

Timor-Leste - Demographic and Health Survey 2009-2010

National Statistics Directorate - Ministry of Finance

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Sampling

Sampling Procedure

The primary focus of the 2009-10 TLDHS 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 separately. In addition, the sample was designed to provide estimates of most key variables for the 13 districts.

Sampling Frame

The TLDHS used the sampling frame provided by the list of census enumeration areas (EAs) with population and household information from the 2004 Population and Housing Census (PHC). Administratively, Timor-Leste is divided into 13 districts. Stratification is achieved by separating each of the 13 districts into urban and rural areas. In total, 26 sampling strata were created. Samples were selected independently in every stratum, through a two-stage selection process. Implicit stratification was achieved at each of the lower administrative levels by sorting the sampling frame before sample selection, both according to administrative units and also by using a probability proportional-to-size selection at the first stage of sampling. The implicit stratification also allowed for the proportional allocation of sample points at each of the lower administrative levels.

Sample Selection

At the first stage of sampling, 455 enumeration areas (116 urban areas and 339 rural areas) were selected with probability proportional to the EA size, which is the number of households residing in the EA at the time of the census. A complete household listing operation in all of the selected EAs is the usual procedure to provide a sampling frame for the second-stage selection of households. However, a complete household listing was only carried out in select clusters in Dili, Ermera, and Viqueque, where more than 20 percent of the households had been destroyed. In all other clusters, a complete household listing was not possible because the country does not have written boundary maps for clusters. Instead, using the GPS coordinate locations for structures in each selected cluster as provided for by the 2004 PHC, households were randomly selected using their Geographic Information System (GIS) location identification in the central office. A map for each cluster was then generated, marking the households to be surveyed with their location identification. The maps also contained all the other households, roads, rivers, and major landmarks for easier location of selected households in the field. To provide statistically reliable estimates of key demographic and health variables and to cater for nonresponse, 27 households each were selected.

The survey was designed to cover a nationally representative sample of 12,285 residential households, taking into account nonresponse; to obtain completed interviews of 11,800 women age 15-49 in every selected household; and to obtain completed interviews of 3,800 men age 15-49 in every third selected household.

Note: See detailed description of the sample design in Appendix A of the report presented in this documentation.

Response Rate

A total of 12,128 households were selected for the sample, of which 11,671 were found to be occupied during data collection. Of these existing households, 11,463 were successfully interviewed, giving a household response rate of 98 percent.

In these households, 13,796 women were identified as eligible for the individual interview. Interviews were completed with 13,137 women, yielding a response rate of 95 percent. Of the 4,421 eligible men identified in the selected sub-sample of households, 4,076 or 92 percent were successfully interviewed. Response rates were higher in rural than urban areas, with the rural-urban difference in response rates more marked among eligible men than among eligible women.

Questionnaires

Overview

Three questionnaires were administered in the TLDHS: the Household Questionnaire, the Woman's Questionnaire, and the Man's Questionnaire. These questionnaires were adapted from the standard MEASURE DHS core questionnaires to reflect the population and health issues relevant to Timor-Leste based on a series of meetings with various stakeholders from government ministries and agencies, NGOs, and international donors. The final draft of each questionnaire was discussed at a questionnaire design workshop organized by NSD on March 10, 2009, in Dili. These questionnaires were then translated and back translated from English into the two main local languages-Tetum and Bahasa—and pretested prior to the main fieldwork to ensure that the original meanings of the questions were not lost in translation.

The Household Questionnaire was used to list all the usual members and visitors 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 the household. For children under age 18, survival status of the parents was determined. The main purpose of the Household Questionnaire was to identify women and men who were eligible for the individual interview. The Household Questionnaire also collected information on characteristics of the household's dwelling unit, such as the source of water, type of toilet facilities, materials used for the floor of the house, ownership of various durable goods, and ownership of mosquito nets. Additionally, the Household Questionnaire was used to record height and weight measurements for women age 15-49 and children under age 5, and to list hemoglobin measurements for women age 15-49 and children age 6-59 months.

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

- Background characteristics (education, residential history, media exposure, etc.)
- Birth history and childhood mortality
- Knowledge and use of family planning methods
- Fertility preferences
- Antenatal, delivery, and postnatal care
- Breastfeeding and infant feeding practices
- Vaccinations and childhood illnesses
- Marriage and sexual activity
- Woman's work and husband's background characteristics
- Awareness and behavior regarding AIDS and other sexually transmitted infections (STIs)
- Maternal mortality
- Domestic violence

The Man's Questionnaire was administered to all men age 15-49 living in every third household. The Man's Questionnaire collected much of the same information found in the Woman's Questionnaire but was shorter because it did not contain a detailed reproductive history or questions on maternal and child health, nutrition, maternal mortality, or domestic violence.

Data Collection

Data Collection Dates

Start	End	Cycle
2009-08	2010-02	N/A

Data Collection Mode

Face-to-face

DATA COLLECTION NOTES

PRETEST

For the pretest, 10 interviewers were recruited to interview in the two local languages. The training for the pretest and fieldwork took place from April 27 to May 23, 2009. Both rural and urban households were selected for the pretest in three districts (Bobonaro, Viqueque, and Dili). Based on the findings of the pretest, the Household, the Woman's, and the Man's Questionnaires were further refined in both of the local languages.

TRAINING

The National Statistics Directorate (NSD), in close coordination with the MOH, recruited and trained 101 persons for the fieldwork to serve as supervisors, field editors, male and female interviewers, quality control staff, and reserves. They participated in the main training held in Dili from July 13 - August 8, 2009. Staff from MOH, NSD, and ICF Macro led the four-week training course, which was conducted mainly in Tetum and included lectures, presentations, practical demonstrations, and practice interviewing in small groups as well as several days of field practice. The participants also received anthropometric training and training in hemoglobin testing.

After the training on how to complete the Household, Woman's, and Man's Questionnaires was completed, all trainees were given written and oral tests to gauge their understanding of the TLDHS questionnaires and interviewing techniques. On the basis of their scores on the exam and overall performance in the classroom and during field practice, 88 trainees were selected to participate in the main fieldwork. From the group, 10 of the best trainees were selected as quality control staff, 13 of the best male trainees were selected as supervisors, and 13 of the best female interviewers were identified as field editors. The remaining 52 trainees were selected to be interviewers. All selected field staff were trained in anthropometric measurement taking.

After completing the interviewers' training, the field editors and supervisors were trained for an additional three days on how to supervise the fieldwork and edit questionnaires in the field, in order to ensure data quality. The participants also received training on hemoglobin testing.

FIELDWORK

Data collection began on August 10, 2009, by 13 teams consisting of three female interviewers, one male interviewer, a male supervisor, and a female field editor. Fieldwork was completed on February 7, 2010. Fieldwork supervision was coordinated at NSD; 6 quality control teams made up of one male and one female member each, monitored data quality. Additionally, close contact between NSD and the teams was maintained through field visits by senior staff, members of the steering committee, and ICF Macro staff. Regular communication was also maintained through cell phones.

Data Processing

Other Processing

The processing of the TLDHS results began soon after the start of fieldwork. Completed questionnaires were returned periodically from the field to the NSD data processing center in Dili, where they were entered and edited by 13 data processing personnel who were specially trained for this task. The data processing personnel included a supervisor, a questionnaire administrator, 2 office editors, and 13 data entry operators. The concurrent processing of the data was an advantage because field check tables could be generated to monitor various data quality parameters while the teams were still in the field. As a result, specific feedback was given to the teams to improve performance. The data entry and editing phase of the survey was completed by the end of February 2010.

Data Appraisal

Estimates of Sampling Error

The estimates from a sample survey are affected by two types of errors: non-sampling errors and sampling errors. Non-sampling 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, and data entry errors. Although numerous efforts were made during the implementation of the Timor-Leste Demographic and Health Survey 2009-10 (TLDHS 2009-10) to minimize this type of error, nonsampling errors are impossible to avoid and difficult to evaluate statistically.

Sampling errors, on the other hand, can be evaluated statistically. The sample of respondents selected in the TLDHS 2009-10 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 formulas for calculating sampling errors. However, the TLDHS 2009-10 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 TLDHS 2009-10 is a Macro SAS procedure. This procedure used the Taylor linearization 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.

Note: See detailed estimate of sampling error calculation in APPENDIX B of the report which is presented in this documentation.

Other forms of Data Appraisal

Data Quality Tables

- 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
- Completeness of information on siblings
- Indicators on data quality
- Sibship size and sex ratio of siblings

Note: See these tables in APPENDIX C of the report which is presented in this documentation.

Related Materials

Questionnaires

Demographic and Health Survey 2009-10 - Questionnaire

Title Demographic and Health Survey 2009-10 - Questionnaire
 Author(s) National Statistics Directorate ICF Macro
 Date 2009-01-01
 Country Timor-Leste
 Language English
 Filename Timor_Leste_DHS_2009_questionnaire.pdf

Reports

Demographic and Health Survey 2009-10 - Final Report

Title Demographic and Health Survey 2009-10 - Final Report
 Author(s) National Statistics Directorate ICF Macro
 Date 2010-12-01
 Country Timor-Leste
 Language English
 Filename <http://www.dhsprogram.com/pubs/pdf/FR235/FR235.pdf>

Demographic and Health Survey 2009-10 - Fact Sheet

Title Demographic and Health Survey 2009-10 - Fact Sheet
 Author(s) MEASURE DHS
 Date 2010-12-01
 Country Timor-Leste
 Language English
 Filename <http://www.dhsprogram.com/pubs/pdf/GF19/GF19.pdf>
