Turkmenistan - Multiple Indicator Cluster Survey 2015-2016

United Nations Children's Fund, State Committee of Statistics of Turkmenistan

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Sampling

Sampling Procedure

The primary objective of the sample design for the 2015-2016 Turkmenistan MICS was to produce statistically reliable estimates of most indicators, at the national level, for urban and rural areas, and for the six regions of the country: Ashgabat city (capital) and five velayats (regions) – Ahal, Balkan, Dashoguz, Lebap and Mary. Urban and rural areas in each of the five velayats (regions) in addition to Ashgabat city (only urban) were defined as the sampling strata (11 main strata).

A multi-stage, stratified cluster sampling approach was used for the selection of the survey sample.

The sample size for the 2015- 2016 Turkmenistan MICS was calculated as 6,200 households. For the calculation of the sample size, the key indicator used was the percentage of married women using a contraceptive method from the 2006 Turkmenistan MICS.

The number of households selected per cluster for the 2015-2016 Turkmenistan MICS was determined as 20 households, based on a number of considerations, including a review of the design effects for the estimates of key indicators from the 2006 Turkmenistan MICS data, the budget available, and the time that would be needed per team to complete one cluster.

Selection of 20 households in each sample segment in all regions, resulted in a total target sample of 310 segments and 6200 households. Within each region the sample was allocated proportionately to the urban and rural strata.

For the first sampling stage, the enumeration areas were defined as PSUs selected within each stratum (region, urban/rural) systematically with PPS from the ordered list of PSUs in the sampling frame. The measures of size for the enumeration areas were based on the number of households identified in the sampling frame of the 2012 Census. The PSUs within each stratum were ordered geographically, in order to provide implicit geographic stratification and ensure a proportional distribution of the sample to all parts of the region.

Since the sampling frame (the 2012 Census) was not up-to-date, a new listing of households was conducted in all the sample enumeration areas prior to the selection of households. For this purpose, listing teams were formed who visited all of the selected enumeration areas and listed all households in the enumeration areas.

Listing training was held in the period 16-19 June 2015 (4 days) in Ashgabat city. The training was attended by 3 cartographers, 3 listers, 1 reserve and 1 supervisor from each velayat/Ashgabat city (in total 48 participants). The training program consisted of two parts, the first 1.5 days for theoretical knowledge followed by 1.5 days for conducting a pilot in the field – to implement acquired knowledge into practice.

During the period from 22 June to 16 July 2015 in all regions of Turkmenistan work on the mapping and household listing in the clusters for the MICS was carried out in accordance with the schedule of activities developed by the State Statistical Committee of Turkmenistan. During the listing the following materials were used:
- Manual for Mapping and Household Listing
- Listing Forms
- Schematic maps from the 2012 Census in printed form.

Lists of households were prepared by the listing teams in the field for each enumeration area. The households were then sequentially numbered from 1 to n (the total number of households in each enumeration area) at the State Statistical Committee of Turkmenistan, where the selection of 20 households in each enumeration area was carried out using random systematic selection procedures.

The sampling procedures are more fully described in "Multiple Indicator Cluster Survey 2015-16 - Final Report" pp.182-185.

Response Rate

Of the 6,100 households selected for the sample, one dwelling unit was found to be occupied by two households, leading to a total of 6,101 households in the final sample. Of the 6,101 households, 5,974 were found to be occupied. Of these, 5,861 were successfully interviewed for a household response rate of 98 percent.
In the interviewed households 7,693 women (age 15-49 years) were identified. Of these, 7,618 were successfully interviewed, yielding a response rate of 99 percent within the interviewed households.
There were 3,785 children under age five listed in the household questionnaires. Questionnaires were completed for 3,765 of

these children, which corresponds to a response rate of almost 100 percent within interviewed households.
Overall response rates of 97 and 98 percent are calculated for the individual interviews of women and under-5s, respectively.

Weighting

Sample weights were calculated and these were used in the subsequent analyses of the survey data.

The major component of the weight is the reciprocal of the sampling fraction employed in selecting the number of sample households in that particular sampling stratum (h) and PSU (i).

A final component in the calculation of sample weights takes into account the level of non-response for the household and individual interviews. The adjustment for household non-response in each stratum is equal to: 1/RRh

The non-response adjustment factors for the individual women and under-5 questionnaires were applied to the adjusted household weights. The number of eligible women and under-5 children in each sample EA were obtained from the roster of household members in the Household Questionnaire for households where interviews were completed.

The design weights for the households were calculated by multiplying the inverse of the probabilities of selection by the non-response adjustment factor for each enumeration area. These weights were then standardized (or normalized), one purpose of which is to make the weighted sum of the interviewed sample units equal to the unweighted total number of sample units at the national level. Normalization is achieved by dividing the full sample weights (adjusted for nonresponse) by the average of these weights across all households at the national level. This is performed by multiplying the sample weights by a constant factor equal to the unweighted number of households at the national level divided by the weighted total number of households (using the full sample weights adjusted for nonresponse). A similar standardization procedure was followed for obtaining standardized weights for the individual women and under-5 questionnaires. Adjusted (normalized) household weights varied between 0.212032929 and 2.525432708 in the 305 sample enumeration areas (clusters), excluding 5 missing clusters.

Sample weights were appended to all data sets and analyses were performed by weighting households, women, or under-5s with these sample weights.

Questionnaires

Overview

The questionnaires for the Generic MICS were structured questionnaires based on the MICS5 model questionnaire with some modifications and additions. Household questionnaires were administered in each household, which collected various information on household members including sex, age and relationship. The household questionnaire includes List of Household Members, Education, Child Labour, Child Discipline, Household Characteristics, Water and Sanitation, Handwashing, and Salt Iodization.

In addition to a household questionnaire, questionnaires were administered in each household for women age 15-49 and children under age five. The questionnaire was administered to the mother or primary caretaker of the child.

The women's questionnaire includes Woman's Background, Access to Mass Media and Use of Information/Communication Technology, Fertility/Birth History, Desire for Last Birth, Maternal and Newborn Health, Post-natal Health Checks, Illness Symptoms, Marriage/Union13, Contraception, Unmet Need, Attitudes Toward Domestic Violence and HIV/AIDS.

The children's questionnaire includes Child's Age, Birth Registration, Early Childhood Development, Breastfeeding and Dietary Intake, Immunization, Care of Illness and Anthropometry.

From the MICS5 model English and Russian version, the questionnaires were customised and translated into the Turkmen language and were pre-tested. A pre-test of the paper version of questionnaires in Russian and Turkmen languages (first pre-test, 12 days) was conducted in Ahal velayat (rural area) and Ashgabat city in July 2015. 200 households were interviewed – 100 using the Turkmen language questionnaires and 100 using Russian language questionnaires. A second pre-test was conducted in August 2015 in 100 households using tablets with revised questionnaires. Based on the results of the pre-tests, modifications were made to the wording and translation of the questionnaires as well as in the application for tablets.

Data Collection

Data Collection Dates

Start	End	Cycle
2015-09	2016-01	N/A

Data Collection Mode

Face-to-face [f2f]

DATA COLLECTION NOTES

Training for the fieldwork was conducted for 30 working days in the period August-September 2015. Training was divided into 2 phases. In the first phase (2 weeks), training was conducted using paper questionnaires and in the second phase using tablets. Training included lectures on interviewing techniques and the contents of the questionnaires, and conducting interviews between trainees to gain practice in asking questions, practical work on tablets, such as assigning households by supervisors, sending and receiving assigned households, data collection, error solving. Towards the end of the training period (September 2015), trainees spent two days in practice interviewing in Ashgabat city (urban area) and Ahal velayat (rural area) and one day on the anthropometric measurement in the preschool institutions in Ashgabat city.

The data were collected by 6 teams; each was comprised of 4 interviewers (1 reserve), two drivers, one measurer and a supervisor. Fieldwork began in September 2015 and concluded in January 2016.

Data Collectors

Name	Abbreviation	Affiliation
State Committee of Statistics of Turkmenistan	Turkmenstat	

SUPERVISION

There is one supervisor for each of the 6 data collection teams in the field.

Data Processing

Data Editing

Data were entered using the CSPro software, Version 5.0. Data collection was carried out on tablets by 37 interviewers and 6 supervisors. Using a tablets facilitated many tasks related to control and management, including:
- assigning households to the interviewers,
- receiving collected data from the interviewers,
- checking household questionnaires and individual questionnaires,
- finalising the cluster,
- preparing the data files to be sent to the Central Office.

Procedures and standard programs developed under the global MICS programme and adapted to the 2015-2016 Turkmenistan MICS questionnaire were used throughout. Data processing began simultaneously with data collection in September 2015 and was completed in January 2016. Data were analysed using the Statistical Package for Social Sciences (SPSS) software, Version 21. Model syntax and tabulation plans developed by UNICEF were customized and used for this purpose.

Regular monitoring of the data collection and other relevant processes was carried out by UNICEF staff, consultants (both national and international) as well as by management and staff of the State Committee of Statistics (Turkmenstat) responsible for implementation of the 2015-2016 Turkmenistan MICS.

Data Appraisal

Estimates of Sampling Error

Sampling errors are a measure of the variability between the estimates from all possible samples. The extent of variability is not known exactly, but can be estimated statistically from the survey data.

The following sampling error measures are presented in this appendix for each of the selected indicators:
- Standard error (se): Standard error is the square root of the variance of the estimate. For survey indicators that are means, proportions or ratios, the Taylor series linearization method is used for the estimation of standard errors. For more complex statistics, such as fertility and mortality rates, the Jackknife repeated replications method is used for standard error estimation.
- Coefficient of variation (se/r) is the ratio of the standard error to the value (r) of the indicator, and is a measure of the relative sampling error.
- Design effect (deff) is the ratio of the actual variance of an indicator, under the sampling method used in the survey, to the variance calculated under the assumption of simple random sampling based on the same sample size. The square root of the design effect (deft) is used to show the efficiency of the sample design in relation to the precision. A deft value of 1.0 indicates that the sample design of the survey is as efficient as a simple random sample for a particular indicator, while a deft value above 1.0 indicates an increase in the standard error due to the use of a more complex sample design.
- Confidence limits are calculated to show the interval within which the true value for the population can be reasonably assumed to fall, with a specified level of confidence. For any given statistic calculated from the survey, the value of that statistic will fall within a range of plus or minus two times the standard error (r + 2.se or r – 2.se) of the statistic in 95 percent of all possible samples of identical size and design.

For the calculation of sampling errors from MICS data, programs developed in CSPro Version 5.0, SPSS Version 21 Complex Samples module and CMRJack have been used.

Sampling errors are calculated for indicators of primary interest, for the national level, for urban and rural areas, and for all regions. Eight of the selected indicators are based on households members, 16 are based on women, and 14 are based on children under 5.

Other forms of Data Appraisal

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

- Age distribution of the household population
- Age distribution of eligible and interviewed women
- Age distribution of children under 5 in household and children under 5 questionnaires
- Birth date reporting: Household population
- Birth date and age reporting: Women
- Birth date and age reporting: Under-5s
- Birth date reporting: Children, adolescents and young people
- Birth date reporting: First and last births
- Completeness of reporting
- Completeness of information for anthropometric indicators: Underweight
- Completeness of information for anthropometric indicators: Stunting
- Completeness of information for anthropometric indicators: Wasting
- Heaping in anthropometric measurements
- Observation of birth certificates
- Observation of vaccination cards at home and in health facility
- Observation of places for handwashing
- Respondent to the under-5 questionnaire
- School attendance by single age
- Sex ratio at birth among children ever born and living
- Births by periods preceding the survey
- 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 D in document "Multiple Indicator Cluster Survey 2015-16 - Final Report" pp.202-214.

Related Materials

Questionnaires

Turkmenistan Multiple Indicator Cluster Survey 2015-2016 - Questionnaire (English)

Title	Turkmenistan Multiple Indicator Cluster Survey 2015-2016 - Questionnaire (English)
Country	Turkmenistan
Language	English
Table of contents	Household questionnaire modules Household member questionnaire modules Women questionnaire modules Children questionnaire modules
Filename	Questionnaire Turkmenistan 2015-2016 MICS_English.pdf

Turkmenistan Multiple Indicator Cluster Survey 2015-2016 - Questionnaire (Russian)

Title	Turkmenistan Multiple Indicator Cluster Survey 2015-2016 - Questionnaire (Russian)
Country	Turkmenistan
Language	Russian
Table of contents	Household questionnaire modules Household member questionnaire modules Women questionnaire modules Children questionnaire modules
Filename	Questionnaire Turkmenistan 2015-2016 MICS_Russian.pdf

Turkmenistan Multiple Indicator Cluster Survey 2015-2016 - Questionnaire (Turkmen)

Title	Turkmenistan Multiple Indicator Cluster Survey 2015-2016 - Questionnaire (Turkmen)
Country	Turkmenistan
Language	Turkmen
Table of contents	Household questionnaire modules Household member questionnaire modules Women questionnaire modules Children questionnaire modules
Filename	Questionnaire Turkmenistan 2015-2016 MICS_Turkmen.pdf

MICS 5 Changes to MICS5 Questionnaires since June 9, 2013

Title	MICS 5 Changes to MICS5 Questionnaires since June 9, 2013
Language	English
Filename	http://mics.unicef.org/tools

Reports

Turkmenistan Multiple Indicator Cluster Survey 2015-2016 - Report (English)

Title   Turkmenistan Multiple Indicator Cluster Survey 2015-2016 - Report (English)
Author(s) State Committee of Statistics of Turkmenistan United Nations Children's Fund (UNICEF)
Date   2017-01-01
Country   Turkmenistan
Language   English
Filename   https://mics-surveys-prod.s3.amazonaws.com/MICS5/Central%20and%20Eastern%20Europe%20and%20the%20Commonwealth%20of%20Independent%20States/Turkmenistan/2015-2016/Final/Turkmenistan%202015-2016%20MICS_English.pdf

Turkmenistan Multiple Indicator Cluster Survey 2015-2016 - Report (Russian)

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Turkmenistan Multiple Indicator Cluster Survey 2015-2016 - Key Findings (English)

Title   Turkmenistan Multiple Indicator Cluster Survey 2015-2016 - Key Findings (English)
Author(s) State Committee of Statistics of Turkmenistan United Nations Children's Fund (UNICEF)
Date   2017-01-01
Country   Turkmenistan
Language   English
Filename   https://mics-surveys-prod.s3.amazonaws.com/MICS5/Central%20and%20Eastern%20Europe%20and%20the%20Commonwealth%20of%20Independent%20States/Turkmenistan/2015-2016/Key%20findings/Turkmenistan%202015-16%20MICS%20KFR_English.pdf

Turkmenistan Multiple Indicator Cluster Survey 2015-2016 - Key Findings (Russian)

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Turkmenistan Multiple Indicator Cluster Survey 2015-2016 - Key Findings (Turkmen)

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Language   Turkmen
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Technical documents

MICS 5 Survey Plan Template

Title   MICS 5 Survey Plan Template
Language   English
Filename   http://mics.unicef.org/tools

MICS 5 Supply Procurement Instructions

Title   MICS 5 Supply Procurement Instructions
Language   English

Filename   http://mics.unicef.org/tools

MICS 5 Fieldwork Duration, Staff, Data Processing and Supply Estimates Template

Title   MICS 5 Fieldwork Duration, Staff, Data Processing and Supply Estimates Template
Language   English
Filename   http://mics.unicef.org/tools

MICS 5 Indicator List

Title   MICS 5 Indicator List
Language   English
Filename   http://mics.unicef.org/tools

MICS 5 Changes to Indicator List since June 9, 2013

Title   MICS 5 Changes to Indicator List since June 9, 2013
Language   English
Filename   http://mics.unicef.org/tools

MICS 5 Sample Size Calculation

Title   MICS 5 Sample Size Calculation
Language   English
Filename   http://mics.unicef.org/tools

MICS 5 Household Selection Template

Title   MICS 5 Household Selection Template
Language   English
Filename   http://mics.unicef.org/tools

MICS 5 Manual for Mapping and Household Listing

Title   MICS 5 Manual for Mapping and Household Listing
Language   English
Filename   http://mics.unicef.org/tools

MICS 5 Sample Weight Calculation Template

Title   MICS 5 Sample Weight Calculation Template
Language   English
Filename   http://mics.unicef.org/tools