A Guide to Implementing Nutrition and Food Security Surveys

05/03/2018

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Chapter 1

Introduction

Older people (generally defined as people aged sixty years and older) are a vulnerable group for malnutrition in humanitarian and developmental contexts. Due to their age they have specific nutritional needs, such as easily digestible and palatable food adapted to those with chewing problems, which is dense in nutrients. In famine and displacement situations where populations are dependent on food distributions, older people often find the general ration inappropriate to their tastes and needs, have difficulties accessing the distributions, or have difficulties transporting rations home. As a result, older people can become malnourished and in need of specifically targeted food interventions. In times of drought or food scarcity, older people tend to reduce their food intake in order to share or give up their ration to younger members of their families. They are then at risk of malnutrition.

Despite these potential vulnerabilities in humanitarian situations, older people are rarely identified as a group in need of specific nutritional or food assistance. Surveys and assessments almost always focus on children, and sometimes on pregnant and lactating women. Humanitarian workers argue that assessing the nutritional status and needs of older people is both costly and complicated. As a consequence, the nutritional status and needs of older people in crisis go unidentified and unaddressed.

HelpAge International, VALID International, and Brixton Health, with financial assistance from the Humanitarian Innovation Fund (HIF), have developed a Rapid Assessment Method for Older People (RAM-OP) that provides accurate and reliable estimates of the needs of older people. The method uses simple procedures, in a short time frame (i.e. about two weeks including training, data collection, data entry, and data analysis), and at considerably lower cost than other methods. The RAM-OP method is based on the following principles:

- Use of a familiar "household survey" design employing a two-stage cluster sample design optimised to allow the use of a small primary sample (m 16 clusters) and a small overall (n 192) sample.
- Assessment of multiple dimensions of need in older people (including prevalence of global, moderate and severe acute malnutrition) using, whenever possible, standard and well-tested indicators and question sets.

- Data analysis performed using modern computer-intensive methods to allow estimates of indicator levels to be made with useful precision using a small sample size.

The following tools are currently available under the General Public Licence / Free Documentation License, meaning that you are free to copy and adapt these tools:

- an English language manual / guidebook
- a questionnaire (available in English and French)
- data entry and data checking software (available in English and French)
- data analysis software.

We believe that the availability of a rapid, low-cost, and user-friendly method will encourage governments, UN agencies, as well as international and local non-governmental organisations to actively assess the situation of older people in humanitarian contexts, and implement, monitor, and evaluate relevant and timely responses to address their needs.

Chapter 2

Sampling

2.1 The RAM-OP sample

RAM-OP uses a two-stage sample:

First stage sample: A sample of communities (e.g. villages or city-blocks) in the survey area is taken. A sampled community is also called a primary sampling unit (PSU).

Second stage sample: Domestic dwellings are sampled from within the communities selected in the first stage sample. All eligible individuals in the sampled dwelling are included in the sample.

2.1.1 The first-stage sample

The first stage sample is a systematic spatial sample. Two methods can be used and both methods take the sample from all parts of the survey area:

List-based method: Communities to be sampled are selected systematically from a complete list of communities in the survey area. This list of communities is sorted by one or more non-overlapping spatial factors such as district and subdistricts within districts:

Map-based method: Communities to be sampled are selected from the centres of the squares of a grid drawn over a map. The map must be sufficiently well made and of sufficiently large scale to show the position of every community in the survey area. This type of sample is known as a centric systematic area sample and is often referred to as a CSAS sample.

Note: *Population proportional sampling* (PPS) is **not** used in RAM-OP surveys. Population estimates for all communities are **not** required for sampling purposes. Population estimates are required only for the selected communities. These are used during data analysis in order

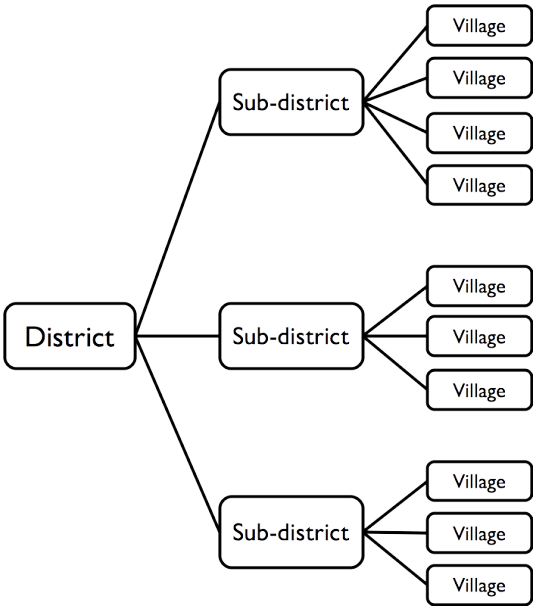

Figure 2.1: Communities listing by district and sub-district

to weight results by population size. If this information is not available before the survey, it can be collected during the survey.

2.1.2 The second stage sample

The second stage within-community sample uses a method called map-segment-sample. This method takes the within-community sample from all parts of a sampled community.

2.2 Implicit stratification

Both the first and second stage samples use a form of spatial stratification:

- The list-based method's first stage systematic spatial sample stratifies the sample by non-overlapping spatial factor such as districts and subdistricts within districts.
- The map-based (CSAS) method's first stage sample stratifies the sample by grid square.
- The map-segment-sample second stage within-community sample stratifies the sample by parts of the community being sampled.
- The first and second stage samples also ensure that a reasonably even spatial sample is taken from the entire survey area and from each of the sampled communities.

These sampling procedures provide implicit stratification and tend to spread the sample properly among important sub-groups of the population such as rural / urban / peri-urban populations, administrative areas, ethnic sub-populations, religious sub-populations, and

socio-economic groups. This often improves the precision of estimates made from survey data.

The use of implicit stratification improves the efficiency of a two-stage cluster sample and allows RAM-OP to use relatively small sample sizes compared to other methods, such as SMART surveys. The use of modern computer-intensive data analysis techniques also allows RAM-OP to make better use of the available sample than is done in other methods.

2.3 RAM-OP survey sample size

The following shorthand symbols will be used when describing sample designs:

m = Number of primary sampling units (PSUs).

n = Size of the sample of individuals or households from a PSU. May also mean the overall survey sampl

N = Population

The overall sample size for a RAM-OP survey is about $n = 192$ individual subjects. You should aim to collect an overall sample of at least $n = 192$ individuals.

The RAM-OP sample is collected in two stages:

- The first stage sample uses a sample size of about $m = 16$ communities (or PSUs).
- The second stage sample uses a sample size of about $n = 12$ eligible subjects sampled from each of the communities selected for inclusion in the first stage sample.

The overall sample size from $m = 16$ communities and $n = 12$ eligible subjects is about:

$$\text{overall sample size} \approx m \times n \approx 16 \times 12 \approx 192$$

It is not recommended that fewer than $m = 16$ communities are sampled.

2.4 RAM-OP survey sample size

Sampling fewer than $m = 16$ communities will tend to reduce the precision with which estimates can be made. If you have the resources to sample more than $m = 16$ communities then you should do so. A sample of $m = 24$ communities and $n = 8$ eligible subjects, for

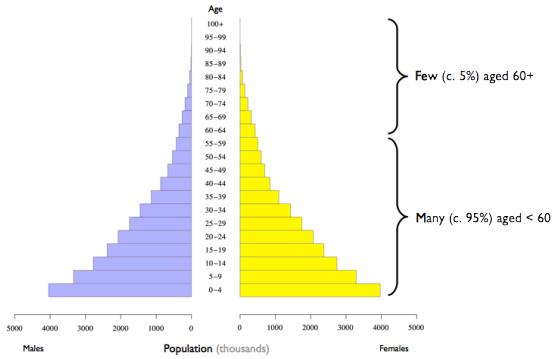

Figure 2.2: Population pyramid for a typical developing country

example, will tend to yield estimates with better precision than a sample with $m = 16$ communities and $n = 12$ eligible subjects.

Do not be tempted to increase the size of the within-community sample in order to achieve an overall sample size of $n = 192$ from fewer than $m = 16$ communities. Doing so will tend to reduce the precision with which estimates are made. It may also be impossible to do this in many settings.

Here, for example, is a *population pyramid* for a typical developing country:

If the average community population is $N = 300$ then there will be fewer than 15 people aged 60 years and older in about half of the selected communities. This is because about half of the selected communities are likely to have a population below the average population.

Chapter 3

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RAM-OP Software

7.1 Data entry

7.2 Data analysis

This manual covers analysing your data using the **RAnalyticFlow** workflow. An **RAnalyticFlow** workflow may be thought of as an *"app"* that makes it easy to analyse your survey data.

To use the **RAnalyticFlow** workflow you must install:

- **The *R Language for Data-Analysis and Graphics* (R)** : This is the *"engine"* which does all the work of analysing your data. You can get the R installation program from: http://cran.r-project.org. Following are links to download operating sofware-specific versions of R:
  - Download R for Linux
  - Download R for (Mac) OS X
  - Download R for Windowx
- **R packages** (libraries of functions needed to work with the **RAnalyticFlow** workflow) : You can install these from within **R** using the Package Installer function within R. The libraries needed are:

Package	Comments
rJava	Required: Used by **RAnalyticFlow**
JavaGD	Required: Used by **RAnalyticFlow**
codetools	Required: Used by **RAnalyticFlow**
foreign	Required: Opens **EpiData** (REC) files
car	Required: Used for PROBIT estimator
ggplot2	Desirable: Provides many plotting functions

Package	Comments
data.table	Desirable: Speeds up working with large dataset

The Package Installer function can be called in R using the following command:

```
install.packages(c("rJava", "JavaGD", "codetools",
                   "foreign", "car", "ggplot2", "data.table"),
                   repos = "https://cloud.r-project.org/")
```

The `repos` argument in the R command above specifies the CRAN mirror from which you to download the package/s you want to install. Here we specify the cloud-based mirror for CRAN provided by RStudio. If unspecified, the installiation process will prompt you to select a mirror from which to download packages from. If you already know the URL of the CRAN mirror you want to use, specify this in the `repos` argument.

Note that **RAnalyticFlow** may require you to have **Java** installed. Check the instructions on the **RAnalyticFlow** download page and on this starter guide.

All of this software is open source and free to download, copy, and use. It will run on Windows, Mac OS X, and Linux (and other UNIX-like) operating systems. Your ICT department should be able to help you with installing this software.

In addition you will also need a copy of the **RAnalyticFlow** workflow and supporting files. These are available from:

http://www.brixtonhealth.com/ramOP.rflow.zip

You may need to extract the file from the ZIP archive before use if this is not done automatically.

Before starting to analyse your data you should create a project directory or project folder. This is just a normal folder or directory that can be created using your usual file manager (e.g. Windows ExplorerTM in WindowsTM or the FinderTM in Macintosh OS-XTM). The

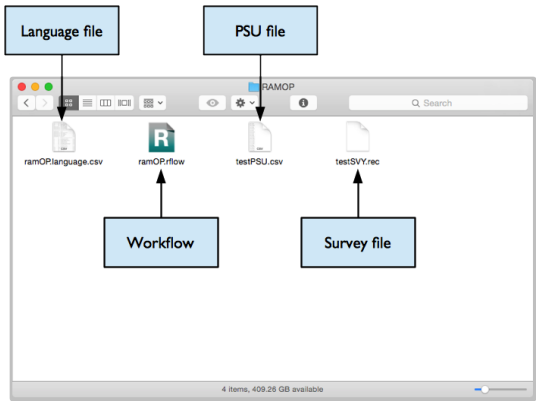

Figure 7.1: Directory structure of RAM-OP RAnalyticFlow package

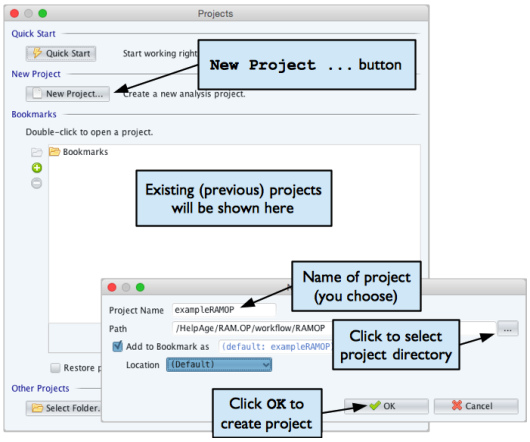

Figure 7.2: Creating an RAnalyticFlow project

project directory or project folder should contain:

1. Your PSU file (here we assume this file is called testPSU.csv but it could have any name). This file must be a comma-separated-value (CSV) file.
2. Your survey data file (here we assume this file is called testSVY.rec but it could have any name). This file can be an EpiData (REC) file or a comma-separated-value (CSV) file.
3. The language file (always called ramOP.language.csv). This file provides text that is used in reports and graphics. The purpose of this file is to make the data analysis software produce reports in any language. This file must be a comma-separated-value (CSV) file.
4. A copy of the file ramOP.rflow.

When you have created the project directory or project folder with the required files you can start RAnalyticFlow.

Note: The `testSVY.rec` and `testPSU.csv` files are example data files and are distributed with the **RAnalyticFlow** workflow. You can use these files to practice analysing data using **RAnalyticFlow**, and as examples of RAM-OP survey data and PSU files.

Before you start work you will need to create a project for your survey:

1. Click the **New Project...** button
2. Give your project a useful (i.e. descriptive and memorable) name. This might be a name that describes the survey. For example, if the survey was done in the Kereinik locality of West Darfur in December 2015 you might use the name **WD.Kereinik.Dec2015.RAMOP**
3. Give the location of your project directory or project folder. This is the directory or folder which contains your survey data file, your PSU file, the RAM-OP language file, and a copy of **RAMOP.rflow** (see previous page). The location of the project

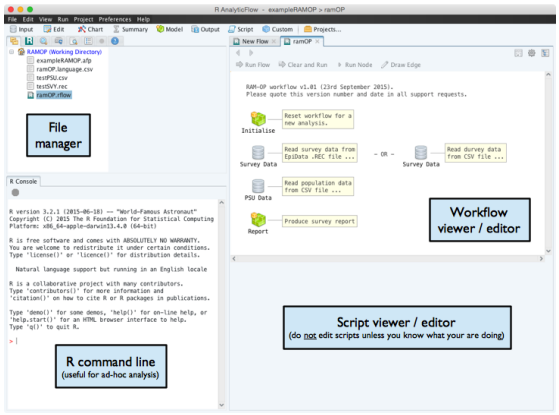

Figure 7.3: Open an RAnalyticFlow workflow

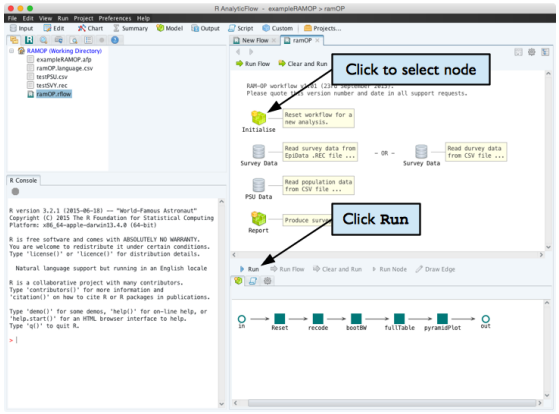

Figure 7.4: Run an RAnalyticFlow workflow

directory or project folder (labeled "Path" by the software) that **RAnalyticFlow** selects automatically will almost always be wrong. You need to specify this manually.

4. Click the **OK** button

Double click the item named **ramOP.rflow** shown in the file manager pane of the **RAnalyticFlow** window. This will open the data-analysis workflow which will be shown in the workflow viewer / editor window of the **RAnalyticFlow** window.

Once you have opened the workflow you need to initialise it (i.e. load libraries, useful analysis function, and initialise the workspace for a new analysis):

Once this is done, you should:

1. Retrieve your survey data. This can be in EpiDat (REC) format or CSV format. Select and run the appropriate **Survey Data** node and select the survey data file.

2. Retrieve the PSU date data. Select and run the **PSU Data** node and select your PSU file.

3. Produce the survey report and graphics. Select and run the **Report** node. This will

take some time to complete because the analysis uses computer intensive techniques to make best use of the available data. The Report node/icon will have black lines around it has completed running the report.

Chapter 8

Conclusion

We live in an ageing world, where people aged 60 or over will be 2 billion or about 22% of the world's population by 2050.

Currently, two in three people aged 60 years or older live in developing countries. By 2050, nearly four in five older people will be living in the developing world.

The changing demographics of ageing combined with the increasing number of disasters will exert a disproportionate impact on the world's oldest and poorest.

In this context, identifying the needs of older people as accurately as possible is a necessity. More and more donors and UN agencies are now willing to include older people in their programmes. Age markers, to complement gender markers, will be disseminated very soon

RAM-OP is offering a fast, robust, reliable, tested and user-friendly way of assessing the needs of older people. It can be used in humanitarian situations as well as in development contexts. The modular structure of RAM-OP allows for adaptations, making it exhaustive or limited to essential indicators according to the immediate needs.

As more organisations start to use it, RAM-OP will evolve and improve. New versions of RAM-OP can be created (for example, RAM-OP for refugee or displaced people camps). We wish that a greater number of actors will start using RAM-OP and make it their own.