approved by the Sierra Leone Ethics and Scientific Review Committee and the ICF Institutional Review Board. All questionnaires were finalised in English, and the 2019 SLDHS used computer-assisted personal interviewing (CAPI) for data collection.

The Household Questionnaire listed all members of and visitors to selected households. Basic demographic information was collected on each person listed, including age, sex, marital status, education, and relationship to the head of the household. For children under age 18, survival status of parents was determined. Data on age, sex, and marital status of household members were used to identify women and men who were eligible for individual interviews. The Household Questionnaire also collected information on characteristics of the household's dwelling unit, such as source of drinking water; type of toilet facilities; materials used for flooring, external walls, and roofing; ownership of various durable goods; and ownership of mosquito nets. In addition, data were gathered on salt testing.

The Woman's Questionnaire was used to collect information from all eligible women age 15-49. These women were asked questions on the following topics:

- Background characteristics (including age, education, and media exposure)
- Birth history and child mortality
- Knowledge, use, and source of family planning methods
- Antenatal, delivery, and postnatal care
- Vaccinations and childhood illnesses
- Breastfeeding and infant feeding practices
- Women's minimum dietary diversity
- Marriage and sexual activity
- Fertility preferences (including desire for more children and ideal number of children)
- Women's work and husbands' background characteristics
- Knowledge, awareness, and behaviour regarding HIV/AIDS and other sexually transmitted infections (STIs)
- Knowledge, attitudes, and behaviour related to other health issues (e.g., smoking)
- Female genital cutting
- Adult and maternal mortality
- Domestic violence

The Man's Questionnaire was administered to all men age 15-59 in the subsample of households selected for the men's survey. The Man's Questionnaire collected much of the same information as the Woman's Questionnaire, but was shorter because it did not contain a detailed reproductive history or questions on maternal and child health.

The Biomarker Questionnaire was used to record the results of anthropometry measurements and other biomarkers for men, women and children. This questionnaire was administered only to a subsample selected for the men's survey. All children age 0-59 months, all men age 15-59, and all women age 15-49 were eligible for height and weight measurements. Men age 15-59 and women age 15-49 were also eligible for haemoglobin and HIV testing. Children age 6-59 months were also eligible for haemoglobin testing.

The Fieldworker Questionnaire recorded background information from the interviewers to serve as a tool in conducting analyses of data quality. Each interviewer completed the self-administered Fieldworker Questionnaire after the final selection of interviewers and before the fieldworkers entered the field. No personal identifiers were attached to the 2019 SLDHS fieldworkers' data file.

The enumerators used tablet computers for data collection. The tablet computers were equipped with Bluetooth® technology to enable remote electronic transfer of files, such as assignments from the team

supervisor to the interviewers, individual questionnaires to survey team members, and completed questionnaires from interviewers to team supervisors. The computer-assisted personal interviewing (CAPI) data collection system employed in the 2019 SLDHS was developed by The DHS Program with the mobile version of Census and Survey Processing System (CSPRO) software. The CSPRO software was developed jointly by the U.S. Census Bureau, Serpro S.A., and The DHS Program.

2.3 ANTHROPOMETRY, ANAEMIA TESTING, AND HIV TESTING

Three biomarkers, including anthropometric values (height and weight), haemoglobin (anaemia screening), and human immunodeficiency virus (HIV), were measured during testing in the course of the 2019 SLDHS. Biomarkers were collected in 50% of households selected for the male survey. Blood specimens for the tests were collected from eligible men and women who voluntarily consented to be tested and from all children age 6-59 months for whom consent was obtained from their parents or the adult responsible for the children. In contrast with the data collection procedure for the household and individual interviews, data related to biomarkers were initially recorded on a paper Biomarker Questionnaire and subsequently entered into interviewers' tablet computers. As part of quality assurance, a checklist was used to verify that proper procedures were used during collection of biomarker data and to enhance supportive supervision. The survey protocol, including biomarker collection, was reviewed and approved by the Sierra Leone Ethics and Scientific Review Committee and the ICF Institutional Review Board.

Anthropometry: Height and weight measurements were recorded for children age 0-59 months, men age 15 – 59, and women age 15-49. The 2019 SLDHS included quality assurance procedures to improve anthropometry data quality. These procedures, undertaken in real time during data collection, included re-measurement of all children with data outside of pre-specified flagged values on a subsequent day and re-measurement of the height and weight of a random selection of children (10%) on a subsequent day.

Anaemia testing: Blood samples for anaemia testing were obtained from a drop of blood taken from a finger prick (or a heel prick for children age 6-11 months), men age 15 – 59 and women age 15 – 49. A drop of blood from the prick site was drawn into a microcuvette, and a haemoglobin analysis was carried out on-site with a battery-operated portable HemoCue analyser. Results were provided verbally and in writing. Parents of children with a haemoglobin level below 8 g/dl were instructed to take the child to a health facility for follow-up care. Likewise, nonpregnant women, or women who did not know they were pregnant, and pregnant women were referred for follow-up care if their haemoglobin levels were below 8 g/dl and 7 g/dl, respectively. All households in which anaemia testing was conducted were given a brochure that explained the causes and prevention of anaemia.

HIV testing: HIV testing was carried out among men age 15–59 and women 15–49. In the 2019 SLDHS, HIV testing took place in the field as well as in the laboratory. For those who were interested in knowing their status, an HIV rapid diagnostic test was done following the serial testing algorithm used by Determine (Abbott Laboratories, Abbott Park, IL) and STAT-PAK (Chembio Diagnostics). Subjects that tested HIV negative on Determine were reported as negative. Subjects that tested positive on both Determine and STAT-PAK were reported as positive. Subjects that tested positive on Determine and negative on STAT-PAK were reported as inconclusive and were advised to go a health care facility for further testing and possible care. All respondents were provided pre- and post-test counselling by experienced HIV counsellors. Results on paper slips were provided to all persons tested, irrespective of their HIV status.

In view of an anticipated low acceptance rate for rapid diagnostic testing, it was decided that HIV prevalence for Sierra Leone would be determined at the laboratory in Lakka using anonymous testing of blood samples collected in the field. To do that, the HIV counsellors collected blood from a finger prick onto a filter paper card and prepared dried blood spot (DBS) samples. Once dry, the cards were taken to the reference laboratory at Lakka, Freetown, where they were checked for quality, logged, and stored frozen until testing. As part of the informed consent process, the HIV counsellors advised individuals who

were eligible for the blood sample collection (women 15-49 and men 15-59) of the purposes for which the blood would be used and were assured of the anonymity of the HIV test results.

2.4 PRETEST

The pretest training was designed to train the trainers for the main training as well as to ensure that they were well versed with the SLDHS questionnaires and procedures and able to test the questionnaires in the different languages. The training involved sessions of administering the SLDHS questionnaires and a separate session for biomarker data collection. Twenty-four participants, comprising 7 regional and 15 provincial Stats SL coordinators, and two data processing staff members participated in the pretest training and fieldwork. The pretest took place over a 3-week period from November 12 to November 30, 2018. Most of the participants had previous experience carrying out SLDHS surveys or the Sierra Leone Malaria Indicator Survey (SLMIS). The idea behind having the data processing staff participate in the pretest was to familiarise them with the CAPI system.

The training was conducted by ICF staff who focused on the technical components of the survey, biomarkers, and the CAPI data collection system. Training topics highlighted key components of the survey, interview techniques and procedures for completing the SLDHS questionnaires, and administration of interviews using the CAPI system. The biomarker training included orientation on collecting height and weight data; testing for anaemia and HIV; and standardisation procedures for anthropometry. The participants worked in groups using various training techniques, including interactive question-and-answer sessions, case studies, and role-plays. Before starting the fieldwork, the participants were given ample opportunities to practice the questionnaires and to practice collection of biomarker data among women and children. The participants administered the questionnaires in the field, provided feedback on the content and language of the questionnaires, tested the CAPI software programme, commented on the biomarker procedure, and learned various training techniques.

The fieldwork for the pretest was carried out in communities that spoke English, Creole, Temne, Mende, and Limba. Each team carried out the pretest in an urban and a rural location, completing six clusters in total. Following the fieldwork, a debriefing session was held with the pretest field staff, and modifications to the questionnaires were made based on lessons drawn from the exercise.

2.5 TRAINING OF FIELD STAFF

During the main training, biomarker training was held for the HIV counsellors and nurses from April 24 to May 8, 2019. The training was facilitated by the ICF team and supported by the trainers who were trained during the pretest. A total of 24 nurses and 24 HIV counsellors were trained on biomarker data collection and recording. This included training on anthropometry; using rapid test kits to test for anaemia; and HIV testing and preparing dried blood spots for HIV.

The training utilised a variety of different learning tools. Plenary lectures were held on the technical aspects of biomarker collection, and other tools included video and hands-on demonstrations on the process of biomarker collection, instructions on how to fill out the questionnaire and transmittal sheets, and instructions on data quality procedures. In addition, break-out sessions were held daily during which trainees had the opportunity for hands-on practice with both adults and children. A total of four anthropometry standardisation exercises with 90 children (45 under age 2 and 45 over age 2) were undertaken. Following the standardisation exercises, the results were presented. General observations on accuracy (difference between the reference value and the participant's value) and precision (difference between the first and second readings) were discussed.

The field coordinators were trained on the use of the biomarker checklist. Also implemented were random re-measurements for quality assurance and re-visitation of households for re-measurements for flagged cases involving children whose z-score values were less than -3 or greater than 3. A 2-day field practice was conducted.

The main training for the 2019 SLDHS started on March 31, 2019, and lasted until May 8, 2019. The training included 4 weeks of orientation on data collection instruments and procedures followed by field practice. The 320 participants in the main training were selected through a nationwide strict vetting process. However, 180 out of 320 participants qualified to the second phase of the main training.

Twenty-four coordinators from Stats SL who had participated in the pretest training and training of trainers facilitated the training. ICF staff provided technical support during the training sessions. The participants were divided into four classrooms of about 45 participants each with at least three facilitators in each room. The training sessions included discussion of concepts, procedures, and methodologies for conducting the DHS survey. Participants were guided through the questionnaires using various training techniques such as role-plays, age probing in pairs, group discussion, in-class exercises, case studies, and presentations. Training also included discussions of the CAPI system, demonstrations of the CAPI DHS menus, and how to conduct interviews through the CAPI system.

Participants were evaluated through in-class exercises, quizzes, and observations made during field practice. Ultimately, 24 supervisors and 24 field editors were identified based on their performance. Similarly, 24 male interviewers and 48 female interviewers were selected to serve as enumerators, while the rest were kept as reserves. Twenty-four HIV counsellors and 24 nurses were also selected to participate in the survey based on their performance during the biomarker training.

The team supervisors received additional training on providing logistical support, managing the field teams, observing interviews, keeping an inventory of supplies, and collecting biomarker data. They were also trained on implementing the biomarker checklist to carry out data quality assurance.

The field editors received additional training on performing supervisory activities with the CAPI system, data quality control procedures, fieldwork coordination, and management. The field editors were trained on assigning households and receiving completed interviews from the interviewers; recognising and dealing with error messages; receiving system updates and distributing updates to interviewers; entering biomarker questionnaires; re-measuring and revisiting of questionnaires and the biomarker checklist; resolving duplicated cases; and closing clusters. They were also trained on transferring interviews to the central office via the secure internet file streaming system (IFSS) developed by The DHS Program.

Six quality controllers for biomarker data collection were identified from among the trainees who underwent the pretest training and facilitated the main training, and they received additional training on supporting the teams and monitoring fieldwork through the biomarker checklist.

2.6 FIELDWORK

The fieldwork for the 2019 SLDHS was launched under close supervision on May 15, 2019, in clusters in Freetown. Twenty-four teams, each consisting of one supervisor, one field editor, one male interviewer, two female interviewers, one HIV counsellor, and one nurse, were assigned across the different clusters in Freetown. The teams were closely monitored by the coordinators and the biomarker monitors. After completion of the fieldwork in Freetown in the first week, teams were brought back to the Stats SL office in Freetown for a review session where the teams had an opportunity to clarify issues and ask questions. The teams were then dispatched to their assigned provinces. Data collection lasted until August 31, 2019. The fieldwork in some provinces took longer than expected due to the various perceptions of the Ebola outbreak and its relationship to the SLDHS data collection.

Fieldwork monitoring was an integral part of the 2019 SLDHS, and several rounds of monitoring were carried out by the Stats SL and MOHS core team, the coordinators from Stats SL, and ICF staffs. The monitors were provided with guidelines for overseeing the fieldwork. Weekly field check tables were generated from the completed interviews sent to the central office to monitor fieldwork progress, and regular feedback was sent to the teams.

2.7 DATA PROCESSING

The processing of the 2019 SLDHS data began almost as soon as the fieldwork started. As data collection was completed in each cluster, all electronic data files were transferred via the IFSS to the Stats SL central office in Freetown. These data files were registered and checked for inconsistencies, incompleteness, and outliers. The field teams received alerts on any inconsistencies and errors. Secondary editing, carried out in the central office, involved resolving inconsistencies and coding open-ended questions. The Stats SL data processor coordinated the exercise at the central office. The biomarker paper questionnaires were compared with electronic data files to check for any inconsistencies in data entry. Data entry and editing were carried out using the CSPro Systems software package. The concurrent processing of the data offered a distinct advantage because it maximised the likelihood of the data being error-free and accurate. Timely generation of field check tables allowed for effective monitoring. The secondary editing of the data was completed in mid-October 2019.

Throughout this report, numbers in the tables reflect weighted numbers. Percentages based on 25 to 49 unweighted cases are shown in parentheses. Percentages based on fewer than 25 unweighted cases are suppressed and replaced with an asterisk to caution readers when interpreting data that a percentage based on fewer than 50 cases may not be statistically reliable.

3 KEY FINDINGS

3.1 RESPONSE RATES

Table 1 shows response rates for the 2019 SLDHS. A total of 13,793 households were selected for the sample, of which 13,602 were occupied. Of the occupied households, 13,399 were successfully interviewed, yielding a response rate of 99%. In the interviewed households, 16,099 women age 15-49 were identified for individual interviews; interviews were completed with 15,574 women, yielding a response rate of 97%. In the subsample of households selected for the male survey, 7,429 men age 15-59 were identified, and 7,197 were successfully interviewed, yielding a response rate of 97%.

Table 1 Results of the household and individual interviews			
Number of households, number of interviews, and response rates, according to residence (unweighted), Sierra Leone DHS 2019			
Result	Residence		Total
	Urban	Rural	
Household interviews			
Households selected	5,136	8,657	13,793
Households occupied	5,033	8,569	13,602
Households interviewed	4,976	8,423	13,399
Household response rate ¹	98.9	98.3	98.5
Interviews with women age 15-49			
Number of eligible women	6,560	9,539	16,099
Number of eligible women interviewed	6,399	9,175	15,574
Eligible women response rate ²	97.5	96.2	96.7
Household interviews in subsample			
Households selected	2,568	4,329	6,897
Households occupied	2,514	4,289	6,803
Households interviewed	2,488	4,224	6,712
Household response rate in subsample ¹	99.0	98.5	98.7
Interviews with men age 15-59			
Number of eligible men	2,964	4,465	7,429
Number of eligible men interviewed	2,854	4,343	7,197
Eligible men response rate ²	96.3	97.3	96.9
¹ Households interviewed/households occupied			
² Respondents interviewed/eligible respondents			

3.2 CHARACTERISTICS OF RESPONDENTS

Table 2 shows, by background characteristics, the weighted and unweighted numbers and the weighted percent distributions of women and men age 15-49 interviewed in the 2019 SLDHS. More than half of the women (56%) and men (55%) in the sample are under age 30.

Seventy-seven percent of women and 78% of men are Muslim, while 23% percent of women and 22% of men are Christian. Temne is the predominant ethnic group, with 35% of women and 36% of men. Thirty-one percent of women and 30% of men belong to the Mende ethnic group, and another 9% of women and men belong to the Limba group.

Table 2 Background characteristics of respondents

Percent distribution of women and men age 15-49 by selected background characteristics, Sierra Leone DHS 2019

Background characteristic	Women			Men		
	Weighted percent	Weighted number	Unweighted number	Weighted percent	Weighted number	Unweighted number
Age						
15-19	22.0	3,427	3,460	24.1	1,541	1,585
20-24	16.9	2,629	2,602	14.7	937	924
25-29	17.5	2,728	2,619	15.9	1,015	957
30-34	12.5	1,942	1,963	12.4	793	769
35-39	14.3	2,224	2,251	12.4	791	803
40-44	8.6	1,337	1,358	9.8	624	649
45-49	8.3	1,288	1,321	10.7	682	678
Religion						
Christian	23.2	3,616	3,546	22.1	1,409	1,380
Islam	76.7	11,953	12,021	77.9	4,974	4,983
Other ¹	0.0	6	7	0.0	2	2
Ethnic group						
Creole	0.9	139	103	1.9	122	84
Fullah	3.7	576	684	4.0	253	289
Kono	4.4	680	668	4.2	268	275
Limba	8.7	1,361	1,355	8.9	570	567
Loko	2.0	313	294	2.1	132	120
Mandingo	2.8	429	455	2.9	184	204
Mende	31.2	4,863	4,979	29.8	1,904	1,953
Sherbro	1.8	283	296	2.0	126	146
Temne	35.2	5,488	4,886	35.7	2,281	2,039
Korankoh	4.2	658	960	3.5	225	322
Other	5.0	785	894	5.0	318	366
Marital status						
Never married	32.5	5,058	4,966	45.9	2,928	2,896
Married	58.5	9,107	9,281	46.5	2,970	3,042
Living together	3.9	608	556	4.1	264	223
Divorced/separated	2.9	450	445	3.0	190	178
Widowed	2.3	351	326	0.5	32	26
Residence						
Urban	46.0	7,163	6,399	46.8	2,990	2,613
Rural	54.0	8,411	9,175	53.2	3,394	3,752
Province						
Eastern	19.7	3,069	2,978	19.6	1,251	1,245
Northern	21.3	3,317	3,971	21.2	1,353	1,592
North West	16.1	2,508	2,498	15.4	982	993
Southern	18.6	2,900	3,513	18.7	1,192	1,446
Western Area	24.3	3,780	2,614	25.1	1,606	1,089
Education						
No education	45.5	7,081	7,535	29.2	1,865	2,049
Primary	13.5	2,103	2,034	13.7	876	901
Secondary	36.8	5,724	5,419	48.9	3,120	2,941
More than secondary	4.3	666	586	8.2	523	474
Wealth quintile						
Lowest	17.6	2,738	3,077	17.3	1,104	1,270
Second	18.2	2,831	3,022	17.6	1,123	1,187
Middle	19.0	2,954	3,190	17.9	1,145	1,258
Fourth	21.7	3,385	3,366	22.3	1,422	1,385
Highest	23.5	3,666	2,919	24.9	1,590	1,265
Total 15-49	100.0	15,574	15,574	100.0	6,384	6,365
50-59	na	na	na	na	813	832
Total 15-59	na	na	na	na	7,197	7,197

Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

na = Not applicable

¹ Other religion categories include Traditional and None.

The majority of respondents are currently married or living together with a partner (62% of women and 51% of men). The proportion of men who have never been married is higher than the proportion of never-married women (46% versus 33%). Two percent of women and 1% of men are widowed, and 3% of both women and men are divorced or separated.

Over half of women (54%) and men (53%) live in rural areas, and almost 1 in 4 live in the Western Area province of the country. Twenty-one percent of women and men live in the Northern province, while 20% of women and men live in Eastern province and 19% live in Southern province.

Less than half (41%) of the women in Sierra Leone have a secondary education or higher, as compared with 57% of men. Forty-six percent of women, and 29% of men have no education.

3.3 FERTILITY

To generate data on fertility, all women who were interviewed were asked to report the total number of sons and daughters to whom they had ever given birth. To ensure that all information was reported, women were asked separately about children still living at home, those living elsewhere, and those who had died. A complete birth history was then obtained, including information on the sex, date of birth, and survival status of each child; age at death for children who had died was also recorded.

Table 3 shows age-specific fertility rates (ASFRs) among women by 5-year age groups for the 3-year period preceding the survey. Age-specific and total fertility rates were calculated directly from the birth history data, taking into account live births.¹ The sum of age-specific fertility rates (known as the total fertility rate, or TFR) is a summary measure of the level of fertility. It can be interpreted as the number of children a woman would have by the end of her childbearing years if she were to pass through those years bearing children at the currently observed age-specific rates. If fertility were to remain constant at current levels, a woman in Sierra Leone would bear an average of 4.2 children in her lifetime. Fertility is low among adolescents (102 births per 1,000 women), peaks at 196 births per 1,000 among women age 20-24, and then decreases thereafter.

Table 3 Current fertility

Age-specific and total fertility rates, the general fertility rate, and the crude birth rate for the 3 years preceding the survey, according to residence, Sierra Leone DHS 2019

Age group	Residence		Total
	Urban	Rural	
10-14	2	6	4
15-19	64	144	102
20-24	152	245	196
25-29	153	220	189
30-34	124	191	165
35-39	95	134	119
40-44	28	67	52
45-49	9	27	21
TFR (15-49)	3.1	5.1	4.2
GFR (15-44)	110	176	146
CBR	26	33	30

Notes: Age-specific fertility rates are per 1,000 women. Rates are for the period 1-36 months preceding the interview. Rates for the 10-14 age group are based on retrospective data from women age 15-17.

TFR = Total fertility rate expressed per woman age 15-49

GFR = General fertility rate expressed per 1,000 women age 15-44

CBR = Crude birth rate, expressed per 1,000 population

Fertility is higher among rural women than among urban women; on average, rural women will give birth to two children more than urban women during their reproductive years (5.1 and 3.1, respectively).

¹ Numerators for the age-specific rates are calculated by summing the births that occurred during the 1-36 months preceding the survey, classified by the 5-year age group of the mother at the time of the birth. The denominators are the numbers of woman-years lived in each 5-year age group during the 1-36 months preceding the survey.

There has been a gradual decline in fertility rates in the last decade, from 5.1 births per woman in the 2008 SLDHS to 4.9 births per woman in the 2013 SLDHS and 4.2 births per woman in the 2019 SLDHS (Figure 1).

3.4 TEENAGE PREGNANCY AND MOTHERHOOD

The issue of adolescent fertility is important for both health and social reasons. Children born to very young mothers are at increased risk of sickness and death. Teenage mothers are more likely to experience adverse pregnancy outcomes and to be constrained in their ability to pursue educational opportunities than young women who delay childbearing.

Figure 1 Trends in fertility by residence

Total fertility rate from 2008-2019

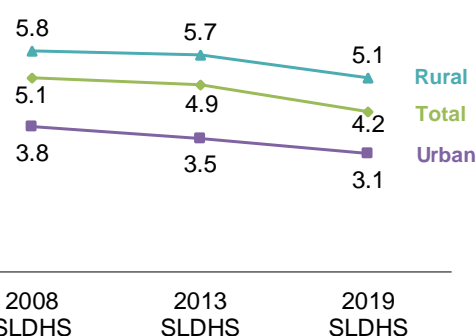


Table 4 shows the percentage of women age 15-19 who had given birth or were pregnant with their first child at the time of the survey, according to background characteristics. Overall, 21% of women age 15-19 had begun childbearing: 18% had had a live birth and 4% were pregnant at the time of the interview. The proportion of teenagers who had begun childbearing rises rapidly with age, from 4% at age 15 to 45% at age 19. Rural teenagers tend to start childbearing earlier than urban teenagers (29% versus 14%).

Table 4 Teenage pregnancy and motherhood

Percentage of women age 15-19 who have had a live birth or who are pregnant with their first child, and percentage who have begun childbearing, according to background characteristics, Sierra Leone DHS 2019

Background characteristic	Percentage of women age 15-19 who:		Percentage who have begun childbearing	Number of women
	Have had a live birth	Are pregnant with first child		
Age				
15	2.2	2.2	4.3	838
16	8.6	2.1	10.7	623
17	10.8	4.2	15.0	588
18	28.1	5.3	33.4	683
19	40.5	4.4	44.9	694
Residence				
Urban	12.6	1.7	14.4	1,814
Rural	23.5	5.6	29.2	1,613
Province				
Eastern	18.6	4.8	23.4	648
Northern	15.9	2.1	18.0	766
North West	21.7	5.1	26.8	560
Southern	23.3	5.3	28.6	630
Western Area	11.9	1.7	13.6	823
Education				
No education	35.2	8.3	43.5	477
Primary	17.2	5.2	22.4	636
Secondary	14.4	2.2	16.5	2,300
More than secondary	*	*	*	14
Wealth quintile				
Lowest	27.6	4.9	32.5	434
Second	25.3	6.6	31.9	537
Middle	20.3	4.4	24.7	682
Fourth	15.2	2.2	17.4	898
Highest	8.8	1.9	10.7	876
Total	17.8	3.6	21.3	3,427

Note: An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

While 29% of teenagers in the Southern province, 27% of teenagers in North West province, and 23% of teenagers in Eastern province had begun childbearing, only 18% in the Northern province and 14% in the Western Area province had begun to do so. Teenagers with secondary education and higher and those in

the highest wealth quintile tend to start childbearing later than those with no education and those in the lowest quintiles.

3.5 FERTILITY PREFERENCES

Information on fertility preferences is used to assess the potential demand for family planning services for the purposes of spacing or limiting future childbearing. To elicit information on fertility preferences, several questions were asked of currently married women (pregnant or not) regarding whether they wanted to have another child and, if so, how soon.

Table 5 shows that 26% of women want to have another child soon (within the next 2 years), and 24% want to have another child later (in 2 or more years). Twenty-six percent of women want no more children or have already been sterilised. Fifteen percent have not decided if they want another child.

Table 5 Fertility preferences by number of living children

Percent distribution of currently married women age 15-49 by desire for children, according to number of living children, Sierra Leone DHS 2019

Desire for children	Number of living children ¹							Total
	0	1	2	3	4	5	6+	
Have another soon ²	78.5	43.9	28.3	22.8	16.3	9.6	5.7	26.0
Have another later ³	7.1	31.6	32.4	26.0	22.4	13.4	8.4	23.5
Have another, undecided when	3.3	8.2	9.9	7.5	3.9	2.7	2.4	6.2
Undecided	5.1	10.4	15.3	17.3	18.3	14.9	14.2	14.6
Want no more	1.9	3.7	12.0	22.7	34.3	53.5	62.6	25.7
Sterilised ⁴	0.0	0.0	0.0	0.2	0.3	0.6	0.8	0.2
Declared infecund	4.0	2.2	2.0	3.6	4.3	5.3	5.9	3.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	481	1,650	2,065	1,849	1,551	1,071	1,047	9,715

¹ The number of living children includes the current pregnancy.

² Wants next birth within 2 years

³ Wants to delay next birth for 2 or more years

⁴ Includes both female and male sterilisation

Fertility preferences are closely related to number of living children. Seventy-nine percent of women with no living children want a child soon, as compared with 23% of women with three children. In general, the more children a woman has, the higher the likelihood that she does not want another child.

3.6 FAMILY PLANNING

Family planning refers to a conscious effort by a couple to limit or space the number of children they have through the use of contraceptive methods. Contraceptive methods are classified as modern or traditional. Modern methods include female sterilisation, male sterilisation, the intrauterine contraceptive device (IUD), implants, injectables, the pill, condoms, and the lactational amenorrhoea method (LAM). Methods such as rhythm, withdrawal, and folk methods are grouped as traditional.

Table 6 shows the percent distribution of currently married women and sexually active unmarried women by the contraceptive method they currently use. Overall, 21% of currently married women use a method of family planning, with 21% using a modern method and less than 1% using a traditional method. Among currently married women, the most popular methods are injectables (9%), implants (7%), and the pill (4%). The contraceptive prevalence rate (CPR) among married women varies with age, rising from 14% among women age 15-19 to a peak of 27% among women age 25-29 before declining to 9% among women age 45-49.

Table 6 Current use of contraception according to background characteristics

Percent distribution of currently married and sexually active unmarried women age 15-49, by contraceptive method currently used, according to background characteristics, Sierra Leone DHS 2019

Background characteristic	Modern method										Traditional method			Number of women	
	Any method	Any modern method	Sterilisation ¹	Pill	IUD	Injectables	Implants	Condom ²	Emergency contraception	SDM	LAM	Any traditional method			
												Other ³	Not currently using		
CURRENTLY MARRIED WOMEN															
Number of living children															
0	8.5	8.4	0.0	1.6	0.1	3.5	2.8	0.0	0.4	0.0	0.0	0.1	0.1	91.5	662
1-2	21.1	20.6	0.0	3.9	0.4	8.9	6.7	0.2	0.1	0.1	0.3	0.5	0.5	78.9	3,687
3-4	23.3	23.2	0.3	4.8	0.4	9.8	7.7	0.1	0.0	0.1	0.1	0.1	0.1	76.7	3,338
5+	22.3	21.9	0.7	4.3	0.3	9.3	6.9	0.0	0.0	0.1	0.2	0.4	0.4	77.7	2,028
Age															
15-19	14.4	14.3	0.0	1.0	0.0	4.9	7.9	0.0	0.2	0.0	0.1	0.1	0.1	85.6	477
20-24	18.6	18.2	0.0	2.4	0.3	9.4	5.6	0.1	0.0	0.0	0.4	0.4	0.4	81.4	1,365
25-29	26.8	26.3	0.1	5.2	0.4	11.3	8.9	0.2	0.0	0.0	0.3	0.5	0.5	73.2	2,097
30-34	24.3	24.2	0.2	5.7	0.3	9.8	7.7	0.2	0.2	0.1	0.0	0.0	0.0	75.7	1,637
35-39	24.4	24.1	0.5	5.1	0.5	10.1	7.3	0.1	0.2	0.1	0.2	0.3	0.3	75.6	1,960
40-44	18.3	17.9	0.5	4.2	0.5	6.3	6.0	0.2	0.0	0.1	0.0	0.4	0.4	81.7	1,129
45-49	9.2	8.9	0.4	1.3	0.2	4.4	2.4	0.0	0.0	0.0	0.1	0.3	0.3	90.8	1,050
Residence															
Urban	26.0	25.8	0.4	6.3	0.6	11.5	6.4	0.3	0.1	0.1	0.0	0.2	0.2	74.0	3,579
Rural	18.5	18.1	0.2	2.8	0.2	7.4	7.1	0.1	0.0	0.0	0.3	0.4	0.4	81.5	6,136
Province															
Eastern	23.8	23.5	0.3	6.3	1.1	8.3	7.3	0.1	0.1	0.1	0.0	0.3	0.3	76.2	2,007
Northern	18.1	17.6	0.3	1.3	0.2	6.6	8.7	0.2	0.1	0.0	0.1	0.5	0.5	81.9	2,173
North West	16.0	15.9	0.1	1.9	0.1	7.1	5.8	0.1	0.0	0.0	0.8	0.1	0.1	84.0	1,760
Southern	23.7	23.3	0.3	5.4	0.1	9.7	7.7	0.0	0.0	0.1	0.0	0.4	0.4	76.3	1,895
Western Area	24.7	24.5	0.2	5.9	0.3	13.2	4.2	0.3	0.2	0.1	0.0	0.2	0.2	75.3	1,880
Education															
No education	17.0	16.7	0.3	3.0	0.3	7.1	5.9	0.0	0.0	0.0	0.1	0.3	0.3	83.0	5,957
Primary	24.6	24.6	0.2	5.0	0.4	10.3	8.2	0.1	0.0	0.0	0.4	0.1	0.1	75.4	1,298
Secondary	29.9	29.4	0.1	6.0	0.4	13.2	9.1	0.1	0.1	0.1	0.3	0.5	0.5	70.1	2,121
More than secondary	28.6	28.3	0.7	8.2	1.7	9.5	3.7	1.9	1.9	0.9	0.0	0.3	0.3	71.4	340
Wealth quintile															
Lowest	16.2	15.8	0.2	2.9	0.1	7.1	5.2	0.0	0.0	0.0	0.4	0.3	0.3	83.8	2,080
Second	18.4	17.9	0.2	2.2	0.2	6.7	8.2	0.0	0.0	0.0	0.3	0.5	0.5	81.6	2,135
Middle	20.9	20.8	0.2	4.2	0.3	7.5	8.1	0.2	0.1	0.0	0.2	0.1	0.1	79.1	1,979
Fourth	26.2	25.9	0.3	4.7	0.7	12.3	7.5	0.1	0.1	0.2	0.0	0.3	0.3	73.8	1,770
Highest	26.1	25.8	0.5	7.3	0.5	11.9	4.9	0.4	0.2	0.1	0.1	0.3	0.3	73.9	1,751
Total	21.2	20.9	0.2	4.1	0.4	8.9	6.8	0.1	0.1	0.1	0.2	0.3	0.3	78.8	9,715
(Continued...)															

(Continued...)

Table 6—continued

Background characteristic	Modern method										Traditional method					
	Any method	Any modern method	Sterilisation ¹	Pill	IUD	Injectables	Implants	Condom ²	Emergency contraception	SDM	LAM	Any traditional method	Other ³	Not currently using	Total	Number of women
SEXUALLY ACTIVE UNMARRIED WOMEN ⁴																
Residence																
Urban	53.3	52.6	0.2	10.9	1.2	22.5	15.7	1.4	0.6	0.1	0.0	0.7	0.7	46.7	100.0	1,233
Rural	53.1	52.7	0.2	4.5	0.5	20.0	26.9	0.5	0.0	0.0	0.0	0.5	0.5	46.9	100.0	754
Total	53.3	52.6	0.2	8.5	0.9	21.5	19.9	1.0	0.4	0.1	0.0	0.6	0.6	46.7	100.0	1,987

Note: If more than one method is used, only the most effective method is considered in this tabulation.

SDM = Standard days method

LAM = Lactational amenorrhoea method

¹ Sterilisation is a combination of both male and female sterilisation.

² Condom is a combination of both male and female condoms.

³ Other includes rhythm and withdrawal.

⁴ Women who have had sexual intercourse within 30 days preceding the survey.

Women in urban areas are more likely to use a contraceptive method than women in rural areas (26% and 19%, respectively). Use of contraception is highest among currently married women in the Western Area province and lowest among those in the North West (25% versus 16%). The use of implants is highest in Northern province (9%), while injectables are more popular in Western Area (13%). Use of contraception increases with educational attainment, from 17% among women with no education to 25% among those with a primary education, 30% among those with a secondary education, and slightly decreases to 29% among those with more than a secondary education. Women in the highest wealth quintile are more likely to use a method of contraception than those in the lowest quintile (26% versus 16%).

Table 6 also indicates that sexually active unmarried women are more likely to use a method of contraception than currently married women. Fifty-three percent of sexually active unmarried women use a method of contraception, with 53 using a modern method. The most popular method among these women is the injectable (22%), followed by an implant (20%). Nine percent of sexually active unmarried women use the pill, while less than 1% use emergency contraception.

3.7 NEED AND DEMAND FOR FAMILY PLANNING

The proportion of women who want to stop childbearing or who want to space their next birth is a crude measure of the extent of the need for family planning, given that not all of these women are exposed to the risk of pregnancy and some may already be using contraception. This section discusses a more refined extent of need and the potential demand for family planning services. Women who want to postpone their next birth for 2 or more years, or who want to stop childbearing altogether but are not using a contraceptive method, are said to have an unmet need for family planning. Pregnant women are considered to have an unmet need for spacing or limiting if their pregnancy was mistimed or unwanted, respectively. Similarly, amenorrhoeic women are categorised as having an unmet need if their last birth was mistimed or unwanted. Women who are currently using a family planning method are said to have a met need for family planning. Total demand for family planning services comprises those who fall in the met need and unmet need categories.

Table 7 presents data on unmet need, met need, and total demand for family planning among currently married women. These indicators help evaluate the extent to which family planning programmes in Sierra Leone meet the demand for services. Twenty-five percent of currently married women have an unmet need for family planning services. Twenty-one percent of married women are currently using a contraceptive method. Therefore, 46% of currently married women have a demand for family planning. At present, 46% of the potential demand for family planning is being met.

Table 7 Need and demand for family planning among currently married women and sexually active unmarried women

Percentage of currently married women age 15-49 and sexually active unmarried women with unmet need for family planning, percentage with met need for family planning, percentage with met need for family planning who are using modern methods, percentage with demand for family planning, percentage of the demand for family planning that is satisfied, and percentage of the demand for family planning that is satisfied with modern methods, according to background characteristics, Sierra Leone DHS 2019

Background characteristic	Unmet need for family planning	Met need for family planning (currently using)		Total demand for family planning ³	Number of women	Percentage of demand satisfied ¹	
		All methods	Modern methods ²			All methods	Modern methods ²
CURRENTLY MARRIED WOMEN							
Age							
15-19	27.8	14.4	14.3	42.2	477	34.1	33.8
20-24	27.5	18.6	18.2	46.1	1,365	40.3	39.5
25-29	26.1	26.8	26.3	53.0	2,097	50.7	49.7
30-34	25.1	24.3	24.2	49.4	1,637	49.2	49.1
35-39	26.0	24.4	24.1	50.4	1,960	48.3	47.8
40-44	24.1	18.3	17.9	42.4	1,129	43.2	42.3
45-49	15.5	9.2	8.9	24.7	1,050	37.3	35.9
Residence							
Urban	25.6	26.0	25.8	51.5	3,579	50.4	50.0
Rural	24.4	18.5	18.1	42.9	6,136	43.1	42.3
Province							
Eastern	22.0	23.8	23.5	45.8	2,007	51.9	51.2
Northern	23.8	18.1	17.6	41.8	2,173	43.2	42.0
North West	27.3	16.0	15.9	43.3	1,760	36.9	36.7
Southern	24.1	23.7	23.3	47.8	1,895	49.5	48.7
Western Area	27.4	24.7	24.5	52.1	1,880	47.4	46.9
Education							
No education	24.5	17.0	16.7	41.5	5,957	41.0	40.3
Primary	26.6	24.6	24.6	51.2	1,298	48.1	47.9
Secondary	26.0	29.9	29.4	55.8	2,121	53.5	52.6
More than secondary	17.5	28.6	28.3	46.1	340	62.0	61.4
Wealth quintile							
Lowest	23.7	16.2	15.8	39.9	2,080	40.5	39.7
Second	25.1	18.4	17.9	43.5	2,135	42.2	41.0
Middle	24.9	20.9	20.8	45.8	1,979	45.6	45.4
Fourth	25.2	26.2	25.9	51.4	1,770	51.0	50.4
Highest	25.3	26.1	25.8	51.4	1,751	50.8	50.3
Total	24.8	21.2	20.9	46.1	9,715	46.1	45.4
SEXUALLY ACTIVE UNMARRIED WOMEN ⁴							
Residence							
Urban	36.4	53.3	52.6	89.8	1,233	59.4	58.6
Rural	30.5	53.1	52.7	83.6	754	63.5	63.0
Total	34.2	53.3	52.6	87.4	1,987	60.9	60.2

Note: Numbers in this table correspond to the revised definition of unmet need described in Bradley et al., 2012.

¹ Percentage of demand satisfied is met need divided by total demand.

² Modern methods include female sterilisation, male sterilisation, pill, IUD, injectables, implants, male condom, female condom, emergency contraception, standard days method (SDM), lactational amenorrhoea method (LAM), and other modern methods.

³ Total demand is the sum of unmet need and met need.

⁴ Women who have had sexual intercourse within 30 days preceding the survey

Unmet need for family planning is highest in the North West and Western Area provinces (27% each) and lowest in the Eastern province (22%). Women with more than a secondary education have the lowest unmet need (18%).

Unmet need for family planning declined from 28% in 2008 to 25% in 2013 and remains the same in 2019 (**Figure 2**). During the last decade, the met need for family planning has increased from 8% to 21%, and demand satisfied with modern methods has also increased from 18% to 45% in the last 10 years.

3.8 EARLY CHILDHOOD MORTALITY

Infant and child mortality rates are basic indicators of a country's socioeconomic situation and quality of life (United Nations

Development Program [UNDP] 2007). Estimates of child mortality are based on information collected in the birth history section of the Woman's Questionnaire, which includes questions about aggregate childbearing experience (that is, the number of sons and daughters who live with their mother, the number who live elsewhere, and the number who have died). **Table 8** presents estimates for three successive 5-year periods prior to the 2019 SLDHS. The rates are estimated directly from the information in the birth history on children's birth date, survivorship status, and age at death for children who died. This information is used to directly estimate the following five mortality rates:

- **Neonatal mortality:** the probability of dying within the first month of life
- **Postneonatal mortality:** the difference between infant and neonatal mortality
- **Infant mortality:** the probability of dying before the first birthday
- **Child mortality:** the probability of dying between the first and the fifth birthday
- **Under-5 mortality:** the probability of dying between birth and the fifth birthday

All rates are expressed per 1,000 live births with the exception of child mortality, which is expressed per 1,000 children surviving to age 12 months.

As shown in **Table 8**, during the 5 years immediately preceding the survey, the infant mortality rate was 75 deaths per 1,000 live births. The child mortality rate was 50 deaths per 1,000 children surviving to age 12 months, while the overall under-5 mortality rate was 122 deaths per 1,000 live births.

Figure 2 Trends in demand for family planning

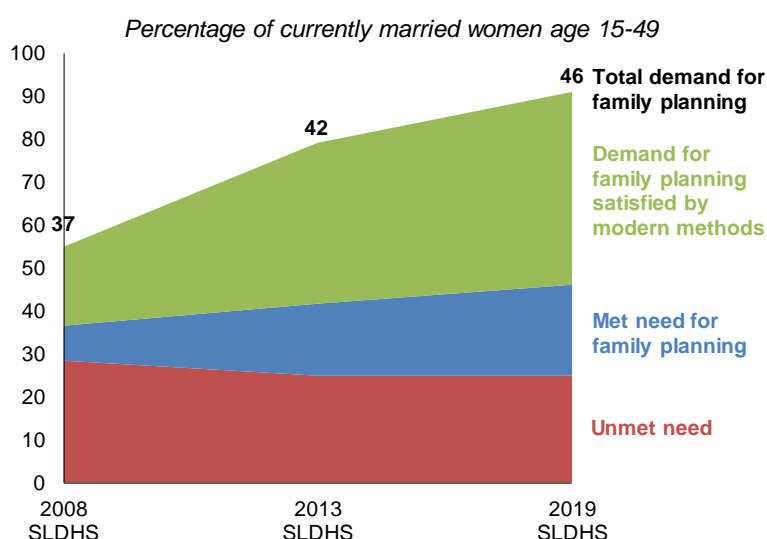


Table 8 Early childhood mortality rates

Neonatal, postneonatal, infant, child, and under-5 mortality rates for 5-year periods preceding the survey, Sierra Leone DHS 2019

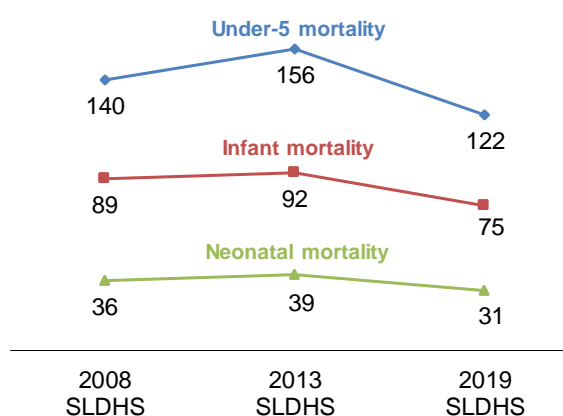
	Neonatal mortality (NN)	Postneonatal mortality (PNN) ¹	Infant mortality (${}_1q_0$)	Child mortality (${}_4q_1$)	Under-5 mortality (${}_5q_0$)
Years preceding the survey					
0-4	31	45	75	50	122
5-9	29	51	79	51	127
10-14	38	57	95	58	147

¹ Computed as the difference between the infant and neonatal mortality rates

The 2019 SLDHS documents that childhood mortality rates have declined during the last 5 years (**Figure 3**). Under-5 mortality dropped after increasing from 140 deaths per 1,000 live births during the 5 years immediately preceding the 2008 SLDHS to 156 deaths per 1,000 live births in the 2013 SLDHS. This is primarily due to the contribution of child mortality (the probability of dying between the first and the fifth birthday). Infant mortality has decreased from 92 deaths per 1,000 live births in 2013 to 75 deaths per 1,000 live births in 2019. Sierra Leone still has much work to do to meet the SDG target of reducing the under-5 mortality rate.

Figure 3 Trends in early childhood mortality rates

Deaths per 1,000 live births in the 5-year period before the survey



3.9 MATERNAL CARE

Proper care during pregnancy and delivery is important for the health of both the mother and the baby. In the 2019 SLDHS, women who had given birth in the 5 years preceding the survey were asked a number of questions about maternal care. Mothers were asked whether they had obtained antenatal care during the pregnancy for their most recent live birth in the 5 years preceding the survey and whether they had received tetanus toxoid injections while pregnant. For each live birth over the same period, mothers were also asked what type of assistance they received at the time of delivery. Finally, women who had a live birth in the 2 years before the survey were asked if they received a postnatal checkup within 2 days of delivery. **Table 9** summarises information on the coverage of these maternal health services.

3.9.1 Antenatal care

Antenatal care (ANC) from a skilled provider is important to monitor pregnancy and reduce morbidity and mortality risks for the mother and child during pregnancy, at delivery, and during the postnatal period (42 days after delivery). The 2019 SLDHS results show that 98% of women who gave birth in the 5 years preceding the survey received antenatal care from a skilled provider at least once for their last birth. Seventy-nine percent of women had four or more ANC visits.

Rural women were more likely than urban women to have received ANC from a skilled provider (99% and 97%, respectively) and to have had four or more ANC visits (83% and 73%, respectively). Women in the Eastern and Southern provinces are more likely to receive antenatal care from a skilled provider than other provinces. The proportion of women receiving ANC from a skilled provider varies from a high of 100% in the Eastern province to a low of 95% in the Western Area province. Women in the Western Area provinces are less likely to have four or more ANC visits (59%) than women in the North West and Northern provinces (86% each).

Table 9 Maternal care indicators

Among women age 15-49 who had a live birth in the 5 years preceding the survey, percentage who received antenatal care from a skilled provider for the most recent live birth, percentage with four or more ANC visits for the most recent live birth, and percentage whose most recent live birth was protected against neonatal tetanus²; among all live births in the 5 years before the survey, percentage delivered by a skilled provider and percentage delivered in a health facility; and among women age 15-49 who had a live birth in the 2 years preceding the survey, percentage who received a postnatal check during the first 2 days after giving birth, according to background characteristics, Sierra Leone DHS 2019

Background characteristic	Women who had a live birth in the 5 years preceding the survey			Live births in the 5 years preceding the survey			Women who had a live birth in the 2 years preceding the survey	
	Percentage receiving antenatal care from a skilled provider ¹	Percentage with 4+ ANC visits	Percentage whose most recent live birth was protected against neonatal tetanus ²	Number of women	Percentage delivered by a skilled provider ¹	Percentage delivered in a health facility	Number of births	Percentage of women with a postnatal check during the first 2 days after birth ³
Mother's age at birth								
<20	98.8	81.6	82.7	1,204	89.5	85.6	1,644	87.8
20-34	97.8	78.0	86.0	4,897	86.6	83.5	6,660	86.1
35-49	97.5	79.0	84.1	1,225	85.4	80.4	1,468	84.0
Residence								
Urban	97.0	72.5	86.9	2,795	94.1	88.9	3,422	90.7
Rural	98.5	82.6	84.0	4,531	83.1	80.5	6,350	83.5
Province								
Eastern	99.5	84.6	86.7	1,542	94.3	92.3	2,077	83.1
Northern	98.3	85.6	77.0	1,433	88.4	84.4	1,918	82.8
North West	98.4	86.4	83.7	1,380	69.7	66.7	1,894	82.7
Southern	98.8	78.3	91.8	1,492	87.3	85.0	2,101	89.3
Western Area	94.7	59.4	86.0	1,479	94.6	87.9	1,781	92.7
Mother's education								
No education	97.6	79.7	84.2	3,857	83.3	79.6	5,321	83.4
Primary	98.3	80.0	85.0	1,033	86.7	84.3	1,441	86.5
Secondary	98.4	76.6	86.3	2,214	93.2	89.1	2,748	89.4
More than secondary	97.6	79.1	90.1	221	97.3	95.3	262	96.2
Wealth quintile								
Lowest	98.3	79.4	83.5	1,587	82.3	78.6	2,283	81.4
Second	98.5	85.2	84.2	1,551	82.4	80.5	2,183	82.8
Middle	99.0	84.0	85.4	1,487	86.1	83.6	2,007	87.4
Fourth	98.5	75.4	87.0	1,441	91.8	86.1	1,808	88.8
Highest	94.9	67.6	86.0	1,259	95.9	91.5	1,491	92.2
Total	97.9	78.8	85.1	7,326	86.9	83.4	9,771	86.0

Note: If more than one source of assistance was mentioned, only the provider with the highest qualifications was considered in this tabulation.

¹ Skilled provider includes doctor, nurse/midwife, or auxiliary midwife.

² Includes mothers with two injections during the pregnancy of her most recent live birth, or two or more injections (the last within 3 years of the most recent live birth), or three or more injections (the last within 5 years of the most recent live birth), or four or more injections (the last within 10 years of the most recent live birth), or five or more injections at any time prior to the last live birth

³ Includes women who received a check from a doctor, nurse/midwife, auxiliary midwife, traditional birth attendant, or community/village health worker

3.9.2 *Tetanus toxoid*

Tetanus toxoid injections are given during pregnancy to prevent neonatal tetanus, a major cause of early infant death in many developing countries, often due to failure to observe hygienic procedures during delivery. **Table 9** shows that 85% of women with a birth in the 5 years before the survey received sufficient doses of tetanus toxoid to protect their last birth against neonatal tetanus. The percentage of women whose last birth was protected from tetanus varies with level of education and wealth. Women with no education and those in the lowest wealth quintile are substantially less likely to have had their last birth protected from tetanus. For instance, 84% of women with no education and in the lowest wealth quintile had their last birth protected from tetanus, as compared with 90% of women with more than a secondary education and 86% of women in the highest wealth quintile.

3.9.3 *Delivery care*

Access to proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that may lead to death or serious illness for the mother and/or baby (Van Lerberghe and De Brouwere 2001; WHO 2006). The survey data show that, in Sierra Leone, 87% of the births in the 5 years preceding the survey were delivered by a skilled provider, and 83% were delivered in a health facility (**Table 9**).

Births in urban areas are far more likely to benefit from skilled delivery care than those in rural areas. Ninety-four percent of births to urban mothers were assisted by a skilled provider, and 89% were delivered in a health facility, as compared with 83% and 81%, respectively, of births to rural women. Ninety-five percent of births in the Western Area province were assisted by a skilled provider, compared with only 70% of those in the North West province.

Mothers' educational status correlates highly with whether their delivery is assisted by a skilled provider and whether the birth is delivered in a health facility. For example, 83% of births to mothers with no education were assisted by a skilled provider and 80% were delivered in a health facility, as compared with 97% and 95%, respectively, of births to mothers with more than a secondary education. A similar relationship is observed with wealth.

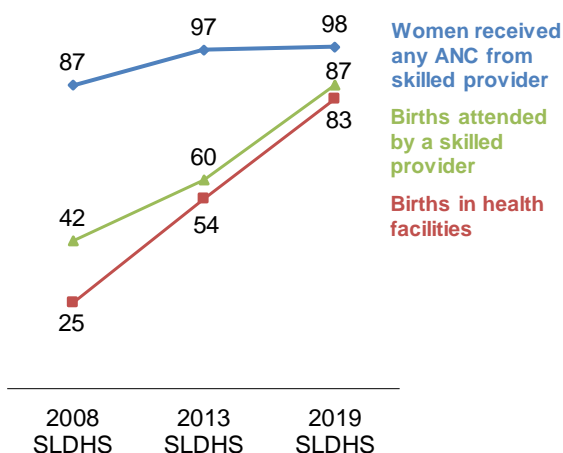
There has been a gradual improvement in maternal health care indicators over the last decade. The percentage of women receiving ANC from a skilled provider increased from 87% in 2008 to 98% in 2019 (**Figure 4**). There were similar improvements in the percentage of births delivered at a health facility (from 25% to 83%) and the percentage of births attended by skilled providers (from 42% to 87%).

3.9.4 *Postnatal care for the mother*

A large proportion of maternal and neonatal deaths occur during the first 48 hours after delivery. Thus, prompt postnatal care (PNC) for both the mother and the child is important to treat any complications arising from the delivery, as well as to provide the mother with important information on how to care for herself and her child. Safe motherhood programmes recommend that all women receive a check of their health within 2 days after delivery.

Figure 4 Trends in maternal health care

Percentage of women age 15-49 who had a live birth in the 5 years before the survey (for the most recent birth)



To assess the extent of postnatal care utilisation, respondents were asked, for their last birth in the 2 years preceding the survey, whether they had received a checkup after delivery and the timing of the first checkup. As shown in **Table 9**, 86% of women reported having received a PNC checkup in the first 2 days after birth.

The proportion of women receiving a postnatal checkup within 2 days of delivery is higher in urban than rural areas (91% and 84%, respectively) and increases with increasing education and wealth.

3.10 CHILD HEALTH AND NUTRITION

The 2019 SLDHS collected data on a number of key child health indicators, including vaccinations of young children, nutritional status as assessed by anthropometry, infant feeding practices, and treatment practices when a child is ill.

3.10.1 Vaccination of children

Universal immunisation of children against six common vaccine-preventable diseases, namely tuberculosis, diphtheria, whooping cough (pertussis), tetanus, polio, and measles, is crucial to reducing infant and child mortality. The vaccine given in Sierra Leone against diphtheria, whooping cough, and tetanus (DPT) also protects against hepatitis B (HepB) and *Haemophilus influenzae* type b (Hib) and is called the DPT-HepB-Hib or pentavalent vaccine. Additionally inactivated poliomyelitis vaccine (IPV) at age 14 weeks and measles vaccines are part of the national routine immunisation schedule. The IPV does not replace the oral polio vaccine but is used with that vaccine to strengthen a child's immune system and protect against polio.

Sierra Leone has established a schedule for the administration of all basic childhood vaccines based on the World Health Organization's guidelines. Historically, an important measure of vaccination coverage has been the proportion of children age 12-23 months who have received all "basic" vaccinations. A child is considered to have received all basic vaccinations if he or she has received a bacille Calmette-Guérin (BCG) vaccination against tuberculosis; three doses of DPT vaccine to prevent diphtheria, pertussis, and tetanus; at least three doses of polio vaccine; and one dose of measles vaccine. These vaccinations should be received during the first year of life. BCG should be given shortly after birth or at first clinical contact. Polio vaccine should be given at approximately age 6 weeks, 10 weeks, and 14 weeks. Pentavalent vaccine should also be given at approximately age 6, 10, and 14 weeks. Measles vaccine should be given at or soon after the child reaches age 9 months.

A second, more critical measure of vaccination coverage is the proportion of children age 12-23 months and 24-35 months who have received all age-appropriate vaccinations. A child age 12-23 months is considered to have received all age-appropriate vaccinations if the child has received all basic vaccinations along with a birth dose of hepatitis B and polio vaccine, one dose of inactivated polio vaccine, and three doses of pneumococcal vaccine (also given at age 6, 10, and 14 weeks). Similarly, a child who is age 24-35 months has received all age-appropriate vaccinations if the child has received a second dose of measles given at 18 months in addition to all of the age-appropriate vaccinations relevant for a child age 12-23 months.

In the 2019 SLDHS, information on vaccination coverage was obtained in two ways—from health cards and from mothers' verbal reports. All mothers were asked to show the interviewer the cards on which vaccination dates are recorded for all children born since January 2016. If the card was available, the interviewer then recorded from the card the dates of each vaccination received. In cases in which the card indicated the child had not received all basic vaccinations, the mother was asked whether the child had received other vaccinations that were not recorded on the card, and, if so, they too were recorded. If there was no card, or if the mother was unable to show the card to the interviewer, the child's vaccination information was based on the mother's recall. The mother was asked to recall whether the child had received the BCG, hepatitis B (birth dose), polio, pentavalent, pneumococcal, inactivated polio vaccine, and measles vaccines. If she indicated that the child had received the polio, pentavalent, pneumococcal, or

measles vaccine, she was asked about the number of doses that the child received. The results presented here are based on the vaccination card and, for those children without a card, information provided by the mother. Cards were seen for 75% of children age 12-23 months and 62% of children age 24-35 months (data not shown).

Table 10 pertains to children age 12-23 months and 24-35 months, the age by which children should have received all basic vaccinations. Overall, 56% of children have received all basic vaccinations, and 50% have received all age-appropriate vaccinations. Ninety-six percent of children have received BCG, 95% have received the first dose of pentavalent, and 90% have received polio 1. Seventy-eight percent and 71% of children have received the third doses of the pentavalent and polio vaccines, respectively. Coverage of vaccination against measles is 75%. Two percent of children in Sierra Leone have not received any vaccinations.

Table 10 Vaccinations by background characteristics

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 a vaccination card or the mother's report), percentage with all basic vaccinations, and percentage with all age-appropriate vaccinations, according to background characteristics, Sierra Leone DHS 2019

Background characteristic	DPT-HepB-Hib				Polio ²			IPV			Pneumococcal			Children age 24-35 months:							
	BCG	1	2	3	0 (birth dose)	1	2	3	IPV	1	2	3	Measles 1	All basic vacci- nations ³		All age appro- priate vacci- nations ⁴	No vacci- nations	Number of children	Measles/ MMR 2	All age appro- priate vacci- nations ⁵	
														Measles 1	Measles 2					Measles 1	Measles 2
Sex																					
Male	96.8	94.8	85.8	76.5	92.9	89.7	80.8	69.4	79.2	94.2	85.7	77.1	73.9	54.8	47.7	2.5	906	57.6	31.2	822	
Female	96.0	94.5	86.9	79.7	92.6	89.5	82.3	72.5	80.2	94.0	87.7	81.5	75.5	57.8	52.2	2.4	932	51.2	28.7	844	
Birth order																					
1	95.1	93.6	88.3	80.1	91.6	89.6	83.8	68.7	81.9	93.8	88.5	81.4	76.5	55.3	50.1	3.9	433	54.5	30.3	391	
2-3	96.8	95.3	85.2	77.9	93.1	90.8	81.1	71.3	82.3	93.7	85.1	78.4	76.8	58.0	52.8	1.6	702	57.0	29.7	639	
4-5	96.0	94.1	85.3	76.1	94.4	86.8	79.0	70.6	74.3	94.3	86.4	78.5	73.4	55.8	47.4	2.4	428	48.1	27.7	385	
6+	98.0	95.5	88.0	78.8	91.0	91.1	83.3	74.2	78.1	95.2	88.4	80.1	68.7	54.4	46.4	2.0	274	57.4	33.0	252	
Vaccination card																					
Seen	98.9	97.8	94.8	89.6	96.2	98.0	95.0	90.8	81.8	97.6	94.5	89.7	73.9	72.5	64.9	0.4	1,382	54.0	45.7	1,036	
Not seen/no card	88.8	85.0	61.0	43.2	82.4	64.2	40.8	10.8	73.3	83.4	63.0	47.9	77.1	7.4	4.5	8.4	456	55.0	3.9	630	
Residence																					
Urban	96.9	95.8	87.1	79.2	95.7	88.7	81.6	71.1	83.7	94.6	85.8	80.4	74.9	57.0	53.0	1.5	628	56.3	26.0	590	
Rural	96.1	94.0	86.0	77.6	91.2	90.1	81.5	70.8	77.7	93.8	87.2	78.9	74.6	56.0	48.4	2.9	1,209	53.3	32.0	1,076	
Province																					
Eastern	95.1	93.1	87.8	78.9	93.6	92.1	82.6	76.2	82.0	92.2	88.6	78.9	75.9	61.5	56.2	4.9	382	59.4	40.7	356	
Northern	96.5	94.4	83.4	76.7	92.0	86.4	79.6	71.9	80.5	94.3	84.5	80.5	75.0	53.8	47.5	1.7	368	54.4	31.8	289	
North West	96.2	93.8	85.4	74.3	90.6	92.3	79.9	63.0	69.3	95.1	86.8	75.5	66.6	47.0	36.4	2.1	348	44.6	13.0	321	
Southern	97.5	96.1	90.2	83.5	92.6	91.4	87.0	75.8	83.4	95.3	90.8	84.1	82.2	65.3	59.0	2.4	393	57.2	36.5	395	
Western Area	96.6	95.7	84.6	76.4	95.1	85.7	78.1	66.6	82.7	93.7	82.2	77.2	72.6	52.5	49.0	0.8	347	55.2	24.8	305	
Education																					
No education	96.2	94.1	85.6	75.9	91.6	88.6	80.3	69.5	78.7	93.5	86.3	77.6	72.7	53.9	47.3	2.9	964	51.2	29.6	889	
Primary	96.5	96.1	89.3	82.5	94.7	91.1	82.4	75.2	75.6	95.2	89.1	83.4	73.9	58.6	50.5	2.0	295	49.1	29.0	241	
Secondary	96.6	94.4	85.7	78.8	93.3	90.2	82.7	70.5	82.2	94.0	85.3	79.4	77.4	58.0	52.5	1.9	522	62.0	30.7	495	
More than secondary	97.2	98.1	91.5	86.7	98.1	93.8	88.7	77.9	96.0	99.2	94.6	88.1	88.2	70.6	69.0	0.8	57	(64.1)	(33.6)	41	
Wealth quintile																					
Lowest	94.6	93.4	85.3	75.9	89.3	90.1	80.5	72.0	77.9	92.6	86.0	77.3	73.8	56.0	48.8	4.3	437	50.7	30.3	378	
Second	97.2	95.6	86.2	78.5	91.3	90.1	82.6	72.0	80.1	94.8	87.5	80.6	75.5	56.1	47.8	2.2	396	52.8	34.0	370	
Middle	95.8	92.8	85.9	78.4	92.3	89.9	82.3	70.2	75.4	93.2	86.8	77.9	73.5	56.9	49.0	3.0	386	55.5	32.1	344	
Fourth	99.0	96.5	89.9	82.3	97.9	91.6	81.1	70.8	83.4	96.7	89.9	83.3	73.6	55.5	52.1	0.6	325	55.8	28.6	309	
Highest	95.8	95.6	85.0	75.8	94.8	85.7	81.3	69.1	83.6	93.5	83.0	78.3	77.8	57.3	53.4	1.2	293	58.7	22.4	264	
Total	96.4	94.6	86.4	78.1	92.8	89.6	81.6	70.9	79.7	94.1	86.7	79.4	74.7	56.3	50.0	2.4	1,838	54.4	29.9	1,666	

Note: Children are considered to have received the vaccine if it was either written on the child's vaccination card or reported by the mother. For children whose vaccination information is based on the mother's report, date of vaccination is not collected. The proportions of vaccinations given during the first and second years of life are assumed to be the same as for children with a written record of vaccination.

¹ For children whose vaccination information is based on the mother's report, children reported to have received HepB (birth dose) received the vaccine within 24 hours after birth. For children whose vaccination information is based on the written record of vaccination, children are considered to have received hepatitis B (birth dose) if this vaccine is recorded on their card, regardless of when the dose was administered.

² Polio 0 is the polio vaccination given at birth.

³ BCG, three doses of DPT-HepB-Hib (pentavalent), three doses of oral polio vaccine (excluding polio vaccine given at birth), and one dose of measles

⁴ BCG, three doses of DPT-HepB-Hib (pentavalent), four doses of oral polio vaccine, one dose of inactivated polio vaccine, three doses of pneumococcal vaccine, and one dose of measles

⁵ BCG, three doses of DPT-HepB-Hib (pentavalent), four doses of oral polio vaccine, one dose of inactivated polio vaccine, three doses of pneumococcal vaccine, and two doses of measles

BCG = bacille Calmette-Guérin

DPT = diphtheria-pertussis-tetanus

Hib = *Haemophilus influenzae* type b

IPV = Inactivated polio vaccine

Basic vaccination coverage differs slightly by residence, with urban children more likely to receive all basic vaccinations than rural children (57% versus 56 %). A similar pattern is seen for all age-appropriate vaccinations (53% and 48%, respectively). Children in the Southern province are less likely to receive all basic vaccinations than children in the Western province (47% versus 65%). Vaccination coverage improves with increasing mother's education and wealth.

Figure 5 indicates that the percentage of children age 12-23 months who received all basic vaccinations has improved over the past decade, from 40% to 56% though there has been a decline from 68% in 2013 to 56% in 2019. Similarly, the percentage of children receiving no basic vaccinations has dropped from 16% to 2%.

3.10.2 Childhood acute respiratory infection, fever, and diarrhoea

Acute respiratory infection (ARI), fever, and dehydration from diarrhoea are important contributing causes of childhood morbidity and mortality in developing countries (WHO 2003).

Prompt medical attention when a child has the symptoms of these illnesses is, therefore, crucial in reducing child deaths. In the 2019 SLDHS, for each child under age 5, mothers were asked if the child had experienced a cough accompanied by short, rapid breathing or difficulty in breathing as a result of a chest-related problem (symptoms of ARI); a fever; or an episode of diarrhoea in the 2 weeks preceding the survey. Respondents were also asked if treatment was sought when the child was ill. Overall, 2% of children under age 5 showed symptoms of ARI, 17% had a fever, and 7% experienced diarrhoea in the 2 weeks preceding the survey (data not shown). It should be noted that the morbidity data collected are subjective because they are based on a mother's perception of illness without validation by medical personnel.

Table 11 shows that treatment from a health facility or provider was sought for 86% of children with ARI symptoms and 75% of those with a fever. Treatment was sought from a health facility or health provider for 75% of children with diarrhoea. Eighty-five percent of children with diarrhoea received a rehydration solution from an oral rehydration salt (ORS) packet; 58% of children with diarrhoea were given zinc supplements, and 53% received both ORS and zinc supplements.

Figure 5 Trends in childhood vaccinations

Percentage of children age 12-23 months who received all basic vaccinations at any time before the survey

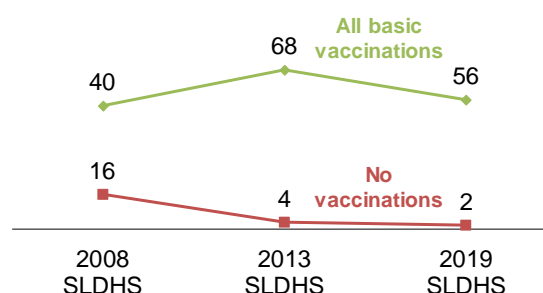


Table 11 Treatment for acute respiratory infection, fever, and diarrhoea

Among children under age 5 who had symptoms of acute respiratory infection (ARI) or had fever in the 2 weeks preceding the survey, percentage for whom advice or treatment was sought, and among children under age 5 who had diarrhoea during the 2 weeks preceding the survey, percentage for whom advice or treatment was sought, percentage given a fluid made from oral rehydration salt (ORS) packets or given pre-packaged ORS fluid, percentage given zinc, and percentage given ORS and zinc, according to background characteristics, Sierra Leone DHS 2019

Background characteristic	Children with symptoms of ARI ¹			Children with fever			Children with diarrhoea		
	Percentage for whom advice or treatment was sought ²	Number of children	Percentage for whom advice or treatment was sought ²	Percentage for whom advice or treatment was sought ²	Number of children	Percentage for whom advice or treatment was sought ²	Percentage given fluid from ORS packet or pre-packaged	Percentage given zinc	Percentage given ORS and zinc
Age in months									
<6	(76.1)	22	79.9	(78.0)	101	(65.3)	(68.0)	(48.9)	34
6-11	(90.7)	27	75.4	84.1	189	79.8	60.0	54.0	86
12-23	93.8	46	77.3	71.5	392	90.9	58.2	56.6	190
24-35	(76.1)	26	74.7	72.0	295	86.0	53.2	50.1	129
36-47	(87.1)	44	70.1	77.9	228	85.9	60.8	55.2	97
48-59	*	16	76.1	75.7	260	84.5	54.4	51.0	94
Sex									
Male	84.5	100	75.8	74.8	737	86.2	59.2	55.5	341
Female	87.1	82	75.0	75.9	728	84.1	56.1	51.0	289
Residence									
Urban	84.6	70	75.1	72.3	504	86.3	61.8	58.7	218
Rural	86.4	112	75.5	76.9	961	84.7	55.7	50.7	412
Province									
Eastern	(83.8)	29	75.5	89.6	381	90.7	50.6	49.6	164
Northern	(83.1)	50	73.1	71.4	189	90.2	53.5	50.7	71
North West	(97.4)	38	77.0	70.0	272	85.3	70.8	63.9	155
Southern	(78.7)	23	79.6	72.5	356	76.0	48.1	42.6	114
Western Area	(83.4)	43	69.5	67.9	266	83.8	62.3	56.9	127
Mother's education									
No education	77.5	77	74.5	74.9	772	87.6	60.2	55.1	339
Primary	(91.8)	38	75.3	81.9	264	86.2	61.0	59.6	122
Secondary	92.2	62	78.3	70.0	388	78.9	48.5	42.8	151
More than secondary	*	4	(65.3)	*	41	*	*	*	18
Wealth quintile									
Lowest	(83.8)	45	76.6	79.3	364	87.1	52.1	47.3	137
Second	(82.6)	31	75.1	73.3	315	84.3	61.2	57.3	161
Middle	(90.7)	32	76.0	81.4	299	85.5	52.4	46.4	128
Fourth	(84.1)	52	72.5	71.8	278	89.4	63.1	60.8	117
Highest	*	22	76.7	68.4	209	78.3	61.1	56.4	88
Total	85.7	182	75.4	75.3	1,465	85.3	57.8	53.4	630

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

¹ Symptoms of ARI include short, rapid breathing, which is chest-related, and/or difficult breathing, which is chest-related.

² Excludes advice or treatment from a traditional practitioner

3.10.3 Nutritional status of children

Anthropometric measurements (height and weight) for young children were collected in the 2019 SLDHS to provide outcome measures of nutritional status. Each team of interviewers carried a scale and measuring board. Weight measurements were taken using lightweight SECA scales with digital displays (model no. SECA 878U), which were designed and manufactured under the authority of the United Nations Children's Fund (UNICEF). Height/length measurements were taken using a standard measuring board (Shorr Board®). Recumbent length (lying down) was measured for children younger than age 24 months; standing height was measured for older children.

As recommended by WHO, evaluation of nutritional status in this report is based on a comparison of three indices for the children in the survey with indices reported for a reference population of well-nourished children (WHO Multicentre Growth Reference Study Group 2006). The three indices (height-for-age, weight-for-height, and weight-for-age) are expressed as standard deviation units from the median for the reference group. Children who fall below minus two standard deviations (-2 SD) from the median of the reference population are regarded as moderately malnourished, while those who fall below minus three standard deviations (-3 SD) from the reference population median are considered severely malnourished. Each of these indices provides information about growth and body composition that is useful in assessing nutritional status. *Stunting*, or low height-for-age, is a sign of chronic undernutrition that reflects failure to receive adequate nutrition over a long period. The most direct causes are (1) not eating enough or eating foods that lack growth-promoting nutrients and (2) recurrent infections or chronic diseases that cause poor nutrient intake, absorption, or utilisation. *Wasting*, or low weight-for-height, is a measure of acute undernutrition. It represents a failure to receive adequate nutrition in the period immediately before the survey. Wasting may result from inadequate food intake or from a recent episode of illness causing weight loss. *Overweight and obesity*, or high weight-for-height, results from an imbalance between energy consumed (too much) and energy expended (too little). Overweight and obesity are now problems in many countries. *Weight-for-age* is a composite index of height-for-age and weight-for-height. It includes both acute (wasting) and chronic (stunting) undernutrition and is an indicator of overall undernutrition.

The means of the Z-scores for height-for-age, weight-for-height, and weight-for-age are also calculated as summary statistics representing the nutritional status of children in a population. These mean scores describe the nutritional status of the entire population of children without the use of a cut-off point. A mean Z-score of less than 0 (that is, a negative mean value for stunting, wasting, or underweight) suggests a downward shift in the entire sample population's nutritional status relative to the reference population. The farther away mean Z-scores from 0, the higher the prevalence of undernutrition.

Height and weight measurements were obtained for 5,556 (unweighted) children under age 5 who were eligible to be measured in the 2019 SLDHS subsample households at the time of the survey. The analysis of anthropometric indices (height-for-age, weight-for-height, and weight-for-age) included valid dates of birth and measures of both height and weight. Valid height and weight data were available for 90% of children.

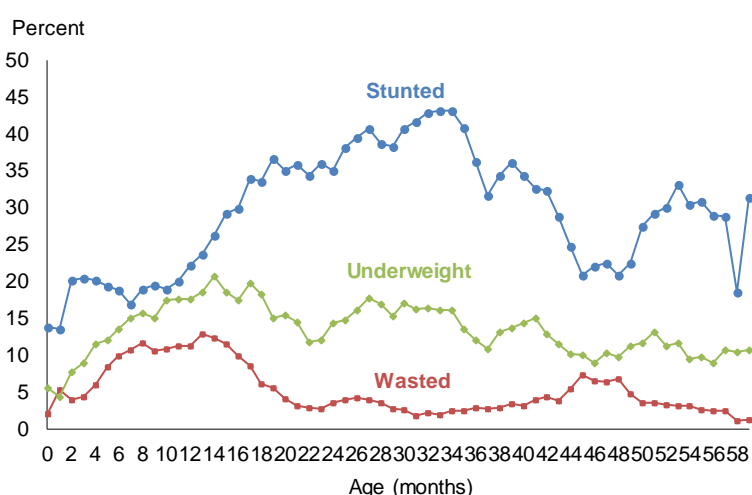
Table 12 and **Figure 6** show nutritional status for children under age 5 according to the three anthropometric indices. Thirty percent of children in Sierra Leone are stunted (below -2 SD), and 11% are severely stunted (below -3 SD). Stunting generally increases with age, peaking at 43% among children age 24-35 months. A higher proportion of children in rural areas (32%) than urban areas (25%) are stunted. Similarly, children in the Eastern province (25%) are more likely to be stunted than other children. Children of women with no education are more likely to be stunted than those

whose mothers have been to school. Stunting is inversely related to wealth quintile; 33% of children in the lowest wealth quintile are stunted, as compared with 24% of children in the highest quintile.

Overall, 5% of children in Sierra Leone are wasted and 1% are severely wasted. Six percent of children in urban areas are wasted, as compared with 5% in rural areas. Overall, 5% of children under age 5 are overweight.

The results show that 14% of all children under age 5 are underweight and 3% are severely underweight. The proportion of children who are underweight is greater in rural areas (14%) than urban areas (13%). Children of women with no education are more likely to be underweight than children whose mothers have more than a secondary education. Underweight is inversely related to wealth; 15% of children in the lowest wealth quintile are underweight compared with 13% of children in the highest quintile.

Figure 6 Nutritional status of children by age



Note: *Stunting* reflects chronic malnutrition; *wasting* reflects acute malnutrition; *underweight* reflects chronic or acute malnutrition or a combination of both. Plotted values are smoothed by a five-month moving average.

Table 12 Nutritional status of children

Percentage of children under age 5 classified as malnourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, according to background characteristics, Sierra Leone DHS 2019

Background characteristic	Height-for-age ¹				Weight-for-height				Weight-for-age					
	Percentage below -3 SD	Percentage below -2 SD ²	Mean Z-score (SD)	Number of children	Percentage below -3 SD	Percentage below -2 SD ²	Percentage above +2 SD	Mean Z-score (SD)	Number of children	Percentage below -3 SD	Percentage below -2 SD ²	Percentage above +2 SD	Mean Z-score (SD)	
Age in months														
<6	7.9	19.2	-0.9	508	1.1	4.3	13.9	0.5	500	2.5	8.7	2.9	-0.3	517
6-8	5.5	18.0	-0.6	263	1.2	13.3	6.1	-0.4	263	4.8	16.1	3.9	-0.6	271
9-11	10.0	21.0	-0.8	210	1.3	8.7	2.1	-0.5	212	5.8	14.5	0.9	-0.9	212
12-17	10.0	27.0	-1.2	551	2.8	12.1	4.4	-0.4	556	5.0	19.2	1.7	-0.8	562
18-23	10.1	34.7	-1.5	373	0.8	4.1	5.3	-0.1	372	4.5	15.2	1.3	-0.9	379
24-35	15.4	39.8	-1.6	914	0.7	3.1	4.1	0.1	918	3.4	15.8	1.4	-0.8	924
36-47	10.1	31.4	-1.3	1,006	1.0	4.5	2.1	-0.1	1,009	3.4	12.3	0.8	-0.9	1,007
48-59	10.5	28.1	-1.4	995	0.6	2.8	2.6	-0.1	994	1.5	10.6	0.4	-0.9	998
Sex														
Male	12.1	32.1	-1.3	2,436	1.2	5.5	5.0	-0.0	2,439	3.8	14.3	1.4	-0.8	2,464
Female	9.3	26.8	-1.2	2,384	0.9	5.3	4.1	-0.1	2,385	2.9	12.8	1.3	-0.8	2,407
Mother's interview status														
Interviewed	10.3	29.1	-1.3	4,007	1.0	5.6	4.9	-0.1	4,005	3.4	13.6	1.5	-0.8	4,053
Not interviewed, but in household	7.5	29.4	-1.0	67	3.2	9.9	0.9	0.0	68	1.4	8.1	0.0	-0.5	67
Not interviewed, not in household ³	13.1	31.5	-1.3	747	1.5	3.8	3.0	-0.0	750	3.5	13.9	1.0	-0.8	750
Residence														
Urban	9.6	24.5	-1.1	1,606	1.0	6.3	5.5	-0.1	1,599	4.2	12.9	2.1	-0.7	1,637
Rural	11.2	31.9	-1.4	3,214	1.1	4.9	4.1	-0.0	3,225	2.9	13.9	1.0	-0.8	3,233
Province														
Eastern	5.1	25.3	-1.2	1,122	0.3	3.0	3.5	0.1	1,132	1.7	9.2	0.6	-0.6	1,123
Northern	13.3	30.9	-1.2	1,072	1.2	5.4	3.3	-0.1	1,077	3.6	14.0	1.5	-0.8	1,079
North West	14.5	32.4	-1.4	726	1.4	5.7	4.1	-0.1	730	3.2	16.7	0.5	-0.9	732
Southern	11.0	31.5	-1.4	1,126	1.3	6.2	4.8	-0.1	1,121	3.9	14.9	1.2	-0.8	1,134
Western Area	11.1	27.8	-1.2	774	1.3	7.4	7.9	-0.0	764	4.7	14.4	3.2	-0.7	802
Mother's education														
No education	12.1	31.8	-1.4	2,199	1.3	5.6	4.8	-0.1	2,207	3.3	14.6	1.3	-0.8	2,223
Primary	9.4	29.4	-1.3	644	0.2	4.2	4.2	-0.1	644	3.2	12.6	1.2	-0.8	654
Secondary	6.8	25.5	-1.2	679	0.8	5.3	4.8	0.0	676	2.2	11.1	1.8	-0.7	685
More than secondary	8.8	22.8	-1.1	441	1.1	8.1	5.4	-0.2	438	4.8	13.0	0.9	-0.8	446
Wealth quintile														
Lowest	12.6	32.7	-1.4	1,207	1.1	5.2	4.7	-0.0	1,207	3.7	14.5	1.2	-0.8	1,216
Second	10.1	32.3	-1.4	1,095	1.0	4.8	2.7	-0.1	1,103	2.2	13.8	0.9	-0.9	1,099
Middle	10.9	31.2	-1.3	988	1.3	4.4	4.2	-0.0	992	3.1	13.9	0.7	-0.8	994
Fourth	8.4	23.4	-1.1	849	1.0	6.8	4.7	-0.1	846	4.1	11.9	1.8	-0.7	857
Highest	10.8	24.1	-1.1	681	0.8	6.4	7.6	0.0	676	4.1	13.2	2.8	-0.6	704
Total	10.7	29.5	-1.3	4,820	1.1	5.4	4.5	-0.1	4,824	3.4	13.6	1.4	-0.8	4,870

Note: Each of the indices is expressed in standard deviation units (SD) from the median of the WHO Child Growth Standards.

¹ Recumbent length is measured for children under age 2; standing height is measured for all other children.

² Includes children who are below -3 standard deviations (SD) from the WHO Growth Standards population median

³ Includes children whose mothers are deceased

⁴ For women who are not interviewed, information is taken from the Household Questionnaire. Excludes children whose mothers are not listed in the Household Questionnaire.

3.10.4 Infant and young child feeding practices

Breastfeeding is sufficient and beneficial for infant nutrition in the first 6 months of life. Breastfeeding immediately after birth also helps the uterus contract, hence reducing the mother's postpartum blood loss. Giving any other foods and water (in addition to breast milk) before the child is age 6 months is discouraged because it may inhibit breastfeeding and expose the infant to illness. Infants older than age 6 months need other food and drink while they continue to breastfeed until age 2 or older; breast milk remains an important source of energy, protein, and other nutrients such as vitamin A and iron. The food given should include a variety of options such as peeled, cooked, and mashed vegetables; grains; fruit; some oil; and also meat, eggs, chicken, and dairy products to provide adequate nourishment (Pan American Health Organization 2002).

The 2019 SLDHS collected data on infant and young child feeding (IYCF) practices for all children born in the 2 years preceding the survey. **Table 13** shows breastfeeding practices by child's age. Contrary to the recommendation that children under age 6 months be exclusively breastfed, only 54% of infants in this age group were found to be exclusively breastfed. However, this is an improvement from the 32% figure reported in 2013. In addition to breast milk, 19% of these young children consume plain water, 4% consume non-milk liquids, 5% consume other milk, and 16% consume complementary foods. Eighteen percent of infants under age 6 months are fed using a bottle with a nipple, a practice that is discouraged because of the risk of illness to the child. Sixty-nine percent of children age 6-8 months receive timely complementary foods.

The minimum acceptable diet indicator is used to assess the proportion of children age 6-23 months who meet minimum standards with respect to IYCF practices. Specifically, children age 6-23 months who have a minimum acceptable diet meet all three IYCF criteria below:

- Breastfeeding, or not breastfeeding and receiving two or more feedings of commercial infant formula; fresh, tinned, or powdered animal milk; or yogurt.
- Fed with foods from five or more of the following groups: (a) breast milk; (b) grains, roots, and tubers, including porridge and fortified baby food from grains; (c) legumes and nuts; (d) dairy products (milk, yogurt, cheese); (e) eggs; (f) meat, poultry, fish, and shellfish (and organ meats); (g) vitamin A-rich fruits and vegetables (and red palm oil); and (h) other fruits and vegetables.
- Fed the minimum recommended number of times per day, according to their age and breastfeeding status:
 - For breastfed children, minimum meal frequency is receiving solid, semisolid, or soft food at least twice a day (for infants age 6-8 months) or at least three times a day (for children age 9-23 months).
 - For nonbreastfed children age 6-23 months, minimum meal frequency is receiving solid, semisolid, or soft food or milk feeds at least four times a day. At least one of the feeds must be a solid, semisolid, or soft food.

Table 13 Breastfeeding status by age

Percent distribution of youngest children under age 2 who are living with their mother, by breastfeeding status, percentage currently breastfeeding, and percentage of all children under age 2 using a bottle with a nipple, according to age in months, Sierra Leone DHS 2019

Age in months	Not breastfeeding	Breastfeeding status					Total	Percentage currently breastfeeding	Number of youngest children under age 2 living with the mother	Percentage using a bottle with a nipple	Number of all children under age 2
		Exclusively breastfeeding	Breastfeeding and consuming plain water only	Breastfeeding and consuming non-milk liquids ¹	Breastfeeding and consuming other milk	Breastfeeding and consuming complementary foods					
0-1	3.3	77.4	11.3	4.1	2.1	1.7	100.0	96.7	332	8.5	342
2-3	2.9	54.2	22.8	4.9	4.9	10.5	100.0	97.1	341	20.1	361
4-5	1.4	27.7	21.9	3.9	8.0	37.1	100.0	98.6	295	27.1	309
6-8	4.4	6.9	16.4	2.0	4.0	66.4	100.0	95.6	482	29.1	505
9-11	5.3	2.5	8.6	1.4	3.2	79.0	100.0	94.7	425	23.3	440
12-17	18.3	0.6	3.3	0.7	1.0	76.1	100.0	81.7	1,026	21.9	1,070
18-23	61.0	0.2	0.7	0.1	0.3	37.7	100.0	39.0	689	14.8	768
0-3	3.1	65.6	17.1	4.5	3.5	6.2	100.0	96.9	673	14.4	703
0-5	2.5	54.1	18.6	4.3	4.9	15.6	100.0	97.5	969	18.3	1,012
6-9	3.8	6.0	15.2	1.6	4.1	69.3	100.0	96.2	611	27.5	640
12-15	14.9	0.5	3.6	1.0	1.4	78.7	100.0	85.1	724	21.3	759
12-23	35.5	0.5	2.2	0.5	0.7	60.7	100.0	64.5	1,715	18.9	1,838
20-23	70.0	0.0	0.1	0.2	0.4	29.2	100.0	30.0	450	11.4	502

Note: Breastfeeding status refers to a "24-hour" period (yesterday and last night). Children who are classified as breastfeeding and consuming plain water only consumed no liquid or solid supplements. The categories of not breastfeeding, exclusively breastfeeding, breastfeeding and consuming plain water, non-milk liquids, other milk, and complementary foods (solids and semi-solids) are hierarchical and mutually exclusive, and their percentages add to 100%. Thus children who receive breast milk and non-milk liquids and who do not receive other milk and who do not receive complementary foods are classified in the non-milk liquid category even though they may also get plain water. Any children who get complementary food are classified in that category as long as they are breastfeeding as well.

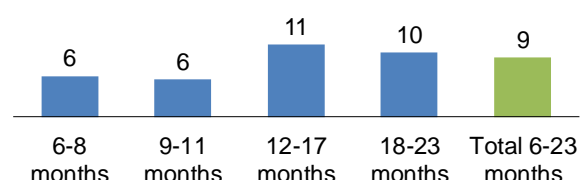
¹ Non-milk liquids include juice, juice drinks, or other liquids.

Figure 7 shows the percentage of children being fed the minimum acceptable diet, by age. Among children age 6-23 months, only 9% meet the criteria for a minimum acceptable diet.

Figure 7 Minimum acceptable diet according to age, in months

3.11 ANAEMIA PREVALENCE IN CHILDREN

Anaemia is a condition marked by low levels of haemoglobin in the blood. Iron is a key component of haemoglobin, and iron deficiency is estimated to be responsible for half of all anaemia globally. Other causes of anaemia include hookworm and other helminths, other nutritional deficiencies, chronic infections, and genetic conditions. Anaemia is a serious concern for children because it can impair cognitive development, stunt growth, and increase morbidity from infectious diseases.



The 2019 SLDHS included direct measurement of haemoglobin levels using the HemoCue system. This system consists of a battery-operated photometer and a disposable microcuvette coated with a dried reagent that serves as the blood collection device. For the test, a drop of capillary blood taken from a child's fingertip or heel is drawn into the microcuvette. The blood in the microcuvette is analysed using the photometer, which displays the haemoglobin concentration. Haemoglobin levels were successfully measured for 87% of the children eligible for testing (data not shown). Results were given verbally and in writing. Parents of children with a haemoglobin level below 8 g/dl were instructed to take the child to a health facility for follow-up care. All households in which biomarker data were collected were given a brochure with results and an explanation of the causes and prevention of anaemia.

Table 14 presents anaemia prevalence among children age 6-59 months, by background characteristics. Haemoglobin levels for children were adjusted for altitude. Children with haemoglobin levels below 11.0 g/dl were defined as anaemic.

Table 14 Prevalence of anaemia in children					
Percentage of children age 6-59 months with anaemia, according to background characteristics, Sierra Leone DHS 2019					
Background characteristic	Anaemia status by haemoglobin level				Number of children age 6-59 months
	Any anaemia (<11.0 g/dl)	Mild anaemia (10.0-10.9 g/dl)	Moderate anaemia (7.0-9.9 g/dl)	Severe anaemia (<7.0 g/dl)	
Age in months					
6-8	79.2	31.8	46.3	1.1	262
9-11	72.8	29.7	38.6	4.6	210
12-17	79.0	34.1	41.2	3.7	536
18-23	74.0	27.8	42.6	3.6	366
24-35	67.6	28.2	35.3	4.2	902
36-47	63.4	31.3	30.0	2.1	967
48-59	59.7	27.9	30.6	1.2	980
Sex					
Male	71.1	29.3	38.4	3.4	2,129
Female	64.5	30.4	32.0	2.0	2,094
Residence					
Urban	57.0	29.0	26.5	1.5	1,438
Rural	73.3	30.3	39.7	3.3	2,785
Province					
Eastern	67.6	30.6	33.5	3.5	1,005
Northern	72.0	33.6	36.1	2.3	916
North West	75.5	28.0	43.9	3.7	602
Southern	68.7	29.9	36.3	2.4	992
Western Area	54.9	25.6	27.6	1.7	709
Wealth quintile					
Lowest	73.0	30.6	38.7	3.7	1,065
Second	74.8	30.5	41.3	2.9	939
Middle	70.3	29.2	37.7	3.3	858
Fourth	62.7	31.4	30.0	1.3	750
Highest	50.9	26.5	22.8	1.5	612
Total	67.8	29.9	35.2	2.7	4,223
Notes: Table is based on children who stayed in the household on the night before the interview and who were tested for anaemia. Prevalence of anaemia, based on haemoglobin levels, is adjusted for altitude using formulas in CDC 1998. Haemoglobin in grams per decilitre (g/dl).					

Overall, 68% of children suffered from some degree of anaemia: 30% were classified as mildly anaemic, 35% were moderately anaemic, and 3% were severely anaemic. The prevalence of anaemia generally decreases with age, from a high of 79% among children age 6-8 months and 12-17 months to a low of 60% among children age 48-59 months. Anaemia prevalence is higher among children in rural areas than among those in urban areas (73% and 57%, respectively).

3.12 ANAEMIA PREVALENCE IN WOMEN

The 2019 SLDHS also included measurement of haemoglobin levels among women age 15-49. Measurement procedures were similar to those used for children, except that capillary blood was collected exclusively from a finger prick. Haemoglobin levels were successfully measured for 88% of the women eligible for testing (data not shown). Results were given verbally and in writing. Nonpregnant women and pregnant women were referred for follow-up care if their haemoglobin levels were below 8 g/dl and 7 g/dl, respectively. All households in which anthropometry and anaemia testing were conducted received a brochure explaining the causes and prevention of anaemia.

Table 15 presents anaemia prevalence among women age 15-49 by background characteristics. Haemoglobin levels for women were adjusted for altitude and smoking status. Pregnant women with a haemoglobin level below 11.0 g/dl and nonpregnant women with a haemoglobin level below 12.0 g/dl were defined as anaemic.

Table 15 Prevalence of anaemia in women

Percentage of women age 15-49 with anaemia, according to background characteristics, Sierra Leone DHS 2019

Background characteristic	Anaemia status by haemoglobin level				Number of women
	Any (NP <12.0 g/dl / P <11.0 g/dl)	Mild (NP 11.0-11.9 g/dl / P 10.0-10.9 g/dl)	Moderate (NP 8.0-10.9 g/dl / P 7.0-9.9 g/dl)	Severe (NP < 8.0 g/dl / P < 7.0 g/dl)	
Age					
5-19	49.4	21.9	25.4	2.1	1,568
20-29	46.6	24.9	20.4	1.3	2,490
30-39	45.3	22.7	21.7	0.9	1,947
40-49	44.4	21.0	21.1	2.2	1,262
Number of living children					
0	45.6	21.5	22.2	2.0	1,862
1	45.0	21.1	22.8	1.1	1,161
2-3	47.8	26.3	20.2	1.3	1,908
4-5	47.6	22.3	23.6	1.8	1,323
6+	45.7	22.4	21.8	1.5	1,012
Maternity status					
Pregnant	55.7	22.8	31.8	1.1	439
Breastfeeding	52.9	23.7	27.5	1.7	1,535
Neither	43.8	22.8	19.5	1.5	5,293
Residence					
Urban	40.4	21.1	17.9	1.3	3,320
Rural	51.6	24.5	25.3	1.8	3,946
Province					
Eastern	45.7	20.2	23.8	1.7	1,614
Northern	48.6	25.4	21.3	1.9	1,503
North West	51.7	25.2	25.3	1.2	960
Southern	48.9	23.6	24.2	1.1	1,483
Western Area	40.3	21.7	16.9	1.7	1,706
Education					
No education	49.3	23.0	24.6	1.6	3,244
Primary	50.8	23.6	25.4	1.8	1,030
Secondary	43.3	23.2	18.7	1.5	2,684
More than secondary	29.7	18.1	10.6	1.0	308
Wealth quintile					
Lowest	50.5	25.3	23.0	2.2	1,326
Second	53.4	23.5	28.1	1.8	1,314
Middle	50.0	24.3	24.4	1.2	1,376
Fourth	43.9	22.2	20.9	0.9	1,582
Highest	37.3	20.3	15.3	1.7	1,668
Total	46.5	23.0	22.0	1.6	7,266

Note: Prevalence is adjusted for altitude and for smoking status, if known, using formulas in CDC 1998.

Forty-seven percent of women age 15-49 are anaemic. The majority of these women are mildly anaemic (23%); 22% are moderately anaemic, and 2% are severely anaemic. Pregnant women (56%) and breastfeeding women (53%) are more likely to be anaemic than nonpregnant women. Women in rural areas are more likely to be anaemic than women in urban areas (52% and 40%, respectively). Women in the lowest wealth quintile are more likely to be anaemic than those in the highest quintile (51% versus 37%).

3.13 OWNERSHIP OF MOSQUITO NETS

The use of insecticide-treated mosquito nets (ITNs) is a primary health intervention designed to reduce malaria transmission in Sierra Leone. An ITN is defined as a factory-treated net that does not require any further treatment. In the 2008, and 2013 SLDHS and 2016 SLMIS surveys, the definition of an ITN included nets that had been soaked with insecticides within the past 12 months. In the most recent questionnaires, The DHS Program dropped questions on retreatment of nets. This was done because bed nets that require annual retreatment and products used for this retreatment are no longer distributed, so the distinction between ITNs and long-lasting insecticide-treated nets (LLINs) is no longer meaningful. What are defined as ITNs in the 2019 SLDHS were previously known as LLINs in the 2008 SLDHS, 2013 SLDHS, and 2016 SLMIS.

All households in the 2019 SLDHS were asked if they owned mosquito nets and, if so, what type and how many. **Table 16** presents the percentage of households with at least one ITN, the average number of nets per household, and the percentage of households with at least one ITN for each two persons who stayed in the household the previous night, by background characteristics. About 68% have at least one ITN. On average, there is one ITN per household.

Table 16 Household possession of insecticide-treated nets

Percentage of households with at least one insecticide-treated net (ITN); average number of ITNs per household; and percentage of households with at least one ITN per two persons who stayed in the household last night, according to background characteristics, Sierra Leone DHS 2019

Background characteristic	Percentage of households with at least one insecticide-treated net (ITN) ¹	Average number of insecticide-treated nets (ITNs) ¹ per household	Number of households	Percentage of households with at least one insecticide-treated net (ITN) ¹ for every two persons who stayed in the household last night	Number of households with at least one person who stayed in the household last night
Residence					
Urban	60.0	1.1	5,680	20.7	5,670
Rural	73.7	1.5	7,719	28.1	7,715
Province					
Eastern	78.8	1.5	2,852	29.1	2,849
Northern	73.4	1.6	2,568	24.8	2,568
North West	65.1	1.4	2,195	24.4	2,193
Southern	75.0	1.5	2,641	29.0	2,640
Western Area	49.3	0.8	3,142	18.3	3,134
Wealth quintile					
Lowest	68.7	1.2	2,879	25.7	2,877
Second	75.4	1.6	2,568	28.1	2,566
Middle	76.9	1.7	2,461	28.1	2,461
Fourth	62.6	1.2	2,704	22.8	2,703
Highest	57.2	1.1	2,787	20.6	2,778
Total	67.9	1.3	13,399	25.0	13,384

¹ Percentage of de facto household population who could sleep under an ITN if each ITN in the household were used by up to two people

Rural households are more likely to own at least one ITN than urban households (74% versus 60%). Households in the Eastern province more often reported having an ITN than other households and have at least two ITNs per household on average.

Twenty-five percent of the households in Sierra Leone have at least one ITN for every two persons who stayed in the household the night before the survey. The percentage of households with at least one ITN for every two persons who stayed in the household the night before the survey is higher in rural areas (28%) than in urban areas (21%). Households in the Eastern and Southern provinces are more likely than those in other provinces to have at least one ITN for every two persons who stayed in the household the night before the survey.

Figure 8 shows the percentage of the de facto population with access to an ITN. Overall, 47% of the household population has access to an ITN, which means that all de facto household members could sleep under an ITN if each ITN in the household were used by up to two people. Those living in rural areas (51%) and those living in the Eastern province (54%) are most likely to have access to an ITN.

3.14 HIV/AIDS AWARENESS, KNOWLEDGE, AND BEHAVIOUR

3.14.1 Knowledge of HIV prevention

The 2019 SLDHS included a series of questions asked of both women and men that addressed respondents' knowledge of HIV prevention, awareness of modes of HIV transmission, and behaviours that can prevent the spread of HIV.

Table 17 shows that 74% of women and 85% of men age 15-49 know that consistent use of condoms is a means of preventing the spread of HIV. Eighty-two percent of women and 87% of men know that limiting sexual intercourse to one faithful, uninfected partner can reduce the chance of contracting HIV. Finally, 69% of women and 81% of men know that both using condoms and limiting sexual intercourse to one uninfected partner are means of preventing HIV.

Women and men in urban areas are more likely to be knowledgeable about HIV prevention methods than their counterparts in rural areas. In general, better-educated respondents and those in the highest wealth quintile are considerably more knowledgeable of HIV prevention methods than other respondents.

Figure 8 Percentage of the de facto population with access to an ITN in the household

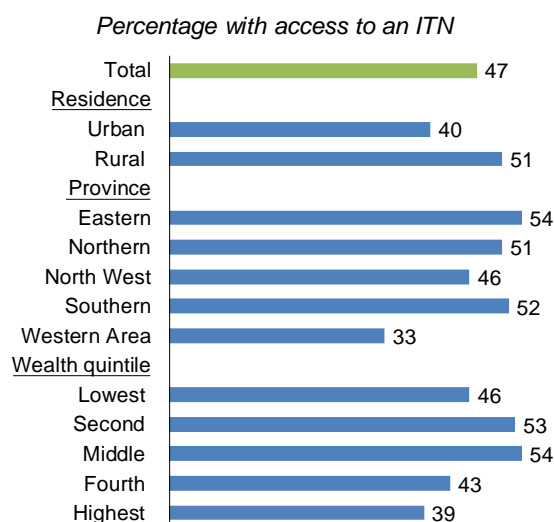


Table 17 Knowledge of HIV prevention methods

Percentage of women and men age 15-49 who, in response to prompted questions, say that people can reduce the risk of getting HIV by using condoms every time they have sexual intercourse and by having one sex partner who is not infected and has no other partners, according to background characteristics, Sierra Leone DHS 2019

Background characteristic	Percentage of women who say HIV can be prevented by:				Percentage of men who say HIV can be prevented by:			
	Using condoms ¹	Limiting sexual intercourse to one uninfected partner ²	Using condoms and limiting sexual intercourse to one uninfected partner ^{1,2}	Number of women	Using condoms ¹	Limiting sexual intercourse to one uninfected partner ²	Using condoms and limiting sexual intercourse to one uninfected partner ^{1,2}	Number of men
Age								
15-24	73.3	81.7	69.2	6,055	80.1	82.6	75.0	2,479
15-19	70.5	78.7	66.1	3,427	75.2	76.9	69.0	1,541
20-24	76.9	85.7	73.3	2,629	88.2	91.9	84.9	937
25-29	78.3	86.2	74.4	2,728	92.5	92.1	88.5	1,015
30-39	73.6	80.7	68.8	4,166	88.6	89.4	84.7	1,584
40-49	69.1	77.2	64.8	2,624	85.2	87.5	81.5	1,306
Residence								
Urban	76.7	86.5	73.3	7,163	87.2	89.1	83.2	2,990
Rural	70.9	77.2	65.8	8,411	83.5	84.8	78.8	3,394
Province								
Eastern	76.1	79.1	68.5	3,069	88.6	91.3	87.1	1,251
Northern	81.2	86.0	79.4	3,317	85.5	88.3	82.4	1,353
North West	69.3	79.3	64.2	2,508	87.5	86.7	80.7	982
Southern	69.7	74.6	64.8	2,900	81.7	82.3	75.9	1,192
Western Area	70.6	86.1	67.8	3,780	83.6	85.5	78.5	1,606
Education								
No education	68.3	75.8	63.3	7,081	78.4	80.3	72.9	1,865
Primary	67.9	78.0	63.4	2,103	81.0	81.5	75.2	876
Secondary	80.4	88.3	76.9	5,724	88.7	90.6	85.0	3,120
More than secondary	88.5	94.1	85.4	666	96.3	96.4	94.4	523
Wealth quintile								
Lowest	69.5	74.6	63.5	2,738	80.5	83.0	76.8	1,104
Second	69.2	77.6	64.4	2,831	83.7	84.0	77.6	1,123
Middle	73.2	78.4	68.1	2,954	85.8	87.6	81.6	1,145
Fourth	74.8	84.1	71.6	3,385	84.1	86.0	80.0	1,422
Highest	79.1	89.6	76.1	3,666	90.2	91.6	86.3	1,590
Total 15-49	73.6	81.5	69.3	15,574	85.2	86.8	80.9	6,384
50-59	na	na	na	na	84.1	85.0	79.2	813
Total 15-59	na	na	na	na	85.1	86.6	80.7	7,197

na = not applicable

¹ Using condoms every time they have sexual intercourse

² Partner who has no other partners

3.14.2 Comprehensive knowledge about HIV prevention among young people

Table 18 presents information about comprehensive knowledge of HIV prevention among young people age 15-24. Comprehensive knowledge of HIV prevention is defined as knowing that both condom use and limiting sexual intercourse to one uninfected partner are HIV prevention methods, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about HIV transmission: that HIV can be transmitted by mosquito bites and by sharing food with a person who has HIV. Knowledge of how HIV is transmitted is crucial to enabling people to avoid HIV infection.

Table 18 Knowledge about HIV prevention among young people

Percentage of young women and young men age 15-24 with comprehensive knowledge about HIV prevention, according to background characteristics, Sierra Leone DHS 2019

Background characteristic	Women age 15-24		Men age 15-24	
	Percentage with knowledge about HIV prevention ¹	Number of women	Percentage with knowledge about HIV prevention ¹	Number of men
Age				
15-19	26.5	3,427	22.2	1,541
15-17	24.8	2,050	18.8	977
18-19	28.9	1,377	27.9	564
20-24	31.6	2,629	36.7	937
20-22	32.2	1,657	35.4	609
23-24	30.7	972	39.2	328
Marital status				
Never married	30.9	4,129	27.2	2,284
Ever had sex	34.4	2,542	35.2	1,226
Never had sex	25.2	1,587	17.8	1,058
Ever married	24.0	1,927	33.4	194
Residence				
Urban	34.1	3,201	32.5	1,218
Rural	22.7	2,854	23.0	1,261
Province				
Eastern	27.3	1,139	38.4	478
Northern	27.7	1,244	25.6	569
North West	24.6	1,010	19.8	403
Southern	35.2	1,054	25.4	466
Western Area	28.9	1,607	28.2	562
Education				
No education	17.7	1,121	13.7	342
Primary	18.6	975	13.1	384
Secondary	33.8	3,810	32.4	1,694
More than secondary	46.5	150	66.1	59
Total 15-24	28.7	6,055	27.7	2,479

¹ Knowledge about HIV prevention means knowing that consistent use of condoms during sexual intercourse and having just one partner, who is uninfected and faithful, can reduce the chance of getting HIV, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about transmission or prevention of HIV.

Table 18 shows that 29% of young women and 28% of young men have comprehensive knowledge of HIV prevention. Never-married young women and men who have ever had sex are slightly more likely to be knowledgeable about HIV prevention than young women and men who are married. Among both sexes, the proportion with knowledge generally increases with age and educational attainment. Urban young people are slightly more likely than rural young people to have knowledge of HIV prevention.

3.14.3 Multiple sexual partners

Limiting the number of sexual partners and practicing protected sex are crucial in the fight against the spread of sexually transmitted infections, including HIV. Respondents to the 2019 SLDHS were asked detailed questions about their sexual behaviour, including the number of partners they had in the 12 months preceding the survey and condom use during their most recent sexual encounter. **Table 19.1** shows that only 4% of women reported having multiple sexual partners in the 12 months preceding the survey, and 24% reported having sexual intercourse with a person who was neither their husband nor lived with them. Sixty percent of never-married women and 44% of divorced, separated, or widowed women had

sexual intercourse with a person who was neither their husband nor lived with them. Among women who had multiple sexual partners in the 12 months preceding the survey, 3% used a condom during their last sexual intercourse. Similarly, 7% of women who had sexual intercourse with a person who was neither their husband nor lived with them used a condom during their last sexual intercourse. Women in Sierra Leone have had an average of 2.7 sexual partners in their lifetime.

Table 19.2 shows that 22% of men age 15-49 reported having had two or more sexual partners during the 12 months prior to the survey, while 39% of men age 15-59 reported that they had sexual intercourse with a person who was neither their wife nor lived with them. Among men age 15-59 who had two or more sexual partners in the 12 months prior to the survey, 13% reported using a condom during their last sexual intercourse. Thirty-nine percent of men age 15-59 who had sexual intercourse with a person who was neither their wife nor lived with them used a condom during their last sexual intercourse. Men age 15-59 in Sierra Leone have had an average of 9.1 sexual partners in their lifetime.

Table 19.1 Multiple sexual partners and higher-risk sexual intercourse in the past 12 months: Women

Among all women age 15–49, percentage who had sexual intercourse with more than one sexual partner in the past 12 months, and percentage who had intercourse in the past 12 months with a person who was neither their husband nor lived with them; among those having more than one partner in the past 12 months, percentage reporting that a condom was used during last intercourse; among women age 15–49 who had sexual intercourse in the past 12 months with a person who was neither their husband nor lived with them, percentage who used a condom during last sexual intercourse with such a partner; and among women who ever had sexual intercourse, mean number of sexual partners during their lifetime, according to background characteristics, Sierra Leone DHS 2019

Background characteristic	All women			Women who had 2+ partners in the past 12 months			Women who had intercourse in the past 12 months with a person who was neither their husband nor lived with them			Women who ever had sexual intercourse ¹	
	Percentage who had 2+ partners in the past 12 months	Percentage who had intercourse in the past 12 months with a person who was neither their husband nor lived with them	Percentage who reported using a condom during last sexual intercourse	Number of women	Percentage who reported using a condom during last sexual intercourse	Number of women	Percentage who reported using a condom during last sexual intercourse with such a partner	Number of women	Mean number of sexual partners in lifetime	Number of women	
Age											
15–24	4.3	39.6	3.2	6,055	3.2	259	6.0	2,400	2.4	4,394	
15–19	2.8	39.0	1.2	3,427	1.2	96	5.8	1,335	1.8	1,913	
20–24	6.2	40.5	4.4	2,629	4.4	164	6.2	1,065	2.9	2,481	
25–29	4.0	22.0	4.1	2,728	4.1	109	10.0	599	2.8	2,630	
30–39	3.7	12.4	2.2	4,166	2.2	156	6.6	517	3.0	4,022	
40–49	2.1	8.1	0.0	2,624	0.0	55	4.1	212	2.6	2,530	
Marital status											
Never married	5.1	59.6	5.2	5,058	5.2	257	6.6	3,013	2.6	3,364	
Married/living together	2.9	3.7	0.9	9,715	0.9	285	7.6	363	2.6	9,448	
Divorced/separated/widowed	4.8	44.0	(1.2)	801	(1.2)	38	5.9	353	3.9	765	
Residence											
Urban	4.5	32.0	4.0	7,163	4.0	324	8.3	2,290	2.9	5,934	
Rural	3.0	17.1	1.3	8,411	1.3	256	3.8	1,438	2.6	7,642	
Province											
Eastern	2.1	21.8	2.5	3,069	2.5	64	4.6	670	2.6	2,741	
Northern	3.8	21.8	3.8	3,317	3.8	128	7.3	723	2.4	2,942	
North West	3.6	20.4	2.9	2,508	2.9	90	4.7	511	2.6	2,280	
Southern	3.4	21.2	1.4	2,900	1.4	97	3.6	615	2.6	2,471	
Western Area	5.3	32.0	2.9	3,780	2.9	200	9.6	1,210	3.2	3,142	
Education											
No education	2.9	10.6	1.3	7,081	1.3	204	4.1	753	2.6	6,740	
Primary	3.7	20.0	1.2	2,103	1.2	77	3.6	420	2.8	1,726	
Secondary	4.6	39.9	3.7	5,724	3.7	260	7.1	2,281	2.6	4,498	
More than secondary	5.7	41.0	(8.4)	666	(8.4)	38	14.4	273	3.7	612	
Wealth quintile											
Lowest	2.4	14.4	2.7	2,738	2.7	66	2.5	394	2.7	2,543	
Second	3.5	16.9	0.0	2,831	0.0	100	2.9	477	2.5	2,585	
Middle	3.1	20.8	0.6	2,954	0.6	92	5.0	614	2.5	2,636	
Fourth	4.5	30.9	3.6	3,385	3.6	152	5.6	1,046	2.6	2,827	
Highest	4.6	32.7	5.0	3,666	5.0	170	11.1	1,197	3.1	2,986	
Total	3.7	23.9	2.8	15,574	2.8	580	6.6	3,728	2.7	13,576	

Note: Figures in parentheses are based on 25–49 unweighted cases.

¹ Means are calculated excluding respondents who gave non-numeric responses.

Table 19.2 Multiple sexual partners and higher-risk sexual intercourse in the past 12 months: Men

Among all men age 15-49, percentage who had sexual intercourse with more than one sexual partner in the past 12 months, and percentage who had intercourse in the past 12 months with a person who was neither their wife nor lived with them; among those having more than one partner in the past 12 months, percentage reporting that a condom was used during last intercourse; among men age 15-49 who had sexual intercourse in the past 12 months with a person who was neither their wife nor lived with them, percentage who used a condom during last sexual intercourse with such a partner; and among men who ever had sexual intercourse, mean number of sexual partners during their lifetime, according to background characteristics, Sierra Leone DHS 2019

Background characteristic	All men			Men who had 2+ partners in the past 12 months		Men who had intercourse in the past 12 months with a person who was neither their wife nor lived with them		Men who ever had sexual intercourse ¹	
	Percentage who had 2+ partners in the past 12 months	Percentage who had intercourse in the past 12 months with a person who was neither their wife nor lived with them	Percentage who reported using a condom during last sexual intercourse	Number of men	Percentage who reported using a condom during last sexual intercourse with such a partner	Number of men	Mean number of sexual partners in lifetime	Number of men	
Age									
15-24	12.0	46.9	21.8	2,479	20.1	1,164	4.8	1,293	
15-19	5.5	32.4	14.5	1,541	15.2	500	2.7	553	
20-24	22.8	70.8	24.7	937	23.8	664	6.3	740	
25-29	31.2	62.8	14.6	1,015	25.1	317	9.4	828	
30-39	26.8	36.3	14.0	1,584	27.4	575	10.1	1,243	
40-49	26.4	23.2	8.0	1,306	20.0	304	12.2	1,019	
Marital status									
Never married	15.1	57.4	20.6	2,928	20.3	1,681	5.7	1,613	
Married/living together	27.3	25.7	10.3	3,234	28.3	832	10.8	2,596	
Divorced/separated/widowed	27.4	75.2	27.5	222	22.0	167	9.4	173	
Type of union									
In polygynous union	68.2	12.4	1.6	463	27.2	58	12.4	364	
Not in polygynous union	20.5	28.0	15.1	2,771	28.4	775	10.5	2,232	
Not currently in union	15.9	58.6	21.4	3,150	20.4	1,847	6.1	1,786	
Residence									
Urban	20.9	49.3	19.8	2,990	27.5	1,476	9.1	2,002	
Rural	22.4	35.5	9.8	3,394	17.2	1,204	8.7	2,380	
Province									
Eastern	22.6	41.1	14.9	1,251	24.1	514	6.8	968	
Northern	18.3	38.4	13.2	1,353	22.0	520	8.7	942	
North West	23.3	39.6	7.9	982	17.5	389	11.2	639	
Southern	27.4	43.3	12.0	1,192	18.0	516	9.2	785	
Western Area	18.6	46.2	22.1	1,606	28.8	741	9.2	1,048	
Education									
No education	23.0	31.6	8.2	1,865	16.2	589	9.8	1,397	
Primary	20.3	33.4	8.8	1,776	14.8	292	9.2	518	
Secondary	19.6	48.6	17.1	3,120	24.9	1,517	7.7	2,045	
More than secondary	31.7	53.6	26.1	523	34.2	281	11.1	422	

(Continued ...)

Table 19.2—Continued

Background characteristic	All men		Men who had 2+ partners in the past 12 months		Men who had intercourse in the past 12 months with a person who was neither their wife nor lived with them		Men who ever had sexual intercourse ¹	
	Percentage who had 2+ partners in the past 12 months	Percentage who had intercourse in the past 12 months with a person who was neither their wife nor lived with them	Percentage who reported using a condom during last sexual intercourse	Number of men	Percentage who reported using a condom during last sexual intercourse with such a partner	Number of men	Mean number of sexual partners in lifetime	Number of men
Wealth quintile								
Lowest	20.0	31.2	12.8	1,104	19.4	344	8.5	807
Second	23.6	33.9	7.3	1,123	15.1	380	8.9	802
Middle	22.3	39.3	9.0	1,145	15.7	450	9.4	763
Fourth	19.3	48.3	14.0	1,422	23.3	687	9.1	917
Highest	23.2	51.5	24.2	1,590	31.5	818	8.6	1,094
Total 15-49	21.7	42.0	14.3	6,384	22.9	2,680	8.9	4,382
50-59	20.4	11.5	2.5	813	10.7	94	11.0	610
Total 15-59	21.5	38.5	13.1	7,197	22.5	2,773	9.1	4,992

¹ Means are calculated excluding respondents who gave non-numeric responses.

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