Guyana - HIV/AIDS Indicator Survey 2005

Guyana Responsible Parenthood Association, Ministry of Health

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Sampling

Sampling Procedure

The primary objective of the 2005 GAIS is to provide estimates with acceptable precision for important population characteristics such as HIV/AIDS related knowledge, attitudes, and behavior. The population to be covered by the 2005 GAIS was defined as the universe of all women and men age 15-49 in Guyana.

The major domains to be distinguished in the tabulation of important characteristics for the eligible population are:
• Guyana as a whole
• The urban area and the rural area each as a separate major domain
• Georgetown and the remainder urban areas.

Administratively, Guyana is divided into 10 major regions. For census purposes, each region is further subdivided in enumeration districts (EDs). Each ED is classified as either urban or rural. There is a list of EDs that contains the number of households and population for each ED from the 2002 census. The list of EDs is grouped by administrative units as townships. The available demarcated cartographic material for each ED from the last census makes an adequate sample frame for the 2005 GAIS.

The sampling design had two stages with enumeration districts (EDs) as the primary sampling units (PSUs) and households as the secondary sampling units (SSUs). The standard design for the GAIS called for the selection of 120 EDs. Twenty-five households were selected by systematic random sampling from a full list of households from each of the selected enumeration districts for a total of 3,000 households. All women and men 15-49 years of age in the sample households were eligible to be interviewed with the individual questionnaire.

The database for the recently completed 2002 Census was used as a sampling frame to select the sampling units. In the census frame, EDs are grouped by urban-rural location within the ten administrative regions and they are also ordered in each administrative unit in serpentine fashion. Therefore, this stratification and ordering will be also reflected in the 2005 GAIS sample.

Based on response rates from other surveys in Guyana, around 3,000 interviews of women and somewhat fewer of men expected to be completed in the 3,000 households selected.

Several allocation schemes were considered for the sample of clusters for each urban-rural domain. One option was to allocate clusters to urban and rural areas proportionally to the population in the area. According to the census, the urban population represents only 29 percent of the population of the country. In this case, around 35 clusters out of the 120 would have been allocated to the urban area. Options to obtain the best allocation by region were also examined. It should be emphasized that optimality is not guaranteed at the regional level but the power for analysis is increased in the urban area of Georgetown by departing from proportionality. Upon further analysis of the different options, the selection of an equal number of clusters in each major domain (60 urban and 60 rural) was recommended for the 2005 GAIS. As a result of the nonproportionalallocation of the number of EDs for the urban-rural and regional domains, the household sample for the 2005 GAIS is not a self-weighted sample.

The 2005 GAIS sample of households was selected using a stratified two-stage cluster design consisting of 120 clusters. The first stage-units (primary sampling units or PSUs) are the enumeration areas used for the 2002 Population and Housing Census. The number of EDs (clusters) in each domain area was calculated dividing its total allocated number of households by the sample take (25 households for selection per ED). In each major domain, clusters are selected systematically with probability proportional to size.

The sampling procedures are more fully described in "Guyana HIV/AIDS Indicator Survey 2005 - Final Report" pp.135-138.

Response Rate

• From a total of 3,055 households in the sample, 2,800 were occupied. Among these households, interviews were completed in 2,608, for a response rate of 93 percent.
• A total of 2,776 eligible women were identified and interviews were completed with 2,425 of these women, yielding a response rate of 87 percent.
• Out of 2,441 eligible men identified in the 3,055 households in the sample, only 1,875 were successfully interviewed, yielding a response rate of 77 percent.

• All the response rates are lower for the urban sample than they are for the rural, particularly for men (69 percent in Georgetown urban).
• The primary reason for non-response among both eligible men and women was the failure to find individuals at home despite repeated visits to the household. The substantially lower response rate for men reflects the more frequent and longer absences of men from the household, principally related to their employment and lifestyle.

Weighting

Since the 2005 GAIS sample is unbalanced among region areas, it requires a final weighting adjustment procedure to provide estimates for the entire country.

For the i-th cluster in a given area combination (location by residence), if "c" is the fixed number of households selected out of the total households (Li) found in the 2005 listing process, then the household probability in the selected i-th cluster can be expressed as
$P2i = (c / Li)$

The final households overall probability in the i-th cluster could be calculated as
$fi = P1i * P2i$

and the sampling design weight for the i-th cluster is given as
$1/ fi = 1 / (P1i * P2i)$

Questionnaires

Overview

Two types of questionnaires were used in the survey, namely: the Household Questionnaire and the Individual Questionnaire. The contents of these questionnaires were based on model questionnaires developed by the MEASURE DHS program. In consultation with USAID/Guyana, MoH, GRPA, and other government agencies and local organizations, the model questionnaires were modified to reflect issues relevant to HIV/AIDS in Guyana. The questionnaires were finalized around mid-May.

The Household Questionnaire was used to list all the usual members and visitors in the selected households. For each person listed, information was collected on sex, age, education, and relationship to the head of the household. An important purpose of the Household Questionnaire was to identify women and men who were eligible for the individual interview.

The Household Questionnaire also collected non-income proxy indicators about the household's dwelling unit, such as the source of water; type of toilet facilities; materials used for the floor, roof and walls of the house; and ownership of various durable goods and land. As part of the Malaria Module, questions were included on ownership and use of mosquito bednets.

The Individual Questionnaire was used to collect information from women and men age 15-49 years and covered the following topics:
• Background characteristics (age, education, media exposure, employment, etc.)
• Reproductive history (number of births and—for women—a birth history, birth registration, current pregnancy, and current family planning use)
• Marriage and sexual activity
• Husband's background
• Knowledge about HIV/AIDS and exposure to specific HIV-related mass media programs
• Attitudes toward people living with HIV/AIDS
• Knowledge and experience with HIV testing
• Knowledge and symptoms of other sexually transmitted infections (STIs)
• The malaria module and questions on tuberculosis

Data Collection

Data Collection Dates

Start	End	Cycle
2005-06-17	2005-09	N/A

Data Collection Mode

Face-to-face [f2f]

DATA COLLECTION NOTES

Training for interviewers and supervisors began May 16 and was completed on May 31, 2005. The field practice for the trainees served as a pretest of the questionnaires. Eight teams consisting of four interviewers and one supervisor were selected for the fieldwork—40 persons in all. The remaining trainees were reserved for data processing.

After completion of the training, the survey questionnaires and manuals were revised and printed, and GRPA finalized arrangements for transport and other logistics. Fieldwork commenced on June 17 and was completed in early September 2005.

Data Collectors

Name	Abbreviation	Affiliation
Ministry of Health	MoH	

Data Processing

Data Editing

The processing of the GAIS questionnaires began in mid-July 2005, shortly after the beginning of fieldwork and during the first visit of the ORC Macro data processing specialist. Questionnaires for completed clusters (enumeration districts) were periodically submitted to GRPA offices in Georgetown, where they were edited by data processing personnel who had been trained specifically for this task. The concurrent processing of the data—standard for surveys participating in the DHS program—allowed GRPA to produce field-check tables to monitor response rates and other variables, and advise field teams of any problems that were detected during data entry. All data were entered twice, allowing 100 percent verification. Data processing, including data entry, data editing, and tabulations, was done using CSPro, a program developed by ORC Macro, the U.S. Bureau of Census, and SERPRO for processing surveys and censuses. The data entry and editing of the questionnaires was completed during a second visit by the ORC Macro specialist in mid-September. At this time, a clean data set was produced and basic tables with the basic HIV/AIDS indicators were run. The tables included in the current report were completed by the end of November 2005.

Data Appraisal

Estimates of Sampling Error

Sampling errors can be evaluated statistically. The sample of respondents selected in the 2005 GAIS 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 2005 GAIS sample is the result of a multi-stage stratified design, and, consequently, it was necessary to use a more complex formula. The computer software used to calculate sampling errors for the 2005 GAIS is the sampling error module in ISSA (Integrated System for Survey Analysis). This module uses the Taylor linearization method of variance estimation for survey estimates that are means or proportions. Another approach, 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.

Sampling errors for the 2005 GAIS are calculated for selected variable s considered to be of primary interest for the women's and men's samples. The sampling errors for mortality rates are presented for the ten-year period preceding the survey. The DEFT is considered undefined when the standard error considering simple random sample is zero (when the estimate is close to 0 or 1). In the case of the total fertility rate, the number of unweighted cases is not relevant, as there is no known unweighted value for woman-years of exposure to childbearing.

The confidence interval (e.g., as calculated for children ever born to women aged 40-49) can be interpreted as follows: the overall average from the national sample is 6.104 and its standard error is 0.078. Therefore, to obtain the 95 percent confidence limits, one adds and subtracts twice the standard error to the sample estimate (i.e., 6.104 20.078). There is a high probability (95 percent) that the true average number of children ever born to all women aged 40 to 49 is between 5.948 and 6.261.

The sampling errors are more fully described in appendix B in document "Guyana HIV/AIDS Indicator Survey 2005 - Final Report" pp.139-148.

Other forms of Data Appraisal

A series of data quality tables are available to review the quality of the data and include the following:

- Household age distribution
- Age distribution of eligible and interviewed women
- Age distribution of eligible and interviewed men
- Completeness of reporting
- Births by calendar year
- Reporting of age at death in days
- Reporting of age at death in months

The results of each of these data quality tables are shown in appendix C in document "Guyana HIV/AIDS Indicator Survey 2005 - Final Report" pp.149-153.

Related Materials

Questionnaires

Guyana HIV/AIDS Indicator Survey 2005 - Questionnaire

Title	Guyana HIV/AIDS Indicator Survey 2005 - Questionnaire
Country	Guyana
Language	English
Filename	GUY_2005_AIS_Questionnaire_EN.pdf

Reports

Guyana HIV/AIDS Indicator Survey 2005 - Report

Title	Guyana HIV/AIDS Indicator Survey 2005 - Report
Country	Guyana
Language	English
Filename	http://dhsprogram.com/pubs/pdf/AIS4/AIS4.pdf