

**Kenya
Demographic
and Health
Survey
2008-09**

**Preliminary
Report**

**Kenya National Bureau of Statistics
Nairobi, Kenya**

**National AIDS Control Council
Nairobi, Kenya**

**National AIDS/STD Control Programme
Nairobi, Kenya**

**National Public Health Laboratory Services
Nairobi, Kenya**

**Kenya Medical Research Institute
Nairobi, Kenya**

**National Coordinating Agency for Population and Development
Nairobi, Kenya**

**MEASURE DHS
ICF Macro
Calverton, Maryland, USA**

This report summarises the findings of the 2008-09 Kenya Demographic and Health Survey (KDHS) carried out by the Kenya National Bureau of Statistics (KNBS) in partnership with the National AIDS Control Council (NACC), the National AIDS/STD Control Programme (NASCOP), the National Public Health Laboratory Services (NPHLS), the Kenya Medical Research Institute (KEMRI), and the National Coordinating Agency for Population and Development (NCAPD). ICF Macro provided technical assistance for the survey through the USAID-funded MEASURE DHS programme, which is designed to assist developing countries to collect data on fertility, family planning, and maternal and child health. Funding for the KDHS was received from USAID/Kenya, the United Nations Population Fund (UNFPA), and the United Nations Children's Fund (UNICEF). The opinions expressed in this report are those of the authors and do not necessarily reflect the views of the donor organisations.

Additional information about the survey may be obtained from the Kenya National Bureau of Statistics (KNBS), P.O. Box 30266, Nairobi (Telephone: 254.20.340.929; Fax: 254.20.315 977, E-mail: director@cbs.go.ke).

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ABBREVIATIONS

AIDS	–	Acquired Immune Deficiency Syndrome
ARI	–	Acute respiratory illness
ASAL	–	Arid and semi-arid lands
BCG	–	Bacillus Calmettee-Guerin
CBR	–	Crude birth rate
CBS	–	Central Bureau of Statistics
CDC	–	Centres for Disease Control and Prevention
DPT	–	Diphtheria, pertussis, and tetanus
GFR	–	General fertility rate
HIV	–	Human Immunodeficiency Virus
IPT	–	Intermittent preventive treatment
ITNs	–	Insecticide-treated mosquito nets
IUD	–	Intra-uterine device
KDHS –	–	Kenya Demographic and Health Survey
KEMRI	–	Kenya Medical Research Institute
KNBS	–	Kenya National Bureau of Statistics
LAM	–	Lactational amenorrhoea method
NACC	–	National AIDS Control Council
NASCOP	–	National AIDS/STD Control Programme
NASSEP	–	National survey sample evaluation programme
NCAPD	–	National Coordinating Agency for Population and Development
NCHS	–	National Center for Health Statistics
NN	–	Neonatal
NPHLS	–	National Public Health Laboratory Services
ORS	–	Oral rehydration salts
ORT	–	Oral rehydration therapy
PNN	–	Postneonatal
SD	–	Standard deviation
SP	–	Sulphadoxine - Pyrimethamine
STIs	–	Sexually transmitted infections
TFR	–	Total fertility rate
UNFPA	–	United Nations Population Fund
UNICEF	–	United Nations Children’s Fund
USAID	–	U.S. Agency for International Development
VCT	–	Voluntary counselling and testing
WHO	–	World Health Organization

1. INTRODUCTION

1.1 Background

Since independence, the Kenya Government has given high priority to the improvement of the health status of Kenyans. This is in recognition that good health is a prerequisite to socioeconomic development of the country. The Government, in a number of policy documents and successive National Development Plans, has emphasized that the provision of health services should meet the basic needs of the population and be geared towards providing health services within easy reach of Kenyans. It has also put considerable emphasis on preventive, promotive, and rehabilitative health services without ignoring curative services (www.enable.nu/publication).

The 2008-09 Kenya Demographic and Health Survey (KDHS) is a national sample survey of almost 10,000 households designed to provide detailed information on fertility levels, marriage, sexual activity, fertility preferences, awareness and use of family planning methods, breastfeeding practices, nutritional status of women and young children, childhood and maternal mortality, maternal and child health, child survival, awareness and behaviour regarding HIV/AIDS and other sexually transmitted infections (STIs). Other aspects covered by the survey are childhood illness, ownership and use of mosquito nets, domestic violence and HIV testing. This is the second time HIV testing has been incorporated into the KDHS—the first being in 2003—to give an indication of the trend. The Kenya Demographic and Health Survey (KDHS) is conducted every five years. The 2008-09 KDHS is the fifth survey of its kind to be conducted in Kenya, following those carried out in 1989, 1993, 1998 and 2003.

The 2008-09 KDHS was undertaken from November 2008 to February 2009 to provide information that would address the planning, programme implementation, monitoring and evaluation needs of health, family planning and HIV/AIDS programmes. It will also provide program managers and policy makers involved in these programmes with the information that they need to effectively plan and implement future interventions.

Financial support for the KDHS was provided by the Government of Kenya, the U.S. Agency for International Development (USAID), the United Nations Children's Fund (UNICEF) and the United Nations Population Fund (UNFPA). The Demographic and Health Surveys programme of ICF Macro (Macro) provided technical assistance during all phases of the survey. UNICEF provided vehicles and drivers used within Arid and Semi-Arid Lands (ASAL) districts.

USAID contracted a Kenyan accounting firm (SCI Koimhuri Tucker & Co) to provide financial management service support for the survey. The accounting firm received, disbursed, and accounted for the USAID funds.

This preliminary report presents early findings of this survey. A more detailed report will be published later in 2009. While considered preliminary, the findings presented here are not expected to differ significantly from those to be presented in the final report.

1.2 Survey Objectives

The 2008-09 Kenya Demographic and Health Survey (KDHS) was designed to provide information to monitor and evaluate the population and health situations in Kenya and be a follow-up to the previous KDHS surveys. In addition, it will provide data on HIV/AIDS that will highlight the HIV/AIDS trends.

More specifically, the objectives of the 2008-09 KDHS were to:

- Provide data on fertility and childhood mortality at the national and provincial level;
- Measure changes in fertility and contraceptive prevalence;
- Examine basic indicators of maternal and child health;
- Describe patterns of knowledge and behaviour related to transmission of HIV/AIDS and other sexually transmitted diseases;
- Estimate adult and maternal mortality at national level;
- Ascertain the extent and pattern of domestic violence and female genital cutting and
- Estimate the prevalence of HIV in the country.

2. SURVEY IMPLEMENTATION

2.1 Survey Organisation

The 2008-09 Kenya Demographic and Health Survey (KDHS) was a joint effort of many organisations, including:

- Kenya National Bureau of Statistics (KNBS)
- National AIDS Control Council (NACC)
- National AIDS/STD Control Programme (NASCOP)
- National Public Health Laboratory Services (NPHLS)
- Kenya Medical Research Institute (KEMRI)
- National Coordinating Agency For Population and Development (NCAPD)
- ICF Macro
- U.S. Agency for International Development (USAID)/Kenya
- U.N. Population Fund (UNFPA)
- U.N. Children's Fund (UNICEF)
- UNAIDS Secretariat/WHO-Kenya
- SCI Koimburi Tucker & Co

The Kenya National Bureau of Statistics (KNBS) served as the implementing agency and as such had a primary role in the planning for the survey and in the analysis and dissemination of the survey results. As the implementing agency, the Bureau took responsibility for operational matters including planning and conducting fieldwork and processing of collected data. Staff from the Bureau and other partners were responsible for overseeing the day-to-day technical operations including recruitment and training of field and data processing staff and the supervision of the office and field operations. The Bureau is also responsible for organizing the writing and distribution of reports. NACC and KEMRI took responsibility for administering the HIV/AIDS testing component, including training in taking blood samples as well as the testing which was done at the NPHLS. NASCOP arranged for recruitment and training of VCT counsellors while NCAPD assisted in reviewing of survey instruments to ensure that information collected is relevant to Government of Kenya and other stakeholders. With funding from USAID/Kenya, ICF Macro staff provided technical assistance, mainly through short-term visits to Kenya, in the areas of survey and sample design, questionnaire design, field staff training, fieldwork monitoring, and data processing. With funding from NACC, Macro is also assisting with data processing of the HIV testing.

2.2 Sample Design and Implementation

The sample for the 2008-09 KDHS was drawn from a master sampling household frame, NASSEP IV. This is the national frame that the Bureau is operating to conduct household-based surveys. The frame of 1,800 clusters was developed in 2002 from 62,000 enumeration areas that were generated from the 1999 population and housing census. At its development, the frame was stratified and each of the 69 administrative districts that existed by the 1999 census formed a stratum. Each district was further stratified into urban and rural areas. The six major urban areas in the country were further sub-stratified into five socio-economic classes—upper, lower upper, middle, lower middle and lower. Whereas the first class represents the rich, the last one represents low income earners.

The 2008-09 KDHS was designed to produce estimates at the national level, for urban and rural areas separately and at the provincial level. In order to meet these objectives the sample was designed to cover 10,000 households from 400 clusters drawn from the whole country, with 267 clusters in rural areas and 133 in urban areas. The KDHS used a two-stage sample design where the first stage involved selecting data collection points or clusters from the master sample, while the second stage involved selecting 25 households in each cluster using systematic sampling. The design did not allow for replacement of clusters or households. The household and woman's questionnaires were administered in all households, while the man's questionnaire was administered in every second household.

Given that this survey was implemented several years after the development of the NASSEP IV frame, coupled with abrupt changes in some areas due to internal displacement of people in various parts of the country in early 2008, the household listings for almost half of the selected clusters were updated for this survey. It is worth noting that some of these clusters had been updated a few times before through other surveys. The selected clusters in North Eastern Province were re-listed just prior to the data collection. This approach is preferred due to the nomadic nature of much of the population in the province.

Because of the nature of the sampling strata, the selection of clusters for this survey was not self-weighting. The resulting data have therefore been weighted to be representative of the national population.

2.3 Questionnaires

The 2008-09 KDHS used three questionnaires: 1) a household questionnaire; 2) a questionnaire for individual women age 15-49; and 3) a questionnaire for men age 15- 54. These instruments are based on the model questionnaires developed for the international MEASURE DHS programme as well as the questionnaires used in the previous KDHS surveys and the current information needs of Kenya. During the development of the questionnaires, input was sought from a variety of organisations that are expected to use the resulting data. A two-day workshop involving key stakeholders was held in 2007 to discuss the questionnaire design.

The household questionnaire was used to list all the usual members and visitors in the selected households. The main purpose of the household questionnaire was to identify women and men who were eligible for the individual interview. Some basic information was collected on the characteristics of each person listed, including age, sex, education, and relationship to the head of the household. 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 and roof of the house, ownership of various durable goods, and ownership and use of mosquito nets. In addition, this questionnaire was also used to record height and weight measurements of women aged 15-49 years and children under the age of 5 years, households eligible for collection of blood samples, and the respondents' consent to volunteer to give blood samples. The HIV testing procedures and results will be presented in the final report.

The woman's questionnaire was used to collect information from all women aged 15-49 years and covered the following topics:

- Background characteristics (education, residential history, media exposure, etc.)
- Reproductive history
- Knowledge and use of family planning methods
- Fertility preferences
- Antenatal and delivery care
- Breastfeeding and infant feeding practices
- Vaccinations and childhood illnesses
- Marriage and sexual activity
- Woman's work and husband's background characteristics
- Infant and child feeding practices
- Childhood mortality
- Awareness and behaviour about AIDS and other sexually transmitted diseases
- Adult mortality including maternal mortality.

The woman's questionnaire also included a series of questions to obtain information on women's experience of domestic violence. These questions were administered to one woman per household. In households with two or more eligible women, special procedures were followed in order to ensure that there was random selection of the woman to be interviewed.

The man's questionnaire was administered to all men aged 15-54 years living in every second household in the sample. The man's questionnaire collected similar information contained in the woman's questionnaire, but was shorter because it did not contain questions on reproductive history, maternal and child health, nutrition, maternal mortality and domestic violence.

After finalisation of the questionnaires in English, they were translated into 11 other languages namely: Kalenjin, Kamba, Kikuyu, Kisii, Luhya, Luo, Masai, Meru, Mijikenda, Somali, and Swahili. The translated questionnaires were pretested to detect any possible problems in the translations or flow of the questionnaire, as well as to gauge the length of time required for interviews.

2.4 Training and Data Collection

Pretesting

Two pretests were held for the 2008-09 KDHS. The main objective of the pretests was to test the instruments, logistics and administrative arrangement in place for the main survey.

The first pretest was conducted between 1st and 7th July 2008. After training of the research assistants in Machakos, the pretest was implemented in 12 districts: Taita Taveta, Kilifi, Nairobi, Meru South, Machakos, Kiambu, Gucha, Kakamega, Homa Bay, Kajiado, Uasin Gishu and Garissa. This was based on the 12 languages including English. After the fieldwork, there was a two-day debriefing workshop held to look at the issues emanating from the pretest. The resolutions during debriefing were utilized to enrich the questionnaires and the whole field logistics before the implementation of the main survey.

As a result of the decision to include the HIV testing component, it became apparent that a second pretest was necessary. The training for this pretest was conducted in Machakos from 5th to 11th October, 2008 for health workers and 7th to 11th October for research assistants. The results from the field experiences of the second pretest were utilised to enrich the questionnaires and the whole field logistics before the implementation of the main survey.

Main training

Several categories of personnel were recruited and trained to undertake the KDHS. These included 23 supervisors, 52 health workers, 92 female research assistants, 23 male research assistants, 23 field editors, 6 office editors, 4 quality assurance personnel and 5 reserves.

The training for fieldwork personnel was undertaken for a period of 19 days from 21st October to 8th November in Nakuru. Participants were divided into five groups: one of health workers and four of data collectors. Two groups were based on the outskirts of Nakuru town (at Kabarak University and Shepherd Inn on Ngata farm) while the other three were based at Waterbuck Hotel in Nakuru town.

The training team worked on a programme in which some sessions were common for all groups, while others were conducted separately to allow for technical details to be explained better in smaller groups. A number of guest speakers were invited to give lectures to the trainees on various modules of the survey.

The training of data collectors consisted of a detailed, question-by-question explanation of the questionnaires, accompanied by explanations from the interviewer's manual, demonstration through role-plays, group discussion and some in-class practice interviewing in pairs. Four tests were administered, and results of the tests were used both to enhance understanding of key terms and concepts and to identify weak candidates for further strengthening or elimination from the fieldwork team. Interviewers obtained practice on weighing and measuring of children by visiting the Arap Moi and Philadelphia children's homes in Nakuru. The training included two field practice days in communities in and around Nakuru that were not included in the KDHS sample. The first field practice day was designated for interviewing only, and the second field practice day included anthropometry and taking of blood samples by the health technologists. In addition, separate sessions were held for the data editors and supervisors to review the manual on managing the data collection, observing interviews, and checking completed questionnaires. Health workers received training on how to administer informed consent, collect and store blood samples, and complete sections of the household questionnaire related to HIV testing.

Data collection

Fieldwork for the main survey was expected to commence in September 2008 and run up to mid-December 2008. However, with the inclusion of the HIV testing component requested by NACC, fieldwork was rescheduled and started on 13 November 2008 immediately after the training in Nakuru. Data collection was completed in late February 2009.

Field staff were divided into 23 teams according to languages spoken in the areas where they conducted the interviews. Each team had one supervisor, one field editor, 4 female research assistants, one male research assistant, two health workers, a driver and a vehicle assigned to them (with the exception of a few teams which used two government vehicles). Each team

was joined initially by one voluntary counselling and testing (VCT) counsellor. An extra counsellor was added to each VCT team when it was realized that the workload was too much for one.

Fifteen teams used 15 hired vehicles each with a capacity of nine passengers. The remaining eight teams used Government of Kenya vehicles from NCAPD and NACC. Three vehicles from KNBS and one from NCAPD were used for coordination and supervision of the exercise. Initially, teams were provided with English and Kiswahili questionnaires while the questionnaires in the other languages were being printed. Because of this, it was decided that teams should start in urban areas where they could use either Kiswahili or English questionnaires.

Social mobilisation was conducted by NACC in clusters where the survey was undertaken. At the beginning of the field data collection, social mobilisation was not being done effectively as more emphasis was being put on blood draws rather than the whole exercise. This necessitated some of the affected teams to intervene and assist NACC in doing the social mobilisation.

2.5 Data Processing

Data editing was first done in the field by field editors and supervisors before the questionnaires were packed and mailed to KNBS offices at Nyayo House in Nairobi where an office editing team was assembled to re-edit the questionnaires. In cases where there were some anomalies in the questionnaires detected at Nyayo House, the affected questionnaires were taken back to the field for the errors to be corrected.

A data processing team was constituted and trained at Nyayo House after the data collection teams started fieldwork. This team was supported by technical assistance from Macro. Data processing commenced at the beginning of December, 2008 and was finalized in March, 2009. All data were entered twice (100 percent verification). Thereafter, further data cleaning and validation were done before tabulation of the results by KNBS in collaboration with Macro.

3. RESULTS OF THE SURVEY INTERVIEWS

3.1 Response Rates

Table 1 shows response rates for the 2008-09 KDHS. A total of 9,936 households were selected in the sample, of which 9,268 were found occupied at the time of the fieldwork. Of these, 9,057 households were successfully interviewed, yielding a household response rate of 98 percent. The shortfall of households occupied is largely due to structures that were found to be vacant or destroyed and households absent for an extended period.

In the households interviewed in the survey, a total of 8,767 eligible women were identified, of whom 8,444 were interviewed, yielding a response rate of 96 percent. The male survey results indicate that 3,910 eligible men were identified in the sub-sample of households selected for the male survey, of whom 3,465 were successfully interviewed, yielding a response rate of 89 percent. The response rates are lower in the urban than rural sample, especially for men.

The principal reason for non-response among both eligible men and women was the failure to find them at home despite repeated visits to the households. The substantially lower response rates for men reflect the more frequent and longer absences of men from the households.

Table 1 Results of the household and individual interviews

Number of households, number of interviews, and response rates, according to residence, Kenya 2008-09

Result	Residence		
	Urban	Rural	Total
Household interviews			
Households selected	3,286	6,650	9,936
Households occupied	3,015	6,253	9,268
Households interviewed	2,910	6,147	9,057
Household response rate	96.5	98.3	97.7
Individual interviews: women			
Number of eligible women	2,735	6,032	8,767
Number of eligible women interviewed	2,615	5,829	8,444
Eligible women response rate	95.6	96.6	96.3
Individual interviews: men			
Number of eligible men	1,269	2,641	3,910
Number of eligible men interviewed	1,084	2,381	3,465
Eligible men response rate	85.4	90.2	88.6

3.2 Characteristics of Respondents

The distribution of women aged 15-49 years and men aged 15-54 years is shown in Table 2 by background characteristics. The proportions of both women and men decline with increasing age, reflecting the comparatively young age structure of the Kenyan population. Fifty-eight percent of women are married or living in an informal union with a man, compared to only 51 percent of men. Because men marry later in life than women, almost half of the surveyed men (44 percent) have never married, compared with less than one-third (31 percent) of the women. On the other hand, women are more than twice as likely as men to be widowed, divorced or separated.

The survey shows that three-quarters of women and men live in rural areas. More respondents live in Rift Valley Province (27 percent) than in any other province, while the smallest proportion of respondents lives in North Eastern Province (2 percent). Most respondents have some formal education, with only 4 percent of men and 9 percent of women having never attended school. Men tend to be slightly more educated than women. About two-thirds of respondents are Protestant, almost one-quarter are Catholic, and about 7 percent are Muslim.

Table 2 Background characteristics of respondents

Percent distribution of women and men by background characteristics, Kenya 2008-09

Background characteristic	Women			Men		
	Weighted percent	Weighted number	Unweighted number	Weighted percent	Weighted number	Unweighted number
Age						
15-19	20.8	1,761	1,767	22.4	776	763
20-24	20.3	1,715	1,744	18.2	630	620
25-29	17.2	1,454	1,423	13.9	483	488
30-34	14.3	1,209	1,180	13.3	461	482
35-39	10.4	877	930	9.9	344	359
40-44	9.1	768	730	8.8	306	291
45-49	7.8	661	670	7.4	257	253
50-54	na	na	na	6.0	207	209
Marital status						
Never married	31.2	2,634	2,540	44.0	1,524	1,502
Married	54.2	4,578	4,682	49.0	1,699	1,757
Living together	4.1	350	359	2.3	80	67
Divorced/separated	6.1	512	512	3.8	130	115
Widowed	4.4	369	351	0.9	30	24
Residence						
Urban	25.4	2,148	2,615	26.1	903	1,084
Rural	74.6	6,296	5,829	73.9	2,562	2,381
Province						
Nairobi	8.6	728	952	9.4	325	423
Central	10.7	905	973	10.6	368	388
Coast	8.0	674	1,149	7.6	265	448
Eastern	16.3	1,376	1,127	16.8	581	452
Nyanza	16.4	1,389	1,318	15.9	550	541
Rift Valley	26.8	2,262	1,278	27.0	935	543
Western	11.0	927	1,039	10.7	372	451
North Eastern	2.2	184	608	2.0	70	219
Education						
No education	8.9	752	1,242	4.1	141	209
Primary incomplete	29.9	2,526	2,431	26.6	921	921
Primary complete	26.9	2,272	1,973	25.3	876	863
Secondary +	34.3	2,894	2,798	44.1	1,527	1,472
Religion						
Roman Catholic	21.9	1,852	1,684	25.6	888	826
Protestant/ Other Christian	68.1	5,748	5,152	62.9	2,179	1,997
Muslim	7.4	626	1,358	6.4	221	459
No religion	2.2	185	184	4.4	152	139
Other	0.4	30	57	0.5	18	42
Missing	0.0	3	9	0.2	7	2
Total	100.0	8,444	8,444	100.0	3,465	3,465

Note: Education categories refer to the highest level of education attended, whether or not that level was completed.
na = Not applicable

3.3 Fertility

Fertility levels and trends

Fertility data were collected in the survey by asking each woman interviewed for a history of her births. The information obtained on each of the woman's births included the month and year of the birth. These data are used to calculate two of the most widely used measures of current fertility, the total fertility rate (TFR) and its component age-specific fertility rates.

According to the survey findings, the total fertility rate is 4.6 births per woman (Table 3). This means that on average, a Kenyan woman who is at the beginning of her childbearing years will give birth to 4.6 children by the end of her reproductive period if fertility levels remain constant at the level observed in the three-year period preceding the survey (roughly 2006-08).

The results indicate that Kenya's fertility may be returning to the decline observed from the mid-1970s to the late 1990s. The TFR of 4.6 for the whole country is the lowest ever recorded, although within a stagnant range observed over the last one and a half decades. Figure 1 shows the decline in the TFR from a high of 8.1 births per woman in 1975-78, to 4.7 in 1995-97, followed by a rise to 4.9 in 2000-02 and a decline to 4.6 for 2006-08.¹

Table 3 Current fertility

Age-specific and cumulative fertility rates, the general fertility rate, and the crude birth rate for the three years preceding the survey, by urban-rural residence, Kenya 2008-09

Age group	Residence		Total
	Urban	Rural	
15-19	92	107	103
20-24	146	280	238
25-29	147	248	216
30-34	104	197	175
35-39	60	135	118
40-44	28	56	50
45-49	7	13	12
TFR	2.9	5.2	4.6
GFR	112.0	179.0	161.0
CBR	32.5	35.3	34.8

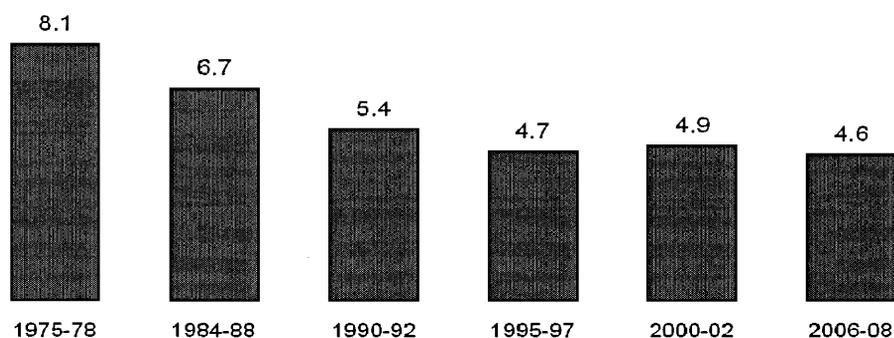
Note: Rates for age group 45-49 may be slightly biased due to truncation.

TFR: Total fertility rate for ages 15-49, expressed per woman

GFR: General fertility rate (births divided by the number of women age 15-44), expressed per 1,000 women

CBR: Crude birth rate, expressed per 1,000 population

Figure 1 Trends in Total Fertility Rate, Kenya, 1975-2008 *

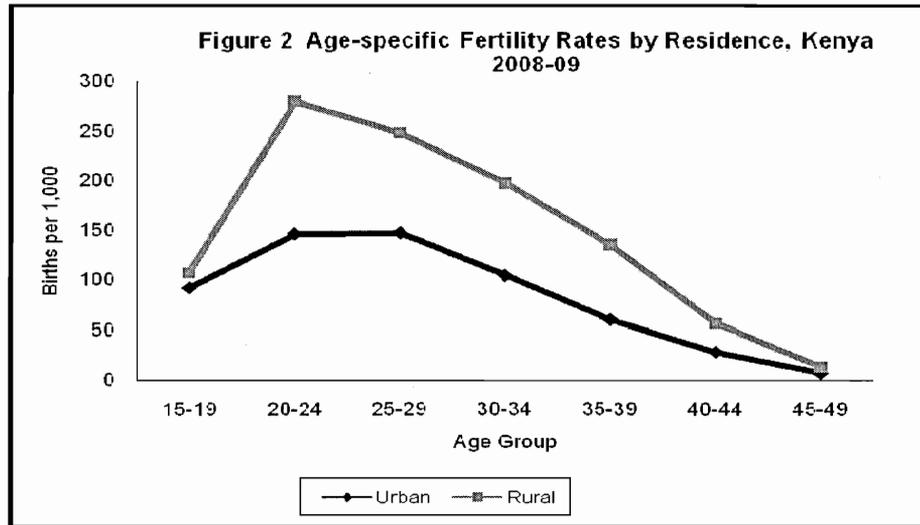


* The first four surveys excluded North Eastern Province and several northern districts in Eastern and Rift Valley Provinces, while the data for 2000-02 and 2006-08 include the entire country.

Fertility differentials

Table 3 also shows differentials in current fertility for urban and rural areas in Kenya. The TFR in rural areas (5.2 births) is significantly higher than the rate in urban areas (2.9 births). The results also show that urban-rural differences in childbearing rates are evident for all age groups (Figure 2). The 20-24 year age cohort has the largest absolute difference. The rate among rural women in this age cohort is 280 births per thousand women, compared to an urban rate of 146 births per thousand.

¹ Data for the first four surveys exclude North Eastern Province, Samburu and Turkana Districts in Rift Valley Province and Isiolo, Moyale and Marsabit Districts in Eastern Province, while the data for the 2003 and 2008-09 surveys include the entire country.



Fertility preferences

Several questions were asked in the survey concerning women's fertility preferences, including: a) whether the respondent wanted another child; and b) if so, when she would like to have the next child. The answers to these questions allow for the estimation of the potential demand for family planning services either to limit or space births.

Table 4 and Figure 3 show that there is considerable desire among Kenyan women to control the timing and number of births. Among all currently married women, 27 percent would like to wait for two years or more for the next birth and 54 percent do not want to have another or are sterilised. Fourteen percent of married women would like to have a child soon (within two years). The remaining women are uncertain about their fertility desires or unable to get pregnant (infecund).

Fertility preferences are closely related to the number of living children a woman has. In general, as the number of living children increases, the desire to have another child decreases and vice versa. The majority of currently married women with no living child (76 percent) would like to have one soon, while a majority of those with one child (55 percent) would prefer to have another one later. Interest in controlling the number of births grows rapidly as the number of children increases; for instance, 84 percent of currently married women with at least 5 children want no more children or are sterilised, in contrast to only 3 percent of women with no child.

Table 4 Fertility preferences by number of living children

Percent distribution of currently married women by desire for children, according to number of living children, Kenya 2008-09

Desire for children	Number of living children ¹							Total
	0	1	2	3	4	5	6+	
Have another soon ²	76.0	30.4	15.1	7.9	5.0	4.1	3.7	13.7
Have another later ³	13.5	55.2	43.7	26.0	13.4	8.8	5.7	26.5
Have another, undecided when	2.7	2.3	1.6	3.6	2.4	1.6	1.5	2.2
Undecided	2.0	2.9	2.9	3.7	4.0	1.5	2.2	2.9
Want no more	2.5	8.1	35.1	54.2	66.3	74.7	74.8	48.8
Sterilised ⁴	0.0	0.3	1.3	3.5	7.3	9.3	10.4	4.8
Declared infecund	3.2	0.7	0.2	0.5	1.6	0.0	1.7	0.9
Missing	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	179	747	1,021	905	733	460	884	4,928

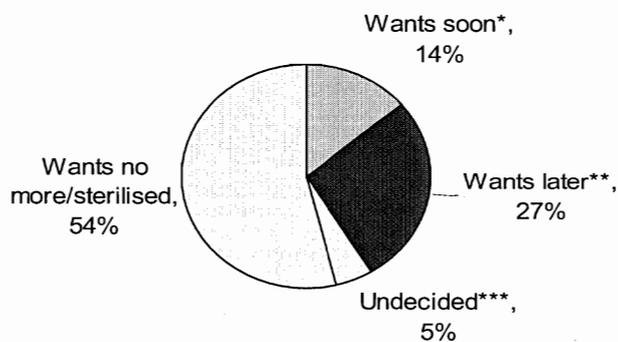
¹ Includes current pregnancy

² Wants next birth within 2 years

³ Wants to delay next birth for 2 or more years

⁴ Includes both male and female sterilisation

Figure 3 Fertility Preferences among Married Women, Kenya 2008-09



* Within the next 2 years

** After 2 years

*** Wants more, undecided when or undecided if wants more

3.4 Infant and Child Mortality

Information on infant and child mortality is useful in identifying segments of the population that are at high risk so that programmes can be designed to reduce it. Childhood mortality rates are also basic indicators of a country's socio-economic level and quality of life. A preliminary review of data quality indicates some displacement of dates of births, but no evidence of underreporting of early infant deaths.

Table 5 presents data on early childhood mortality rates from the 2008-09 KDHS. The level of under-five mortality was 74 deaths per 1,000 births during the five-year period before the survey, implying that at least 1 in every 14 children born in Kenya during the period died before reaching their fifth birthday. The infant mortality rate recorded in the survey was 52 deaths per 1,000 live births.

Years preceding the survey	Neonatal mortality (NN)	Postneonatal mortality (PNN) ¹	Infant mortality (₁ q ₀)	Child mortality (₄ q ₁)	Under-five mortality (₅ q ₀)
0-4	31	21	52	23	74
5-9	35	32	67	29	95
10-14	25	34	59	37	93

¹ Computed as the difference between the infant and neonatal mortality rates

The rates observed in this survey show a remarkable decline in levels of childhood deaths compared to the rates observed in the 2003 and 1998 KDHS surveys (Table 6). For example, the infant mortality rate decreased to 52 deaths per 1,000 live births in 2008-09 from 77 in 2003. Similarly, the under-five-mortality rate decreased to 74 deaths per 1,000 live births in 2008-09 from 115 in 2003. The trend implies that the continuing deterioration in the quality of life amongst the Kenyan population that had been witnessed in the earlier surveys has started a reversal. The improvement in child survival is corroborated by increases in child vaccination coverage and in ownership and use of mosquito bednets (see later sections), both of which have been shown to reduce child mortality. The downward trend in childhood mortality mirrors that seen in other countries, like Tanzania and Zambia (Masanja et al., 2008; CSO et al., 2009).

Survey year	Approximate calendar period	Infant mortality (₁ q ₀)	Under-five mortality (₅ q ₀)
1998	1993-1997	74	112
2003	1998 - 2002	77	115
2008-09	2003 -2007	52	74

Note: Data for the 1998 survey exclude several northern districts

3.5 Family Planning

Information about knowledge and use of contraceptive methods was collected from female respondents by asking them to mention any ways or methods by which a couple can delay or avoid a pregnancy. For each method known, the respondent was asked if she had ever used it. Respondents who reported ever use of family planning were then asked whether they or their partners were using a method at the time of the survey.

Table 7 shows the level and key differentials in the current use of contraception by method as reported by currently married women. Contraceptive methods are grouped into two types in the table, namely modern and traditional methods. Modern methods include female sterilisation, pill, IUD, injectables, implants, male condom, female condom, and lactational amenorrhoea method or LAM. Traditional methods include periodic abstinence (rhythm method), withdrawal, and folk methods.

Table 7 Current use of contraception

Percent distribution of currently married women by contraceptive method currently used, according to background characteristics, Kenya 2008-09

Background characteristic	Modern method									Traditional method				Total	Number of women	
	Any method	Any modern method	Female sterilisation	Pill	IUD	Injectables	Implant	Male condom	LAM	Any traditional method	Periodic abstinence	Withdrawal	Folk method			Not currently using
Age																
15-19	22.5	19.6	0.0	3.2	0.0	14.4	0.0	1.7	0.2	2.9	1.3	1.2	0.5	77.5	100.0	212
20-24	35.7	30.4	0.1	5.8	0.2	21.1	0.6	2.1	0.5	5.2	3.3	0.9	1.0	64.3	100.0	958
25-29	45.3	41.3	0.5	8.1	0.9	26.5	3.1	1.7	0.5	4.0	2.9	0.5	0.6	54.7	100.0	1,088
30-34	54.9	48.8	4.8	8.5	1.4	28.9	2.9	1.6	0.8	6.0	4.9	0.9	0.2	45.1	100.0	962
35-39	51.2	41.2	6.3	7.3	3.7	19.4	1.9	2.4	0.3	10.0	8.3	0.3	1.4	48.8	100.0	694
40-44	52.5	46.6	13.7	9.1	3.3	16.7	1.9	1.3	0.7	5.9	5.0	0.4	0.5	47.5	100.0	548
45-49	40.4	32.4	14.0	5.1	1.8	8.6	1.0	1.7	0.0	8.0	7.0	0.5	0.6	59.6	100.0	466
Residence																
Urban	53.1	46.6	3.0	11.1	2.9	23.5	2.7	2.7	0.8	6.5	5.6	0.5	0.3	46.9	100.0	1,154
Rural	43.1	37.2	5.3	6.1	1.2	21.0	1.7	1.5	0.4	5.9	4.4	0.7	0.8	56.9	100.0	3,774
Province																
Nairobi	55.3	49.0	2.7	13.8	3.9	18.2	4.4	4.4	1.7	6.3	5.6	0.4	0.3	44.7	100.0	363
Central	66.7	62.5	8.1	19.4	5.1	25.7	3.2	0.7	0.3	4.2	2.4	1.2	0.6	33.3	100.0	535
Coast	34.3	29.7	2.1	5.4	0.7	17.8	1.4	1.5	0.8	4.6	4.0	0.6	0.0	65.7	100.0	427
Eastern	52.0	43.8	3.9	9.1	1.4	26.5	1.6	0.6	0.6	8.3	7.1	0.9	0.3	48.0	100.0	844
Nyanza	37.3	32.9	5.7	3.1	0.4	18.0	1.8	3.6	0.3	4.4	2.6	0.4	1.4	62.7	100.0	832
Rift Valley	42.4	34.7	4.1	3.7	0.9	23.0	1.7	1.0	0.2	7.7	6.1	0.9	0.7	57.6	100.0	1,279
Western	46.5	41.1	7.9	5.9	0.8	22.2	1.2	2.8	0.3	5.4	4.0	0.1	1.3	53.5	100.0	518
North Eastern	3.5	3.5	0.0	0.3	0.0	2.1	0.6	0.0	0.4	0.0	0.0	0.0	0.0	96.5	100.0	130
Education																
No education	14.1	12.0	2.6	0.7	0.0	7.2	0.4	0.6	0.5	2.1	1.5	0.2	0.3	85.9	100.0	565
Primary incomplete	40.3	34.8	5.4	4.1	0.8	21.4	1.1	1.7	0.5	5.4	3.6	0.8	1.0	59.7	100.0	1,440
Primary complete	48.2	41.8	4.8	7.3	1.0	25.8	1.3	1.3	0.3	6.4	5.1	0.4	0.9	51.8	100.0	1,436
Secondary +	59.8	52.1	5.0	12.8	3.4	23.3	4.0	2.9	0.7	7.7	6.5	0.9	0.4	40.2	100.0	1,488
Living children																
0	14.7	10.5	0.0	3.4	0.0	3.7	0.9	2.5	0.0	4.2	2.2	1.0	1.0	85.3	100.0	296
1-2	47.0	42.1	0.9	9.9	1.8	24.4	2.2	2.6	0.4	4.9	3.7	0.6	0.6	53.0	100.0	1,763
3-4	53.2	46.4	5.5	7.6	2.1	26.3	2.7	1.6	0.6	6.8	5.4	0.7	0.7	46.8	100.0	1,563
5+	41.2	34.2	10.3	4.1	0.8	16.4	1.0	0.8	0.7	7.0	5.7	0.5	0.8	58.8	100.0	1,307
Total	45.5	39.4	4.8	7.2	1.6	21.6	1.9	1.8	0.5	6.0	4.7	0.7	0.7	54.5	100.0	4,928

Note: If more than one method is used, only the most effective method is considered in this tabulation.

LAM = Lactational amenorrhoea method.

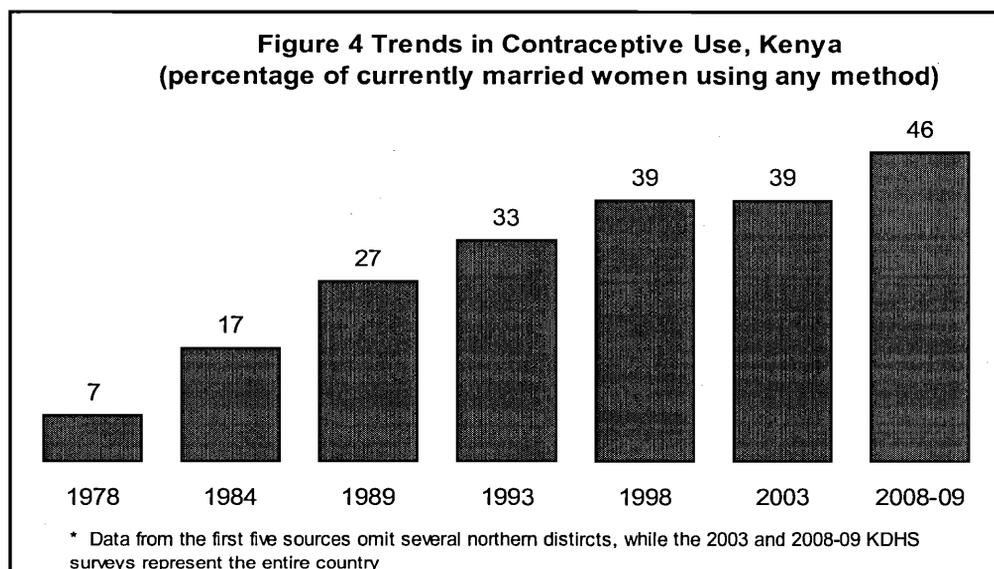
Slightly less than half of currently married women (46 percent) are currently using some method of contraception. Modern methods of contraception are more commonly used (39 percent) than are traditional methods (6 percent). Of the modern methods, injectables are the most widely used, while periodic abstinence is the most popular traditional method.

Contraceptive prevalence peaks among married women in the 30-34 age-group and is lowest for women aged 15-19. A higher percentage of urban women (53 percent) use contraceptives, compared with their rural counterparts (43 percent). Married women in Central Province continue to have the highest contraceptive prevalence rate (67 percent), followed by Nairobi (55 percent) and Eastern Province (52 percent). The lowest level of family planning use is recorded in North Eastern Province at 4 percent.

Contraceptive prevalence increases dramatically with increasing level of education. Sixty percent of married women with at least some secondary education use a contraceptive method, compared to just 40 percent of women with incomplete primary education and only 14 percent of those who never attended school. Married women with 3-4 children are the most likely to be using contraception.

The survey data show a sizeable increase in contraceptive use, from 39 percent of married women in 2003 using any method to 46 percent in 2008-09. Since the early 1980s, there had been a steady increase in family planning use among married women as shown in Figure 4. The contraceptive prevalence rate then remained the same between 1998 and 2003, but increased again between 2003 and 2008-09 at the same momentum as between 1993 and 1998.

Analysis of trends by method shows that the increase in the overall contraceptive prevalence rate is fuelled by increased use of modern methods. Between 2003 and 2008-09, use of modern methods increased from 32 to 39 percent of married women, while use of traditional methods over the same time period actually decreased from 8 to 6 percent of women. Use of female sterilisation, IUD, implants and pill remained fairly constant between 2003 and 2008-09, while there was a notable increase in use of injectables.



3.6 Maternal Health

Proper care during pregnancy and delivery are important for the health of both the mother and the baby. In the survey, women who had given birth in the five years preceding the survey were asked a number of questions about maternal and child health care. For the last live birth in that period, mothers were asked whether they had obtained antenatal care during the pregnancy and whether they had received tetanus toxoid injections and/or iron supplements while pregnant. For each birth in the same period, mothers were also asked what type of assistance they received at the time of delivery. Table 8 presents the results of key maternity care indicators.

Table 8 Maternal care indicators

Percentage of women who had a live birth in the five years preceding the survey who received antenatal care from a health professional for the last live birth and whose last live birth was protected against neonatal tetanus, and among all live births in the five years before the survey, percentage delivered by a health professional and percentage delivered in a health facility, by background characteristics, Kenya 2008-09

Background characteristic	Percentage with antenatal care from a health professional ¹	Percentage whose last live birth was protected against neonatal tetanus ²	Number of women	Percentage delivered by a health professional ¹	Percentage delivered in a health facility	Number of births
Mother's age at birth						
<20	88.5	64.7	564	47.7	46.6	953
20-34	93.3	74.5	2,883	43.9	42.7	4,234
35+	84.7	66.5	526	37.4	36.2	665
Residence						
Urban	95.8	73.9	823	74.8	74.7	1,074
Rural	90.3	71.5	3,150	36.8	35.4	4,777
Province						
Nairobi	96.4	73.5	269	88.9	89.4	334
Central	92.7	81.0	371	73.8	73.0	466
Coast	94.5	76.9	330	45.6	44.4	495
Eastern	93.4	76.3	630	43.1	42.8	890
Nyanza	93.6	73.2	733	45.5	44.2	1,145
Rift Valley	88.4	65.0	1,103	33.7	32.9	1,642
Western	91.5	71.8	442	25.8	25.3	703
North Eastern	69.5	61.6	97	31.6	17.3	178
Education						
No education	72.4	58.4	441	19.2	15.0	763
Primary incomplete	90.7	70.5	1,262	28.5	28.0	1,952
Primary complete	95.0	75.1	1,225	48.9	48.1	1,761
Secondary +	96.3	76.1	1,045	72.5	71.6	1,375
Total	91.5	72.0	3,973	43.8	42.6	5,852

¹ Doctor, nurse or midwife

² Includes mothers with two injections during the pregnancy of the last live birth, or two or more injections (the last within 3 years of the last live birth), or three or more injections (the last within 5 years of the last live birth), or four or more injections (the last within ten years of the last live birth), or five or more injections prior to the last live birth

Antenatal care

More than nine in ten mothers reported seeing a health professional at least once for antenatal care for the most recent birth in the five-year period before the survey. Coverage is slightly higher in urban areas than in rural areas (96 percent and 90 percent, respectively). Coverage is also slightly higher among mothers aged 20-34 compared to those below or above this age bracket. Across provinces, the proportion of mothers reporting they received antenatal care from a health professional is lower in North Eastern (70 percent) compared with a range of 88-96 percent in other provinces. The data indicate a marked improvement since 2003 in medical antenatal care coverage in North Eastern province (25 percent compared to 70 percent). As the mother's educational level rises, so does the likelihood that she will see a health professional for care during pregnancy. The results show that 72 percent of women with no education

received antenatal care from a doctor, nurse or midwife, compared with 91 percent of women with incomplete primary education and 96 percent of those with higher education.

Tetanus toxoid

Tetanus toxoid injections are given during pregnancy to prevent neonatal tetanus which used to be a major cause of infant deaths. Table 8 indicates that tetanus toxoid coverage is widespread though not universal among pregnant women in Kenya. Seventy-two percent of the mothers' most recent live births were protected against neonatal tetanus. Younger and older mothers are somewhat less likely to have their last live birth protected against tetanus than mothers aged 20-34 years. Urban mothers are slightly more likely than rural mothers to have their last live birth protected against neonatal tetanus. Differences by province are minimal, except that 62 percent of mothers in North Eastern and 65 percent of mothers in Rift Valley Province had their last live birth protected against neonatal tetanus, compared with 72-81 percent in other provinces. The likelihood that a mother will have her last live birth protected against neonatal tetanus increases with her educational level.

Delivery care

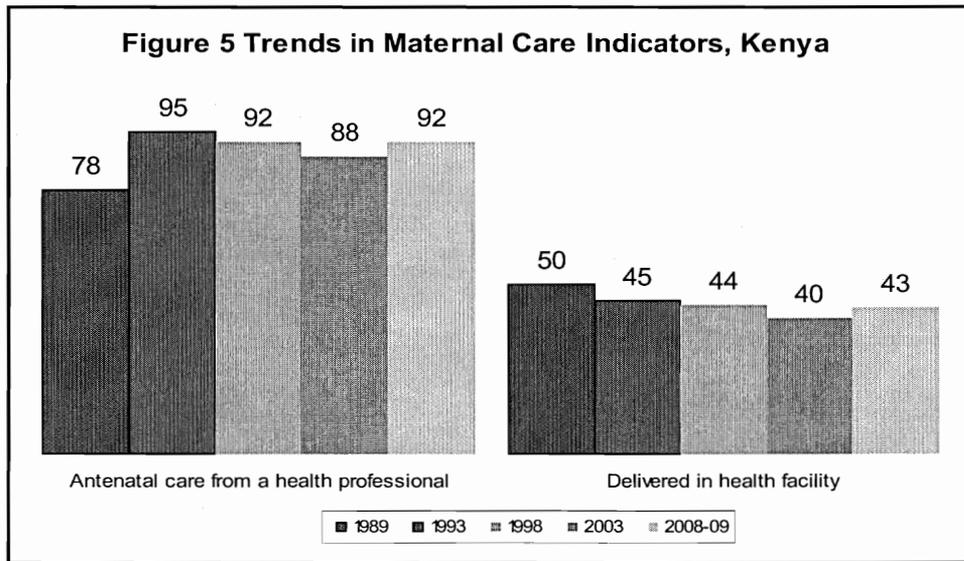
Proper medical attention and hygienic conditions during delivery could reduce the risk of complications and infections that could cause the death or serious illness of the mother and/or the baby. Table 8 shows that 44 percent of births in Kenya are delivered by a health professional. A similar proportion of deliveries (43 percent) take place in health facilities.

Differentials in delivery care by background characteristics of the mother are generally similar to those for antenatal care. Mother's age at birth is inversely related to the likelihood of receiving medical assistance during delivery and delivering in a health facility. Rural women and less educated women are far less likely than others to receive medical assistance during delivery and to deliver in a health facility. For example, urban mothers (75 percent) are twice as likely as rural mothers (37 percent) to have a medically assisted delivery. The likelihood of a medically assisted delivery also increases substantially with the mother's educational level, from 19 percent among mothers with no education to 73 percent among mothers with at least some secondary education. Mothers in Nairobi (89 percent) and Central Province (74 percent) are more likely to receive medical assistance during delivery. Women in Nairobi (89 percent) and Central Province (73 percent) are also more likely to deliver in health facilities. This contrasts sharply with the fact that only 17 percent of births in North Eastern and 25 percent of births in Western Provinces take place in health facilities.

Trends in maternity care indicators

As with other comparisons, analysis of trends in maternity care indicators is complicated by the fact that previous surveys omitted the entire northern part of Kenya, due to its relatively small and largely nomadic population. Another obstacle is the fact that the previous KDHS surveys asked questions on antenatal care and tetanus injections for all births in a specified period prior to the survey, whereas the 2003 and 2008-09 KDHS confined these questions to only the most recent birth. In the 1998 KDHS, the questions on maternity care and children's health referred to births in the three years preceding the survey, while all other KDHS surveys used a five-year reference period.

Figure 5 shows the trends in key maternity care indicators between the 1989 and 2008-09 KDHS surveys. The proportion of mothers reporting they received antenatal care from a health professional has increased slightly between 2003 (88 percent) and 2008-09 (92 percent). The percentage of births occurring in health facilities has also increased slightly from 40 percent in 2003 to 43 percent in 2008-09.



3.7 Child Health

Vaccination of children

According to the World Health Organisation, a child is considered fully vaccinated if he or she has received: a BCG vaccination against tuberculosis; three doses of DPT vaccine to prevent diphtheria, pertussis, and tetanus (or three doses of pentavalent which includes 2 additional vaccines); at least three doses of polio vaccine; and one dose of measles vaccine. These vaccinations should be received during the first year of life. The 2008-09 KDHS collected information on the coverage for these vaccinations among all children born in the five years preceding the survey.

The information on vaccination coverage was obtained in two ways; from health cards and from mother’s verbal reports. All mothers were asked to show the interviewer health cards used for the child’s immunisation. If the card was available, the interviewer copied the dates of each vaccination received. If a vaccination was not recorded on the card as being given, the mother was asked to recall whether that particular vaccination had been given. If the mother was not able to present a card for a child at all, she was further asked to recall whether the child had received BCG, polio, DPT/pentavalent and measles. If she indicated that the child had received the polio or DPT/pentavalent vaccines, she was asked the number of doses that the child received.

Table 9 presents information on vaccination coverage for children aged 12-23 months, who should be fully vaccinated against the six preventable childhood illnesses. The results are based both on the health card record and information provided by the mother. The table shows that health cards were available for 7 in 10 of the children covered.

Table 9 Vaccinations by background characteristics

Percentage of children age 12-23 months who received specific vaccines at any time before the survey (according to a vaccination card or the mother's report), and percentage with a vaccination card seen, by background characteristics, Kenya 2008-09

Background characteristic	BCC	DPT/ Pentavalent 1	DPT/ Pentavalent 2	DPT/ Pentavalent 3	Polio 0 ¹	Polio 1	Polio 2	Polio 3	Measles	All ²	No vaccinations	Percentage with a vaccination card	Number of children
Sex													
Male	94.6	94.7	91.1	82.9	58.4	95.5	92.7	84.8	84.1	75.3	4.1	68.8	547
Female	96.6	97.0	95.2	89.8	60.2	97.2	95.4	90.2	85.9	79.5	2.3	72.0	550
Residence													
Urban	96.2	96.9	94.7	87.7	61.7	97.1	95.6	88.5	90.4	80.9	2.4	55.3	252
Rural	95.4	95.5	92.7	86.0	58.6	96.1	93.6	87.2	83.4	76.3	3.5	74.9	844
Province													
Nairobi	93.8	95.0	88.5	82.2	65.2	94.6	90.2	82.9	87.6	73.1	3.9	41.8	56
Central	90.7	92.7	92.7	92.2	73.5	92.7	92.7	92.3	88.3	85.8	7.3	75.6	74
Coast	96.5	96.5	95.1	86.7	50.8	96.6	94.8	87.1	85.4	75.8	3.0	78.0	104
Eastern	97.5	97.1	96.4	91.7	76.2	97.3	97.1	91.5	88.7	84.2	2.5	87.3	157
Nyanza	93.0	93.6	88.3	77.0	55.2	95.1	90.7	80.5	78.0	64.6	4.4	62.2	203
Rift Valley	99.2	98.6	97.4	92.9	62.6	98.7	97.1	92.7	89.3	85.0	0.8	68.7	347
Western	93.1	93.9	90.0	81.5	38.3	95.5	93.5	83.5	77.7	73.1	4.2	75.4	129
North Eastern	85.0	85.9	74.4	57.1	31.1	87.2	74.5	65.5	78.9	48.3	12.8	47.8	27
Education													
No education	93.8	93.8	90.2	81.2	43.3	94.6	89.2	80.6	78.8	67.4	5.0	76.8	120
Primary incomplete	95.4	95.7	90.7	82.7	55.3	95.9	92.5	83.9	80.1	71.2	3.6	74.7	375
Primary complete	95.4	95.5	94.6	87.8	60.8	96.5	95.1	90.6	87.0	80.3	2.8	71.0	336
Secondary +	97.0	97.4	96.0	92.1	70.2	97.6	97.2	91.6	92.1	87.0	2.2	60.7	266
Total	95.6	95.8	93.1	86.4	59.3	96.4	94.1	87.5	85.0	77.4	3.2	70.4	1,096

¹ Polio 0 is the polio vaccination given at birth. The data on polio vaccinations have been adjusted for a likely confusion of polio 0 and polio 1; for children who received three doses of DPT-Pentavalent and polio 0, polio 1, and polio 2, it was assumed that polio 0 was in fact polio 1, polio 1 was polio 2, and polio 2 was polio 3.

² BCC, measles and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth)

Overall, 77 percent of children aged 12-23 months are fully vaccinated and only 3 percent of children have not received any vaccines. Looking at coverage for specific vaccines, 96 percent of children have received the BCG vaccination, 96 percent the first DPT/ pentavalent dose and 96 percent the first polio dose (Polio 1). Coverage declines for subsequent doses, with 86 percent of children receiving the recommended three doses of DPT/pentavalent and 88 percent receiving all three doses of polio. The decline in coverage levels reflects dropout rates of 10 percent for DPT/pentavalent and 9 percent for polio. The dropout rate represents the proportion of children who receive the first dose of a vaccine but do not go on to get the third dose. The proportion of children vaccinated against measles is 85 percent.

Differentials in coverage levels show that the proportions of children fully vaccinated in North Eastern and Nyanza Provinces are low compared to other provinces, with only 48 and 65 percent of children fully immunised, respectively. Coverage levels are close to 86 percent for children in Central Province and 85 percent for Rift Valley Province. Coverage is also high (87 percent) among children whose mothers have been to secondary school.

The data indicate that there has been an increase in vaccination coverage since 2003, from 57 percent of children fully immunised in 2003 to 77 percent in 2008-09.

Treatment of childhood illnesses

Acute respiratory illness (ARI), malaria, and dehydration caused by severe diarrhoea are major causes of childhood mortality in Kenya. Prompt medical attention when a child has the symptoms of these illnesses is, therefore, crucial in reducing child deaths. To obtain information on how childhood illnesses are treated, mothers were asked if their children under five years of age had experienced the following symptoms in the two weeks before the survey: cough with short, rapid breathing (symptoms of an acute respiratory infection), fever (symptom of malaria), and diarrhoea.

Table 10 shows that of children under five whose mothers were interviewed in the survey and who were reported to have had a cough with short rapid breathing in the two weeks before the survey, 56 percent were taken for treatment from a health care provider. Differences in treatment-seeking behaviour by background characteristics are minimal, except that children in Nairobi with symptoms of acute respiratory illness are more likely than their counterparts in other provinces to be taken to a health care provider for treatment (90 percent vs. 45-61 percent).

Table 10 also looks at the treatment of fever. The data indicate that treatment from a health care provider was sought for 49 percent of the children who had fever. Differentials in care seeking for fever are minimal, except that children in Western Province are considerably less likely than children in other provinces to be taken for treatment from a health care provider when they have a fever.

Table 10 Treatment for acute respiratory infection, fever, and diarrhoea

Among children under five years who were sick with a cough accompanied by short, rapid breathing or with difficulty breathing due to chest, congestion (symptoms of acute respiratory infection-ARI) or with fever, in the two weeks preceding the survey, percentage for whom treatment was sought from a health facility or provider, and among children under five years who were sick with diarrhoea during the two weeks preceding the survey, percentage for whom treatment was sought from a health facility or provider, percentage given a solution made from oral rehydration salt (ORS) packets or given prepackaged ORS liquids, and percentage given any oral rehydration therapy (ORT) by background characteristics, Kenya 2008-09

Background characteristic	Children with symptoms of ARI		Children with fever		Children with diarrhoea			
	Percentage for whom treatment was sought from a health facility/provider ¹	Number with ARI	Percentage for whom treatment was sought from a health facility/provider ¹	Number with ARI/fever	Percentage for whom treatment was sought from a health facility/provider ¹	Percentage given solution from ORS packet ²	Percentage given any ORT ³	Number with diarrhoea
Age in months								
<6	58.8	25	52.0	107	35.8	21.3	64.9	70
6-11	60.3	58	54.5	202	55.4	38.2	72.3	181
12-23	55.4	102	47.5	312	49.8	45.0	74.9	305
24-35	57.0	79	52.9	233	52.1	38.7	72.4	183
36-47	54.1	87	46.3	235	40.5	31.2	59.8	108
48-59	52.8	65	40.7	212	41.5	43.5	77.2	63
Sex								
Male	57.4	216	49.9	684	50.4	37.8	69.1	490
Female	54.3	200	47.1	617	46.5	40.0	74.2	419
Residence								
Urban	65.5	71	51.9	223	48.3	40.3	71.5	169
Rural	53.9	346	47.9	1,079	48.7	38.5	71.5	740
Province								
Nairobi	89.9	20	50.0	57	45.3	28.8	72.2	37
Central	45.2	33	45.2	116	41.7	28.0	52.0	63
Coast	56.4	58	56.5	163	48.5	41.8	71.2	127
Eastern	52.6	50	53.1	151	40.4	29.4	76.3	126
Nyanza	54.6	81	55.0	249	56.6	47.6	78.3	166
Rift Valley	58.0	123	47.3	331	55.5	39.5	74.2	251
Western	45.4	39	33.3	197	31.4	35.6	62.1	113
North Eastern	60.9	11	53.1	39	67.6	62.1	67.2	27
Education								
No education	57.2	105	50.5	237	51.2	39.8	74.0	161
Primary incomplete	52.5	166	44.3	470	46.2	38.8	70.9	347
Primary complete	57.4	94	47.6	315	46.7	34.2	71.0	238
Secondary +	61.5	51	55.2	281	53.9	44.8	70.9	163
Total	55.9	416	48.6	1,302	48.6	38.8	71.5	909

¹ Excludes pharmacy, shop, and traditional practitioner

² Includes ORS from packets

³ Includes ORS from packets and recommended home fluids

Almost half (49 percent) of children who had diarrhoea in the two weeks before the survey were taken to a health care provider. Children under 6 months are among the least likely to receive treatment from a medical provider. The percentage of children taken to a health provider for treatment of diarrhoea varies across provinces, from 31 percent in Western Province to 68 percent in North Eastern Province.

Oral rehydration therapy (ORT), which involves a prompt increase in the child's intake of fluids, is a simple and effective response to diarrhoeal illness. Mothers reported that 72 percent of the children with diarrhoea were treated with some form of oral rehydration therapy (ORT) and 39 percent were given a solution prepared using a packet of oral rehydration salts (ORS). The use of ORT to treat diarrhoea was least common among children in Central Province (52 percent). Use of ORT is remarkably similar in urban and rural areas and shows no pattern according to education of the mother.

3.8 Malaria

Ownership and use of mosquito bednets

One of the strongest weapons in the fight against malaria is the use of insecticide-treated mosquito nets (ITNs) while sleeping. In the 2008-09 KDHS, data were collected from households on ownership of mosquito nets and the number of nets owned. Respondents were also asked to indicate particular household members who had slept under each net the night prior to the interview.

The data in Table 11 show that 61 percent of households in Kenya report owning at least one mosquito net (treated or untreated), while 54 percent report owning at least one ITN. There are minimal differentials in net ownership between urban and rural areas.

Fifty-one percent of children under five years and 53 percent of pregnant women were reported to have slept under a mosquito net the night prior to the interview. However the proportion of children under five years and pregnant women who slept under an ITN the night prior to the interview declined to 46 and 48 percent, respectively.

Intermittent preventive treatment of pregnant women

Government policy calls for pregnant women to receive two doses of intermittent preventive treatment (IPT) in the second and third trimesters in order to reduce the risk of malaria infection. In order to assess the coverage of this policy, women interviewed in the survey who had a live birth in the two years before the survey were asked if they had received treatment to prevent malaria during the pregnancy.

Table 11 shows the percentage of pregnant women who took antimalarial drugs for prevention and those who received IPT during an antenatal care visit. While 52 percent of the women said they took antimalarial drugs for prevention during the pregnancy, only 15 percent reported receiving IPT (i.e., two doses of SP/Fansidar, at least one of which was given during an antenatal care visit). Women in urban areas are slightly more likely to take antimalarial drugs for prevention during pregnancy and IPT than women in rural areas.

Treatment of children with fever

Prompt and effective treatment for malaria is crucial to prevent the disease from becoming severe and complicated. The 2008-09 KDHS asked mothers whether their children under-five years had a fever in the two weeks preceding the survey and if so, what treatment was given. Table 11 shows the percentage of children with fever in the two weeks preceding the survey who took antimalarial drugs and the percentage who took drugs on the same day or the next day.

Twenty-three percent of children who had fever in the two weeks preceding the survey were given antimalarial drugs; however, only 12 percent took antimalarial drugs the same day or next day after developing fever. Children in urban areas are more likely than those in rural areas to be given antimalarial drugs the same day/next day after developing fever.

Table 11 Malaria indicators

Possession and use of mosquito nets, preventive malaria treatment during pregnancy, and treatment of children with fever using antimalarial drugs, by urban-rural residence, Kenya 2008-09

Malaria indicators	Residence				Total	
	Urban		Rural		Percent- age	Num- ber
	Percent- age	Num- ber	Percent- age	Num- ber		
Mosquito nets						
Percentage of households with at least one mosquito net (treated or untreated)	64.5	2,339	59.6	6,673	60.8	9,057
Percentage of households with at least one ITN	56.3	2,339	53.9	6,673	54.4	9,057
Percentage of children under 5 who slept under a mosquito net the night before the survey	67.4	1,006	47.2	4,946	50.6	5,953
Percentage of children under 5 who slept under an ITN the night before the interview	60.0	1,006	43.2	4,946	46.1	5,953
Percentage of pregnant women age 15-49 who slept under a mosquito net the night before the interview	54.8	146	52.0	455	52.7	601
Percentage of pregnant women age 15-49 who slept under an ITN the night before the interview	50.8	146	47.3	455	48.2	601
Preventive malaria treatment during pregnancy						
Percentage of last births in the 5 years preceding the survey for which the mother took antimalarial drugs for prevention during the pregnancy	53.5	823	51.4	3,150	51.8	3,973
Percentage of last births in the 5 years preceding the survey for which the mother got Intermittent Preventive Treatment (IPT) during an antenatal visit	17.4	823	14.4	3,150	15.0	3,973
Treatment of fever						
Among children under age 5 with fever in the two weeks before the survey, percentage who took antimalarial drugs	25.7	223	22.6	1,079	23.2	1,302
Among children under age 5 with fever in the two weeks before the survey, percentage who took antimalarial drugs the same day/next day after developing fever	16.8	223	10.8	1,079	11.8	1,302

¹ An insecticide-treated net (ITN) is a long-lasting net that does not require any treatment, a pretreated net obtained within the last 12 months or a net that has been soaked with insecticide within the past 12 months.

² Intermittent preventive treatment is preventive treatment with at least two doses of SP/Fansidar during antenatal visit.

3.9 Breastfeeding and Supplementation

Breastfeeding practices and introduction of supplemental foods are important determinants of the nutritional status of children, particularly those under the age of two years. With improved nutritional status, the risk of mortality among children under five years can be reduced and their psycho-motor development enhanced. Breast milk is uncontaminated and contains all the nutrients needed by children in the first six months of life. Supplementing breast milk before six months of age is unnecessary and discouraged because of the likelihood of contamination, which may result in the risk of diarrhoeal diseases.

Table 12 shows that the duration of breastfeeding in Kenya is long. The results reveal that 99 percent of children under 6 months are being breastfed. The proportion of children who are

still being breastfed declines with age. Table 12 further indicates that supplementation of breast milk starts early in Kenya, with 60 percent of children aged 4-5 months being given complementary food. Exclusive breastfeeding (breast milk only) is not common, as only 32 percent of children under six months of age are exclusively breastfed. Most of the supplements given are plain water or other milk. Curiously, 10 percent of babies under two months and 36 percent of those below six months of age are given complementary food, presumably mushy or semi-solid food. By age 6-9 months, 83 percent of children are given complementary foods.

Table 12 Breastfeeding status by age

Among youngest children under three years living with their mother, percent distribution by breastfeeding status and the percentage currently breastfeeding; and among all children under three years, percentage using a bottle with a nipple, according to age in months, Kenya 2008-09

Age in months	Breastfeeding and consuming:							Percent- age currently breast- feeding	Number of youngest children under three years	Percent- age using a bottle with a nipple ¹	Number of all children under three years
	Not breast- feeding	Exclu- sively breast- fed	Plain water only	Non- milk liquids/ juice	Other milk	Comple- mentary food	Total				
0-1	1.1	51.8	22.7	3.7	10.5	10.2	100.0	98.9	159	17.1	161
2-3	0.9	34.8	12.3	0.1	20.4	31.5	100.0	99.1	173	21.5	174
4-5	0.7	13.2	10.4	0.3	15.6	59.9	100.0	99.3	195	33.1	200
6-8	1.2	3.6	3.5	0.0	7.9	83.9	100.0	98.8	324	28.9	327
9-11	6.6	0.1	0.6	1.0	6.2	85.5	100.0	93.4	272	26.1	279
12-17	16.2	0.0	0.8	0.5	1.3	81.2	100.0	83.8	514	14.7	530
18-23	40.7	0.4	0.4	0.1	0.5	57.9	100.0	59.3	501	8.8	566
24-35	77.9	0.0	0.2	0.0	1.0	20.9	100.0	22.1	765	5.9	1,132
0-3	1.0	42.9	17.3	1.8	15.7	21.3	100.0	99.0	332	19.4	335
0-5	0.9	31.9	14.7	1.2	15.6	35.6	100.0	99.1	527	24.5	535
6-9	2.0	2.8	2.9	0.4	9.0	82.8	100.0	98.0	416	29.9	419
12-15	14.0	0.0	1.0	0.6	1.6	82.7	100.0	86.0	333	16.9	341
12-23	28.3	0.2	0.6	0.3	0.9	69.7	100.0	71.7	1,015	11.6	1,096
20-23	46.4	0.6	0.4	0.1	0.3	52.3	100.0	53.6	320	6.7	366

Note: Breastfeeding status refers to a "24-hour" period (yesterday and last night). Children classified as breastfeeding and consuming plain water only consume no supplements. The categories of not breastfeeding, exclusively breastfed, breastfeeding and consuming plain water, water-based liquids/juice, other milk, and complementary foods (solids and semi-solids) are hierarchical and mutually exclusive, and their percentages add to 100 percent. Thus children who receive breast milk and water-based liquids and who do not receive complementary foods are classified in the water-based liquid category even though they may also get plain water. Any children who get complementary food are classified in that category as long as they are breastfeeding as well.

¹ Based on all children under three years

3.10 Nutritional Status of Children

Malnutrition places children at increased risk of morbidity and mortality and has also been shown to be related to impaired mental development. Anthropometry provides one of the most important indicators of children's nutritional status. In the 2008-09 KDHS, height and weight measurements were obtained for children born in the five years before the survey. The height and weight data are used to compute three summary indices of nutritional status: height-for-age; weight-for-height; and weight-for-age. These three indices are expressed as standardised scores (z-scores) or standard deviation units from the median for the child growth standards recommended by the World Health Organisation. Children who fall more than two standard deviations below the reference median are regarded as undernourished, while those who fall more than three standard deviations below the reference median are

considered severely undernourished. Table 13 shows the nutritional status among children under five years of age by selected background characteristics.

Children whose height-for-age is below minus two standard deviations from the median of the reference population are considered stunted or short for their age. Stunting is the outcome of failure to receive adequate nutrition over an extended period and is also affected by recurrent or chronic illness. According to the 2008 KDHS findings, 35 percent of Kenyan children are stunted, while 14 percent are severely stunted. Stunting levels increase rapidly with age, peaking at 46 percent among children in the second year of life and remaining at 32-35 percent among older children. Stunting levels are slightly higher for boys than girls and for rural children than for urban children. The prevalence of stunting varies by province from 29 percent in Nairobi to 42 percent in Eastern Province. Children of mothers with secondary or higher education are much less likely to be stunted than children whose mothers achieved only the primary level or never attended school.

Children whose weight-for-height is below minus two standard deviations from the median of the reference population are considered wasted (or thin). Wasting represents the failure to receive adequate nutrition in the period immediately before the survey, and typically is the result of recent illness episodes, especially diarrhoea, or of a rapid deterioration in food supplies. Table 13 shows that 7 percent of Kenyan children are wasted, with 2 percent severely wasted. Wasting levels are highest for the ages 6-8 months, the period in which the child is being weaned and, consequently, is more vulnerable to illness. Wasting is markedly higher in North Eastern Province, where 20 percent of children under five years are wasted compared with 2 percent in Western Province.

Children whose weight-for-age is below minus two standard deviations (-2 SD) from the median of the reference population are considered underweight. The measure reflects the effects of both acute and chronic malnutrition. Sixteen percent of Kenyan children are underweight, with 4 percent classified as severely underweight. Peak levels of low weight-for-age are found among children aged 24-35 months, as well as children in North Eastern Province and those whose mothers have no education.

Trends in nutritional status are difficult to ascertain due to the recent adoption of new growth standards as well as to the fact that many previous surveys omitted parts of northern Kenya. Comparison of the 2008-09 results with those from the 2003 KDHS using the previous nutritional growth standards (NCHS/CDC/WHO) indicates that there has been almost no change in the proportion of children who are stunted, wasted, and underweight (data not shown).

Table 13 Nutritional status of children

Percentage of children under five years classified as malnourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, by background characteristics, Kenya 2008-09

Background characteristic	Height-for-age		Weight-for-height		Weight-for-age		Number of children
	Percentage below -3 SD	Percentage below -2 SD ¹	Percentage below -3 SD	Percentage below -2 SD ¹	Percentage below -3 SD	Percentage below -2 SD ¹	
Age in months							
<6	4.4	11.2	5.1	9.7	2.9	7.9	470
6-8	9.1	22.8	1.3	11.4	1.5	12.6	319
9-11	14.6	30.5	1.0	10.6	3.4	14.5	271
12-17	15.0	41.8	2.5	6.3	3.0	17.1	542
18-23	21.9	45.7	0.6	4.9	1.9	12.2	545
24-35	20.3	45.4	1.6	6.6	5.5	19.4	1,143
36-47	12.6	35.0	1.1	3.8	3.4	15.8	1,085
48-59	10.5	31.8	2.2	7.3	4.0	19.4	1,094
Sex							
Male	16.0	37.4	2.1	7.8	4.2	16.8	2,787
Female	12.3	33.1	1.6	5.6	3.0	15.4	2,682
Residence							
Urban	8.7	26.4	1.3	5.3	1.2	10.3	912
Rural	15.3	37.1	2.0	7.0	4.1	17.3	4,557
Province							
Nairobi	8.7	28.5	1.5	3.8	1.6	7.9	264
Central	9.4	32.4	1.1	4.9	1.8	12.1	442
Coast	14.3	39.1	3.0	10.8	5.4	23.5	484
Eastern	17.1	41.9	1.4	7.3	4.2	19.8	880
Nyanza	13.0	30.9	1.5	3.9	2.2	10.6	991
Rift Valley	14.9	35.7	2.1	8.9	3.9	19.1	1,541
Western	14.8	34.2	1.0	2.3	3.9	11.8	733
North Eastern	17.7	35.2	8.3	19.5	8.1	24.5	133
Mother's education²							
No education	17.3	38.6	5.2	14.9	7.5	28.0	639
Primary incomplete	15.9	40.2	1.8	6.3	3.9	17.9	1,698
Primary complete	14.0	35.8	1.3	5.5	2.5	15.2	1,520
Secondary +	9.0	25.5	0.9	3.8	1.6	7.6	1,159
Mother's status							
Mother interviewed	13.9	35.3	1.8	6.6	3.4	16.0	5,016
Mother not interviewed	17.1	35.4	2.0	8.5	6.0	17.6	453
Total	14.2	35.3	1.9	6.7	3.6	16.1	5,470

Note: Table is based on children who slept in the household the night before the interview. Each of the indices is expressed in standard deviation units (SD) from the median of the WHO Child Growth Standards adopted in 2006. The indices in this table are NOT comparable to those based on the previously used NCHS/CDC/WHO standards. Table is based on children with valid dates of birth (month and year) and valid measurement of both height and weight.

¹ Includes children who are below -3 standard deviations (SD) from the International Reference Population median

² For women who are not interviewed, information is taken from the Household Questionnaire. Excludes children whose mothers are not listed in the Household Questionnaire

³ Includes children whose mothers are deceased

3.11 Domestic Violence

As part of the 2008-09 KDHS, selected women respondents were asked a series of questions concerning domestic violence. This was the second time the module on domestic violence was administered in KDHS; the first having been done in 2003. Specifically, women who were married or living with a man, separated, or divorced were asked if their current or most recent husband/partner ever physically harmed them, i.e. by pushing, slapping, punching, kicking, or trying to strangle or burn them or threatening them with a weapon. They were also asked if

their husband had ever physically forced them to have sexual intercourse or perform other sexual acts when they did not want to. Because of the sensitivity of these questions, if there was more than one eligible woman in the household, the domestic violence section was administered to only one, randomly selected woman. Interviewers were instructed to inform the selected woman that she would be the only one asked these questions in that household. Interviewers were also trained on the importance of ensuring confidentiality of these questions and were instructed not to ask them if the interview was not being conducted in private. Data on the prevalence of domestic violence are given in Table 14.

Background characteristic	Physical or sexual violence		Sexual violence		Total
	Ever	Last year	Ever	Last year	
Age					
15-19	29.0	27.2	8.5	8.5	170
20-29	37.5	31.9	14.0	12.8	1,691
30-39	40.1	32.7	15.2	13.8	1,356
40-49	42.7	33.0	15.5	14.3	830
Residence					
Urban	33.7	29.4	13.3	12.5	975
Rural	40.7	33.1	14.8	13.5	3,072
Province					
Nairobi	24.6	22.5	8.2	8.2	311
Central	35.1	26.2	10.4	8.8	467
Coast	29.0	22.8	13.2	11.4	348
Eastern	31.5	25.9	12.5	11.3	675
Nyanza	54.1	45.2	21.6	19.2	663
Rift Valley	39.8	35.3	15.3	14.7	1,052
Western	50.4	36.9	17.6	16.5	423
North Eastern	32.8	27.5	2.7	2.1	108
Education					
No education	44.9	39.9	13.8	12.4	480
Primary incomplete	47.7	39.9	19.3	17.5	1,252
Primary complete	38.1	31.2	14.4	13.7	1,146
Secondary +	28.3	21.8	9.7	8.7	1,169
Marital status					
Currently married	36.4	30.2	12.9	11.8	3,688
Married once	36.2	29.9	12.6	11.7	3,489
Married more than once	40.9	35.3	17.1	14.4	199
Divorced/separated	65.9	53.1	31.0	27.8	359
Total 15-49	39.0	32.2	14.5	13.3	4,047

Thirty-nine percent of married, divorced or separated women aged 15-49 report that they have ever been physically or sexually violated by their husbands or partners, while 32 percent report that they were victims of such violence in the year preceding the survey. Fifteen percent of women reported that they have ever been sexually abused, while 13 percent were abused in the past year. The results further show that older women are more likely than younger women to report having ever been beaten or sexually assaulted. Rural women are more likely than urban women to be victims of physical or sexual violence in marriage.

Women in Nyanza and Western Provinces appear to have higher risk of violence than women in other provinces. Women with some secondary education are less likely to be victims of physical or sexual violence than less educated women. The women that bear the brunt of

violence more than others are those with primary incomplete level of education. Women who were divorced or separated reported substantially higher levels of violence than any other women, a factor which most likely contributed to their divorce or separation. Two-thirds of women who are divorced or women indicated that they had ever been physically or sexually violated, while over one-half of them were violated the year prior to the survey.

3.12 HIV/AIDS Knowledge, Attitudes and Practice

Acquired Immune Deficiency Syndrome (AIDS) is one of the most serious public health challenges that continue to face Kenya. The 2008-09 KDHS included a series of questions that inquired about respondents' knowledge about AIDS and their awareness of modes of transmission of the Human Immunodeficiency Virus (HIV) that causes AIDS. Over 99 percent of women and men said they had heard of AIDS.

Knowledge about HIV/AIDS

Knowledge of the three key ways to reduce AIDS transmission is important in the fight against HIV/AIDS. Abstaining from sex, being faithful to one uninfected partner, and using condoms are important ways to avoid the spread of HIV/AIDS. To ascertain the depth of knowledge about modes of HIV/AIDS transmission, respondents were asked general questions as to whether there is anything a person can do to avoid getting AIDS or the virus that causes AIDS, and if so, what can be done. They were further asked whether it is possible to reduce the chance of getting AIDS by having just one faithful sexual partner, using a condom at every sexual encounter, and not having sex at all. Table 15 shows the percentage of women and men by their answers to these questions by background characteristics.

The results show that knowledge of HIV prevention methods is widespread, although there are differences between women and men. Three-quarters (75 percent) of women and 81 percent of men aged 15 to 49 years know that that people can reduce the risk of getting AIDS virus by using condoms every time they have sexual intercourse. Ninety two percent of women and 93 percent of men know that limiting sexual intercourse to one uninfected partner can reduce the chances of getting HIV. Just under 90 percent of women and men say that abstinence can lower the risk of becoming infected with the virus that causes AIDS. All these figures represent substantial increases from similar data from the 2003 KDHS.

Table 15 Knowledge of HIV prevention methods

Percentage of women and men age 15-49 who, in response to prompted questions, say that people can reduce the risk of getting the AIDS virus by using condoms every time they have sexual intercourse, by having one uninfected sex partner who has no other partners, and by abstaining from sexual intercourse, by background characteristics, Kenya 2008-09

Background characteristic	Women					Men				
	Using condoms ¹	Limiting sexual intercourse to one uninfected partner ²	Using condoms and limiting sexual intercourse to one uninfected partner	Abstaining from sexual intercourse	Number	Using condoms ¹	Limiting sexual intercourse to one uninfected partner ²	Using condoms and limiting sexual intercourse to one uninfected partner	Abstaining from sexual intercourse	Number
Age										
15-24	72.9	89.4	67.9	87.5	3,475	79.1	90.5	74.2	87.6	1,406
15-19	67.0	87.9	61.4	87.4	1,761	75.7	89.2	70.6	87.8	776
20-24	79.0	91.0	74.6	87.7	1,715	83.4	92.0	78.6	87.3	630
25-29	78.5	92.2	75.7	86.6	1,454	76.5	92.1	73.8	91.1	483
30-39	77.7	93.0	74.2	89.5	2,086	85.7	95.9	84.2	92.7	806
40-49	70.9	93.3	68.3	90.0	1,429	83.3	95.4	80.6	90.3	563
Marital status										
Never married	73.7	89.9	69.1	88.2	2,634	79.6	90.7	75.1	87.6	1,524
Ever had sex	84.0	93.1	80.2	88.5	1,224	84.2	90.9	79.2	87.9	995
Never had sex	64.8	87.2	59.4	87.8	1,410	71.0	90.4	67.4	87.2	529
Married or living together	74.7	92.1	71.4	87.6	4,928	82.4	95.1	80.0	92.2	1,592
Divorced/separated /widowed	77.7	92.7	73.4	92.4	881	81.8	91.4	79.7	87.3	142
Residence										
Urban	81.4	95.2	79.4	90.0	2,148	86.1	93.7	82.1	92.5	866
Rural	72.4	90.2	68.0	87.7	6,296	79.3	92.6	76.1	88.9	2,392
Province										
Nairobi	85.9	94.5	83.4	87.5	728	94.6	94.6	90.5	95.9	314
Central	82.8	95.2	81.0	93.3	905	87.2	98.4	86.2	91.6	347
Coast	72.7	93.6	70.9	89.3	674	76.5	90.6	71.9	93.3	252
Eastern	70.9	96.2	69.0	92.4	1,376	79.8	91.2	74.4	86.7	530
Nyanza	81.3	94.4	78.3	91.9	1,389	89.4	96.0	86.1	96.6	520
Rift Valley	71.5	86.8	65.6	82.4	2,262	80.5	95.2	78.8	90.5	885
Western	74.7	86.3	66.7	88.4	927	67.5	81.6	62.0	75.7	349
North Eastern	16.7	79.5	14.2	77.3	184	23.4	82.6	20.8	75.9	62
Education										
No education	45.4	78.0	40.9	76.9	752	45.1	81.6	42.3	78.1	112
Primary incomplete	70.9	89.2	66.2	87.7	2,526	75.7	89.3	71.2	87.6	883
Primary complete	79.4	93.1	75.2	89.4	2,272	81.1	94.7	79.0	89.5	804
Secondary +	81.9	95.7	79.4	90.9	2,894	87.1	95.0	83.7	92.3	1,459
Total 15-49	74.7	91.5	70.9	88.3	8,444	81.1	92.9	77.7	89.8	3,258
Men 50-54	na	na	na	na	na	67.4	97.2	66.1	89.7	207
Total 15-54	na	na	na	na	na	80.3	93.2	77.0	89.8	3,465

na = Not applicable

¹ Using condoms every time they have sexual intercourse

² Partner who has no other partners

Knowledge of prevention methods among women and men age 15 to 19 is lower for all methods compared with people age 20 and above. Similarly, knowledge of how people can reduce the risk of getting AIDS is lower among those who have never had sex than among those who are married or living together with a partner, and those who are divorced/separated/widowed or those who never married but have had sex.

The results further indicate that urban dwellers are more knowledgeable than their rural counterparts on all methods of reducing the risk of HIV infection. The level of awareness by province generally shows that women and men in North Eastern Province are less knowledgeable than others on most of the methods of prevention of HIV/AIDS. The results also show that the level of education attained is strongly related to respondents' knowledge of ways to avoid contracting HIV/AIDS. Both women and men with lower levels of education exhibit lower levels of knowledge of HIV/AIDS prevention than those with higher levels of education.

Multiple sexual partners and higher-risk sexual intercourse

Tables 16.1 and 16.2 show results of persons who engaged in higher-risk sex in the 12 months prior to the survey (higher-risk sexual encounters are defined as sex with non-marital, non-cohabiting partners). The results indicate that among those who had sex in the last 12 months, men are twice as likely as women to engage in higher-risk sex (35 percent vs. 18 percent). Likewise, 9 percent of all men had sex with two or more partners in the past 12 months, compared with only 1 percent of all women.

The results further show that among respondents who had sex with two or more partners in the past 12 months, only 32 percent of women and 37 percent of men reported using a condom during last sexual intercourse. The results indicate that men are more likely to use condoms than women. The results show that among respondents who had sexual intercourse in the past 12 months with a person who was neither their husband or wife nor a cohabiting partner, 35 percent of women and 62 percent of men reported using a condom at last sexual intercourse with that person.

The results indicate that men have three times the number of sexual partners in their lifetime compared to women. Women reported a mean of 2.1 sexual partners in their lifetime, compared with an average of 6.3 for men.

Looking at differentials in sexual behaviour shows that married women and men are far less likely to report having two or more partners in the previous year than are those who have never married or who are divorced, separated, or widowed. Respondents in their forties are also less likely to engage in risky sexual behaviour. The survey also looked at use of condoms during higher-risk sexual activity. Among never-married respondents who had sexual intercourse in the past 12 months with more than one partner, 55 percent of women reported using a condom during last sexual intercourse, compared with 71 percent of men.

Table 16.1 Multiple sexual partners and higher-risk sexual intercourse in the past 12 months: Women

Among all women age 15-49, percentage who had sexual intercourse with more than one sexual partner and percentage who had intercourse in the past 12 months with a person who was neither their husband nor who lived with them; among women age 15-49 who had sexual intercourse in the past 12 months, percentage who had sex with more than one partner and percentage who had intercourse in the past 12 months with a person who was neither their husband nor who lived with them; among those having more than one partner in the past 12 months, percentage reporting that a condom was used at last intercourse; and among those having sexual intercourse in the past 12 months with a person who was neither their husband nor who lived with them, percentage reporting that a condom was used at last intercourse with that person; and the mean number of sexual partners during her lifetime for women who ever had sexual intercourse, by background characteristics, Kenya 2008-09

Background characteristic	All respondents			Among respondents who had sexual intercourse in the past 12 months:			Among respondents who had 2+ partners in the past 12 months:		Among respondents who had higher-risk intercourse in the past 12 months ¹		Among respondents who ever had sexual intercourse	
	Percent-age who had 2+ partners in the past 12 months	Percentage who had higher-risk intercourse in the past 12 months ¹	Number	Percent-age who had 2+ partners in the past 12 months	Percentage who had higher-risk intercourse in the past 12 months ¹	Number	Percentage who used a condom during last sexual inter-course	Number	Percentage who used a condom at last higher-risk sex	Number	Mean number of sexual partners in life-time	Number
Age												
15-24	1.6	16.7	3,475	3.1	33.0	1,765	37.1	54	39.5	582	1.8	2,109
15-19	1.3	15.4	1,761	4.6	56.0	486	*	22	41.0	272	1.6	639
20-24	1.9	18.1	1,715	2.5	24.2	1,279	(36.2)	32	38.2	310	1.9	1,470
25-29	0.9	12.5	1,454	1.1	14.2	1,277	*	13	31.8	181	2.1	1,400
30-39	1.4	9.2	2,086	1.5	10.4	1,848	(23.2)	28	31.2	192	2.3	2,037
40-49	0.3	8.7	1,429	0.4	11.4	1,091	*	4	26.4	124	2.3	1,391
Marital status												
Never married	1.4	28.0	2,634	4.9	98.4	749	(54.7)	37	37.0	737	1.9	1,211
Married/living together	0.9	0.8	4,928	0.9	0.8	4,778	2.1	44	15.8	41	2.0	4,872
Divorced/separated/widowed	2.2	34.2	881	4.3	66.4	454	*	20	33.7	302	3.2	854
Residence												
Urban	2.2	18.1	2,148	3.0	25.1	1,545	45.3	47	38.1	388	2.4	1,784
Rural	0.8	11.0	6,296	1.2	15.6	4,436	19.7	53	33.7	691	2.0	5,153
Province												
Nairobi	1.8	21.7	728	2.6	30.4	519	*	13	44.8	158	2.2	603
Central	1.8	10.7	905	2.5	14.8	650	*	16	36.7	96	2.7	742
Coast	2.5	13.1	674	3.4	17.6	501	*	17	21.1	88	1.8	560
Eastern	0.5	8.8	1,376	0.7	12.5	975	*	7	27.5	121	2.3	1,088
Nyanza	1.3	14.8	1,389	1.8	20.0	1,023	*	18	38.6	205	2.3	1,195
Rift Valley	0.6	14.3	2,262	0.9	20.4	1,577	*	14	34.3	322	1.7	1,890
Western	1.5	9.6	927	2.3	14.6	608	*	14	37.2	89	2.3	717
North Eastern	0.0	0.0	184	0.0	0.0	128	*	0	-	0	1.1	141
Education												
No education	0.9	6.0	752	1.1	7.7	582	*	6	4.1	45	1.7	693
Primary incomplete	1.2	12.9	2,526	1.7	18.4	1,775	(30.0)	31	34.1	326	2.4	2,011
Primary complete	1.2	11.2	2,272	1.7	15.0	1,695	(21.4)	28	30.7	255	2.1	1,949
Secondary +	1.2	15.7	2,894	1.8	23.5	1,930	(44.3)	35	41.7	454	2.0	2,284
Total 15-49	1.2	12.8	8,444	1.7	18.0	5,981	31.8	100	35.3	1,079	2.1	6,937

Note: Figures in parentheses are based on 25-49 unweighted cases, while an asterisk denotes a figure based on fewer than 25 cases that has been suppressed.

¹ Sexual intercourse with a partner who neither was a spouse nor lived with the respondent

Table 16.2 Multiple sexual partners and higher-risk sexual intercourse in the past 12 months: Men

Among all men age 15-49, percentage who had sexual intercourse with more than one sexual partner and percentage who had intercourse in the past 12 months with a person who was neither their wife nor who lived with them; among men age 15-49 who had sexual intercourse in the past 12 months, percentage who had sex with more than one partner and percentage who had intercourse in the past 12 months with a person who was neither their wife nor who lived with them; among those having more than one partner in the past 12 months, percentage reporting that a condom was used at last intercourse; and among those having sexual intercourse in the past 12 months with a person who was neither their wife nor who lived with them, percentage reporting that a condom was used at last intercourse with that person; and the mean number of sexual partners during her lifetime for men who ever had sexual intercourse, by background characteristics, Kenya 2008-09

Background characteristic	All respondents			Among respondents who had sexual intercourse in the past 12 months:			Among respondents who had 2+ partners in the past 12 months:		Among respondents who had higher-risk intercourse in the past 12 months ¹		Among respondents who ever had sexual intercourse	
	Percent-age who had 2+ partners in the past 12 months	Percentage who had higher-risk intercourse in the past 12 months ¹	Number	Percent-age who had 2+ partners in the past 12 months	Percentage who had higher-risk intercourse in the past 12 months ¹	Number	Percentage who used a condom during last sexual inter-course	Number	Percentage who used a condom at last higher-risk sex	Number	Mean number of sexual partners in life-time	Number
Age												
15-24	7.7	35.5	1,406	17.9	83.0	601	67.3	108	64.4	498	3.9	857
15-19	4.3	24.3	776	17.4	98.0	192	69.1	33	55.3	188	3.0	333
20-24	11.8	49.3	630	18.2	75.9	409	66.5	74	70.0	310	4.5	524
25-29	9.7	30.5	483	10.8	33.9	435	39.9	47	65.0	147	5.8	428
30-39	12.3	15.8	806	13.2	16.9	755	16.5	99	54.7	127	7.2	725
40-49	8.8	6.7	563	9.3	7.1	533	(9.5)	49	(51.0)	38	9.8	466
Marital status												
Never married	7.2	41.4	1,524	17.0	97.8	645	71.3	109	63.8	631	4.3	955
Married/living together	11.0	7.0	1,592	11.2	7.1	1,574	13.9	176	63.2	112	7.3	1,394
Divorced/separated/widowed	13.0	47.9	142	17.7	65.2	104	*	18	48.2	68	10.4	126
Residence												
Urban	10.5	25.8	866	12.9	31.6	708	38.7	91	70.7	224	6.6	698
Rural	8.9	24.6	2,392	13.1	36.4	1,615	36.3	212	59.2	587	6.2	1,778
Province												
Nairobi	7.5	33.4	314	8.9	39.5	265	59.1	24	73.0	105	5.6	262
Central	5.1	28.4	347	7.2	40.1	246	22.0	18	52.3	99	8.3	290
Coast	12.6	25.0	252	15.8	31.4	200	34.1	32	68.2	63	7.8	194
Eastern	4.9	19.3	530	8.3	33.1	310	46.5	26	42.3	102	4.9	348
Nyanza	15.9	28.3	520	22.4	39.8	370	34.9	83	69.9	147	5.6	399
Rift Valley	9.8	22.6	885	13.0	29.9	668	36.0	87	65.4	200	6.0	671
Western	8.8	26.8	349	13.5	40.9	229	35.5	31	60.6	93	8.1	274
North Eastern	7.2	2.8	62	12.2	4.7	36	*	4	*	2	(1.8)	38
Education												
No education	16.2	16.7	112	20.5	21.1	88	*	18	*	19	6.0	89
Primary incomplete	8.1	24.8	883	13.2	40.4	543	30.6	71	46.0	219	6.4	590
Primary complete	9.9	24.2	804	12.9	31.5	618	34.6	80	63.9	195	6.9	622
Secondary +	9.2	25.9	1,459	12.5	35.2	1,074	45.3	134	72.4	378	6.0	1,175
Total 15-49	9.3	24.9	3,258	13.1	34.9	2,323	37.0	304	62.4	811	6.3	2,476
Men 50-54	10.0	5.9	207	12.1	7.2	171	*	21	*	12	12.9	158
Total 15-54	9.4	23.8	3,465	13.0	33.0	2,494	34.9	324	61.8	823	6.7	2,633

Note: Figures in parentheses are based on 25-49 unweighted cases, while an asterisk denotes a figure based on fewer than 25 cases that has been suppressed.

¹ Sexual intercourse with a partner who neither was a spouse nor lived with the respondent

3.13 Female Genital Cutting

Female genital cutting—sometimes called female circumcision or female genital mutilation—is practiced in many Kenyan communities. It involves the partial or total removal of the external female genitalia or other injury to the female organs for cultural or other non-therapeutic reasons. The practice is widely condemned as harmful, because it can pose risks to the health and even life of the women and girls who are subjected to it and it violates internationally accepted human rights. In the 2008-09 KDHS, women were asked if they had ever heard of female circumcision and if so, whether they themselves had ever been circumcised.

The results in Table 17 show that almost all women have heard of female circumcision, with only small differentials by background characteristics. Just over one-quarter (27 percent) of women report that they themselves are circumcised. The prevalence of female genital cutting varies widely by background characteristics. The practice appears to be diminishing among younger women, declining from 49 percent among women 45-49 to only 15 percent of those age 15-19. Rural women are more likely than urban women to have been circumcised.

The largest differentials are seen by province. Almost all women in North Eastern Province (98 percent) report having been circumcised, compared to less than one percent of women in Western Province. The practice is far less prevalent among educated women than those with no education.

Female genital cutting appears to be declining slowly over time. The 1998 KDHS documented 38 percent of women had been circumcised. This declined to 32 percent in 2003 and to 27 percent in 2008-09.

Table 17 Knowledge and prevalence of female circumcision

Percentage of women who have heard of female circumcision and percentage circumcised, according to background characteristics, Kenya 2008-09

Background characteristic	Percentage of women who have heard of female circumcision	Percentage of women circumcised	Number of women
Age			
15-19	93.3	14.6	1,761
20-24	96.2	21.1	1,715
25-29	97.1	25.3	1,454
30-34	96.9	30.0	1,209
35-39	96.8	35.1	877
40-44	97.4	39.8	768
45-49	96.9	48.8	661
Residence			
Urban	97.5	16.5	2,148
Rural	95.6	30.6	6,296
Province			
Nairobi	98.3	13.8	728
Central	98.7	26.5	905
Coast	85.2	10.0	674
Eastern	98.5	35.8	1,376
Nyanza	93.2	33.8	1,389
Rift Valley	97.8	32.1	2,262
Western	95.3	0.8	927
North Eastern	99.9	97.5	184
Education			
No education	87.5	53.7	752
Primary incomplete	94.4	28.8	2,526
Primary complete	97.3	26.4	2,272
Secondary+	98.8	19.1	2,894
Total	96.1	27.1	8,444

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