

Sierra Leone - Demographic and Health Survey 2013

Statistics Sierra Leone (SSL) - Government of Sierra Leone

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Sampling

Sampling Procedure

The 2013 SLDHS sample was designed to produce reliable estimates for important variables for the country as a whole, for urban and rural areas, and for each of Sierra Leone's four regions and 14 districts. The sample was first stratified to provide adequate representation of urban and rural areas, as well as all regions and districts. Then, the sample was selected in two stages. The first stage involved selecting primary sampling units (PSUs), also called clusters, based on the list of enumeration areas (EAs) created in the 2004 Sierra Leone General Population and Housing Census. The enumeration areas provided the master frame for drawing 435 clusters (277 rural and 158 urban), selected with a probability proportional to their size. The sampling frame excluded the population living in collective housing units, such as hotels, hospitals, work camps, prisons, or boarding schools. In the second stage of selection, 30 households were systematically selected from each cluster.

All women age 15-49 who were usual household members or who spent the night before the survey in the selected households were eligible for individual interviews. In addition, in a subsample of every second household selected for the survey, all men age 15-59 were selected for interview. In this subsample, all women and men eligible for the individual survey were also eligible for the HIV test. In addition, in this subsample of households, all women and men eligible for the survey and all children age 6-59 months were eligible for the anaemia test. Finally, in the same subsample of households, all women and men eligible for the survey and all children under the age 5 were eligible for anthropometric (height and weight) measurements to determine their nutritional status.

See Appendix A in the final report for details

Response Rate

A total of 13,006 households were selected for the sample, of which 12,724 were occupied. Of the occupied households, 12,629 were successfully interviewed, yielding a response rate of 99 percent.

In the interviewed households, 17,132 eligible women were identified for individual interview; of these, complete interviews were conducted with 16,658 women, yielding a response rate of 97 percent. In the subsample of households selected for the men's survey, 7,537 eligible men were identified and 7,262 were successfully interviewed, yielding a response rate of 96 percent.

Weighting

Due to the non-proportional allocation of the sample to the different districts and to their urban-rural areas, sampling weights are required for any analysis using 2013 SLDHS data to ensure the actual representativeness of the survey results at the national as well as district level. Because the 2013 SLDHS sample was a two-stage stratified cluster sample, sampling weights were calculated based on sampling probabilities separately for each sampling stage and for each cluster.

The design weight is adjusted for household non-response and individual non-response to get the sampling weights for households and for women and men respectively. Non-response is adjusted at the sampling stratum level. For the household sampling weight, the household design weight is multiplied by the inverse of the household response rate, by stratum. For the women's individual sampling weight, the household sampling weight is multiplied by the inverse of the women's individual response rate, by stratum. For the men's individual sampling weight, the household sampling weight for the male sub-sample is multiplied by the inverse of the men's individual response rate, by stratum. After adjusting for non-response, the sampling weights are normalised to get the final standard weights that appear in the data files. The normalisation process is done to obtain a total number of unweighted cases equal to the total number of weighted cases at the national level, for the total number of households, women, and men separately. Normalisation is done by multiplying the sampling weight by the estimated sampling fraction obtained from the survey for the household weight, the individual woman's weight, and the individual man's weight. The normalised weights are relative weights that are valid for estimating means, proportions, ratios, and rates, but they are not valid for estimating population totals or pooled data. The sampling weights for HIV testing are calculated in a similar way, but the normalisation of the HIV weights is different. The individual HIV testing weights are normalised at the national level for women and men together so that HIV prevalence estimates calculated for women and men together are valid.

Further details on the sample weight calculation are given in Appendix A.4 in the final report.

Questionnaires

Overview

The 2013 SLDHS used three questionnaires, namely, a Household Questionnaire, a Woman's Questionnaire, and a Man's Questionnaire. These questionnaires were based on the models developed by the MEASURE DHS Program, but additions and modifications were made to the model questionnaires to adapt them to specific situations and the lexicon of Sierra Leone.

The Household Questionnaire was used to list all usual household members, as well as non-members who spent the night preceding the interview in the selected households. Some basic information was collected on the characteristics of each person listed, including age, sex, education, and relationship to the head of household. The Household Questionnaire also included a module on child labour. In addition, several questions were included to determine the physical characteristics of the dwelling, such as source of water, presence of sanitation facilities, and availability of durable goods. The Household Questionnaire was also used to identify people eligible for the individual interview, that is, women age 15-49 and men age 15-59. In addition, the Household Questionnaire was used to register people eligible for anthropometric measurements and the collection of blood samples for anaemia and HIV testing.

The Woman's Questionnaire was used to collect information from all women of reproductive age (15-49). The set of questions on domestic violence sought to obtain information on women's experience of violence. The questions were administered to one woman per household in the subsample households that were not selected for the men's survey. In households with more eligible women, special procedures (use of a 'Kish grid') were followed to ensure that the woman interviewed about domestic violence was randomly selected.

The Man's Questionnaire was administered to all men age 15-59 living in every second household in the sample. In every household selected for the Man's Questionnaire, one man was randomly selected to be administered the set of questions on domestic violence.

Data Collection

Data Collection Dates

Start	End	Cycle
2013-06	2013-10	N/A

Data Collection Mode

Face-to-face [f2f]

DATA COLLECTION NOTES

Training and Pretest

All field personnel were trained for the pretest for four weeks, between April and May 2013, at SSL's central office in Freetown. After the training, pretest fieldwork was conducted over a one-week period in two urban clusters and two rural clusters. Even though more than 150 men and women received training, only 10 were selected for the pretest exercise.

As part of the pretest, health technicians practiced weighing and measuring men, women, and children, as well as collecting and handling blood samples for anaemia and HIV testing. The training course consisted of instructions regarding interviewing techniques and field procedures, a detailed review of items on the questionnaires, instruction and practice in weighing and measuring children and in the collection of blood samples, mock interviews between participants in the classroom, and practice interviews. A two-week refresher training class was conducted between May and June 2013, prior to launching the fieldwork.

Fieldwork

Fieldwork was launched in June 2013 and completed in October 2013. There were a total of 24 field teams, each consisting of one supervisor, one field editor, one health technician, two female interviewers, and one male interviewer. Each team was provided with a vehicle. After a few weeks of fieldwork, the SSL restructured the field personnel and reduced the number of teams from the initial 24 to 18.

SSL, through the Publicity Subcommittee, organised and implemented a series of publicity activities, including radio discussions across the country before the beginning of fieldwork. SSL also developed brochures on HIV/AIDS and anaemia, which were given to survey respondents during the fieldwork.

Data Collectors

Name	Abbreviation	Affiliation
Statistics Sierra Leone	SSL	Government of Sierra Leone

Data Processing

Data Editing

All questionnaires for 2013 SLDHS were sent to the SSL central office in Freetown, where office editors reviewed them and manually recorded the codes to the few questions without pre-coded answers. The data were processed using CPro (Census and Survey Processing computer package). Data entry and editing were initiated almost immediately after the beginning of fieldwork. Data processing, consisting of editing, data entry, 100 percent double entry, final editing, and verification, was completed in November 2013.

Data Appraisal

Estimates of Sampling Error

The estimates from a sample survey are affected by two types of errors: nonsampling errors and sampling errors. Nonsampling errors are the result of mistakes made in implementing data collection and data processing, such as failure to locate and interview the correct household, misunderstanding of the questions on the part of either the interviewer or the respondent, and data entry errors. Although numerous efforts were made during the implementation of the 2013 Sierra Leone Demographic and Health Survey (SLDHS) to minimize this type of error, nonsampling errors are impossible to avoid and difficult to evaluate statistically.

Sampling errors, in contrast, can be evaluated statistically. The sample of respondents selected in the 2013 SLDHS is only one of many samples that could have been selected from the same population, using the same design and expected size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

A sampling error is usually measured in terms of the standard error for a particular statistic (mean, percentage, etc.), which is the square root of the variance. The standard error can be used to calculate confidence intervals within which the true value for the population can reasonably be assumed to fall. For example, for any given statistic calculated from a sample survey, the value of that statistic will fall within a range of plus or minus two times the standard error of that statistic in 95 percent of all possible samples of identical size and design.

If the sample of respondents had been selected as a simple random sample, it would have been possible to use straightforward formulae for calculating sampling errors. However, the 2013 SLDHS sample is the result of a multi-stage stratified design, and, consequently, it was necessary to use more complex formulae. The computer software used to calculate sampling errors for the 2013 SLDHS is a SAS procedure. This procedure used the Taylor linearization method of variance estimation for survey estimates that are means or proportions. The Jackknife repeated replication method is used for variance estimation of more complex statistics such as fertility and mortality rates.

The Taylor linearization method treats any percentage or average as a ratio estimate, $r = y/x$, where y represents the total sample value for variable y , and x represents the total number of cases in the group or subgroup under consideration.

Further details on sampling errors calculation are given in Appendix B of the final report.

Other forms of Data Appraisal

Tables were produced to review the quality of the data:

- Household age distribution
- Age distribution of eligible and interviewed women
- Age distribution of eligible and interviewed men
- Completeness of reporting
- Births by calendar years
- Reporting of age at death in days
- Reporting of age at death in months
- Nutritional status of children based on the NCHS/CDC/WHO International Reference Population
- Completeness of information for dead sisters
- Sibship size and sex ratio of siblings

Note: The tables are presented in APPENDIX C of the final report.

Related Materials

Questionnaires

2013 Sierra Leone Demographic and Health Survey, Household Questionnaire

Title 2013 Sierra Leone Demographic and Health Survey, Household Questionnaire
 Author(s) Statistics Sierra Leone ICF International
 Country Sierra Leone
 Language English
 Filename Sierra_Leone_2013_DHS_hh_questionnaire.pdf

2013 Sierra Leone Demographic and Health Survey, Woman Questionnaire

Title 2013 Sierra Leone Demographic and Health Survey, Woman Questionnaire
 Author(s) Statistics Sierra Leone ICF International
 Country Sierra Leone
 Language English
 Filename Sierra_Leone_2013_DHS_woman_questionnaire.pdf

2013 Sierra Leone Demographic and Health Survey, Man Questionnaire

Title 2013 Sierra Leone Demographic and Health Survey, Man Questionnaire
 Author(s) Statistics Sierra Leone ICF International
 Country Sierra Leone
 Language English
 Filename Sierra_Leone_2013_DHS_man_questionnaire.pdf

Reports

Sierra Leone Demographic and Health Survey 2013, Report

Title	Sierra Leone Demographic and Health Survey 2013, Report
Author(s)	Statistics Sierra Leone, Freetown, Sierra Leone Ministry of Health and Sanitation, Freetown, Sierra Leone ICF International, Rockville, Maryland USA
Date	2014-07-01
Country	Sierra Leone
Language	English

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Sierra Leone Demographic and Health Survey 2013, Preliminary Report, Without Results of HIV Prevalence

Title	Sierra Leone Demographic and Health Survey 2013, Preliminary Report, Without Results of HIV Prevalence
Author(s)	Statistics Sierra Leone, Freetown, Sierra Leone ICF International, Rockville, Maryland USA
Date	2014-01-01
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Language	English
Description	<p>This report summarizes the findings of the 2013 Sierra Leone Demographic and Health Survey (SLDHS), carried out by Statistics Sierra Leone (SSL).</p> <p>TABLES AND FIGURES</p> <p>PREFACE</p> <p>1 INTRODUCTION</p> <p>1.1 Background</p> <p>1.2 Objectives of the Survey</p> <p>2 METHODOLOGY</p> <p>2.1 Survey Instruments</p> <p>2.2 Sample Design and Implementation</p> <p>2.3 Training and Pretest</p> <p>2.4 Data Collection and Processing</p> <p>3 PRELIMINARY RESULTS</p> <p>3.1 Respondents' Characteristics</p> <p>3.2 Fertility</p> <p>3.3 Fertility Preferences</p> <p>3.4 Current Use of Family Planning</p> <p>3.5 Early Childhood Mortality</p> <p>Table of contents 3.6 Maternal Care</p> <p>3.7 Immunization and Child Health</p> <p>3.7.1 Immunization of children</p> <p>3.7.2 Childhood diseases and treatment</p> <p>3.7.3 Infant feeding practices</p> <p>3.7.4 Nutritional status of children</p> <p>3.7.5 Anemia</p> <p>3.8 Malaria</p> <p>3.8.1 Ownership and use of mosquito nets</p> <p>3.8.2 Indoor residual spraying</p> <p>3.8.3 Preventive malaria treatment during pregnancy</p> <p>3.8.4 Malaria treatment for children with fever</p> <p>3.9 HIV/AIDS</p> <p>3.9.1 Knowledge of HIV/AIDS</p> <p>3.9.2 Awareness of ways to prevent HIV/AIDS</p> <p>3.9.3 Multiple sexual partnerships and condom use</p> <p>3.9.4 Female genital cutting</p> <p>REFERENCES</p>
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Sierra Leone Demographic and Health Survey 2013, Key Findings

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Sierra Leone Demographic and Health Survey 2013, Wall Chart

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