

Namibia - Demographic and Health Survey 2013

Ministry of Health and Social Services (MoHSS) - Government of Namibia

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Sampling

Sampling Procedure

Sample Design

The primary focus of the 2013 NDHS was to provide estimates of key population and health indicators, including fertility and mortality rates, for the country as a whole and for urban and rural areas. In addition, the sample was designed to provide estimates of most key variables for the 13 administrative regions.

Each of the administrative regions is subdivided into a number of constituencies (with an overall total of 107 constituencies). Each constituency is further subdivided into lower level administrative units. An enumeration area (EA) is the smallest identifiable entity without administrative specification, numbered sequentially within each constituency. Each EA is classified as urban or rural. The sampling frame used for the 2013 NDHS was the preliminary frame of the 2011 Namibia Population and Housing Census (NSA, 2013a). The sampling frame was a complete list of all EAs covering the whole country. Each EA is a geographical area covering an adequate number of households to serve as a counting unit for the population census. In rural areas, an EA is a natural village, part of a large village, or a group of small villages; in urban areas, an EA is usually a city block. The 2011 population census also produced a digitised map for each of the EAs that served as the means of identifying these areas.

The sample for the 2013 NDHS was a stratified sample selected in two stages. In the first stage, 554 EAs-269 in urban areas and 285 in rural areas-were selected with a stratified probability proportional to size selection from the sampling frame. The size of an EA is defined according to the number of households residing in the EA, as recorded in the 2011 Population and Housing Census. Stratification was achieved by separating every region into urban and rural areas. Therefore, the 13 regions were stratified into 26 sampling strata (13 rural strata and 13 urban strata). Samples were selected independently in every stratum, with a predetermined number of EAs selected. A complete household listing and mapping operation was carried out in all selected clusters. In the second stage, a fixed number of 20 households were selected in every urban and rural cluster according to equal probability systematic sampling.

Due to the non-proportional allocation of the sample to the different regions and the possible differences in response rates, sampling weights are required for any analysis using the 2013 NDHS data to ensure the representativeness of the survey results at the national as well as the regional level. Since the 2013 NDHS sample was a two-stage stratified cluster sample, sampling probabilities were calculated separately for each sampling stage and for each cluster.

See Appendix A in the final report for details

Response Rate

A total of 11,004 households were selected for the sample, of which 10,165 were found to be occupied during data collection. Of the occupied households, 9,849 were successfully interviewed, yielding a household response rate of 97 percent.

In these households, 9,940 women age 15-49 were identified as eligible for the individual interview. Interviews were completed with 9,176 women, yielding a response rate of 92 percent. In addition, in half of these households, 842 women age 50-64 were successfully interviewed; in this group of women, the response rate was 91 percent.

Of the 5,271 eligible men identified in the selected subsample of households, 4,481 (85 percent) were successfully interviewed.

Response rates were higher in rural than in urban areas, with the rural-urban difference more marked among men than among women.

Weighting

Design weights were adjusted for household non-response and for individual non-response to get the sampling weights for women's and men's surveys, respectively. The differences between the household sampling weights and the individual sampling weights were introduced by individual non-response. The final sampling weights were normalized to give the total number of unweighted cases equal to the total number of weighted cases at the national level, for both household weights and individual weights, respectively. The normalized weights are relative weights, which are valid for estimating means, proportions, and ratios, but not valid for estimating population totals and pooled data. The sampling weights for HIV testing

were calculated in a similar way, but the normalization of the HIV sampling weights differed compared with the individual survey weights. The HIV weights were normalized for men and women together at the national level, so that the HIV prevalence calculated for men and women together was valid.

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

Questionnaires

Overview

Three questionnaires were administered in the 2013 NDHS: the Household Questionnaire, the Woman's Questionnaire, and the Man's Questionnaire. These questionnaires were adapted from the standard DHS6 core questionnaires to reflect the population and health issues relevant to Namibia at a series of meetings with various stakeholders from government ministries and agencies, nongovernmental organisations, and international donors. The final draft of each questionnaire was discussed at a questionnaire design workshop organised by the MoHSS from September 25-28, 2012, in Windhoek. The questionnaires were then translated from English into the six main local languages—Afrikaans, Rukwangali, Oshiwambo, Damara>Nama, Otjiherero, and Silozi—and back translated into English. The questionnaires were finalised after the pretest, which took place from February 11-25, 2013.

The Household Questionnaire was used to list all usual household members as well as visitors in the selected households. Basic information was collected on the characteristics of each person listed, including age, sex, education, and relationship to the head of the household. For children under age 18, parents' survival status was determined. In addition, the Household Questionnaire included questions on knowledge of malaria and use of mosquito nets by household members, along with questions regarding health expenditures. The Household Questionnaire was used to identify women and men who were eligible for the individual interview and the interview on domestic violence. The questionnaire also collected information on characteristics of the household's dwelling unit, such as source of water, type of toilet facilities, materials used for the floor of the house, and ownership of various durable goods. The results of tests assessing iodine levels were recorded as well.

In half of the survey households (the same households selected for the male survey), the Household Questionnaire was also used to record information on anthropometry and biomarker data collected from eligible respondents, as follows:

- All eligible women and men age 15-64 were measured, weighed, and tested for anaemia and HIV.
- All eligible women and men age 35-64 had their blood pressure and blood glucose measured.
- All children age 0 to 59 months were measured and weighed.
- All children age 6 to 59 months were tested for anaemia.

The Woman's Questionnaire was also used to collect information from women age 50-64 living in half of the selected survey households on background characteristics, marriage and sexual activity, women's work and husbands' background characteristics, awareness and behaviour regarding AIDS and other STIs, and other health issues.

The Man's Questionnaire was administered to all men age 15-64 living in half of the selected survey households. 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 or nutrition.

Data Collection

Data Collection Dates

Start	End	Cycle
2013-05	2013-09	N/A

Data Collection Mode

Face-to-face [f2f]

DATA COLLECTION NOTES

Training of Field Staff

The main training for the 2013 NDHS was conducted from April 22 to May 18, 2013. A total of 250 participants were recruited, including 31 nurses who served as health technicians. The interviewers were split into five classrooms. The first three weeks primarily covered classroom instruction, expert presentations on selected topics, mock interviews and quizzes. At the end of the classroom training, all of the interviewers completed a final exam and a structured, scored mock interview; they were also judged according to their performance during field practice. In addition to training on the basic content of the questionnaires, a separate training session was conducted for health technicians from May 6-22 on height and weight measurements, blood pressure and blood glucose measurements, anaemia and HIV testing, and DBS preparation. Also, separate training sessions were held for regional supervisors, team supervisors, and editors on their roles and responsibilities, emphasizing the importance of field editing and data quality.

Data Collection

Data collection was carried out by 28 teams, each consisting of a supervisor, a field editor, three female interviewers, one male interviewer, and a health technician. Fieldwork started on May 26, 2013, with all teams initially deployed to complete one selected cluster each in Windhoek to enable intense supervision and technical backstopping. After satisfactory completion of these clusters, the teams were deployed to their respective regions to continue fieldwork. Fieldwork was completed on September 30, 2013.

Quality assurance was maintained by national and regional supervisors through close supervision and monitoring during fieldwork. The questionnaires were edited by the field editors in the field and verified by the team supervisor before being transported to the MoHSS central office. In addition, national and regional supervisors ensured quality control through editing of questionnaires and observation of interviewers. Common mistakes and practical solutions were communicated through written notes and discussed with all team members.

Close contact between the MoHSS central office and the teams was maintained through field visits by senior staff, ICF International staff and representatives of USAID/Namibia. Regular communication was maintained through cell phones.

A publicity campaign was implemented during May and June 2013 to provide information to communities about the survey and its objectives. The campaign enlightened the public about survey processes, including interviews, anthropometric measurements and collection of blood samples. Information about the survey was announced in the print media and on television, including the official launch of the survey by the MoHSS. T-shirts and leaflets were also prepared for this purpose.

Data Processing

Data Editing

CSPro—a Windows-based integrated census and survey processing system that combines and replaces the ISSA and IMPS packages—was used for entry, editing, and tabulation of the NDHS data. Prior to data entry, a practical training session was provided by ICF International to all data entry staff. A total of 28 data processing personnel, including 17 data entry operators, one questionnaire administrator, two office editors, three secondary editors, two network technicians, two data processing supervisors, and one coordinator, were recruited and trained on administration of questionnaires and coding, data entry and verification, correction of questionnaires and provision of feedback, and secondary editing. NDHS data processing was formally launched during the week of June 22, 2013, at the National Statistics Agency Data Processing Centre in Windhoek. The data entry and editing phase of the survey was completed in January 2014.

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 results 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, misinformation from respondents, and data entry errors. Although numerous efforts were made during the implementation of the 2013 Namibia Demographic and Health Survey (2013 NDHS) to minimise nonsampling errors, such errors are difficult to avoid and evaluate statistically.

Sampling errors, on the other hand, can be evaluated statistically. The sample of respondents selected in the 2013 NDHS 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.

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. This represents the accuracy with which a sample represents a population. 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 formulas for calculating sampling errors. However, the 2013 NDHS sample is the result of a multi-stage stratified design, and, consequently, it was necessary to use more complex formulas. Sampling errors are computed using SAS programmes developed by ICF International. These programmes use the Taylor linearisation method of variance estimation for survey estimates that are means, proportions, or ratios. The Jackknife repeated replication method is used for variance estimation of more complex statistics such as fertility and mortality rates.

The Taylor linearisation 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 on siblings
- Sibship size and sex ratio of siblings

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

Related Materials

Questionnaires

2013 Namibia Demographic and Health Survey, Household Questionnaire

Title 2013 Namibia Demographic and Health Survey, Household Questionnaire
 Author(s) Ministry of Health and Social Services (MoHSS), Government of Namibia
 Date 2013-05-29
 Country Namibia
 Language English
 Filename Namibia_2013_DHS_hh_questionnaire.pdf

2013 Namibia Demographic and Health Survey, Woman Questionnaire

Title 2013 Namibia Demographic and Health Survey, Woman Questionnaire
 Author(s) Ministry of Health and Social Services (MoHSS), Government of Namibia
 Date 2013-05-29
 Country Namibia
 Language English
 Filename Namibia_2013_DHS_woman_questionnaire.pdf

2013 Namibia Demographic and Health Survey, Man Questionnaire

Title 2013 Namibia Demographic and Health Survey, Man Questionnaire
 Author(s) Ministry of Health and Social Services (MoHSS), Government of Namibia
 Date 2013-05-29
 Country Namibia
 Language English
 Filename Namibia_2013_DHS_man_questionnaire.pdf

Reports

Namibia Demographic and Health Survey 2013, Report

Title Namibia Demographic and Health Survey 2013, Report
 Author(s) Ministry of Health and Social Services, Windhoek, Namibia National Statistics Agency, Windhoek, Namibia ICF International, Rockville, Maryland, USA
 Date 2014-09-01
 Country Namibia
 Language English
 Description This report summarizes the findings of the 2013 Namibia Demographic and Health Survey (NDHS) implemented by the Ministry of Health and Social Services (MoHSS) in collaboration with the Namibia Statistics Agency (NSA) and the National Institute of Pathology (NIP).

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