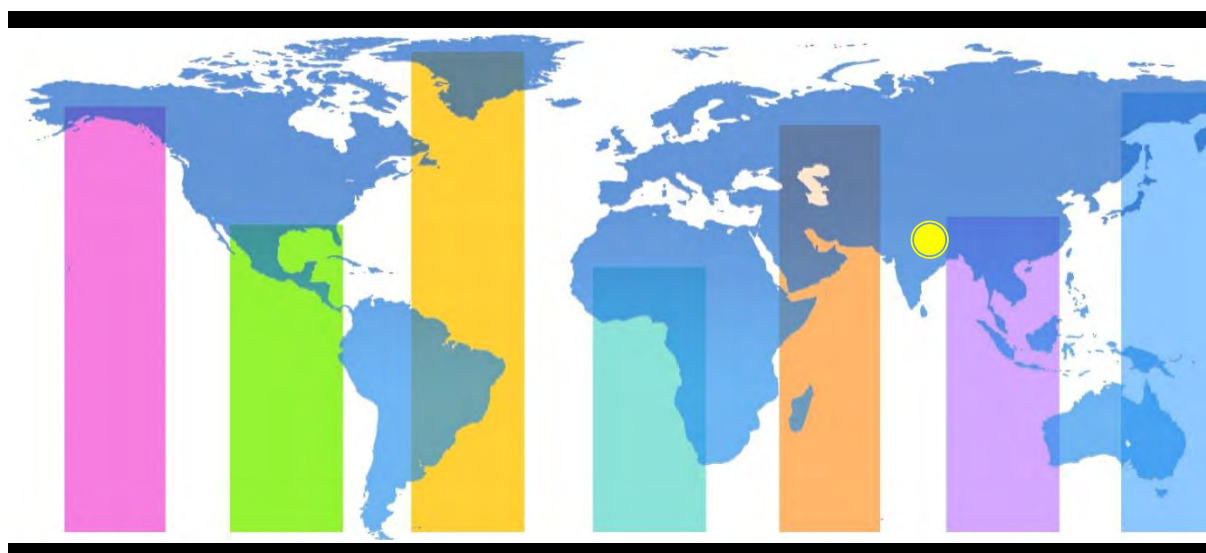


Nepal



**Demographic and
Health Survey**

2016

Key Indicators

Nepal

Demographic and Health Survey 2016

Key Indicators Report

Ministry of Health
Ramshah Path, Kathmandu
Nepal

New ERA
Kathmandu, Nepal

The DHS Program
ICF
Rockville, Maryland, USA

April 2017



New ERA



Ministry of Health

The 2016 Nepal Demographic and Health Survey (2016 NDHS) was implemented by New ERA under the aegis of the Ministry of Health of Nepal. Funding for the survey was provided by the United States Agency for International Development (USAID). ICF provided technical assistance through The DHS Program, which assists countries in the collection of data to monitor and evaluate population, health, and nutrition programs.

Additional information about the 2016 NDHS may be obtained from the Ministry of Health, Ramshahpath, Kathmandu; Telephone: (+) 977-1-4262543/4262802; Internet: <http://www.moh.gov.np>; and New ERA, Rudramati Marg, Kathmandu, P.O. Box 722, Kathmandu 44600, Nepal; Telephone: +977-1-4413603; Email: info@newera.com.np; Internet: <http://www.newera.com.np>.

Information about The DHS Program may be obtained from ICF, 530 Gaither Road, Suite 500, Rockville, MD 20850, USA; Telephone: +1-301-407-6500; Fax: +1-301-407-6501; E-mail: info@DHSprogram.com; Internet: www.DHSprogram.com.

Suggested citation:

Ministry of Health, Nepal; New ERA; and ICF. 2017. *Nepal Demographic and Health Survey 2016: Key Indicators*. Kathmandu, Nepal: Ministry of Health, Nepal.

CONTENTS

TABLES AND FIGURES	v
FOREWORD	vi
1 INTRODUCTION.....	1
1.1 Survey Objectives.....	1
2 SURVEY IMPLEMENTATION	3
2.1 Sample Design.....	3
2.2 Questionnaires	4
2.3 Pretest	6
2.4 Training of Field Staff	6
2.5 Fieldwork.....	7
2.6 Data Processing	8
3 KEY FINDINGS.....	9
3.1 Response Rates.....	9
3.2 Household Sanitation.....	9
3.3 Characteristics of Respondents.....	10
3.4 Fertility	12
3.5 Teenage Pregnancy and Motherhood	13
3.6 Fertility Preferences.....	14
3.7 Family Planning.....	15
3.8 Need and Demand for Family Planning	17
3.9 Source of Modern Contraception.....	19
3.10 Early Childhood Mortality.....	20
3.11 Maternal Care	21
3.11.1 Antenatal Care	22
3.11.2 Tetanus Toxoid	23
3.11.3 Delivery Care.....	23
3.11.4 Postnatal Care for the Mother	24
3.12 Child Health and Nutrition	25
3.12.1 Vaccination of Children.....	25
3.12.2 Childhood Acute Respiratory Infection, Fever, and Diarrhea	27
3.12.3 Nutritional Status of Children.....	28
3.12.4 Infant and Young Child Feeding Practices	32
3.12.5 Micronutrient Intake among Children.....	34
3.13 Anemia Prevalence in Children	36
3.14 Nutritional Status of Women.....	37
3.15 Anemia Prevalence in Women	39
3.16 HIV/AIDS Awareness, Knowledge, and Behavior	41
3.16.1 Knowledge of HIV Prevention	41
3.16.2 Comprehensive Knowledge about HIV Prevention among Young People	42
3.16.3 Multiple Sexual Partners.....	43
3.17 Coverage of HIV Testing Services	46
3.18 Blood Pressure.....	49
REFERENCES	53

TABLES AND FIGURES

Table 3.1	Results of the household and individual interviews	9
Table 3.2	Household sanitation facilities.....	10
Table 3.3	Background characteristics of respondents	11
Table 3.4	Current Fertility	12
Table 3.5	Teenage pregnancy and motherhood	14
Table 3.6	Fertility preferences by number of living children	15
Table 3.7	Current use of contraception according to background characteristics	16
Table 3.8	Need and demand for family planning among currently married women	18
Table 3.9	Source of modern contraception methods	20
Table 3.10	Early childhood mortality rates	21
Table 3.11	Maternal care indicators	22
Table 3.12	Vaccinations by background characteristics.....	26
Table 3.13	Treatment for acute respiratory infection, fever, and diarrhea	28
Table 3.14	Nutritional status of children	30
Table 3.15	Breastfeeding status by age	33
Table 3.16	Micronutrient intake among children	35
Table 3.17	Anemia among children.....	37
Table 3.18	Nutritional status of women	39
Table 3.19	Anemia among women.....	40
Table 3.20	Knowledge of HIV prevention methods.....	42
Table 3.21	Comprehensive knowledge about HIV prevention among young people	43
Table 3.22	Multiple sexual partners and higher-risk sexual intercourse in the past 12 months among men	45
Table 3.23.1	Coverage of prior HIV testing: Women	47
Table 3.23.2	Coverage of prior HIV testing: Men.....	48
Table 3.24.1	Blood pressure status: Women	50
Table 3.24.2	Blood pressure status: Men.....	51
Figure 3.1	Trends in total fertility rate, 1993-2016	13
Figure 3.2	Trends in unmet need, modern contraceptive use, and percentage of demand satisfied with modern methods, 1996-2016.....	19
Figure 3.3	Trends in childhood mortality, 1991-2016.....	21
Figure 3.4	Trends in maternal health care, 2001-2016.....	24
Figure 3.5	Trends in vaccination coverage among children 12-23 months, 1996-2016.....	27
Figure 3.6	Trends in nutritional status of children, 1996-2016	31
Figure 3.7	Nutritional status of children by age	32
Figure 3.8	Minimum acceptable diet according to age, in months.....	34

FOREWORD

The 2016 Nepal Demographic and Health Survey (NDHS) was conducted as a periodic update of the demographic and health situation in Nepal. The 2016 NDHS was the fifth DHS survey to be conducted in Nepal in collaboration with the worldwide Demographic and Health Surveys Program. The survey was implemented by New ERA under the aegis of the Ministry of Health (MOH), Government of Nepal. The survey was funded by the United States Agency for International Development (USAID), and ICF provided technical support.

The purpose of the 2016 NDHS was to generate reliable information on fertility; family planning; adult and child mortality; maternal and child health; nutrition; women's empowerment and domestic violence; knowledge of HIV and AIDS; and other health issues. Data collection for the survey was carried out from June 19, 2016, to January 31, 2017. This report, which presents key findings from the 2016 NDHS, is intended to provide policy makers and program managers with a first glimpse of the survey results. A more comprehensive, detailed report is scheduled for late 2017.

The MOH wishes to acknowledge the efforts of a number of organizations and individuals who contributed substantially to the success of the survey. First, we would like to express our gratitude to the Government of the Nepal for granting permission to implement the fifth DHS in the country. Second, we would like to acknowledge the financial assistance and support of the United States Agency for International Development (USAID). We would also like to thank ICF for technical backstopping throughout the survey.

The MOH appreciates the effort that New ERA has made in implementing this survey successfully. The survey could not have been carried out successfully without the dedication of the staff of New ERA who planned, participated in, and oversaw the entire process of the NDHS. We would like to extend our gratitude to all the field staff who undertook this vital task to successfully accomplish the data collection of NDHS with commitment, dedication, and hard work.

Finally, we are grateful to the survey respondents who generously gave their time to provide the information that forms the basis of this report. Likewise, we acknowledge the support from the respective local authorities whose support was vital for the successful implementation of the field work.



Dr. Dipendra Raman Singh

Chief, Public Health Administration Monitoring and Evaluation Division
Ministry of Health

1 INTRODUCTION

The 2016 Nepal Demographic and Health Survey (NDHS) is the fifth Demographic and Health Survey (DHS) conducted in Nepal. It was implemented by New ERA under the aegis of the Ministry of Health (MOH). Data collection took place from June 19, 2016, to January 31, 2017. Funding for the 2016 NDHS was provided by the United States Agency for International Development (USAID). ICF provided technical assistance through The DHS Program, which assists countries in the collection of data to monitor and evaluate population, health, and nutrition programs.

This key indicators report presents a first look at selected findings of the 2016 NDHS. A comprehensive analysis of the data will be presented in a final report in September 2017.

1.1 SURVEY OBJECTIVES

The primary objective of the 2016 NDHS project is to provide up-to-date estimates of basic demographic and health indicators. Specifically, the 2016 NDHS collected information on fertility levels, marriage, fertility preferences, awareness and use of family planning methods, breastfeeding practices, nutrition, maternal and child health and mortality, awareness and behavior regarding HIV/AIDS, women's empowerment and domestic violence, and other sexually transmitted infections (STIs), and other health-related issues such as smoking, knowledge of tuberculosis, and prevalence of hypertension.

The information collected through the 2016 NDHS is intended to assist policymakers and program managers in the Ministry of Health and other organizations in designing and evaluating programs and strategies for improving the health of the country's population. The 2016 NDHS also provides indicators relevant to the Nepal Health Sector Strategy (NHSS) – 2016-2021 and the Sustainable Development Goals (SDGs).

2 SURVEY IMPLEMENTATION

2.1 SAMPLE DESIGN

The sampling frame used for the 2016 NDHS is an updated version of the frame of the National Population and Housing Census (NPHC) conducted in Nepal in 2011, provided by the Central Bureau of Statistics (CBS). The census frame is a complete list of all census wards created for the 2011 NPHC. Although the NPHC was conducted four years ago, the frame had to be updated, due to the consecutive changes in the urban/rural classification on the ward level; new municipalities were declared and old municipalities had been upgraded by adding more wards. Originally, the 2011 NPHC included 58 municipalities; this number increased to 191 municipalities during 2014 and 26 more municipalities were declared yielding a total of 217 municipalities in Nepal in 2015. As of March 10, 2017 there has been a structural change in the classification of urban and rural locations officially known as Nagarpalika and Gaonpalika. The country now has 263 municipalities, and 59% of the total population live in the urban areas. The 2016 NDHS takes into account the updated urban-rural classification for presenting the results.

Nepal is divided into 75 districts distributed across the different ecological zones and development regions. According to the recent changes approved by Nepal's Constituent Assembly, declared in September 2015, administratively, Nepal is divided into seven federal states (State 1, State 2, State 3, State 4, State 5, State 6, and State 7). Each state is sub-divided into urban and rural areas. The demarcation of the federal states involves inclusion of selected districts within its boundaries. Though entire districts were selected for inclusion in most cases, two districts, namely, Rukum and Nawalparasi, were split to two separate states.

The following chart highlights the distribution of the districts into the seven federal states by ecological zones and development regions:

State 1	Ecological region	Eastern Development Region	
	Mountain	Taplejung, Sankhuwasabha, Solukhumbu	
	Hill	Panchthar, Dhankuta, Terhathum, Bhojpur, Okhaldhunga, Khotang, Udayapur	
	Terai	Ilam, Jhapa, Morang, Sunsari	
State 2	Ecological region	Eastern Development Region	Central Development Region
	Terai	Saptari, Siraha	Dhanusha, Mahottari, Sarlahi, Rautahat, Bara, Parsa
State 3	Ecological region	Central Development Region	
	Mountain	Dolakha, Sindhupalchowk, Rasuwa	
	Hill	Dhading, Makwanpur, Sindhuli, Ramechhap, Kavrepalanchowk, Lalitpur, Bhaktapur, Kathmandu, Nuwakot	
	Terai	Chitwan	
State 4	Ecological region	Western Development Region	
	Mountain	Manang, Mustang	
	Hill	Gorkha, Lamjung, Tanahu, Syangja, Kaski, Myagdi, Parbat, Baglung	
	Terai	Nawalparasi (east)	
State 5	Ecological region	Western Development Region	Mid-western Development Region
	Hill	Gulmi, Palpa, Arghakhanchi,	Pyuthan, Rolpa, Rukum (east)
	Terai	Nawalparasi (west), Rupandehi, Kapilvastu	Dang, Banke, Bardiya
State 6	Ecological region	Mid-western Development Region	
	Mountain	Jumla, Dolpa, Kalikot, Mugu, Humla	
	Hill	Rukum (west), Salyan, Surkhet, Dailekh, Jajarkot	
State 7	Ecological region	Far-western Development Region	
	Mountain	Bajura, Darchula, Bajhang	
	Hill	Doti, Achham, Baitadi, Dadeldhura	
	Terai	Kailali, Kanchanpur	

The districts are divided into urban (municipalities) and rural (village development committees), which are further divided into wards. The sampling frame contains information about the ward location, type of residence (urban or rural), and estimated number of residential households and population. In rural areas, the wards, which are small, with an average size of 104 households, served as the primary sampling

units (PSUs). In urban areas, the wards are large with an average of 800 households per ward. For the original 58 municipalities, the CBS has a frame of enumeration areas (EAs) for each ward. However, for the 159 municipalities declared in 2014 and 2015, each consists of old wards, which are small and can work as EAs.

The 2016 NDHS sample is stratified and was selected in two stages in rural areas and in three stages in urban areas. In rural areas, wards were selected as primary sampling units (PSUs), and households were selected from the sample PSUs. In urban areas, wards were selected as the PSUs, one EA was selected from each PSU, and then households were selected from the sample EAs.

Each federal state was stratified into urban and rural areas yielding 14 sampling strata. Samples of wards were selected independently in each stratum. Implicit stratification and proportional allocation were achieved at each of the lower administrative levels by sorting the sampling frame within each sampling stratum before sample selection, according to administrative units in different levels, and by using a probability-proportional-to-size selection at the first stage of sampling.

Thus, in the first stage, 383 wards were selected with a probability proportional to the ward size and with independent selection in each sampling stratum within the sample allocation. The ward size is the number of residential households residing in the ward census used in the 2011 NPHC. Due to the large size of the urban wards, in the second stage of sample selection for urban areas, one EA was randomly selected from each of the sample wards. A household listing operation was carried out in all of the selected sampling clusters (rural wards or urban EAs), and the resulting lists of households served as the sampling frame for the selection of households in the next stage. Some of the selected clusters were large. To minimize the task of household listing for the selected clusters that had more than 200 households, each large cluster was segmented. Only one segment was selected for the survey, with probability proportional to the segment size. Household listing was conducted only in the selected segment. So a 2016 NDHS cluster is either a ward, an EA, or a segment of a ward or EA.

In the last stage of selection, a fixed number of 30 households per cluster was selected with an equal probability systematic selection from the newly created household listing. The survey interviewers were to interview only the pre-selected households. No replacements and no changes of the pre-selected households were allowed in the implementing stages in order to prevent bias. Because of the non-proportional sample allocation, the sample was not a self-weighting sample. Weighting factors have been calculated, added to the data file, and applied so that results are representative at the national as well as regional and state level.

All women age 15-49 who were either permanent residents of the selected households or visitors who stayed in the households the night before the survey were eligible to be interviewed. In half of the households (every second household) selected, all men age 15-49 who were either residents of the selected households or visitors who stayed in the household the night before the survey were eligible to be interviewed. The survey involved collection of biomarker information from a subsample of the households.

2.2 QUESTIONNAIRES

Five questionnaires were used for the 2016 NDHS: the Household Questionnaire, the Woman's Questionnaire, the Man's Questionnaire, the Biomarker Questionnaire, and the Verbal Autopsy Questionnaire for neonatal deaths. The first four questionnaires, based on The DHS Program's standard Demographic and Health Survey (DHS-7) questionnaires, were adapted to reflect the population and health issues relevant to Nepal. The Verbal Autopsy Questionnaire was based on the recent 2014 World Health Organization (WHO) verbal autopsy instruments (World Health Organization 2015). Input was solicited from various stakeholders representing government ministries and agencies, nongovernmental organizations, and international donors. The survey protocol was reviewed and approved by the Nepal Health Research Council (NHRC) and the ICF Institutional Review Board. The 2016 NDHS required written consent from the household head to carry out the interviews and also to test for anemia.

After all questionnaires were finalized in English, they were translated into Nepali, Maithili, and Bhojpuri languages. The Household, Woman's and Man's Questionnaires were programmed into tablet computers to facilitate computer-assisted personal interviewing (CAPI) for data collection purposes, with the capability to choose any of the three languages for each questionnaire. The Biomarker Questionnaire was completed on paper during the data collection and then entered into the CAPI system. The Verbal Autopsy Questionnaire was also completed on paper.

The Household Questionnaire was used to list all members of the households and visitors to selected households. Basic demographic information was collected on the characteristics of each person listed, including his or her age, sex, marital status, education, and relationship to the head of the household. For children under age 18, the parents' survival status was determined. The data on age and sex of household members obtained in the Household Questionnaire were used to identify women and men who were eligible for individual interviews. The Household Questionnaire also collected information on characteristics of the household's dwelling unit, such as source of water, type of toilet facilities, materials used for the floor of the dwelling unit, ownership of various durable goods, and migration.

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

- Background characteristics (including age, education, and media exposure)
- Pregnancy history and child mortality
- Knowledge, use, and source of family planning methods
- Fertility preferences (including desire for more children, ideal number of children)
- Antenatal, delivery, and postnatal care
- Breastfeeding and infant feeding practices
- Vaccinations and childhood illnesses
- Women's work and husbands' background characteristics
- Domestic violence
- Knowledge, awareness, and behavior regarding HIV/AIDS and other sexually transmitted infections (STIs)
- Adult mortality, including maternal mortality
- Knowledge, attitudes, and behavior related to other health issues (e.g., tuberculosis)

The Man's Questionnaire was administered to all men age 15-49 in the subsample of households selected for the male survey. The Man's Questionnaire collected much of the same information as the Woman's Questionnaire did but was shorter because it did not contain a detailed reproductive history or questions on maternal and child health.

The Biomarker Questionnaire recorded the anthropometry measurements, anemia testing, and blood pressure measurements. These questionnaires were administered only to a subsample that was selected for the survey of men. All children 0-59 months, and all women and men age 15 and older in these households were eligible for height and weight measurement. Similarly, children age 6-59 months and women age 15-49 were eligible for anemia testing. Blood pressure was measured for all women and men age 15 and older in the subsample.

The Verbal Autopsy Questionnaire was administered in households where a neonatal death was identified that took place within the 5 years prior to the survey. Interviewers were advised to interview the mothers to the extent possible, but if other members of the household who were present when the baby died could report on the event, then they could also be interviewed. The questionnaire included questions on the respondent's account of illness leading to the death of neonates, vital registration and certification, general signs and symptoms associated with the illness, history of injury, and service utilization, which assist in proper diagnosis of the cause of death of the neonates.

Tablet computers were used for data collection by the enumerators. The tablet computers were equipped with Bluetooth® technology to enable remote electronic transfer of files, such as assignments from the team supervisor to the interviewers, individual questionnaires to survey team members, and completed questionnaires from interviewers to team supervisors. The computer-assisted personal interviewing (CAPI) data collection system employed in the 2016 NDHS was developed by The DHS Program with the mobile version of CSPro. The CSPro software was developed jointly by the U.S. Census Bureau, Serpro S.A., and The DHS Program.

2.3 PRETEST

Twelve enumerators, five members of the core team of the project and four data processing personnel from New ERA, participated in the training and fieldwork to pretest the NDHS survey protocol over a 3-week period in February 2016. Most of the participants had previous experience carrying out NDHS surveys. The idea behind having the data processing staff participate in the pretest was to familiarize them with the CAPI system. The training was carried out by ICF staff who focused on the technical components of the survey, biomarkers, and CAPI system.

The pretest training prepared the trainers to later conduct the main training of field staff. The training focused on key components of the survey like age probing; interview techniques and procedures for completing the NDHS questionnaires; birth history, family planning, and contraceptive calendar; completing the vaccination section; standardization procedures for anthropometry; blood pressure measurement, and anemia testing. The participants worked in groups using various training techniques, for example, interactive question-and-answer sessions, case studies, and role plays. Along with the enumerators, the trainers administered the questionnaires in the field, provided feedback on the content and language of the questionnaires, tested the CAPI software program, and learned various techniques of training. Emphasis was given to adult learning principles, and the training was hands-on with in-class exercises.

The fieldwork for the pretest was carried out in three locations focusing on the three language groups of Nepal (Maithili, Bhojpuri, and Nepali). These locations were Lalbandi in Sarlahi district for Maithili, Birgunj in Bara district for Bhojpuri, and Dhading district for Nepali. The reason for selecting Dhading was to gain some understanding of the unique issues in earthquake-affected areas. Each team carried out the pretest in an urban and a rural location, completing six clusters in total. Following the fieldwork, a debriefing session was held with the pretest field staff, and modifications to the questionnaires were made based on lessons drawn from the exercise.

2.4 TRAINING OF FIELD STAFF

The main training for the 2016 NDHS started on May 15, 2016, in Kathmandu. The training included 2 weeks of orientation on use of paper questionnaires followed by 1 week of CAPI training. Selected participants were trained to collect biomarker information during the fourth week. Specialized training on conducting a verbal autopsy was carried out for the supervisors and selected enumerators.

The participants for the main training included 101 trainees, selected through a strict vetting process. They took a written test and a computerized test, and also took part in a personal interview to qualify for participating in the main training. Attendees came from different parts of Nepal and represented major language groups within the country. Most of the candidates had previous fieldwork experience, and some had experience gained through previous rounds of the Nepal DHS.

Five members of the core project staff and three data processing personnel from New ERA also participated in the training as facilitators. These New ERA staff members were trained during the pretest training in preparation for the main training. They took the initiative in managing the training. ICF staff provided technical support during the training sessions. The participants were divided into two classrooms of about 50 participants each. The training sessions included discussion of concepts, procedures, and

methodology of conducting the DHS survey. Participants were guided through the questionnaires. In-class exercises were carried out, keeping in mind that involving participants in the training process gives them a better understanding of the training content. Resource persons from the Ministry of Health attended the sessions to provide technical guidance. Various techniques were used to facilitate the training. These included role playing on filling a household schedule, age probing in pairs, consistency checking for age and date of birth, correcting errors in the pregnancy history table, filling up a contraceptive calendar with given cases, creating a vaccination card for an imaginary child, and filling in the questionnaires using the cards prepared by colleagues. The training also included discussions of the CAPI system, demonstrations of the CAPI DHS menus, and conducting interviews through the CAPI system.

The 2016 NDHS involved collecting data on three major types of biomarkers, namely, anthropometry, hemoglobin/anemia, and blood pressure. Two female members and one male member of each team were trained to take height and weight measurements. The two female members were also trained in carrying out anemia testing and blood pressure measurement, while the one male member was trained in blood pressure measurement. Unlike the 2011 NDHS, the 2016 survey involved measuring the heights and weights of men. The supervisors of the teams were also trained in taking blood pressure measurements. The biomarker training included lecture sessions, hands-on demonstrations, and practical exercises. Children were brought to the training venue for the participants to practice taking their measurements and testing blood samples for hemoglobin (finger and heel pricks) on children. A complete day was assigned to practice blood pressure measurement and hemoglobin testing. After intense training and practice sessions, a standardization exercise was carried out for anthropometry, in which the instructor and all measurers weighed and measured the same group of children twice to assess the accuracy and precision of the measurements. The results of the standardization exercise were entered onto an Excel spreadsheet and presented to the participants. The accuracy and precision were compared against the true value as well as the mean value of the measurers. Those who were out of range three or more times were invited to a separate session and trained further.

Participants were evaluated through in-class exercises, quizzes, and observations made during field practice. Ultimately, 16 supervisors were identified based on their performance. Similarly, 64 participants were selected to serve as enumerators, while the rest were kept as reserves. A specialized training on conducting verbal autopsy on the cause of neonatal death was carried out for one female interviewer and the supervisor of each team. The supervisors received additional training in performing supervisory activities with the CAPI system, data quality control procedures, fieldwork coordination, and management. The supervisors were trained on assigning households and receiving completed interviews from the interviewers, recognizing and dealing with error messages, receiving a system update and distributing updates to the interviewers, completing biomarker questionnaires, resolving duplicated cases, closing clusters, and transferring interviews to the central office via the secure Internet File Streaming System (IFSS) developed by the DHS Program. Six quality controllers were identified from among the trainees who underwent training with the supervisors and also received additional training on supporting the teams and monitoring the fieldwork.

2.5 FIELDWORK

The fieldwork of the 2016 NDHS was launched under close supervision, on June 19, 2016, in the clusters in Kathmandu. Sixteen teams consisting of one supervisor, one male interviewer, and three female interviewers were assigned across the different clusters in Kathmandu. The teams were closely monitored by the trainers and the quality controllers. After the completion of the fieldwork in Kathmandu in the first week, teams were brought back to the central office for a review session where the teams got an opportunity to clarify any questions they had. The teams were then dispatched to their respective districts. Data collection lasted until January 31, 2017. The fieldwork in some districts took longer than expected due to the monsoon season where flooding and landslides impacted the mobility of the field teams.

Fieldwork monitoring was an integral part of the 2016 NDHS, and several rounds of monitoring were carried out by the NDHS core team, the quality controllers, and ICF staff. The technical team from the Ministry of Health and the Nepal Health Research Council also monitored the fieldwork. The monitors were provided with guidelines for overseeing the fieldwork. Weekly field check tables were generated from the completed interviews that were sent to the central office to monitor progress in the fieldwork and regular feedback was sent out to the teams.

2.6 DATA PROCESSING

The processing of the 2016 NDHS data began almost as soon as the fieldwork started. As data collection was completed in each cluster, all electronic data files were transferred via IFSS to the New ERA central office in Kathmandu. These data files were registered and checked for inconsistencies, incompleteness, and outliers. The field teams were alerted to any inconsistencies and errors. Secondary editing, carried out in the central office, involved resolving inconsistencies and coding the open-ended questions. The New ERA senior data processor coordinated the exercise at the central office. The NDHS core team members assisted with the secondary editing. The biomarker paper questionnaires were compared with the electronic data file to check for any inconsistencies in data entry. Data entry and editing were carried out using the CSPro software package. The concurrent processing of the data offered a distinct advantage, because it maximized the likelihood of the data being error-free and accurate. Timely generation of field check tables allowed for effective monitoring. The secondary editing of the data was completed in the second week of February 2017. The final cleaning of the data set was carried out by The DHS Program data processing specialist by the end of February 2017.

Throughout this report, numbers in the tables reflect weighted numbers. Percentages based on 25 to 49 unweighted cases are shown in parentheses, and percentages based on fewer than 25 unweighted cases are suppressed and replaced with an asterisk, to caution readers when interpreting data that a percentage based on fewer than 50 cases may not be statistically reliable.

3 KEY FINDINGS

3.1 RESPONSE RATES

Table 3.1 shows response rates for the 2016 NDHS. A total of 11,473 households were selected for the sample, of which 11,203 were occupied. Of the occupied households, 11,040 were successfully interviewed, yielding a response rate of 99%. In the interviewed households, 13,089 women age 15-49 were identified for individual interviews; these interviews were completed with 12,862 women, yielding a response rate of 98%. In the subsample of households selected for the male survey, 4,235 men age 15-49 were identified and 4,063 men were successfully interviewed, yielding a response rate of 96%.

Table 3.1 Results of the household and individual interviews			
Number of households, number of interviews, and response rates, according to residence (unweighted), Nepal DHS 2016			
Result	Residence		Total
	Urban	Rural	
Household interviews			
Households selected	7,294	4,179	11,473
Households occupied	7,106	4,097	11,203
Households interviewed	6,978	4,062	11,040
Household response rate ¹	98.2	99.1	98.5
Interviews with women age 15-49			
Number of eligible women	8,460	4,629	13,089
Number of eligible women interviewed	8,279	4,583	12,862
Eligible women response rate ²	97.9	99.0	98.3
Interviews with men age 15-49			
Number of eligible men	2,812	1,423	4,235
Number of eligible men interviewed	2,667	1,396	4,063
Eligible men response rate ²	94.8	98.1	95.9

¹ Households interviewed/households occupied
² Respondents interviewed/eligible respondents

The response rates are lower in the urban areas than in the rural areas. The difference is slightly more prominent for men than women, as men in urban areas are often away from their households for work.

3.2 HOUSEHOLD SANITATION

Three in five Nepalese households (62%) have improved sanitation facilities (Table 3.2). Thirty-eight percent of households have unimproved sanitation facilities with 15% having no facilities at all. This is a marked improvement over 5 years ago, when only 38% of the Nepalese households had improved sanitation facilities (Ministry of Health and Population, New ERA, and ICF International 2012).

Among households with a toilet facility, about a quarter have a facility in their own dwelling, while 70% have one in their own yard or plot. Some 7% of households have a toilet facility elsewhere outside their compound. Urban households are more likely to have toilets within their own dwelling (33%) compared with rural households (6%). Though not within the dwelling, a majority of rural households (84%) have their toilet facility in their own yard or plot.

Table 3.2 Household sanitation facilities

Percent distribution of households and de jure population by type of toilet/latrine facilities and percent distribution of households and de jure population with a toilet/latrine facility by location of the facility, according to residence, Nepal DHS 2016

Type and location of toilet/latrine facility	Households			Population		
	Urban	Rural	Total	Urban	Rural	Total
Improved sanitation	61.1	62.9	61.7	64.8	64.3	64.6
Flush/pour flush to piped sewer system	7.0	0.2	4.4	6.9	0.2	4.2
Flush/pour flush to septic tank	39.7	40.3	39.9	42.5	40.5	41.7
Flush/pour flush to pit latrine	8.8	13.3	10.5	9.2	13.7	11.1
Ventilated improved pit (VIP) latrine	2.0	4.3	2.9	2.4	5.1	3.5
Pit latrine with slab	2.4	3.9	3.0	2.5	4.0	3.1
Composting toilet	1.1	0.8	1.0	1.2	0.8	1.0
Unimproved sanitation	38.9	37.1	38.3	35.2	35.7	35.4
Shared facility¹	26.5	14.9	22.0	21.4	12.6	17.8
Flush/pour flush to piped sewer system	5.6	0.1	3.5	4.1	0.1	2.5
Flush/pour flush to septic tank	17.1	8.9	13.9	13.8	7.0	11.1
Flush/pour flush to pit latrine	2.5	3.7	3.0	2.2	3.3	2.7
Ventilated improved pit (VIP) latrine	0.4	1.2	0.7	0.4	1.1	0.7
Pit latrine with slab	0.4	0.5	0.4	0.4	0.5	0.4
Composting toilet	0.5	0.5	0.5	0.4	0.6	0.5
Unimproved facility	1.7	1.4	1.6	1.8	1.2	1.6
Flush/pour flush not to sewer/septic tank/pit latrine	0.7	0.3	0.5	0.7	0.2	0.5
Pit latrine without slab/open pit	0.9	1.1	1.0	1.0	1.0	1.0
Other	0.1	0.0	0.1	0.1	0.0	0.1
Open defecation (No facility/bush/ field)	10.8	20.9	14.7	12.1	21.9	16.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number of households/population	6,781	4,259	11,040	27,920	18,877	46,797
Location of toilet facility						
In own dwelling	33.0	5.8	23.3	30.9	5.6	21.4
In own yard/plot	61.8	83.5	69.6	64.3	83.9	71.7
Elsewhere	5.2	10.7	7.1	4.8	10.5	7.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number of households/population with a toilet/latrine facility	6,049	3,370	9,419	24,546	14,744	39,290

¹ Facilities that would be considered improved if they were not shared by two or more households

3.3 CHARACTERISTICS OF RESPONDENTS

Table 3.3 shows, by background characteristics, the weighted and unweighted numbers and the weighted percent distributions of women and men age 15-49 interviewed in the 2016 NDHS. More than half of the women and men in the sample are under age 30 (54% and 52%, respectively).

More than four in five women and men are Hindu (86% and 85%), while 5% of women and 6% of men are Buddhist. Similarly, 5% of women and men are Muslim. Hill Janajatis are the dominant ethnic group, with 21% of women and 23% of men belonging to this group. Eighteen percent of women and 16% of men are Hill Chhetris, while 12% of women and men are Hill Brahmins. Similarly, 10% of women and men are Terai Janajatis. Some 15% of women and 16% of men are from other terai castes.

More than one-fifth of women (21%) and one-third of men (33%) have never been married. The vast majority of women (77%) and men (66%) are currently married, with a very small percentage divorced or separated. Two percent of women are widowed, as are less than 1% of men. One-third of currently married women reported that their husbands were living away from home (data not shown separately). Nearly two-thirds of the respondents live in urban areas. About half of the women (51%) and men (50%) live in the terai region, while more than two-fifths of women (43%) and men (44%) live in the hill zone, and 6% live in the mountain zone. A majority of women and men live either in State 3 (21% of women and 25% of men), State 2 (20% of women and men), State 5 (18% of women and 16% of men), or State 1 (17% of women and men). Only 6% of women and 5% of men live in State 6.

Table 3.3 Background characteristics of respondents

Percent distribution of women and men age 15-49 by selected background characteristics, Nepal DHS 2016

Background characteristic	Women			Men		
	Weighted percent	Weighted number	Unweighted number	Weighted percent	Weighted number	Unweighted number
Age						
15-19	20.2	2,598	2,622	22.9	931	964
20-24	17.5	2,251	2,306	16.0	649	633
25-29	16.6	2,135	2,094	12.9	525	522
30-34	14.0	1,806	1,789	13.2	535	532
35-39	12.2	1,572	1,584	13.4	544	516
40-44	10.8	1,388	1,336	11.4	463	473
45-49	8.6	1,113	1,131	10.2	415	423
Religion						
Hindu	85.8	11,040	11,198	85.4	3,470	3,522
Buddhist	5.1	652	582	6.1	249	200
Muslim	5.0	644	580	4.9	198	186
Kirat	1.4	177	152	1.2	49	45
Christian	2.7	346	347	2.2	88	101
Other	0.0	3	3	0.2	9	9
Ethnic group						
Hill Brahmin	11.8	1,512	1,488	11.8	479	460
Hill Chhetri	18.2	2,343	2,861	16.4	665	849
Terai Brahmin/Chhetri	1.7	217	202	1.1	47	51
Other Terai caste	14.8	1,908	1,502	15.7	637	514
Hill Dalit	8.1	1,042	1,265	7.3	297	348
Terai Dalit	4.3	554	422	4.5	182	145
Newar	5.0	639	450	5.1	207	160
Hill Janajati	20.9	2,694	2,609	22.8	924	833
Terai Janajati	9.8	1,266	1,439	10.2	415	502
Muslim	5.0	643	582	4.9	198	186
Other	0.3	43	42	0.3	12	15
Marital status						
Never married	20.8	2,669	2,626	33.4	1,355	1,341
Married/living together	76.8	9,875	9,904	65.8	2,675	2,691
Divorced/separated	0.8	105	98	0.5	18	15
Widowed	1.7	213	234	0.3	14	16
Residence						
Urban	62.8	8,072	8,279	65.2	2,647	2,667
Rural	37.2	4,790	4,583	34.8	1,416	1,396
Ecological zone						
Mountain	6.0	775	931	6.2	252	312
Hill	43.2	5,556	5,739	44.1	1,791	1,770
Terai	50.8	6,531	6,192	49.7	2,019	1,981
Development region						
Eastern	22.5	2,900	2,432	21.9	892	787
Central	35.5	4,569	3,162	39.5	1,604	1,088
Western	20.2	2,597	2,756	19.3	785	861
Mid-Western	12.8	1,650	2,666	11.2	453	773
Far-Western	8.9	1,145	1,846	8.1	330	554
Federal states						
State 1	16.9	2,173	1,837	17.0	691	610
State 2	19.9	2,563	2,097	19.6	795	682
State 3	21.2	2,732	1,660	24.8	1,009	583
State 4	9.7	1,249	1,589	9.3	376	501
State 5	17.7	2,274	2,072	16.2	658	619
State 6	5.6	724	1,761	5.0	203	514
State 7	8.9	1,145	1,846	8.1	330	554
Education						
No education	33.3	4,281	4,346	9.6	391	401
Primary	16.7	2,150	2,081	19.4	789	790
Some secondary	25.6	3,291	3,410	34.1	1,386	1,449
SLC or higher	24.4	3,140	3,025	36.8	1,497	1,423
Wealth quintile						
Lowest	16.9	2,176	2,723	15.3	623	778
Second	19.6	2,525	2,710	17.4	706	789
Middle	20.2	2,595	2,600	18.7	758	797
Fourth	21.5	2,765	2,537	24.2	982	896
Highest	21.8	2,801	2,292	24.5	994	803
Total 15-49	100.0	12,862	12,862	100.0	4,063	4,063

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

With respect to educational status, 33% of women and 10% of men report that they have never attended school. Seventeen percent of women and 19% of men have attended primary school without continuing to secondary education. Twenty-six percent of women and 34% of men have some secondary education, while 24% of women and 37% of men have completed their School Leaving Certificate (SLC) or gone on to higher levels of education.

3.4 FERTILITY

To generate data on fertility, all women who were interviewed were asked to report the total number of sons and daughters to whom they had ever given birth. To ensure that all information was reported, women were asked separately about children still living at home, those living elsewhere, and those who had died. A complete pregnancy history was then obtained, including information on the sex, date of birth, and survival status of each child; age at death for children who had died was also recorded. In addition to information on live births, the pregnancy history section incorporated questions on all pregnancies that did not end in a live birth, including information on the day, month, and year the pregnancy ended, the duration of pregnancy, and whether something was done deliberately to end the pregnancy.

Table 3.4 shows age-specific fertility rates (ASFRs) among women by 5-year age groups for the 3-year period preceding the survey. Age-specific and total fertility rates were calculated directly from the pregnancy history data, taking into account the live births¹. The sum of age-specific fertility rates (known as the total fertility rate, or TFR) is a summary measure of the level of fertility. It can be interpreted as the number of children a woman would have by the end of her childbearing years if she were to pass through those years bearing children at the currently observed age-specific rates. If fertility were to remain constant at current levels, a woman from Nepal would bear an average of 2.3 children in her lifetime. Fertility is higher among rural women than among urban women; on average, rural women will give birth to about one child more than urban women during their reproductive years (2.9 and 2.0, respectively). As the ASFRs show, the pattern of higher rural fertility is particularly evident in the 15-19 and 20-24 age groups and also somewhat in the 25-29 age group.

Table 3.4 Current Fertility

Age-specific and total fertility rates, general fertility rate, and the crude birth rate for the 3 years preceding the survey, according to residence, Nepal DHS 2016

Age group	Residence		Total
	Urban	Rural	
15-19	66	125	88
20-24	150	209	172
25-29	112	146	124
30-34	54	67	59
35-39	13	28	18
40-44	4	10	6
45-49	2	2	2
TFR (15-49)	2.0	2.9	2.3
GFR	74	111	88
CBR	19.9	26.3	22.4

Notes: Age-specific fertility rates are per 1,000 women. Rates for age group 45-49 may be slightly biased due to truncation. Rates are for the period 1-36 months prior to interview.

TFR: Total fertility rate expressed per woman

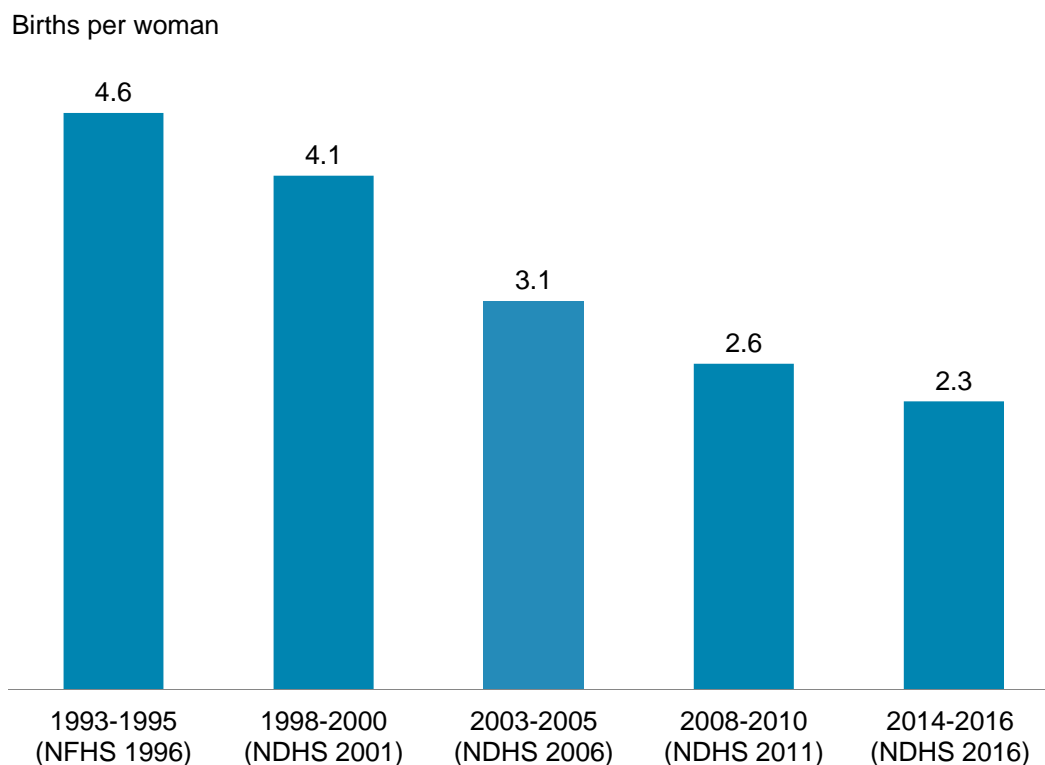
GFR: General fertility rate expressed per 1,000 women age 15-44

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

¹ Numerators for the age-specific rates are calculated by summing the births that occurred during the 1-36 months preceding the survey, classified by the 5-year age group of the mother at the time of the birth. The denominators are the numbers of woman-years lived in each 5-year age group during the 1-36 months preceding the survey.

There has been a steady decline in fertility rates in the last 2 decades with a marked decline in the period between 2001 and 2006 (a one-child decline). Fertility declined from 4.6 births per woman in the 1996 NFHS to 2.3 births per woman in the 2016 NDHS – a drop of more than two births per woman in the two decades (Figure 3.1).

Figure 3.1 Trends in total fertility rate, 1993-2016



3.5 TEENAGE PREGNANCY AND MOTHERHOOD

The issue of adolescent fertility is important for both health and social reasons. Children born to very young mothers are at increased risk of sickness and death. Teenage mothers are more likely to experience adverse pregnancy outcomes and to be constrained in their ability to pursue educational opportunities than young women who delay childbearing.

Table 3.5 shows the percentage of women age 15-19 who had given birth or were pregnant with their first child at the time of the survey, according to background characteristics. Overall, 17% of women age 15-19 had begun childbearing: 13% had had a live birth and 4% were pregnant at the time of the interview. The proportion of teenagers who had begun childbearing rises rapidly with age, from 2% at age 15 to 36% at age 19. Rural teenagers tend to start childbearing earlier than urban teenagers.

Eighteen percent of teenagers in the Terai zone and 15% in the Hill zone had begun childbearing. Teenage childbearing is highest in State 2 (27%) and lowest in State 3 (10%). Teenagers with SLC or higher education and those in the highest wealth quintile tend to start childbearing later than those with lower levels of education and those in other quintiles.

Table 3.5 Teenage pregnancy and motherhood

Percentage of women age 15-19 who have had a live birth or who are pregnant with their first child, and percentage who have begun childbearing, according to background characteristics, Nepal DHS 2016

Background characteristic	Percentage of women age 15-19 who:		Percentage who have begun childbearing	Number of women
	Have had a live birth	Are pregnant with first child		
Age				
15	0.6	0.9	1.5	479
16	2.0	2.4	4.4	570
17	9.2	4.6	13.8	510
18	22.4	5.8	28.1	520
19	30.2	5.2	35.5	520
Residence				
Urban	9.7	3.5	13.2	1,603
Rural	18.0	4.3	22.3	996
Ecological zone				
Mountain	12.3	4.6	16.9	169
Hill	11.4	3.3	14.8	1,095
Terai	14.1	4.1	18.2	1,334
Development region				
Eastern	13.3	3.2	16.5	562
Central	14.5	4.5	19.0	927
Western	9.8	2.8	12.6	510
Mid-Western	12.4	4.8	17.3	351
Far-Western	12.7	3.4	16.1	249
Federal states				
State 1	13.1	2.3	15.5	417
State 2	21.0	6.4	27.3	554
State 3	7.4	2.7	10.1	518
State 4	11.2	2.7	13.9	234
State 5	10.3	3.0	13.4	464
State 6	12.1	6.7	18.8	163
State 7	12.7	3.4	16.1	249
Education				
No education	28.6	4.0	32.6	159
Primary	23.5	6.2	29.7	347
Some secondary	13.1	4.1	17.3	1,271
SLC or higher	5.0	2.2	7.2	822
Wealth quintile				
Lowest	14.8	4.7	19.5	504
Second	16.3	3.5	19.8	515
Middle	16.8	5.1	21.8	545
Fourth	11.4	3.7	15.1	584
Highest	4.2	1.8	5.9	452
Total	12.9	3.8	16.7	2,598

3.6 FERTILITY PREFERENCES

Information on fertility preferences is used to assess the potential demand for family planning services for the purposes of spacing or limiting future childbearing. To elicit information on fertility preferences, several questions were asked of currently married women (pregnant or not) regarding whether they wanted to have another child and, if so, how soon.

Table 3.6 shows that 10% of women want to have another child soon (within the next 2 years), and 14% want to have another child later (in 2 or more years). Fifty percent of women want no more children, while 20% have already been sterilized. Two percent have not decided if they want another child.

Fertility preferences are closely related to number of living children. Fifty-eight percent of women with no living children want a child soon, compared with only 2% of women with three or more children. In general, the more children a woman has, the higher is the likelihood that she does not want another child.

Table 3.6 Fertility preferences by number of living children

Percent distribution of currently married women age 15-49 by desire for children, according to number of living children, Nepal DHS 2016

Desire for children	Number of living children ¹							Total
	0	1	2	3	4	5	6+	
Have another soon ²	58.4	17.3	3.7	2.3	1.8	2.3	0.6	10.4
Have another later ³	28.9	41.9	4.9	2.5	0.8	0.5	0.3	13.7
Have another, undecided when Undecided	1.7	1.2	0.2	0.0	0.0	0.0	0.2	0.5
Want no more	2.9	6.1	1.6	0.8	0.6	0.0	0.2	2.3
Sterilized ⁴	2.5	30.7	67.2	55.4	56.5	61.6	73.4	50.3
Declared infecund	1.0	1.5	20.7	36.4	36.5	30.7	19.4	20.2
Total	4.5	1.3	1.7	2.6	3.8	5.0	5.9	2.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	794	2,193	3,003	1,941	1,087	532	325	9,875

¹ Includes the current pregnancy² Wants next birth within 2 years³ Wants to delay next birth for 2 or more years⁴ Includes both female and male sterilization

3.7 FAMILY PLANNING

Family planning refers to a conscious effort by a couple to limit or space the number of children they have through the use of contraceptive methods. Contraceptive methods are classified as modern or traditional. Modern methods include female sterilization, male sterilization, intrauterine contraceptive device (IUD), implants, injectables, the pill, condoms, and lactational amenorrhea method (LAM). Methods such as rhythm, withdrawal, and folk methods are grouped as traditional.

Table 3.7 shows the percent distribution of currently married women by the contraceptive method they currently use. Overall, 53% of currently married women use a method of family planning, with 43% using a modern method and 10% using a traditional method. Among currently married women, the most popular methods are female sterilization (used by 15%), injectables and withdrawal (each used by 9%), male sterilization (used by 6%), and the pill (used by 5%). The contraceptive prevalence rate (CPR) among married women varies with age, rising from 23% among women age 15-19, peaking at 69% of women age 35-44, and then slightly declining to 65% among women age 45-49.

Women in urban areas are more likely to use a contraceptive method than women in rural areas (55% and 49%, respectively). Use of contraception does not seem to vary much by ecological zone and development region, although it is relatively low in Western at 46%. However, it is even lower at 48% in State 2 and State 5. It is highest in State 3 at 61%. The use of female sterilization is highest in State 2 (32%) while it is only 4% in State 6. Use of modern methods, dominated by female sterilization, is more common among women with no education (52%). Women with living children are more likely than women without living children to use contraception.

Table 3.7 Current use of contraception according to background characteristics

Percent distribution of currently married women age 15-49, by contraceptive method currently used, according to background characteristics, Nepal DHS 2016

Background characteristic	Modern method						Traditional method				Total	Number of women													
	Any method	Any modern method	Female sterilization	Male sterilization	Pill	IUD	Injectables	Implants	Male condom	Other ¹			Any traditional method	Traditional method											
														Withdrawal	Rhythm	Other									
Number of living children																									
0	15.4	8.0	0.1	0.6	0.9	0.0	0.5	0.3	5.5	0.0	7.4	0.4	7.0	0.0	84.6	100.0	1,025								
1-2	49.8	38.9	8.5	4.4	5.4	1.6	10.4	2.8	5.6	0.1	10.9	1.0	9.8	0.0	50.2	100.0	5,044								
3-4	67.7	58.6	28.9	8.3	4.6	1.4	8.5	4.6	2.2	0.1	9.1	1.4	7.7	0.0	32.3	100.0	2,965								
5+	61.5	52.6	19.4	7.5	4.4	2.1	11.5	5.7	2.0	0.0	8.9	0.9	7.6	0.5	38.5	100.0	840								
Age																									
15-19	23.1	14.5	0.0	0.0	2.2	0.2	5.5	2.1	4.4	0.0	8.6	0.9	7.7	0.0	76.9	100.0	704								
20-24	32.0	23.9	2.1	0.5	3.2	1.2	9.1	2.2	5.5	0.0	8.1	0.7	7.5	0.0	68.0	100.0	1,684								
25-29	45.8	37.0	7.7	2.1	6.6	1.0	11.2	3.6	4.4	0.2	8.8	0.8	7.9	0.1	54.2	100.0	1,957								
30-34	58.6	47.5	15.3	5.0	5.0	1.3	10.9	4.8	5.1	0.0	11.1	0.7	10.4	0.0	41.4	100.0	1,726								
35-39	68.5	57.4	24.5	8.7	5.2	2.0	9.7	3.8	3.4	0.1	11.1	1.2	9.9	0.0	31.5	100.0	1,510								
40-44	69.4	58.4	26.3	11.0	5.4	2.0	6.8	3.1	4.0	0.0	11.0	1.8	9.1	0.1	30.6	100.0	1,283								
45-49	65.3	55.5	29.1	13.1	2.3	2.1	4.8	2.5	1.7	0.0	9.8	1.7	8.0	0.1	34.7	100.0	1,011								
Residence																									
Urban	54.8	44.2	14.1	6.4	5.1	1.5	9.1	2.8	5.0	0.1	10.6	1.1	9.5	0.0	45.2	100.0	6,031								
Rural	49.2	40.6	15.7	4.0	3.8	1.2	8.7	4.1	3.0	0.0	8.6	1.0	7.5	0.1	50.8	100.0	3,844								
Ecological zone																									
Mountain	54.6	42.6	3.1	8.8	4.0	1.6	16.6	5.2	3.3	0.0	11.9	0.3	11.6	0.0	45.4	100.0	576								
Hill	53.9	42.4	6.4	8.6	5.2	1.9	10.8	4.0	5.2	0.2	11.5	0.7	10.7	0.0	46.1	100.0	4,150								
Terai	51.4	43.1	22.7	2.6	4.2	1.0	6.6	2.6	3.6	0.0	8.2	1.4	6.8	0.1	48.6	100.0	5,148								
Development region																									
Eastern	54.1	41.7	16.8	1.8	6.5	1.1	11.1	2.5	2.0	0.0	12.5	1.4	11.0	0.1	45.9	100.0	2,256								
Central	54.2	45.4	17.4	7.2	3.6	1.4	8.3	3.4	4.0	0.1	8.8	1.0	7.8	0.0	45.8	100.0	3,486								
Western	46.1	34.9	10.9	5.1	3.6	1.8	6.2	3.4	3.9	0.1	11.2	1.4	9.8	0.1	53.9	100.0	1,988								
Mid-Western	52.7	46.4	9.0	8.2	5.4	1.7	11.5	4.0	6.6	0.0	6.3	0.7	5.5	0.0	47.3	100.0	1,298								
Far-Western	57.3	48.1	16.0	4.8	5.0	1.2	8.4	4.2	8.5	0.0	9.3	0.2	9.1	0.0	42.7	100.0	846								
Federal states																									
State 1	55.1	40.1	10.5	2.4	7.6	1.0	13.1	2.9	2.6	0.0	15.0	1.7	13.2	0.1	44.9	100.0	1,655								
State 2	47.7	42.2	31.9	0.5	2.0	0.6	4.7	1.4	1.1	0.0	5.5	1.0	4.4	0.1	52.3	100.0	2,168								
State 3	60.6	49.2	6.1	12.6	5.4	2.3	11.4	4.9	6.1	0.3	11.4	0.7	10.7	0.0	39.4	100.0	1,920								
State 4	48.5	37.3	9.4	8.4	4.4	2.1	7.6	2.1	3.1	0.2	11.2	1.0	10.2	0.0	51.5	100.0	950								
State 5	48.0	38.9	12.6	2.8	4.0	1.7	7.1	4.3	6.4	0.0	9.1	1.5	7.5	0.1	52.0	100.0	1,749								
State 6	51.1	44.5	4.1	13.4	5.0	1.2	12.9	4.2	3.6	0.1	6.6	0.3	6.3	0.1	48.9	100.0	586								
State 7	57.3	48.1	16.0	4.8	5.0	1.2	8.4	4.2	8.5	0.0	9.3	0.2	9.1	0.0	42.7	100.0	846								
Education																									
No education	58.2	51.8	24.8	7.0	4.2	1.5	8.3	4.1	1.9	0.0	6.5	1.0	5.3	0.1	41.8	100.0	3,984								
Primary	50.4	42.4	11.7	6.8	5.1	1.3	10.8	3.3	3.2	0.2	8.0	0.8	7.2	0.0	49.6	100.0	1,853								
Some secondary	45.2	34.0	7.2	3.8	4.7	1.1	9.2	2.9	5.1	0.0	11.2	0.9	10.3	0.0	54.8	100.0	2,177								
SLC or Higher	51.5	34.3	4.9	3.0	5.0	1.7	8.2	2.2	9.3	0.1	17.2	1.5	15.6	0.0	48.5	100.0	1,861								
Wealth quintile																									
Lowest	49.1	41.8	5.9	7.7	4.9	1.5	12.7	6.1	3.0	0.0	7.3	0.5	6.7	0.0	50.9	100.0	1,687								
Second	53.4	44.8	15.8	5.6	3.6	1.5	10.6	4.7	3.1	0.0	8.6	1.2	7.2	0.2	46.6	100.0	1,946								
Middle	49.6	42.6	21.1	3.4	4.1	0.8	7.2	2.8	3.3	0.0	7.0	1.3	5.7	0.0	50.4	100.0	2,088								
Fourth	50.1	41.7	17.1	4.8	4.7	1.3	8.3	2.4	2.8	0.2	8.4	0.8	7.7	0.0	49.9	100.0	2,107								
Highest	60.4	43.0	11.9	6.4	5.8	2.0	6.8	1.2	8.8	0.1	17.3	1.4	16.0	0.0	39.6	100.0	2,047								
Total	52.6	42.8	14.7	5.5	4.6	1.4	8.9	3.3	4.2	0.1	9.8	1.1	8.7	0.1	47.4	100.0	9,875								

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

¹ Other modern methods include lactational amenorrhea method (LAM) and emergency contraception.

3.8 NEED AND DEMAND FOR FAMILY PLANNING

The proportion of women who want to stop childbearing or who want to space their next birth is a crude measure of the extent of the need for family planning, given that not all of these women are exposed to the risk of pregnancy, and some may already be using contraception. This section discusses a more refined extent of need and the potential demand for family planning services. Women who want to postpone their next birth for 2 or more years, or who want to stop childbearing altogether but are not using a contraceptive method, are said to have an unmet need for family planning. Pregnant women are considered to have an unmet need for spacing or limiting if their pregnancy was mistimed or unwanted, respectively. Similarly, amenorrheic women are categorized as having an unmet need if their last birth was mistimed or unwanted. Women who are currently using a family planning method are said to have a met need for family planning. Total demand for family planning services comprises those who fall in the met need and unmet need categories.

Table 3.8 presents data on unmet need, met need, and total demand for family planning among currently married women. These indicators help evaluate the extent to which family planning programs in Nepal meet the demand for services. Twenty-four percent of currently married women have an unmet need for family planning services. Fifty-three percent of married women are currently using a contraceptive method. Therefore, 76% of currently married women have a demand for family planning. At present, 69% of the potential demand for family planning is being met. Thus, if all married women who said they want to space or limit their children were to use family planning methods, the CPR would increase from 53% to 76%.

The unmet need for family planning is highest in State 4 (30%) and lowest in State 3 (20%). Women with no education have the lowest unmet need (18%), while unmet need decreases with wealth from 27% among women in the lowest wealth quintile to 21% in the highest quintile.

There has been a decline in the unmet need for family planning from 28% in 2011 to 24% in 2016 (Figure 3.2). However, the use of modern methods has remained constant at 43%, and the demand satisfied with modern methods has also stagnated at 56%. The increase in the use of contraception since 2011 has been contributed by increased use of traditional methods. The results indicate that Nepal is slightly behind in meeting the Sustainable Development Goal (SDG) target for 2017 of reducing the unmet need for family planning to less than 22% (National Planning Commission 2015).

Table 3.8 Need and demand for family planning among currently married women

Percentage of currently married women age 15-49 with unmet need for family planning, percentage with met need for family planning, percentage with met need for family planning who are using modern methods, percentage with demand for family planning, percentage of the demand for family planning that is satisfied, and percentage of the demand for family planning that is satisfied with modern methods, according to background characteristics, Nepal DHS 2016

Background characteristic	Unmet need for family planning	Met need for family planning (currently using)		Total demand for family planning ³	Number of women	Percentage of demand satisfied ¹	
		All methods	Modern methods ²			All methods	Modern methods ²
Age							
15-19	34.9	23.1	14.5	58.0	704	39.8	24.9
20-24	32.6	32.0	23.9	64.6	1,684	49.6	37.0
25-29	30.0	45.8	37.0	75.9	1,957	60.4	48.8
30-34	24.6	58.6	47.5	83.2	1,726	70.4	57.0
35-39	17.1	68.5	57.4	85.6	1,510	80.0	67.1
40-44	13.6	69.4	58.4	82.9	1,283	83.6	70.4
45-49	10.3	65.3	55.5	75.7	1,011	86.4	73.4
Residence							
Urban	22.7	54.8	44.2	77.5	6,031	70.7	57.0
Rural	25.3	49.2	40.6	74.5	3,844	66.0	54.5
Ecological zone							
Mountain	22.8	54.6	42.6	77.4	576	70.5	55.1
Hill	25.5	53.9	42.4	79.4	4,150	67.8	53.4
Terai	22.4	51.4	43.1	73.7	5,148	69.6	58.5
Development region							
Eastern	23.9	54.1	41.7	78.0	2,256	69.4	53.4
Central	20.1	54.2	45.4	74.3	3,486	72.9	61.1
Western	29.3	46.1	34.9	75.4	1,988	61.2	46.3
Mid-Western	26.3	52.7	46.4	79.0	1,298	66.7	58.7
Far-Western	21.3	57.3	48.1	78.7	846	72.9	61.1
Federal states							
State 1	24.9	55.1	40.1	80.0	1,655	68.9	50.1
State 2	20.6	47.7	42.2	68.3	2,168	69.8	61.8
State 3	19.8	60.6	49.2	80.5	1,920	75.3	61.2
State 4	30.0	48.5	37.3	78.5	950	61.8	47.5
State 5	27.9	48.0	38.9	75.9	1,749	63.3	51.3
State 6	25.7	51.1	44.5	76.8	586	66.5	57.9
State 7	21.3	57.3	48.1	78.7	846	72.9	61.1
Education							
No education	17.9	58.2	51.8	76.2	3,984	76.4	67.9
Primary	26.4	50.4	42.4	76.8	1,853	65.6	55.2
Some secondary	31.0	45.2	34.0	76.2	2,177	59.4	44.6
SLC or higher	25.0	51.5	34.3	76.5	1,861	67.3	44.9
Wealth quintile							
Lowest	27.0	49.1	41.8	76.1	1,687	64.5	55.0
Second	23.7	53.4	44.8	77.2	1,946	69.2	58.1
Middle	24.3	49.6	42.6	73.9	2,088	67.2	57.7
Fourth	23.8	50.1	41.7	73.9	2,107	67.8	56.4
Highest	20.5	60.4	43.0	80.8	2,047	74.7	53.2
Total	23.7	52.6	42.8	76.3	9,875	68.9	56.0

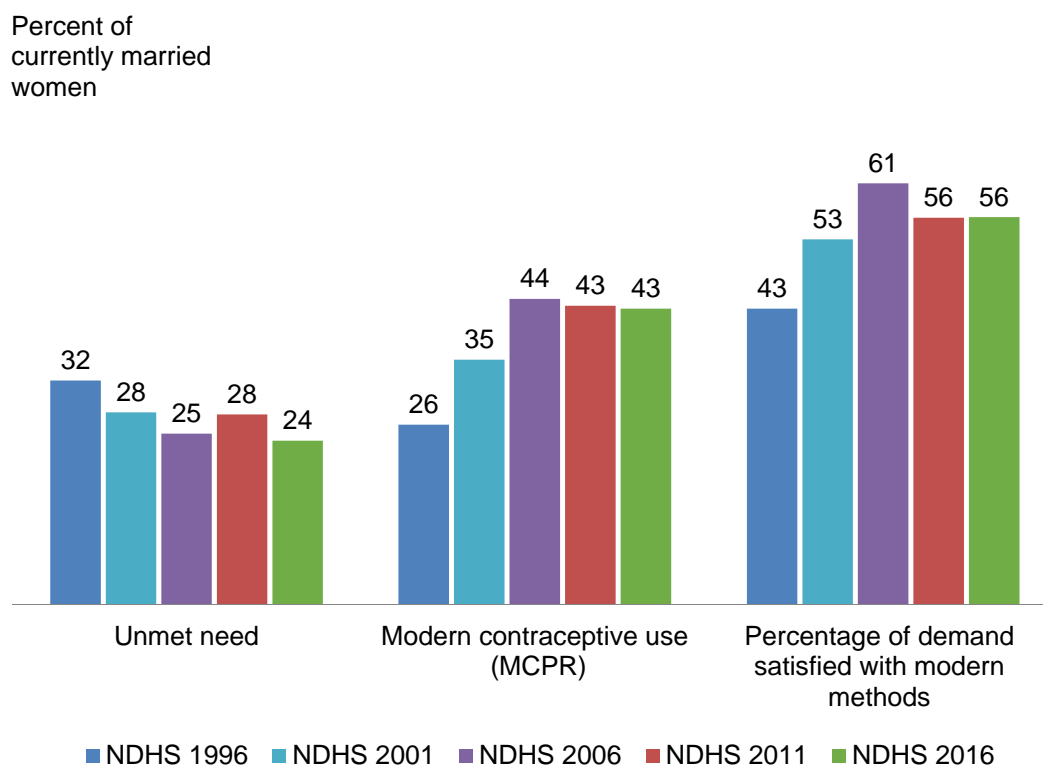
Note: Numbers in this table correspond to the revised definition of unmet need described in Bradley et al. 2012.

¹ Percentage of demand satisfied is met need divided by total demand.

² Modern methods include female sterilization, male sterilization, pill, IUD, injectables, implants, male condom, emergency contraception, lactational amenorrhea method (LAM), and other modern methods.

³ Total demand is the sum of unmet need and met need.

Figure 3.2 Trends in unmet need, modern contraceptive use, and percentage of demand satisfied with modern methods, 1996-2016



3.9 SOURCE OF MODERN CONTRACEPTION

The government sector is the most popular source for modern contraception in Nepal, serving 70% of modern method users (Table 3.9). Government hospitals and clinics serve 32% of modern contraceptive users, with health posts and sub-health posts also prominent (20%). Only 6% of users of modern methods of contraception receive methods from the nongovernmental sector. Overall, 19% of users receive their contraceptives from the private medical sector with this sector being a common source for male condoms (57%), the pill (40%), and injectables (25%). Two in five male condom users get the condoms from pharmacies (40%).

Table 3.9 Source of modern contraception methods

Percent distribution of users of modern contraceptive methods age 15-49 by most recent source of method, according to method, Nepal DHS 2016

Source	Modern method							Total
	Female sterilization	Male sterilization	Pill	IUD	Injectables	Implants	Male condom	
Government sector	73.0	78.8	56.1	70.3	74.0	84.1	38.4	69.5
Government hospital/clinic	57.2	53.7	3.8	40.5	5.6	23.9	3.7	32.0
Primary health care center	3.3	2.5	2.4	4.9	6.2	5.3	1.5	3.7
Health post/sub-health post	0.0	0.0	31.0	18.4	54.2	43.1	18.8	20.3
PHC outreach clinic	0.0	0.0	0.9	0.8	7.0	3.1	1.1	1.9
Mobile camp	12.2	21.3	0.0	5.7	0.1	8.8	0.0	7.9
FCHV	0.0	0.0	17.9	0.2	0.7	0.0	13.4	3.4
Other	0.2	1.3	0.0	0.0	0.2	0.0	0.0	0.3
Nongovernment (NGO) sector	8.3	10.2	0.5	16.5	1.1	12.8	1.0	6.1
Family Planning Association of Nepal	2.4	3.7	0.1	11.0	0.8	6.2	1.0	2.4
Marie Stopes	5.8	5.4	0.3	5.5	0.3	6.6	0.0	3.5
Other NGO	0.2	1.2	0.1	0.0	0.0	0.0	0.0	0.2
Private medical sector	8.1	4.4	40.3	10.3	24.8	3.1	56.8	19.0
Private hospital/nursing home	7.3	3.3	1.0	5.6	1.7	1.5	0.9	3.8
Private clinic	0.8	1.1	16.9	4.1	11.9	1.6	15.5	6.5
Pharmacy	0.0	0.0	22.4	0.0	10.9	0.0	40.3	8.6
Other private medical	0.0	0.0	0.0	0.7	0.3	0.0	0.0	0.1
Other source	0.0	0.0	2.1	0.0	0.1	0.0	3.6	0.6
Shop	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.2
Friend/relative	0.0	0.0	2.1	0.0	0.1	0.0	1.2	0.4
Other	10.4	2.4	1.0	2.9	0.0	0.0	0.3	4.2
Don't know	0.1	4.1	0.0	0.0	0.0	0.0	0.0	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	1,492	545	456	140	883	329	420	4,264

Note: Total includes other modern methods but excludes lactational amenorrhea method (LAM) and emergency contraception.

3.10 EARLY CHILDHOOD MORTALITY

Infant and child mortality rates are basic indicators of a country's socioeconomic situation and quality of life (UNDP 2007). Estimates of child mortality are based on information collected in the pregnancy history section of the Woman's Questionnaire, which includes questions about aggregate childbearing experience (that is, the number of sons and daughters who live with their mother, the number who live elsewhere, the number who have died, and pregnancies that did not end in a live birth). Table 3.10 presents estimates for three successive 5-year periods prior to the 2016 NDHS. The rates are estimated directly from the information in the pregnancy history on a child's birth date, survivorship status, and age at death for children who died. This information is used to directly estimate the following five mortality rates:

- Neonatal mortality:** the probability of dying within the first month of life
- Postneonatal mortality:** the difference between infant and neonatal mortality
- Infant mortality:** the probability of dying before the first birthday
- Child mortality:** the probability of dying between the first and the fifth birthday
- Under-5 mortality:** the probability of dying between birth and the fifth birthday

All rates are expressed per 1,000 live births, except for child mortality, which is expressed per 1,000 children surviving to age 12 months.

As shown in Table 3.10, during the 5 years immediately preceding the survey, the infant mortality rate was 32 deaths per 1,000 live births. The child mortality rate was 6 deaths per 1,000 children surviving to age 12 months, while the overall under-5 mortality rate was 39 deaths per 1,000 live births. Eighty-two percent of all deaths among children under age 5 in Nepal take place before a child's first birthday, with 54% occurring during the first month of life.

Table 3.10 Early childhood mortality rates

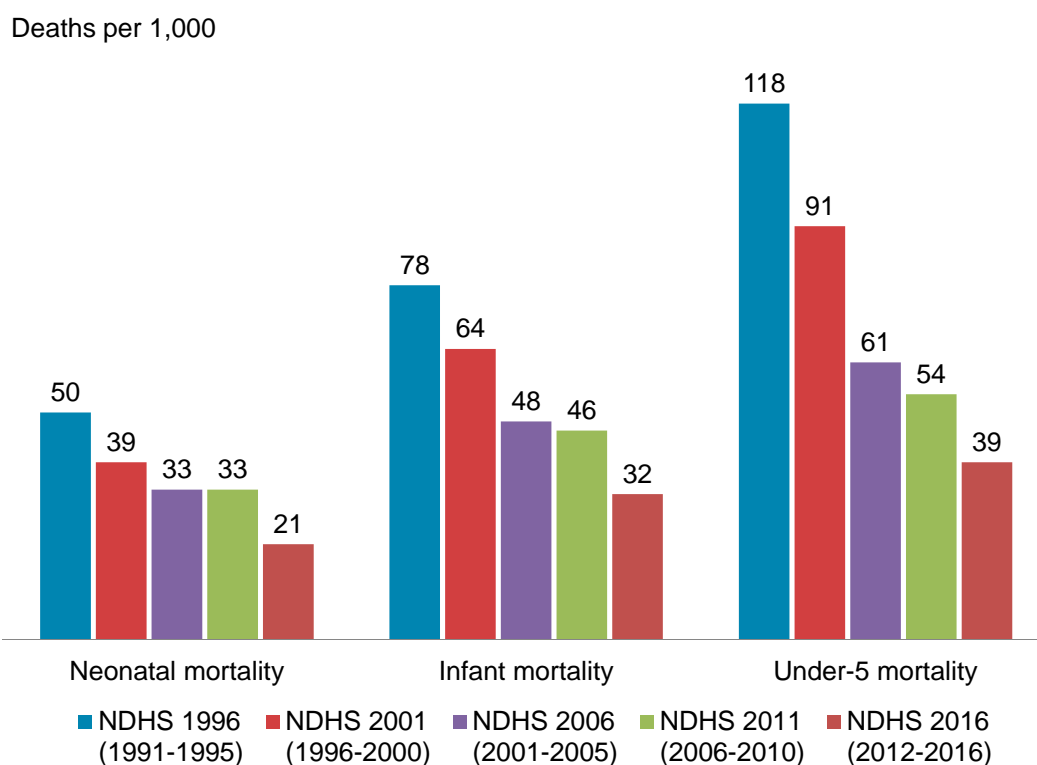
Neonatal, postneonatal, infant, child and under-5 mortality rates for 5-year periods preceding the survey, Nepal DHS 2016

Period preceding survey	Mortality rates				
	Neonatal mortality (NN)	Postneonatal mortality (PNN) ¹	Infant mortality (${}_1q_0$)	Child mortality (${}_4q_1$)	Under-5 mortality (${}_5q_0$)
0-4	21	12	32	6	39
5-9	33	13	46	8	54
10-14	39	19	58	13	71

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

The 2016 NDHS documents a pattern of decreasing childhood mortality during the 20 years since 1996, based on results from the 1996, 2001, 2006, 2011, and 2016 NDHS surveys (Figure 3.3). The overall under-5 mortality rate has declined from 118 deaths per 1,000 live births during the 5 years immediately preceding the 1996 NDHS to 61 deaths per 1,000 live births in the 5 years prior to the 2006 NDHS, to 39 deaths per 1,000 live births in the most recent 5-year period. Infant mortality decreased from 78 deaths per 1,000 live births, to 48 deaths per 1,000 live births, to 32 deaths per 1,000 live births over the same periods. Though the neonatal mortality stagnated at 33 deaths per 1,000 live births for nearly a decade as reported by the 2006 NDHS and 2011 NDHS, it has declined to 21 deaths per 1,000 live births in the most recent 5-year period.

Though Nepal met its Millennium Development Goal target of reducing under-5 mortality to 54 deaths per 1,000 live births by 2015, it has a long way to go to meet the SDG target for 2017, reducing under-5 mortality to 28 deaths per 1,000 live births (National Planning Commission 2015).

Figure 3.3 Trends in childhood mortality, 1991-2016

3.11 MATERNAL CARE

Proper care during pregnancy and delivery is important for the health of both the mother and the baby. In the 2016 NDHS, women who had given birth in the 5 years preceding the survey were asked a

number of questions about maternal care. Mothers were asked whether they had obtained antenatal care during the pregnancy for their most recent live birth in the 5 years preceding the survey and whether they had received tetanus toxoid injections while pregnant. For each live birth over the same period, mothers were also asked what type of assistance they received at the time of delivery. Finally, women who had a live birth in the 2 years before the survey were asked if they received a postnatal checkup within 2 days of delivery. Table 3.11 summarizes information on the coverage of these maternal health services.

Table 3.11 Maternal care indicators

Among women age 15-49 who had a live birth in the 5 years preceding the survey, percentage who received antenatal care from a skilled provider for the most recent live birth, percentage with four or more ANC visits for the most recent live birth, percentage who took iron supplements for at least 180 days during pregnancy, and percentage whose most recent live birth was protected against neonatal tetanus; among all live births in the 5 years before the survey, percentage delivered by a skilled provider and percentage delivered in a health facility; and among women age 15-49 who had a live birth in the 2 years preceding the survey, percentage who received a postnatal check during the first 2 days after giving birth, according to background characteristics, Nepal DHS 2016

Background characteristic	Women who had a live birth in the 5 years preceding the survey					Live births in the 5 years preceding the survey			Women who had a live birth in the 2 years preceding the survey	
	Percentage receiving antenatal care from a skilled provider ¹	Percentage with 4+ ANC visits	Percentage of women who took 180+ iron tablets during pregnancy of last birth	Percentage of women whose most recent live birth was protected against neonatal tetanus ²	Number of women	Percentage delivered by a skilled provider ¹	Percentage delivered in a health facility	Number of births	Percentage of women with a postnatal check during the first 2 days after birth ³	Number of women
Mother's age at birth										
<20	86.8	73.2	39.6	88.2	792	64.4	63.7	1,117	56.6	451
20-34	83.8	69.6	42.8	89.9	3,028	57.0	56.3	3,746	57.4	1,451
35-49	66.7	47.8	27.0	70.3	178	41.5	41.2	197	43.6	76
Residence										
Urban	87.0	75.5	44.2	89.3	2,223	67.7	68.6	2,730	63.9	1,062
Rural	79.5	61.7	38.0	87.9	1,775	46.8	44.2	2,330	48.2	916
Ecological zone										
Mountain	78.6	63.9	49.1	85.4	269	43.3	41.7	361	49.1	131
Hill	85.0	75.4	46.0	85.4	1,608	60.9	61.0	1,911	62.2	760
Terai	83.3	65.5	37.1	91.6	2,120	58.0	56.9	2,789	53.7	1,087
Development region										
Eastern	82.2	74.2	41.5	90.9	925	62.4	61.4	1,143	59.5	457
Central	83.5	63.4	37.5	89.2	1,415	55.8	53.5	1,855	53.4	706
Western	87.1	71.6	44.4	90.3	753	60.3	61.7	923	62.6	388
Mid-Western	77.7	68.6	41.0	82.1	559	49.0	49.7	702	51.2	260
Far-Western	90.5	77.3	51.7	87.8	346	66.0	66.4	437	57.6	166
Federal states										
State 1	82.7	76.9	43.5	90.0	686	63.1	62.2	819	61.5	338
State 2	81.6	53.4	28.0	92.9	963	48.6	44.6	1,367	45.0	513
State 3	85.1	78.4	50.2	85.6	691	69.9	70.7	813	67.3	312
State 4	87.3	76.7	44.6	88.0	337	69.9	68.3	388	68.3	164
State 5	84.7	73.7	42.5	88.6	720	56.6	59.4	899	59.9	364
State 6	73.0	52.2	42.2	80.1	255	35.3	35.6	338	38.5	121
State 7	90.5	77.3	51.7	87.8	346	66.0	66.4	437	57.6	166
Mother's education										
No education	73.3	49.4	28.2	84.0	1,257	37.6	36.4	1,733	41.7	570
Primary	82.5	64.1	34.9	86.3	777	50.2	49.2	1,019	44.5	391
Some secondary	87.2	78.3	46.7	90.4	1,010	69.7	69.1	1,226	60.9	551
SLC or higher	94.5	90.5	58.7	94.9	955	84.9	85.4	1,082	80.2	465
Wealth quintile										
Lowest	73.8	56.7	37.2	78.3	822	33.9	33.9	1,082	36.7	414
Second	80.0	65.4	37.6	87.6	839	48.0	46.6	1,072	49.7	417
Middle	83.4	66.8	36.9	93.1	863	59.4	57.6	1,121	55.2	454
Fourth	88.2	74.7	41.1	91.9	830	70.0	69.5	1,036	68.6	408
Highest	95.5	87.4	58.6	93.3	643	88.7	89.6	748	81.2	284
Total	83.6	69.4	41.5	88.7	3,998	58.0	57.4	5,060	56.7	1,978

Note: If more than one source of assistance was mentioned, only the provider with the highest qualifications is considered in this tabulation.

¹ Skilled provider includes doctor, nurse, and midwife.

² Includes mothers with two injections during the pregnancy of her most recent live birth, or two or more injections (the last within 3 years of the most recent live birth), or three or more injections (the last within 5 years of the most recent live birth), or four or more injections (the last within 10 years of the most recent live birth), or five or more injections at any time prior to the last live birth

³ Includes women who received a check from a doctor, midwife, nurse, community health worker, or traditional birth attendant

3.11.1 Antenatal Care

Antenatal care (ANC) from a skilled provider is important to monitor pregnancy and reduce morbidity and mortality risks for the mother and child during pregnancy, at delivery, and during the postnatal period (42 days after delivery). The 2016 NDHS results show that 84% of women who gave birth

in the 5 years preceding the survey received antenatal care from a skilled provider at least once for their last birth. Sixty-nine percent of women had four or more ANC visits.

Urban women were more likely than rural women to have received ANC from a skilled provider (87% and 80%, respectively) and to have had four or more ANC visits (76% and 62%, respectively). Women in the Hill zone are slightly more likely to receive antenatal care from a skilled provider and to receive more than four ANC visits than women in other zones. The proportion of women receiving ANC from a skilled provider varies from 73% in State 6 to 91% in State 7. Women in State 2 and State 6 are least likely to receive four or more ANC visits (only just over half) as compared with more than 74% of women in the other states. Women who have more education are more likely than those who have less education to receive ANC from a skilled provider. For instance, 73% of women with no education received ANC from a skilled provider, compared with 95% of women with an SLC or higher level of education. The proportion of women who receive ANC from a skilled provider increases steadily with wealth.

Overall, 42% of women took the recommended dose of iron tablets for at least 180 days during their last pregnancy. This is a slight improvement since 2011, when 38% of women took this recommended dose (MOHP, New ERA, and ICF International 2012). Women in the Terai zone and those living in the Central development region are least likely to take the recommended dose of iron tablets during their pregnancy. Only 28% of women in State 2 took the recommended dose of iron tablets during their pregnancy, whereas women in State 7 (52%) and State 3 (50%) are most likely to receive the recommended dose of iron tablets during their pregnancy. Similarly, education and wealth are positively related with the likelihood of a mother taking the recommended dose of iron supplements during pregnancy.

3.11.2 Tetanus Toxoid

Tetanus toxoid injections are given during pregnancy to prevent neonatal tetanus, a major cause of early infant death in many developing countries, often due to failure to observe hygienic procedures during delivery. Table 3.11 shows that 89% of women with a birth in the 5 years before the survey received sufficient doses of tetanus toxoid to protect their last birth against neonatal tetanus. The percentage of women whose last birth was protected from tetanus varies with level of education and wealth. Women with no education and those belonging to the lowest wealth quintile are substantially less likely to have had their last birth protected from tetanus. For instance, 84% of women with no education had their last birth protected from tetanus compared with 95% of women with an SLC or higher level of education.

3.11.3 Delivery Care

Access to proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that may lead to death or serious illness for the mother and/or baby (Van Lerberghe and De Brouwere 2001; WHO 2006). Survey data show that in Nepal, 58% of the births in the 5 years preceding the survey were delivered by a skilled provider and 57% were delivered in a health facility (Table 3.11).

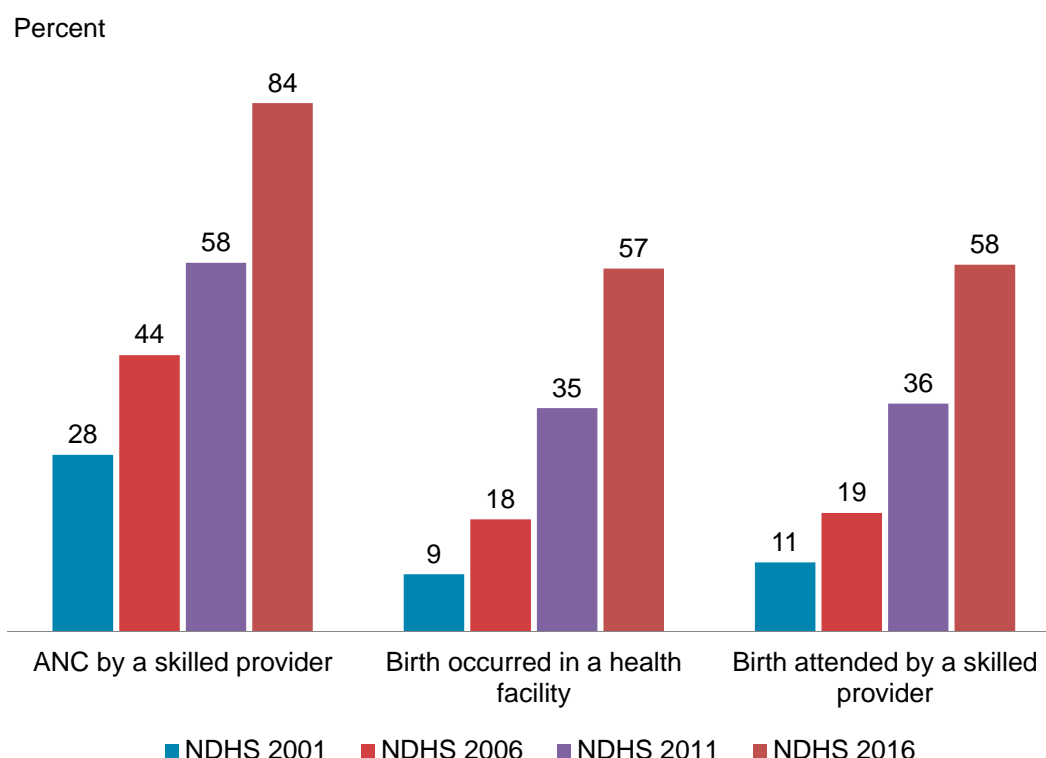
Urban women are far more likely to benefit from skilled delivery care than rural women. Sixty-eight percent of births to urban mothers were assisted by a skilled provider, and 69% were delivered in a health facility, as compared with 47% and 44%, respectively, of births to rural women. Sixty-one percent of births in hill zone were assisted by a skilled provider, compared with only 43% of those in the mountain zone. There is a sizeable disparity in maternity care by state; while 70% of births in State 3 and State 4 were assisted by skilled providers, only 35% of births in State 6 were assisted by skilled providers.

Mothers' educational status correlates highly with whether their delivery is assisted by a skilled provider and whether the birth is delivered in a health facility. For example, 38% of births to mothers with no education were assisted by a skilled provider, and 36% were delivered in a health facility, as compared

with 85% each, of births to mothers with an SLC or higher level of education. A similar relationship is observed with wealth.

There has been a steady improvement in the maternal health care indicators over the past 15 years. Among women receiving ANC from a skilled provider, the percentage increased from 28% in 2001 to 84% in 2016 (Figure 3.4). Similar improvement in the percentage of births delivered at a health facility has been witnessed, with an increase from 9% to 57%. Also the percentage of births attended by skilled providers increased from 11% to 58% over the same period of time.

Figure 3.4 Trends in maternal health care, 2001-2016



3.11.4 Postnatal Care for the Mother

A large proportion of maternal and neonatal deaths occur during the first 48 hours after delivery. Thus, prompt postnatal care (PNC) for both the mother and the child is important to treat any complications arising from the delivery, as well as to provide the mother with important information on how to care for herself and her child. Safe motherhood programs recommend that all women receive a check of their health within 2 days after delivery.

To assess the extent of postnatal care utilization, respondents were asked, for their last birth in the 2 years preceding the survey, whether they had received a checkup after delivery and the timing of the first checkup. As shown in Table 3.11, 57% of women reported having received a PNC checkup in the first 2 days after birth.

The proportion of women receiving a postnatal checkup within 2 days of delivery is higher in urban areas than rural areas (64% and 48%, respectively) and increases with advancement in education and wealth.

3.12 CHILD HEALTH AND NUTRITION

The 2016 NDHS collected data on a number of key child health indicators, including vaccinations of young children, nutritional status as assessed by anthropometry, infant feeding practices, and treatment practices when a child is ill.

3.12.1 Vaccination of Children

In DHS surveys, a child is considered to have received all basic vaccinations if he or she has received a BCG vaccination against tuberculosis; three doses of DPT vaccine to prevent diphtheria, pertussis, and tetanus; at least three doses of polio vaccine; and one dose of measles vaccine. These vaccinations should be received during the first year of life. In Nepal, since April 2009, DPT has been combined with other antigens that protect against hepatitis B and *Haemophilus influenzae* type b, and this vaccine (DPT-HepB-Hib) is known as the pentavalent vaccine. The 2016 NDHS reports on pentavalent vaccine coverage, as opposed to DPT coverage. It is also recommended that the vaccinations be recorded on a vaccination card that is given to the parents or guardians.

Nepal has established a schedule for the administration of all basic childhood vaccines based on the World Health Organization (WHO) guidelines. BCG should be given shortly after birth or at first clinical contact. Polio vaccine should be given at approximately age 6, 10, and 14 weeks. Pentavalent vaccine should also be given at approximately age 6, 10, and 14 weeks. Measles rubella vaccine should be given at or soon after the child reaches age 9 months. In September 2014, Nepal introduced one dose of inactivated poliomyelitis vaccine (IPV) at 14 weeks of age into its national routine immunization schedule. The IPV does not replace the oral polio vaccine, but is used with the oral polio vaccine to strengthen a child's immune system and protect them from polio. In January 18, 2015, Nepal also introduced pneumococcal conjugate vaccine (PCV) that protects against *Streptococcus pneumoniae* bacteria, which cause severe pneumonia, meningitis, and other illnesses. A child age 12-23 months is considered to be fully immunized (all age appropriate vaccinations) in Nepal if the child has received all basic vaccinations, plus one dose of inactivated polio vaccine and three doses of pneumococcal vaccine.

In the 2016 NDHS, information on vaccination coverage was obtained in two ways—from health cards and from mothers' verbal reports. All mothers were asked to show the interviewer the cards in which vaccination dates are recorded for all children born since Baisakh 2070 (April 2014). If the card was available, the interviewer then recorded from the card the dates of each vaccination received. In cases in which the card indicated the child had not received all basic vaccinations, the mother was asked whether the child had received other vaccinations that were not recorded on the card, and, if so, they too were recorded. If there was no card, or if the mother was unable to show the card to the interviewer, the child's vaccination information was based on the mother's recall. The mother was asked to recall whether the child had received BCG, polio, pentavalent, hepatitis B, and measles rubella vaccines. If she indicated that the child had received the polio, pentavalent, hepatitis B or measles rubella vaccines, she was asked about the number of doses that the child received. The results presented here are based on the vaccination card and, for those children without a card, information provided by the mother. Cards were seen for 52% of the children age 12-23 months (data not shown).

Table 3.12 pertains to children age 12-23 months, the age by which children should have received all basic vaccinations. Overall, 78% of children have received all basic vaccinations, and 38% have received all age-appropriate vaccinations. Ninety-eight percent of children have received BCG, 97% have received the first dose of pentavalent, and 98% have received polio 1. Eighty-six percent and 88% of children have received the third doses of the pentavalent and polio vaccines, respectively. Coverage of vaccination against measles rubella is 90%. One percent of children in Nepal have not received any vaccinations.

Basic vaccination coverage differs slightly by residence with urban children more likely to receive all basic vaccinations than rural children. Children in the Terai and Mountain zones are less likely to receive all basic vaccinations compared with children in the Hill zone. Children in State 2—that spreads across the central Terai and eastern Terai—are least likely to receive all basic vaccinations (65%). Vaccination coverage improves with mother's education and wealth.

Table 3.12 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), percentage with all basic vaccinations, and percentage with all age appropriate vaccinations, according to background characteristics, Nepal DHS 2016

Background characteristic	DPT-HepB-Hib ¹							Pneumococcal			Measles rubella	All basic vaccinations ²	All age appropriate vaccinations ³	No vaccinations	Number of children		
	BCG	1	2	3	1	2	3	1	2	3							
Sex																	
Male	98.3	97.5	94.7	85.7	97.8	95.8	87.5	70.7	74.9	59.6	46.0	91.2	77.4	38.9	0.5	577	
Female	96.5	95.5	92.6	86.2	97.6	94.6	88.7	68.4	70.0	57.6	44.9	89.4	78.4	37.7	1.3	457	
Birth order																	
1	98.6	98.2	96.8	89.0	97.4	95.0	89.8	72.1	77.6	65.6	52.8	93.0	84.0	45.4	0.7	420	
2-3	97.6	97.3	92.7	86.2	98.2	96.0	90.5	70.6	69.8	54.8	41.0	89.6	75.6	33.8	0.6	443	
4-5	97.5	94.1	92.5	79.3	99.1	96.7	90.9	65.1	69.5	53.3	41.5	91.4	74.4	36.8	0.5	128	
6+	(85.5)	(82.0)	(79.0)	(73.7)	(91.3)	(85.8)	(67.5)	(50.4)	(64.8)	(48.5)	(33.1)	(70.9)	(51.5)	(20.9)	(5.4)	43	
Residence																	
Urban	98.1	97.2	94.0	85.6	98.0	96.1	88.7	70.6	73.6	58.5	44.2	91.2	78.5	36.9	0.7	564	
Rural	96.8	95.9	93.4	86.3	97.3	94.2	87.2	68.5	71.7	59.0	47.0	89.5	77.0	40.1	1.0	470	
Ecological zone																	
Mountain	98.1	98.1	93.6	85.5	97.2	90.6	81.5	73.4	72.8	57.4	35.6	95.8	74.1	28.7	0.0	75	
Hill	98.8	98.3	97.3	94.5	97.8	96.5	93.3	73.4	73.6	63.2	53.1	95.9	88.0	44.3	0.5	390	
Teral	96.5	95.3	91.3	80.2	97.7	95.0	85.2	66.6	72.1	55.8	41.6	85.9	71.3	35.5	1.2	569	
Development region																	
Eastern	97.8	95.4	94.6	87.5	97.7	94.8	86.2	72.4	79.4	65.3	47.7	94.3	80.6	43.4	0.6	237	
Central	95.9	95.5	90.6	79.8	96.8	94.5	85.7	62.3	61.6	42.0	32.0	86.6	71.1	25.1	1.6	360	
Western	99.0	97.8	95.9	90.7	99.0	98.3	93.9	79.6	87.8	84.1	70.2	89.6	83.1	63.2	0.0	226	
Mid-Western	98.1	98.8	95.2	87.5	98.8	93.8	85.9	63.2	70.6	54.0	43.6	92.2	78.6	29.3	0.8	126	
Far-Western	98.4	98.4	97.0	92.7	96.7	93.9	89.8	76.7	64.7	50.6	34.1	95.2	83.4	27.9	0.7	84	
Federal states																	
State 1	96.9	93.5	92.4	85.6	96.9	92.7	84.8	72.1	75.3	61.4	44.6	96.5	79.4	40.0	0.8	169	
State 2	95.5	96.2	90.4	76.1	97.2	94.4	81.7	65.0	67.3	48.2	33.8	81.4	65.2	29.0	1.9	259	
State 3	98.2	96.3	94.8	90.4	97.5	96.8	93.7	62.4	64.0	45.8	38.4	95.4	85.3	29.7	0.6	168	
State 4	100.0	97.9	97.1	94.7	99.4	99.4	97.3	86.6	90.2	87.8	76.9	98.0	92.7	73.0	0.0	94	
State 5	98.4	98.4	98.5	89.1	99.1	97.1	90.8	72.0	82.5	71.7	58.1	85.9	78.3	46.7	0.0	196	
State 6	97.5	97.5	93.2	83.3	97.5	91.5	82.6	59.8	66.3	56.8	44.5	93.9	74.9	31.7	1.5	63	
State 7	98.4	98.4	97.0	92.7	96.7	93.9	89.8	76.7	64.7	50.6	34.1	95.2	83.4	27.9	0.7	84	
Education																	
No education	96.1	94.6	89.6	80.3	97.0	93.3	82.5	65.4	66.0	52.5	38.1	83.4	67.8	30.6	1.2	321	
Primary	96.9	95.2	92.1	85.0	97.2	95.6	90.1	69.5	72.1	57.1	41.5	91.9	75.8	34.4	0.3	212	
Some secondary	97.8	97.3	95.8	86.4	97.3	93.5	87.3	71.4	73.4	59.7	45.9	91.9	79.8	39.9	1.5	267	
SLC or higher	99.6	99.9	98.6	94.1	99.6	99.6	94.4	73.7	81.8	67.6	59.0	97.0	91.2	50.8	0.1	234	
Wealth quintile																	
Lowest	98.0	96.2	94.0	86.5	97.3	94.3	86.6	67.4	71.3	58.3	43.9	94.0	76.6	35.4	0.4	215	
Second	96.3	95.5	93.4	84.9	96.8	94.3	86.4	72.6	67.3	54.0	43.9	89.7	77.2	39.4	1.8	229	
Middle	97.5	96.3	91.6	80.9	98.4	95.4	84.9	66.7	70.6	54.3	39.3	85.2	70.9	33.1	0.0	237	
Fourth	98.4	97.9	95.4	89.8	98.5	97.0	92.9	72.9	78.9	67.3	54.2	93.6	84.8	44.9	1.0	226	
Highest	97.1	97.7	94.9	89.5	97.4	95.2	90.2	68.1	78.1	60.8	47.1	89.8	81.6	39.6	1.1	128	
Total	97.5	96.6	93.8	85.9	97.7	95.3	88.0	69.7	72.8	58.7	45.5	90.4	77.8	38.3	0.8	1,034	

BCG = Bacille Calmette-Guérin; DPT = Diphtheria-pertussis-tetanus; HepB = Hepatitis B; Hib = Haemophilus influenzae type b; IPV = inactivated polio vaccine

Note: Children are considered to have received the vaccine if it was either written on the child's vaccination card or reported by the mother. For children whose vaccination information is based on the mother's report, date of vaccination is not collected. The proportions of vaccinations given during the first and second years of life are assumed to be the same as for children with a written record of vaccination. Figures in parentheses are based on 25-49 unweighted cases.

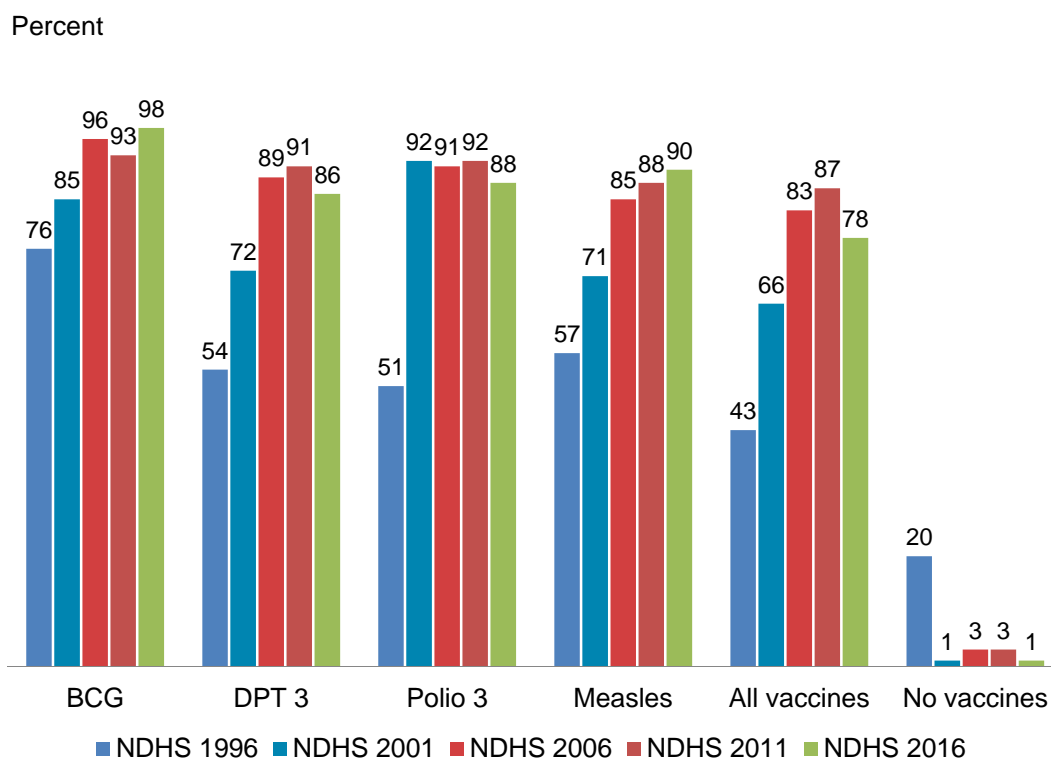
¹ DPT-HepB-Hib is sometimes referred to as Pentavalent

² BCG, three doses of DPT-HepB-Hib, three doses of oral polio vaccine, and one dose of measles rubella

³ BCG, three doses of DPT-HepB-Hib, three doses of oral polio vaccine, one dose of inactivated polio vaccine, three doses of pneumococcal vaccine, and one dose of measles rubella

Figure 3.5 indicates that vaccination coverage has not improved over the past 5 years, primarily due to the low coverage of the third doses of DPT and polio. Overall, 78% of children 12-23 months have received all basic vaccinations, a reduction of 10% from 2011 coverage.

Figure 3.5 Trends in vaccination coverage among children 12-23 months, 1996-2016



3.12.2 Childhood Acute Respiratory Infection, Fever, and Diarrhea

Acute respiratory infection (ARI), fever, and dehydration from diarrhea are important contributing causes of childhood morbidity and mortality in developing countries (WHO 2003). Prompt medical attention when a child has the symptoms of these illnesses is, therefore, crucial in reducing child deaths. In the 2016 NDHS, for each child under age 5, mothers were asked if the child had experienced a cough accompanied by short, rapid breathing, or difficulty in breathing as a result of a chest-related problem (symptoms of ARI); a fever; or an episode of diarrhea in the 2 weeks preceding the survey. Respondents were also asked if treatment was sought when the child was ill. Overall, 2% of children under age 5 showed symptoms of ARI, 21% had a fever, and 8% experienced diarrhea in the 2 weeks preceding the survey (data not shown). It should be noted that the morbidity data collected are subjective because they are based on a mother's perception of illnesses without validation by medical personnel.

Table 3.13 shows that treatment from a health facility or provider was sought for 85% of children with ARI symptoms and 80% of those with a fever. Treatment was sought from a health facility or health provider for 64% of children with diarrhea. Thirty-seven percent of children with diarrhea received a rehydration solution from an oral rehydration salt (ORS) packet; 18% of children with diarrhea were given zinc supplements, and 10% received both ORS and zinc supplements. Only 29% of children were given increased fluids and continued feeding during diarrhea as recommended.

Table 3.13 Treatment for acute respiratory infection, fever, and diarrhea

Among children under age 5 who had symptoms of acute respiratory infection (ARI) or had fever in the 2 weeks preceding the survey, percentage for whom advice or treatment was sought, and among children under age 5 who had diarrhea during the 2 weeks preceding the survey, percentage for whom advice or treatment was sought, percentage given a fluid made from oral rehydration salt (ORS) packets, percentage given zinc, percentage given ORS and zinc, and percentage given increased fluids and continued feeding, according to background characteristics, Nepal DHS 2016

Background characteristic	Children with symptoms of ARI ¹		Children with fever		Children with diarrhea					
	Percentage for whom advice or treatment was sought ²	Number of children	Percentage for whom advice or treatment was sought ²	Number of children	Percentage for whom advice or treatment was sought ²	Percentage given fluid from ORS packet	Percentage given zinc	Percentage given ORS and zinc	Percentage given increased fluids and continued feeding	Number of children
Age in months										
<6	*	5	84.7	71	(67.6)	(4.0)	(9.3)	(4.0)	(6.7)	27
6-11	*	22	80.4	150	52.0	26.2	10.9	4.7	15.3	76
12-23	(91.8)	41	73.4	248	77.2	43.0	16.7	10.3	40.0	102
24-35	*	21	81.7	206	81.8	56.1	29.9	19.9	33.0	60
36-47	*	11	81.4	176	48.9	33.6	13.2	5.3	34.3	60
48-59	*	17	82.3	183	(52.2)	(39.7)	(25.2)	(16.9)	(29.1)	46
Sex										
Male	83.9	68	80.7	607	71.9	36.8	19.8	12.4	27.3	197
Female	86.4	50	78.5	427	56.1	37.1	15.1	7.9	31.3	175
Residence										
Urban	89.7	55	82.5	600	59.8	35.8	15.5	10.3	37.7	207
Rural	80.7	63	76.1	434	70.2	38.3	20.2	10.2	18.5	165
Ecological zone										
Mountain	*	10	60.6	56	*	*	*	*	*	18
Hill	82.0	62	69.7	402	44.9	40.1	13.6	11.7	47.5	120
Terai	(92.8)	46	88.7	576	74.0	34.1	18.3	7.6	19.6	234
Development region										
Eastern	*	29	86.5	298	70.1	41.1	15.4	12.9	29.5	69
Central	(94.2)	36	79.6	403	51.6	31.7	17.4	5.0	25.4	171
Western	*	23	75.4	120	(84.6)	(26.8)	(9.9)	(6.2)	(38.9)	48
Mid-Western	(80.2)	19	74.5	137	78.6	54.3	28.2	26.0	31.7	57
Far-Western	*	11	70.6	75	(65.9)	(41.2)	(15.4)	(10.7)	(29.5)	26
Federal states										
State 1	*	26	84.7	242	65.7	44.5	13.1	13.1	35.6	57
State 2	*	20	89.4	281	68.2	28.2	22.8	3.3	5.8	112
State 3	*	19	68.8	179	(32.1)	(36.0)	(10.5)	(9.0)	(51.9)	71
State 4	*	7	66.7	56	*	*	*	*	*	14
State 5	*	25	82.3	151	82.4	33.3	12.2	9.6	26.8	71
State 6	*	11	61.8	50	(83.3)	(72.6)	(48.9)	(46.8)	(52.4)	19
State 7	*	11	70.6	75	(65.9)	(41.2)	(15.4)	(10.7)	(29.5)	26
Mother's education										
No education	(85.5)	35	77.5	327	58.4	30.9	13.6	7.6	11.6	142
Primary	(88.9)	28	76.2	211	75.0	33.8	22.1	6.1	21.9	82
Some secondary	(85.1)	34	82.8	250	67.6	39.4	19.8	14.7	33.3	77
SLC or higher	*	21	82.8	246	60.9	50.0	17.9	15.5	68.2	71
Wealth quintile										
Lowest	(72.9)	34	58.9	186	54.7	37.5	25.2	20.5	30.0	61
Second	(79.3)	32	77.1	220	61.0	38.0	15.4	8.2	20.7	82
Middle	(100.0)	26	90.7	251	75.2	31.1	17.7	3.5	12.4	91
Fourth	*	20	84.8	213	66.8	40.5	13.7	7.4	35.5	83
Highest	*	4	83.9	164	(59.0)	(39.2)	(18.1)	(17.7)	(59.5)	54
Total	84.9	118	79.8	1,034	64.4	37.0	17.6	10.3	29.1	371

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

¹ Symptoms of ARI (cough accompanied by short, rapid breathing that is chest-related and/or by difficult breathing that is chest-related)

² Excludes advice or treatment from a traditional practitioner

3.12.3 Nutritional Status of Children

Anthropometric measurements (height and weight) for young children were collected in the 2016 NDHS to provide outcome measures of nutritional status. Each team of interviewers carried a scale and measuring board. Measurements were made using lightweight SECA scales (with digital screens) designed and manufactured under the authority of the United Nations Children's Fund (UNICEF). The measuring boards were specially made by Shorr Productions for use in survey settings. As recommended by WHO, evaluation of nutritional status in this report is based on a comparison of three indices for the children in this survey with indices reported for a reference population of well-nourished children (WHO Multicenter

Growth Reference Study Group 2006). The three indices (height-for-age, weight-for-height, and weight-for-age) are expressed as standard deviation units from the median for the reference group. Children who fall below minus two standard deviations (-2 SD) from the median of the reference population are regarded as moderately malnourished, while those who fall below minus three standard deviations (-3 SD) from the reference population median are considered severely malnourished. Marked differences, especially with regard to height-for-age and weight-for-age, are often seen between different subgroups of children within a country.

Height and weight measurements were obtained for 2,500 (unweighted) children under age 5 who were eligible to be measured in the NDHS sample households at the time of the survey. Table 3.14 and Figure 3.6 focus on the 98% for whom complete and credible anthropometric and age data were collected.

Table 3.14 shows nutritional status for children under age 5 according to the three anthropometric indices, by background characteristics. Height-for-age is a measure of linear growth. A child who is below minus two standard deviations (SD) from the reference median for height-for-age is considered short for his or her age, or stunted, a condition reflecting the cumulative effect of chronic malnutrition. Thirty-six percent of children in Nepal are stunted (below -2 SD), and 12% are severely stunted (below -3 SD). Stunting increases with age, peaking at 45% among children age 24-35 months. A slightly higher proportion of children in rural areas (40%) than urban areas (32%) are stunted. Similarly, children in the mountain zone are more likely to be stunted than other children. Stunting is prominent in State 6 where 55% of children are stunted. Children of women with no education are more likely to be stunted than those whose mothers have been to school. Stunting is inversely related with wealth quintile; 49% of children in the lowest wealth quintile are stunted, as compared with 17% of children in the highest quintile.

Weight-for-height describes current nutritional status. A child who is below minus two standard deviations from the reference median for weight-for-height is considered too thin for his or her height, or wasted, a condition reflecting acute or recent nutritional deficits. Overall, 10% of children are wasted and 2% severely wasted.

Weight-for-age is a composite index of weight-for-height and height-for-age and thus does not distinguish between acute malnutrition (wasting) and chronic malnutrition (stunting). Children can be underweight for their age because they are stunted, wasted, or both. Weight-for-age is an overall indicator of a population's nutritional health. The results show that 27% of all children under 5 are underweight, and 5% are severely underweight. The proportion of children who are underweight is greater in rural areas (31%) than urban areas (23%). Children of women with no education are more than twice as likely to be underweight as children whose mothers have at least an SLC. Underweight is inversely related to wealth quintile; 33% of children in the lowest wealth quintile are underweight, as compared with 12% of children in the highest quintile.

Table 3.14 Nutritional status of children

Percentage of children under age 5 classified as malnourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, according to background characteristics, Nepal DHS 2016

Background characteristic	Height-for-age ¹				Weight-for-height					Weight-for-age				
	Percent-age below -3 SD	Percent-age below -2 SD ²	Mean Z-score (SD)	Number of children	Percent-age below -3 SD	Percent-age below -2 SD ²	Percent-age above +2 SD	Mean Z-score (SD)	Number of children	Percent-age below -3 SD	Percent-age below -2 SD ²	Percent-age above +2 SD	Mean Z-score (SD)	Number of children
Age in months														
<6	6.4	13.5	-0.5	218	5.6	15.2	5.3	-0.4	215	7.0	13.8	0.2	-0.7	219
6-8	4.3	17.6	-0.7	117	3.3	21.3	2.7	-0.7	117	3.9	21.4	1.7	-1.0	117
9-11	4.3	20.0	-0.8	133	3.0	16.0	1.7	-0.7	134	4.5	24.1	1.2	-1.0	133
12-17	7.4	31.9	-1.4	230	2.7	14.8	1.7	-0.9	229	4.1	27.3	0.7	-1.3	232
18-23	11.8	41.9	-1.7	281	1.7	10.2	0.4	-0.8	281	5.6	29.8	0.0	-1.4	281
24-35	14.9	44.5	-1.8	464	0.7	6.5	0.2	-0.6	465	5.1	30.7	0.0	-1.5	467
36-47	15.0	39.8	-1.7	500	1.5	6.4	0.5	-0.6	500	5.3	26.5	0.2	-1.4	502
48-59	15.0	40.8	-1.8	476	0.6	6.2	0.8	-0.6	476	6.3	30.4	0.0	-1.5	476
Sex														
Male	11.5	36.0	-1.5	1,258	2.1	9.5	1.4	-0.7	1,255	5.8	26.7	0.2	-1.3	1,263
Female	12.5	35.7	-1.5	1,163	1.6	9.8	1.0	-0.6	1,162	5.0	27.4	0.4	-1.3	1,165
Mother's interview status														
Interviewed	11.9	35.7	-1.5	2,342	1.9	9.9	1.2	-0.7	2,339	5.5	27.0	0.3	-1.3	2,349
Not interviewed, but in household	(6.1)	(28.1)	(-1.4)	24	(2.8)	(6.8)	(0.0)	(-0.7)	24	(6.4)	(27.0)	(0.0)	(-1.3)	24
Not interviewed, not in household ³	20.4	44.7	-1.7	55	0.0	2.2	0.2	-0.2	55	3.4	27.2	0.0	-1.2	55
Residence														
Urban	10.5	32.0	-1.4	1,280	1.7	9.2	1.5	-0.6	1,279	5.1	23.4	0.4	-1.2	1,284
Rural	13.7	40.2	-1.6	1,141	1.9	10.2	0.9	-0.7	1,139	5.7	31.1	0.2	-1.5	1,144
Ecological zone														
Mountain	19.2	46.8	-1.9	170	0.7	6.1	1.4	-0.4	171	6.7	28.5	0.9	-1.4	172
Hill	10.2	32.3	-1.4	876	1.5	6.4	2.3	-0.3	872	3.4	18.1	0.5	-1.0	878
Terai	12.3	36.7	-1.5	1,374	2.2	12.2	0.5	-0.9	1,375	6.6	32.5	0.1	-1.5	1,378
Development region														
Eastern	9.6	32.6	-1.4	544	1.5	13.1	0.5	-0.8	542	4.8	26.5	0.5	-1.3	546
Central	12.2	34.7	-1.5	868	2.3	9.9	0.8	-0.7	869	6.3	28.0	0.2	-1.4	872
Western	11.7	37.5	-1.5	464	0.9	6.0	2.8	-0.4	462	4.5	23.7	0.4	-1.2	464
Mid-Western	16.6	42.0	-1.7	333	2.6	8.8	1.3	-0.6	333	6.3	29.1	0.1	-1.4	334
Far-Western	11.0	35.9	-1.6	211	1.5	9.3	1.1	-0.6	211	4.2	28.1	0.0	-1.4	212
Federal states														
State 1	9.3	32.6	-1.3	392	0.9	11.8	0.7	-0.7	390	4.1	24.4	0.7	-1.2	393
State 2	12.7	37.0	-1.6	666	3.0	14.4	0.0	-1.1	666	7.9	36.8	0.0	-1.7	668
State 3	10.4	29.4	-1.4	355	1.3	4.2	1.9	-0.2	355	3.4	13.3	0.5	-0.9	357
State 4	10.1	28.9	-1.3	188	1.6	5.8	3.7	-0.2	187	2.6	14.9	0.5	-0.9	188
State 5	11.4	38.5	-1.6	454	1.4	7.6	1.8	-0.6	452	4.4	27.2	0.2	-1.3	454
State 6	24.9	54.5	-2.1	156	2.2	7.5	1.5	-0.5	156	10.8	35.6	0.2	-1.6	157
State 7	11.0	35.9	-1.6	211	1.5	9.3	1.1	-0.6	211	4.2	28.1	0.0	-1.4	212
Mother's education⁴														
No education	17.8	45.7	-1.8	827	1.7	12.5	0.3	-0.8	827	8.4	36.7	0.1	-1.7	831
Primary	13.0	36.7	-1.6	473	2.8	9.0	1.8	-0.7	471	5.6	28.0	0.9	-1.4	473
Some secondary	7.4	31.5	-1.3	567	2.4	8.8	1.0	-0.6	567	3.6	21.6	0.0	-1.2	568
SLC or higher	5.9	22.7	-1.1	500	0.7	7.5	2.5	-0.4	498	2.6	16.1	0.3	-0.9	502
Wealth quintile														
Lowest	21.3	49.2	-1.9	496	2.7	8.8	1.4	-0.6	493	8.5	32.9	0.3	-1.5	498
Second	11.5	38.7	-1.6	528	1.7	9.4	1.1	-0.7	528	5.2	28.3	0.0	-1.4	529
Middle	11.5	35.7	-1.6	549	2.3	10.6	0.2	-0.8	551	6.0	32.8	0.2	-1.5	551
Fourth	9.2	32.4	-1.4	526	1.4	11.3	0.7	-0.7	525	3.4	23.5	0.3	-1.3	526
Highest	4.0	16.5	-0.8	322	0.7	7.3	3.6	-0.4	321	3.3	11.6	0.8	-0.8	324
Total	12.0	35.8	-1.5	2,421	1.8	9.7	1.2	-0.6	2,417	5.4	27.0	0.3	-1.3	2,428

Note: Each of the indices is expressed in standard deviation units (SD) from the median of the WHO Child Growth Standards. Figures in parentheses are based on 25-49 unweighted cases.

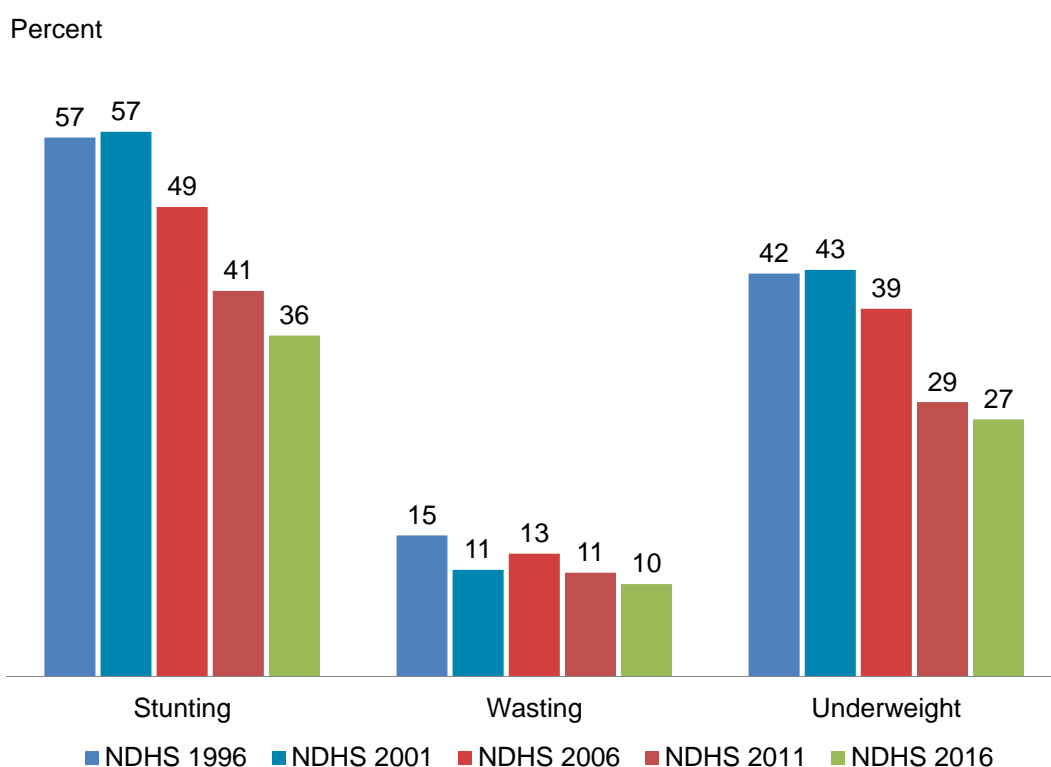
¹Recumbent length is measured for children under age 2; standing height is measured for all other children.

²Includes children who are below -3 standard deviations (SD) from the WHO Growth Standards population median

³Includes children whose mothers are deceased

⁴For women who are not interviewed, information is taken from the Household Questionnaire. Excludes children whose mothers are not listed in the Household Questionnaire.

Figure 3.6 Trends in nutritional status of children, 1996-2016



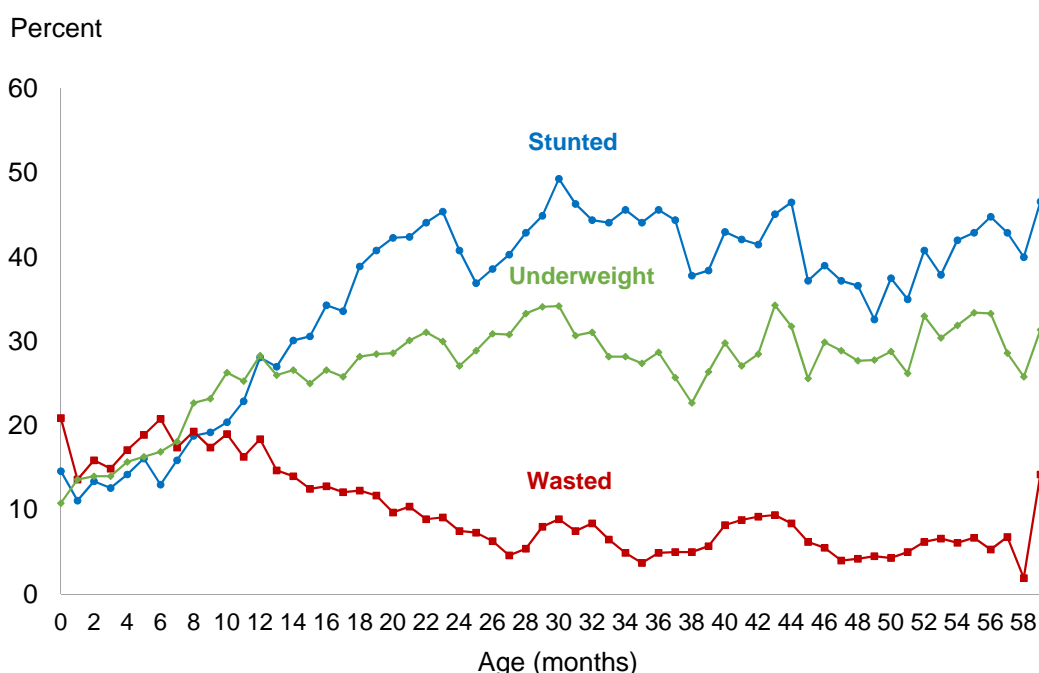
The weight-for-height index also provides data on overweight and obesity. Children more than two standard deviations (+2SD) above the median weight-for-height are considered overweight or obese. Only 1% of children under age 5 are overweight in Nepal.

Z-score means are calculated as summary statistics representing the nutritional status of children in a population. These mean scores describe the nutritional status of the entire population without the use of a cut-off. A mean Z-score of less than 0 (that is, a negative value for stunting, wasting, or underweight) suggests that the distribution of an index has shifted downward and, on average, children in the population are less well-nourished than children in the WHO Multicenter Growth Reference Study. As shown in Table 3.14, the mean stunting, wasting, and underweight Z-scores for children under age 5 are -1.5, -0.6, and -1.3, respectively.

Trends in the nutritional status of children in Nepal for the period 1996 to 2016 are shown in Figure 3.7. For the purpose of assessing trends, the data from the 1996 NFHS and 2001 NDHS have been recalculated using the WHO child growth standards adopted in 2006, since the 2006 NDHS, 2011 NDHS, and 2016 NDHS are based on this reference population.

The results indicate that the nutritional status of children in Nepal has improved over the 2 decades. The percentage of stunted children declined by 14% between 2001 and 2006, declined by an additional 16% between 2006 and 2011, and dropped by 12% between 2011 and 2016. A similar trend downwards is observed for underweight children. This decline has been in line with the Millennium Development Goal (MDG) target. However, there is still a long way to go to meet the SDG target of reducing stunting to 31% and underweight to 25% among children under 5 by 2017 (National Planning Commission 2015).

Figure 3.7 Nutritional status of children by age



Note: *Stunting* reflects chronic malnutrition; *wasting* reflects acute malnutrition; *underweight* reflects chronic or acute malnutrition or a combination of both. Plotted values are smoothed by a five-month moving average.

Nepal DHS 2016

3.12.4 Infant and Young Child Feeding Practices

Breastfeeding is sufficient and beneficial for infant nutrition in the first 6 months of life. Breastfeeding immediately after birth also helps the uterus contract, hence reducing the mother’s postpartum blood loss. Giving any other foods and water (in addition to breast milk) before the child is age 6 months is discouraged because it may inhibit breastfeeding and expose the infant to illness. Infants older than 6 months need other food and drink while they continue to breastfeed until age 2 or older. Breastmilk still is an important source of energy, protein, and other nutrients such as vitamin A and iron. The food should include a variety of options, such as peeled, cooked, and mashed vegetables, grains, pulses and fruit, some oil, and also meat, eggs, chicken, and dairy products to provide adequate nourishment (Pan American Health Organization 2002).

The 2016 NDHS collected data on infant and young child feeding (IYCF) practices for all children born in the 2 years preceding the survey. Overall, 55% of last born children in the 2 years preceding the survey were breastfed within 1 hour of birth (data not shown). Table 3.15 shows breastfeeding practices by child’s age. Contrary to the recommendation that children under age 6 months be exclusively breastfed, only 66% of the infants under age 6 months were found to be exclusively breastfed. In addition to breast milk, 6% of these young infants consume plain water, 6% consume non-milk liquids, 10% consume other milk, and 12% consume complementary foods. Nine percent of infants under age 6 months are fed using a bottle with a nipple, a practice that is discouraged because of the risk of illness to the child. Eighty-three percent of children age 6-8 months receive timely complementary foods, and only 10% of children age 18-23 months have been weaned.

Table 3.15 Breastfeeding status by age

Percent distribution of youngest children under age 2 who are living with their mother, by breastfeeding status; percentage currently breastfeeding; and percentage using a bottle with a nipple, according to age in months, Nepal DHS 2016

Age in months	Breastfeeding status						Total	Percentage currently breastfeeding	Number of youngest children under age 2 living with the mother	Percentage using a bottle with a nipple	Number of all children under age 2
	Not breast-feeding	Exclusively breast-feeding	Breast-feeding and consuming plain water only	Breast-feeding and consuming non-milk liquids ¹	Breast-feeding and consuming other milk	Breast-feeding and consuming complementary foods					
0-1	2.5	79.6	3.7	8.1	5.0	1.2	100.0	97.5	159	7.3	159
2-3	0.0	72.2	2.5	4.1	13.2	8.0	100.0	100.0	160	7.0	160
4-5	0.0	40.9	13.7	4.7	11.5	29.2	100.0	100.0	124	14.1	126
6-8	1.1	6.0	5.5	0.9	3.2	83.2	100.0	98.9	235	21.2	235
9-11	1.4	0.0	1.9	0.9	0.9	94.9	100.0	98.6	264	15.2	264
12-17	2.4	0.0	1.7	0.0	0.3	95.6	100.0	97.6	504	13.8	514
18-23	9.7	0.0	0.4	0.0	0.0	89.9	100.0	90.3	494	12.2	520
0-3	1.3	75.9	3.1	6.1	9.1	4.6	100.0	98.7	319	7.2	319
0-5	0.9	66.1	6.1	5.7	9.8	11.5	100.0	99.1	443	9.1	445
6-9	0.8	4.3	4.0	1.2	2.3	87.4	100.0	99.2	327	18.4	327
12-15	1.9	0.0	1.4	0.0	0.4	96.3	100.0	98.1	349	15.8	356
12-23	6.0	0.0	1.1	0.0	0.1	92.8	100.0	94.0	998	13.0	1,034
20-23	11.5	0.0	0.3	0.0	0.0	88.1	100.0	88.5	357	12.0	378

Note: Breastfeeding status refers to a "24-hour" period (yesterday and last night). Children who are classified as breastfeeding and consuming plain water only consumed no liquid or solid supplements. The categories of not breastfeeding, exclusively breastfeeding, breastfeeding and consuming plain water, non-milk liquids, other milk, and complementary foods (solids and semisolids) are hierarchical and mutually exclusive, and their percentages add to 100 percent. Thus children who receive breast milk and non-milk liquids and who do not receive other milk and who do not receive complementary foods are classified in the non-milk 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.

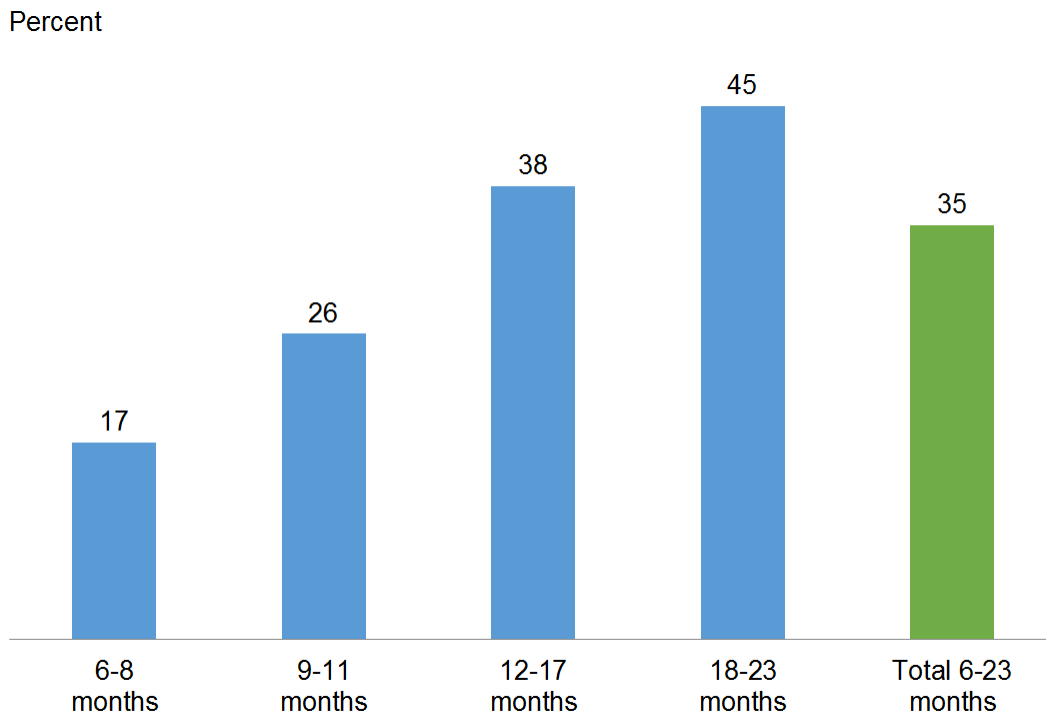
¹ Non-milk liquids include juice, juice drinks, or other liquids.

The minimum acceptable diet indicator is used to assess the proportion of children age 6-23 months who meet minimum standards with respect to IYCF practices. Specifically, children age 6-23 months who have a minimum acceptable diet meet all three IYCF criteria below:

- Breastfeeding, or not breastfeeding and receiving two or more feedings of commercial infant formula; fresh, tinned, or powdered animal milk; or yogurt.
- Fed with foods from four or more of the following groups: (a) infant formula, milk other than breast milk, and cheese or yogurt or other milk products; (b) foods made from grains, roots, and tubers, including porridge and fortified baby food from grains; (c) vitamin A-rich fruits and vegetables (and red palm oil); (d) other fruits and vegetables; (e) eggs; (f) meat, poultry, fish, and shellfish (and organ meats); and (g) legumes and nuts.
- Fed the minimum recommended number of times per day, according to their age and breastfeeding status:
- For breastfed children, minimum meal frequency is receiving solid or semisolid food at least twice a day for infants age 6-8 months and at least three times a day for children age 9-23 months.
- For nonbreastfed children age 6-23 months, minimum meal frequency is receiving solid or semisolid food or milk feeds at least four times a day.

Figure 3.8 shows the percentage of children being fed the minimum acceptable diet, by age. Among children 6-23 months, only 35% are fed in accordance with the criteria for a minimum acceptable diet.

Figure 3.8 Minimum acceptable diet according to age, in months



Nepal DHS 2016

3.12.5 Micronutrient Intake among Children

Micronutrient deficiency is a major contributor to childhood morbidity and mortality. Children can receive micronutrients from foods, fortified foods, and direct supplementation. Among sources of micronutrients, the 2016 NDHS collected information on vitamin A capsule supplementation and tested salt in households for iodine content. Nepal has been carrying out vitamin A capsule supplementation twice a year for children age 6-59 months. The 2016 NDHS collected information on children 6-59 months receiving vitamin A capsules in the recent National Vitamin A Distribution campaign. The survey captured information on the two rounds (March 2-3, 2016, and October 18-19, 2016).

Eighty-six percent of children age 6-59 months received vitamin A supplements in the 6 months preceding the survey (Table 3.16). Children who are age 12 months and older are more likely to receive vitamin A supplements than infants. Children in State 2 are least likely to receive vitamin A supplements.

Table 3.16 Micronutrient intake among children

Among all children age 6-59 months, percentage who were given vitamin A supplements in the 6 months preceding the survey, and among all children age 6-59 months who live in households in which salt was tested for iodine, percentage who live in households with iodized salt, according to background characteristics, Nepal DHS 2016

Background characteristic	Among all children age 6-59 months:		Among children age 6-59 months living in households in which salt was tested:	
	Percentage given vitamin A supplements in past 6 months ¹	Number of children	Percentage living in households with iodized salt ²	Number of children
Age in months				
6-23	81.6	1,206	94.6	1,528
6-8	(51.5)	32	95.8	235
9-11	67.0	150	94.8	262
12-17	81.3	504	93.7	513
18-23	87.9	520	94.8	519
24-35	89.0	919	94.4	916
36-47	90.2	968	95.0	955
48-59	85.7	1,021	93.9	1,017
Sex				
Male	85.8	2,159	95.2	2,314
Female	86.8	1,955	93.7	2,102
Breastfeeding status				
Breastfeeding	86.8	2,114	94.5	2,429
Not breastfeeding	85.7	2,000	94.4	1,986
Mother's age				
15-19	76.8	231	92.8	283
20-29	86.3	2,826	95.1	3,024
30-39	88.3	946	93.2	995
40-49	87.2	111	92.4	113
Residence				
Urban	85.4	2,240	96.2	2,387
Rural	87.4	1,875	92.4	2,028
Ecological zone				
Mountain	94.3	284	89.6	309
Hill	90.9	1,556	90.9	1,671
Terai	82.1	2,274	97.5	2,435
Development region				
Eastern	89.6	901	94.2	996
Central	80.1	1,525	97.3	1,639
Western	88.6	780	96.6	812
Mid-Western	91.4	560	86.2	597
Far-Western	91.0	348	91.4	373
Federal states				
State 1	90.7	632	92.6	719
State 2	77.6	1,108	99.5	1,188
State 3	87.0	686	94.2	727
State 4	91.2	319	95.2	340
State 5	88.0	748	94.6	784
State 6	92.9	274	82.0	284
State 7	91.0	348	91.4	373
Mother's education				
No education	83.2	1,473	93.0	1,553
Primary	85.5	836	93.0	892
Some secondary	86.9	947	94.9	1,040
SLC or Higher	91.6	858	97.9	932
Wealth quintile				
Lowest	89.9	869	83.3	929
Second	85.6	878	94.6	941
Middle	83.2	904	98.0	982
Fourth	85.7	855	99.1	913
Highest	87.4	610	98.5	650
Total	86.3	4,115	94.5	4,416

Note: Figures in parentheses are based on 25-49 unweighted cases.

¹ Based on both mother's recall and the vaccination card (where available)

² Excludes children in households in which salt was not tested

The vast majority of Nepalese households consume salt with iodine; 95% of children live in households that consume iodized salt. The percentage of children living in households that use iodized salt is lowest in State 6 (82%), in the Mid-Western region, and in the lowest wealth quintile.

3.13 ANEMIA PREVALENCE IN CHILDREN

Anemia is a condition that is marked by low levels of hemoglobin in the blood. Iron is a key component of hemoglobin, and iron deficiency is estimated to be responsible for half of all anemia globally. Other causes of anemia include hookworm and other helminths, other nutritional deficiencies, chronic infections, and genetic conditions. Anemia is a serious concern for children because it can impair cognitive development, stunt growth, and increase morbidity from infectious diseases.

The 2016 NDHS included direct measurement of hemoglobin levels using the HemoCue system. This system consists of a battery-operated photometer and a disposable microcuvette coated with a dried reagent that serves as the blood collection device. For the test, a drop of capillary blood taken from a child's fingertip or heel is drawn into the microcuvette. The blood in the microcuvette is analyzed using the photometer, which displays the hemoglobin concentration. Hemoglobin levels were successfully measured for 96% of the children eligible for testing (data not shown). Results were given verbally and in writing. Parents of children with a hemoglobin level below 7 g/dl were instructed to take the child to a health facility for follow-up care. All households in which anthropometry and anemia testing were conducted were given a brochure explaining the causes and prevention of anemia.

Table 3.17 presents anemia prevalence for children age 6-59 months, by background characteristics. Hemoglobin levels for children were adjusted for altitude. Children with hemoglobin levels below 11.0 g/dl were defined as anemic.

Overall, 53% of children suffered from some degree of anemia: 26% were classified as mildly anemic, 26% were moderately anemic, and less than 1% were severely anemic. The prevalence of anemia decreases with age, ranging from a high of 74% among children age 12-17 months to a low of 36% among children age 48-59 months. Anemia prevalence varies by states, from a low of 43% in State 3 to a high of 59% in State 2.

Table 3.17 Anemia among children

Percentage of children age 6-59 months classified as having any, mild, moderate, and severe anemia, according to background characteristics, Nepal DHS 2016

Background characteristic	Any anemia <11.0 g/dl	Severity of anemia			Number of children
		Mild anemia 10.0-10.9 g/dl	Moderate anemia 7.0-9.9 g/dl	Severe anemia <7.0 g/dl	
Age in months					
6-23	68.7	28.6	39.3	0.8	745
6-8	67.5	28.4	39.1	0.0	108
9-11	72.8	26.8	45.5	0.5	133
12-17	73.9	27.4	45.4	1.2	227
18-23	62.8	30.4	31.4	1.0	277
24-35	52.0	26.1	25.6	0.3	463
36-47	45.0	26.1	18.4	0.5	491
48-59	35.8	22.6	13.1	0.0	466
Sex					
Male	52.7	24.8	27.2	0.6	1,122
Female	52.6	27.7	24.6	0.3	1,043
Residence					
Urban	49.3	27.2	21.6	0.5	1,132
Rural	56.3	25.1	30.8	0.4	1,033
Ecological zone					
Mountain	57.4	25.8	29.2	2.4	156
Hill	40.1	22.6	17.3	0.2	777
Terai	60.0	28.6	31.0	0.4	1,232
Development region					
Eastern	55.7	29.6	25.8	0.4	491
Central	53.1	24.2	28.3	0.6	785
Western	49.9	27.5	22.0	0.3	415
Mid-Western	52.0	26.0	25.4	0.6	286
Far-Western	49.8	23.3	26.2	0.4	188
Federal states					
State 1	55.2	29.0	25.7	0.5	355
State 2	59.4	26.0	32.8	0.6	605
State 3	42.8	23.6	18.8	0.3	316
State 4	46.2	26.7	19.6	0.0	166
State 5	53.4	28.7	24.4	0.3	396
State 6	48.4	22.0	25.2	1.2	138
State 7	49.8	23.3	26.2	0.4	188
Wealth quintile					
Lowest	48.7	26.2	21.8	0.7	436
Second	49.6	24.2	24.4	1.0	484
Middle	59.9	28.5	31.1	0.4	505
Fourth	58.4	28.5	29.9	0.0	463
Highest	41.2	21.7	19.5	0.0	277
Total	52.7	26.2	26.0	0.5	2,165

Note: Table is based on children who stayed in the household the night before the interview. Prevalence of anemia, based on hemoglobin levels, is adjusted for altitude. Hemoglobin is in grams per deciliter (g/dl).

3.14 NUTRITIONAL STATUS OF WOMEN

The nutritional status of women was assessed with two anthropometric indices: height and body mass index. BMI is expressed as the ratio of weight in kilograms to the square of height in meters (kg/m^2). To derive these indices, the 2016 NDHS took height and weight measurements among women 15-49. Women who were pregnant and women who had given birth in the 2 months preceding the survey were excluded from the analysis.

Short stature reflects poor socioeconomic conditions and inadequate nutrition during childhood and adolescence. In a woman, short stature is a risk factor for poor birth outcomes and obstetric complications. For instance, short stature is associated with small pelvic size, which increases the likelihood of difficulty during delivery and the risk of bearing low birth weight babies. A woman is considered to be at risk if her height is below 145 cm. Table 3.18 shows that 11% of Nepalese women age 15-49 are shorter than 145 cm. Women with no education and those in the lowest wealth quintile are more likely to be short than women with an SLC and higher education and those in the highest wealth quintile.

BMI was used to measure thinness or obesity. A BMI below 18.5 indicates thinness or acute undernutrition, and a BMI of 25.0 or above indicates overweight or obesity. A BMI below 16 kg/m² indicates severe undernutrition and is associated with increased mortality. Low pre-pregnancy BMI, as with short stature, is associated with poor birth outcomes and obstetric complications.

Table 3.18 shows that the mean BMI among women age 15-49 is 22 kg/m². The mean BMI increases with age. Urban women have a slightly higher mean BMI (23 kg/m²) than rural women (21 kg/m²). Women in the highest wealth quintile have a higher mean BMI than those in the other quintiles.

Seventeen percent of women of reproductive age are thin or undernourished (BMI <18.5 kg/m²). The proportions with mild thinness (17.0-18.4 kg/m²) and moderate and severe thinness (<17 kg/m²) are 11% and 6%, respectively. Women in the Terai zone are nearly twice as likely to be thin as women living in Mountain or Hill zone (23% versus 12%). Similarly, those living in State 2 (29%) are more likely to be thin than women in other states.

Seventeen percent of women are overweight (BMI 25-29 kg/m²), and 5% are obese (BMI 30 kg/m² and above). Women in State 3 and those in the highest wealth quintile are more likely to be obese than other women. Overweight and obesity is becoming an issue in Nepal as there has been a rise in the proportion of women who are overweight and obese in the past 5 years. The proportion who are overweight has increased from 11% in the 2011 NDHS to 17% in the 2016 NDHS, and obesity has increased from 2% to 5% in the same period.

Table 3.18 Nutritional status of women

Among women age 15-49, the percentage with height under 145 cm; mean body mass index (BMI); and the percentage with specific BMI levels, according to background characteristics, Nepal DHS 2016

Background characteristic	Height		Body Mass Index ¹								Number of women
	Percentage below 145 cm	Number of women	Mean body mass index (BMI)	18.5-24.9 (Total normal)	<18.5 (Total thin)	17.0-18.4 (Mildly thin)	<17.0 (Moderately and severely thin)	≥25.0 (Total overweight or obese)	25.0-29.9 (Overweight)	≥30.0 (Obese)	
Age											
15-19	10.2	1,303	20.0	66.7	30.0	20.1	9.9	3.3	2.9	0.4	1,232
20-29	9.5	2,184	21.7	65.3	17.5	12.0	5.5	17.1	14.4	2.7	2,000
30-39	10.3	1,732	23.4	56.1	10.8	6.5	4.3	33.1	25.0	8.1	1,701
40-49	13.5	1,215	23.5	53.4	12.7	8.2	4.4	33.9	24.4	9.5	1,217
Residence											
Urban	10.1	4,047	22.6	58.3	15.6	10.4	5.2	26.1	19.2	6.9	3,881
Rural	11.4	2,386	21.4	64.8	19.9	12.9	6.9	15.3	13.3	2.0	2,269
Ecological zone											
Mountain	9.6	396	22.2	68.2	12.1	8.3	3.8	19.7	16.0	3.6	369
Hill	10.0	2,821	22.9	61.7	11.5	8.2	3.2	26.9	19.8	7.1	2,731
Terai	11.3	3,217	21.6	58.9	22.9	14.5	8.4	18.1	14.7	3.4	3,050
Development region											
Eastern	10.6	1,438	22.1	60.8	16.6	10.8	5.9	22.5	18.3	4.2	1,384
Central	11.3	2,337	22.5	55.5	18.4	12.0	6.4	26.0	18.7	7.3	2,211
Western	10.7	1,275	22.8	59.5	13.8	9.4	4.4	26.7	20.7	5.9	1,236
Mid-Western	10.9	813	21.3	71.0	16.7	10.6	6.1	12.3	10.6	1.6	776
Far-Western	7.1	571	20.8	69.4	21.7	15.4	6.3	8.9	7.7	1.2	544
Federal states											
State 1	9.9	1,077	22.7	59.9	12.8	8.7	4.1	27.2	21.8	5.4	1,038
State 2	13.6	1,291	20.6	60.2	29.1	18.4	10.8	10.7	9.0	1.7	1,194
State 3	9.5	1,407	23.6	53.5	11.5	7.7	3.8	35.0	24.4	10.6	1,362
State 4	10.8	627	23.5	60.6	8.0	7.1	0.9	31.4	23.8	7.6	611
State 5	10.5	1,090	21.9	62.3	18.9	11.1	7.8	18.8	15.5	3.3	1,048
State 6	11.4	371	21.2	74.6	15.2	10.9	4.3	10.2	8.7	1.5	353
State 7	7.1	571	20.8	69.4	21.7	15.4	6.3	8.9	7.7	1.2	544
Education											
No education	13.9	2,145	21.8	61.8	18.7	11.4	7.3	19.4	15.5	3.9	2,079
Primary	13.9	1,070	22.7	55.9	16.8	10.5	6.3	27.3	20.7	6.6	1,010
Some secondary	9.1	1,655	22.1	61.1	18.0	12.5	5.5	20.9	15.6	5.3	1,570
SLC or higher	5.4	1,563	22.4	61.9	14.5	10.6	3.8	23.7	18.2	5.5	1,491
Wealth quintile											
Lowest	13.7	1,094	21.0	71.4	18.8	12.2	6.7	9.8	9.2	0.6	1,049
Second	10.9	1,227	21.4	63.5	21.1	13.3	7.7	15.4	13.3	2.1	1,165
Middle	12.5	1,323	21.2	64.9	21.2	14.2	7.0	13.9	12.2	1.7	1,244
Fourth	9.3	1,449	22.3	59.7	17.2	11.6	5.6	23.1	18.0	5.1	1,387
Highest	7.4	1,340	24.6	46.7	8.5	5.8	2.7	44.8	30.2	14.6	1,305
Total	10.6	6,433	22.2	60.7	17.2	11.3	5.8	22.1	17.0	5.1	6,150

Note: The Body Mass Index (BMI) is expressed as the ratio of weight in kilograms to the square of height in meters (kg/m²).

¹ Excludes pregnant women and women with a birth in the preceding 2 months

3.15 ANEMIA PREVALENCE IN WOMEN

The 2016 NDHS included measurement of hemoglobin levels for women age 15-49. Hemoglobin levels among women were measured using procedures similar to those used for children, except that capillary blood was collected exclusively from a finger prick. Hemoglobin levels were successfully measured for 99% of the women eligible for testing (data not shown). Results were given verbally and in writing. Nonpregnant women and pregnant women were referred for follow-up care if their hemoglobin level was below 7 g/dl and 9 g/dl, respectively. All households in which anthropometry and anemia testing were conducted received a brochure explaining the causes and prevention of anemia.

Table 3.19 presents anemia prevalence for women age 15-49, by background characteristics. Hemoglobin levels for women were adjusted for altitude and smoking status. Pregnant women with hemoglobin levels below 11.0 g/dl and nonpregnant women with hemoglobin levels below 12.0 g/dl were defined as anemic.

Forty-one percent of women age 15-49 are anemic. The majority of these women are mildly anemic (34%); 7% are moderately anemic, and less than 1% are severely anemic. Pregnant women and breastfeeding women (each 46%) are more likely to be anemic than other women (39%). Anemia levels vary by states; for example, 58% of women residing in State 2 are anemic compared with only 28% in State 4. There is no clear pattern on prevalence of anemia by wealth.

The prevalence of anemia among women has increased in the past 5 years from 35% in 2011 to 41% in 2016. However, the prevalence of anemia among pregnant women has declined slightly from 48% in 2011 to 46% in 2016. It can be noted that the percentage of pregnant women receiving the recommended dose of iron tablets during their pregnancy has improved over the period, from 38% in 2011 to 42% in 2016 (as reported in Table 3.11).

Table 3.19 Anemia among women

Percentage of women age 15-49 years classified as having any, mild, moderate, and severe anemia, according to background characteristics, Nepal DHS 2016

Background characteristic	Severity of anemia					Number of women
		Any anemia	Mild anemia	Moderate anemia	Severe anemia	
	Nonpregnant	<12.0 g/dl	10.0-11.9 g/dl	7.0-9.9 g/dl	<7.0 g/dl	
	Pregnant	<11.0 g/dl	10.0-10.9 g/dl	7.0-9.9 g/dl	<7.0 g/dl	
Age						
15-19		43.6	35.6	7.7	0.3	1,297
20-29		42.7	35.7	6.8	0.2	2,179
30-39		39.6	33.3	6.2	0.2	1,725
40-49		35.8	27.5	7.8	0.5	1,213
Maternity status						
Pregnant		46.0	28.5	17.0	0.6	290
Breastfeeding		45.6	38.9	6.7	0.0	1,366
Neither		39.0	32.2	6.5	0.3	4,759
Residence						
Urban		39.6	32.4	7.0	0.2	4,029
Rural		42.7	35.4	7.0	0.3	2,385
Ecological zone						
Mountain		35.4	29.4	5.9	0.1	399
Hill		28.9	24.3	4.5	0.2	2,815
Terai		51.9	42.1	9.4	0.4	3,200
Development region						
Eastern		47.8	39.4	8.0	0.5	1,432
Central		39.9	31.5	8.1	0.2	2,334
Western		34.3	29.1	5.0	0.3	1,274
Mid-Western		42.0	35.2	6.5	0.2	809
Far-Western		39.3	34.1	5.2	0.0	566
Federal states						
State 1		43.3	35.9	6.8	0.5	1,073
State 2		57.8	45.6	11.9	0.3	1,285
State 3		29.0	23.3	5.6	0.1	1,408
State 4		28.0	24.2	3.7	0.1	627
State 5		43.5	36.4	6.7	0.3	1,086
State 6		34.9	29.4	5.3	0.2	369
State 7		39.3	34.1	5.2	0.0	566
Wealth quintile						
Lowest		32.3	27.1	4.8	0.5	1,093
Second		41.5	34.2	7.2	0.1	1,225
Middle		49.0	40.9	7.8	0.3	1,317
Fourth		43.4	35.6	7.7	0.2	1,441
Highest		36.0	28.5	7.3	0.2	1,338
Total		40.8	33.5	7.0	0.3	6,414

Note: Table is based on women who stayed in the household the night before the interview. Prevalence of anemia, based on hemoglobin levels, is adjusted for altitude and smoking using CDC formulas (CDC 1998). Hemoglobin is in grams per deciliter (g/dl).

3.16 HIV/AIDS AWARENESS, KNOWLEDGE, AND BEHAVIOR

3.16.1 Knowledge of HIV Prevention

The 2016 NDHS included a series of questions asked of both women and men that addressed respondents' knowledge of HIV prevention, awareness of modes of HIV transmission, and behaviors that can prevent the spread of HIV.

Eighty-one percent of women and 98% of men have heard of AIDS (data not shown). Table 3.20 shows that 72% of women and 92% of men age 15-49 know that consistent use of condoms is a means of preventing the spread of HIV. Seventy-seven percent of women and 93% of men know that limiting sexual intercourse to one faithful, uninfected partner can reduce the chance of contracting HIV. The proportions of women and men who know that both using condoms and limiting sexual intercourse to one uninfected partner are means of preventing HIV are 70% and 89%, respectively.

By residence, women who reside in urban areas are more likely to be knowledgeable about HIV prevention methods than their counterparts residing in rural areas, which is not the case for men. Better-educated respondents and those in the highest wealth quintile are considerably more knowledgeable of HIV prevention methods than other respondents.

Table 3.20 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 HIV by using condoms every time they have sexual intercourse and by having one sex partner who is not infected and has no other partners, according to background characteristics, Nepal DHS 2016

Background characteristic	Percentage of women who say HIV can be prevented by:				Percentage of men who say HIV can be prevented by:			
	Using condoms ¹	Limiting sexual intercourse to one uninfected partner ²	Using condoms and limiting sexual intercourse to one uninfected partner ^{1,2}	Number of women	Using condoms ¹	Limiting sexual intercourse to one uninfected partner ²	Using condoms and limiting sexual intercourse to one uninfected partner ^{1,2}	Number of men
Age								
15-24	75.1	80.0	72.8	4,849	92.7	91.5	88.4	1,580
15-19	74.1	79.8	71.7	2,598	92.2	89.8	87.2	931
20-24	76.2	80.3	74.1	2,251	93.5	94.0	90.1	649
25-29	74.7	77.2	72.2	2,135	93.0	94.4	90.6	525
30-39	71.9	76.1	69.6	3,378	92.4	93.8	89.3	1,079
40-49	64.1	70.0	61.8	2,501	89.6	92.4	86.7	879
Residence								
Urban	76.5	81.1	73.9	8,072	92.2	92.6	88.5	2,647
Rural	64.7	68.9	62.8	4,790	91.7	92.8	88.6	1,416
Ecological zone								
Mountain	77.1	82.9	75.5	775	91.2	89.6	85.0	252
Hill	84.8	89.8	82.0	5,556	92.0	92.7	88.2	1,791
Terai	60.6	64.6	58.6	6,531	92.1	93.1	89.3	2,019
Development region								
Eastern	66.6	70.7	63.9	2,900	90.6	91.1	86.5	892
Central	66.1	70.0	63.5	4,569	91.7	92.9	88.7	1,604
Western	78.4	83.8	76.7	2,597	93.3	93.5	89.8	785
Mid-Western	80.8	87.0	78.9	1,650	91.5	91.8	87.1	453
Far-Western	82.6	86.6	80.3	1,145	94.8	95.1	92.4	330
Federal states								
State 1	76.1	80.8	73.0	2,173	92.2	92.5	87.7	691
State 2	37.1	40.4	35.7	2,563	91.0	92.5	88.6	795
State 3	85.9	89.9	82.5	2,732	91.0	92.0	87.4	1,009
State 4	85.3	91.1	83.0	1,249	91.7	91.8	87.8	376
State 5	76.2	81.2	74.8	2,274	93.8	94.8	90.7	658
State 6	79.0	86.4	76.8	724	90.8	88.5	84.5	203
State 7	82.6	86.6	80.3	1,145	94.8	95.1	92.4	330
Education								
No education	50.4	55.3	48.4	4,281	83.6	85.5	80.1	391
Primary	64.8	69.5	61.7	2,150	87.2	88.0	82.6	789
Some secondary	84.8	90.1	82.5	3,291	92.8	92.3	88.5	1,386
SLC or higher	93.1	96.3	90.9	3,140	95.9	97.4	93.9	1,497
Wealth quintile								
Lowest	72.0	78.9	69.7	2,176	88.0	88.3	82.9	623
Second	69.1	73.2	66.7	2,525	92.3	91.9	88.4	706
Middle	61.1	64.7	59.1	2,595	91.8	93.5	89.2	758
Fourth	70.1	75.2	68.0	2,765	91.7	92.6	88.7	982
Highest	86.9	90.2	84.0	2,801	94.7	95.5	91.5	994
Total 15-49	72.1	76.6	69.7	12,862	92.0	92.7	88.5	4,063

¹ Using condoms every time they have sexual intercourse

² Partner who has no other partners

3.16.2 Comprehensive Knowledge about HIV Prevention among Young People

Table 3.21 shows information about comprehensive knowledge of HIV prevention among young people age 15-24. Comprehensive knowledge of HIV prevention is defined as knowing that both condom use and limiting sexual intercourse to one uninfected partner are HIV prevention methods, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about HIV transmission: that HIV can be transmitted by mosquito bites and by sharing food with a person who has HIV. Knowledge of how HIV is transmitted is crucial to enabling people to avoid HIV infection.

Table 3.21 Comprehensive knowledge about HIV prevention among young people

Percentage of young women and young men age 15-24 with comprehensive knowledge about HIV prevention, according to background characteristics, Nepal DHS 2016

Background characteristic	Women age 15-24		Men age 15-24	
	Percentage with comprehensive knowledge about HIV prevention ¹	Number of women	Percentage with comprehensive knowledge about HIV prevention ¹	Number of men
Age				
15-19	18.3	2,598	24.3	931
15-17	16.8	1,559	23.5	543
18-19	20.6	1,039	25.5	388
20-24	23.5	2,251	31.1	649
20-22	21.4	1,396	28.8	401
23-24	27.0	855	34.7	248
Marital status				
Never married	26.2	2,433	29.3	1,226
Ever had sex	*	15	29.2	311
Never had sex	26.1	2,418	29.3	914
Ever married	15.2	2,416	19.6	355
Residence				
Urban	24.7	2,991	31.0	1,053
Rural	14.3	1,858	19.4	528
Ecological zone				
Mountain	22.1	306	11.2	95
Hill	27.0	2,043	34.1	709
Terai	15.5	2,500	22.6	776
Development region				
Eastern	17.4	1,084	23.5	328
Central	20.7	1,681	27.7	624
Western	23.4	974	32.2	323
Mid-Western	18.5	670	22.0	175
Far-Western	26.8	440	27.6	129
Federal states				
State 1	21.2	817	27.7	258
State 2	5.8	996	14.2	304
State 3	32.0	952	34.7	391
State 4	27.2	460	35.4	158
State 5	19.4	892	26.0	253
State 6	18.4	293	23.7	87
State 7	26.8	440	27.6	129
Education				
No education	1.9	483	(6.2)	45
Primary	6.9	696	12.1	194
Some secondary	16.0	1,953	18.1	682
SLC or higher	37.1	1,718	42.2	660
Total 15-24	20.7	4,849	27.1	1,580

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

¹ Knowledge about HIV prevention means knowing that consistent use of condoms during sexual intercourse and having just one uninfected faithful partner can reduce the chance of getting HIV, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about transmission or prevention of HIV (that HIV can be transmitted by mosquito bites and by sharing food with a person who has HIV).

Table 3.21 shows that 21% of young women and 27% of young men have comprehensive knowledge of HIV prevention. Young women and men who have never married are more likely to be knowledgeable about HIV prevention than young married women and men. Among both sexes, the proportion with knowledge generally increases with age and especially with educational attainment. Urban young people are more likely than rural young people to have knowledge of HIV prevention. Young women and men in State 2 are least likely to be knowledgeable about HIV prevention compared with their counterparts in other states.

3.16.3 Multiple Sexual Partners

Limiting the number of sexual partners and practicing protected sex are crucial in the fight against the spread of sexually transmitted infections, including HIV. Respondents to the 2016 NDHS were asked detailed questions about their sexual behavior, including the number of partners they had in the 12 months

preceding the survey and condom use during their most recent sexual encounter. Only a few women reported having multiple sexual partners in the 12 months preceding the survey, so data is not presented separately. Table 3.22 shows that 3% of men reported having had two or more sexual partners during the 12 months prior to the survey and 9% reported that they had sexual intercourse with a person who was neither their wife nor lived with them.

Among men who had two or more sexual partners in the 12 months prior to the survey, 40% reported using a condom during their last sexual intercourse. Similarly, two-thirds of men who had sexual intercourse with a person who was neither their wife nor lived with them, used a condom during their last sexual intercourse. Men in Nepal have had an average of 2.4 sexual partners in their lifetime, consistent with that reported in the 2011 NDHS.

Table 3.22 Multiple sexual partners and higher-risk sexual intercourse in the past 12 months among men

Among all men age 15-49, percentage who had sexual intercourse with more than one sexual partner in the past 12 months, and percentage who had intercourse in the past 12 months with a person who was neither their wife nor lived with them; among those having more than one partner in the past 12 months, percentage reporting that a condom was used during last intercourse; among men age 15-49 who had sexual intercourse in the past 12 months with a person who was neither their wife nor lived with them, percentage who used a condom during last sexual intercourse with such a partner; and among men who ever had sexual intercourse, mean number of sexual partners during their lifetime, according to background characteristics, Nepal DHS 2016

Background characteristic	All men		Men who had 2+ partners in the past 12 months		Men who had intercourse in the past 12 months with a person who was neither their wife nor lived with them		Men who ever had sexual intercourse ¹		
	Percentage who had 2+ partners in the past 12 months	Percentage who had intercourse in the past 12 months with a person who was neither their wife nor lived with them	Number of men	Percentage who reported using a condom during last sexual intercourse	Number of men	Percentage who reported using a condom during last sexual intercourse with such a partner	Number of men	Mean number of sexual partners in lifetime	Number of men
Age									
15-24	4.0	15.8	1,580	62.0	63	68.9	250	2.5	666
15-19	2.2	13.0	931	*	20	67.7	121	2.1	222
20-24	6.6	19.9	649	(60.0)	43	70.0	129	2.8	444
25-29	4.1	10.2	525	*	22	66.1	54	2.2	484
30-39	2.9	3.4	1,079	(23.1)	31	(45.4)	37	2.7	1,070
40-49	2.4	1.5	879	*	21	*	13	2.0	877
Marital status									
Never married	3.1	19.3	1,355	(75.3)	43	70.4	261	2.8	390
Married/living together	3.5	3.1	2,675	24.1	95	57.3	83	2.3	2,674
Divorced/separated/widowed	(0.0)	(29.9)	33	*	0	*	10	(2.0)	33
Residence									
Urban	3.7	9.4	2,647	38.8	98	62.8	248	2.5	1,962
Rural	2.8	7.5	1,416	(43.1)	40	73.2	106	2.2	1,136
Ecological zone									
Mountain	3.8	9.8	252	*	10	(77.2)	25	3.3	201
Hill	3.0	7.9	1,791	37.2	53	69.6	141	2.4	1,317
Terai	3.7	9.3	2,019	40.0	74	61.7	188	2.2	1,579
Development region									
Eastern	2.4	5.3	892	*	21	(76.0)	48	2.2	675
Central	3.6	8.3	1,604	(42.0)	58	55.1	134	2.3	1,192
Western	3.4	13.2	785	(42.1)	27	70.9	104	2.6	602
Mid-Western	3.9	9.7	453	(42.2)	17	68.9	44	2.4	379
Far-Western	4.2	7.5	330	*	14	(78.7)	25	2.7	249
Federal states									
State 1	2.8	6.4	691	*	20	(74.3)	44	2.4	520
State 2	3.1	6.8	795	*	25	(61.0)	54	1.9	624
State 3	3.4	8.2	1,009	*	34	(53.0)	83	2.4	723
State 4	3.0	12.0	376	*	11	79.2	45	2.6	281
State 5	3.8	12.7	658	*	25	64.8	83	2.5	536
State 6	4.0	9.5	203	*	8	73.5	19	2.3	164
State 7	4.2	7.5	330	*	14	(78.7)	25	2.7	249
Education									
No education	2.0	4.2	391	*	8	*	17	1.7	378
Primary	3.6	5.7	789	*	28	(36.3)	45	2.3	701
Some secondary	3.3	8.7	1,386	37.6	45	64.2	121	2.8	948
SLC or higher	3.7	11.4	1,497	57.0	56	76.4	171	2.3	1,070
Wealth quintile									
Lowest	2.1	7.9	623	*	13	64.5	49	2.3	501
Second	3.2	6.4	706	(37.2)	23	64.3	45	2.1	546
Middle	3.0	9.5	758	(53.0)	23	75.7	72	2.0	599
Fourth	4.6	9.6	982	(36.9)	45	57.3	95	2.5	731
Highest	3.4	9.3	994	(39.4)	34	68.6	93	2.8	720
Total 15-49	3.4	8.7	4,063	40.1	137	65.9	354	2.4	3,097

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

¹ Means are calculated excluding respondents who gave non-numeric responses.

3.17 COVERAGE OF HIV TESTING SERVICES

Knowledge of HIV status helps HIV-negative individuals make specific decisions to reduce risk and increase safer sex practices so that they can remain disease-free. Among those who are HIV-positive, knowledge of their status allows them to take action to protect their sexual partners, to access treatment, and to plan for the future. To assess awareness and coverage of HIV testing services, NDHS respondents were asked whether they had ever been tested for HIV. If they said that they had been tested, they were asked whether they had received the results of their last test and where they had been tested. If they had never been tested, they were asked whether they knew a place where they could go to be tested.

Tables 3.23.1 and 3.23.2 show that 34% of women and 58% of men know of a place where they can get an HIV test. Young women age 15-19 and older women age 40-49 are slightly less likely to know a place to get an HIV test. Knowledge of a place to get an HIV test increases steadily with increasing education and wealth quintile among women and men. It is also higher among urban than among rural respondents.

Table 3.23.1 Coverage of prior HIV testing: Women

Percentage of women age 15-49 who know where to get an HIV test, percent distribution of women age 15-49 by testing status and by whether they received the results of the last test, percentage of women ever tested, and percentage of women who were tested in the past 12 months and received the results of the last test, according to background characteristics, Nepal DHS 2016

Background characteristic	Percent distribution of women by testing status and by whether they received the results of the last test				Total	Percentage ever tested	Percentage who have been tested for HIV in the past 12 months and received the results of the last test	Number of women
	Percentage who know where to get an HIV test	Ever tested and received results	Ever tested, did not receive results	Never tested ¹				
Age								
15-24	34.5	8.6	0.3	91.1	100.0	8.9	4.4	4,849
15-19	29.5	3.9	0.1	96.0	100.0	4.0	2.5	2,598
20-24	40.3	14.0	0.5	85.5	100.0	14.5	6.5	2,251
25-29	39.6	18.7	0.5	80.9	100.0	19.1	6.8	2,135
30-39	34.1	11.3	0.7	88.0	100.0	12.0	4.3	3,378
40-49	26.9	5.2	0.4	94.4	100.0	5.6	1.7	2,501
Marital status								
Never married	36.0	2.9	0.1	97.1	100.0	2.9	1.5	2,669
Ever had sex	*	*	*	*	100.0	*	*	22
Never had sex	35.9	2.7	0.1	97.2	100.0	2.8	1.5	2,647
Married or living together	33.3	12.3	0.6	87.1	100.0	12.9	5.1	9,875
Divorced/separated/ widowed	28.0	9.7	0.0	90.3	100.0	9.7	2.8	318
Residence								
Urban	38.0	11.8	0.4	87.7	100.0	12.3	4.7	8,072
Rural	26.6	7.7	0.5	91.8	100.0	8.2	3.4	4,790
Ecological zone								
Mountain	32.5	7.0	0.2	92.9	100.0	7.1	3.1	775
Hill	38.9	13.1	0.6	86.3	100.0	13.7	5.3	5,556
Terai	29.6	8.4	0.4	91.3	100.0	8.7	3.5	6,531
Development region								
Eastern	28.8	7.1	0.4	92.5	100.0	7.5	2.9	2,900
Central	29.8	8.6	0.2	91.2	100.0	8.8	3.5	4,569
Western	37.2	13.0	0.4	86.6	100.0	13.4	4.9	2,597
Mid-Western	39.1	11.2	0.6	88.2	100.0	11.8	4.7	1,650
Far-Western	46.7	17.8	1.6	80.6	100.0	19.4	8.9	1,145
Federal states								
State 1	33.7	8.4	0.5	91.0	100.0	9.0	3.3	2,173
State 2	15.2	2.7	0.1	97.2	100.0	2.8	1.3	2,563
State 3	39.3	12.7	0.2	87.1	100.0	12.9	5.0	2,732
State 4	33.4	12.1	0.2	87.7	100.0	12.3	4.3	1,249
State 5	41.3	13.7	0.8	85.5	100.0	14.5	5.8	2,274
State 6	35.4	8.4	0.1	91.5	100.0	8.5	2.9	724
State 7	46.7	17.8	1.6	80.6	100.0	19.4	8.9	1,145
Education								
No education	18.1	4.8	0.4	94.8	100.0	5.2	1.9	4,281
Primary	26.4	8.4	0.5	91.1	100.0	8.9	2.8	2,150
Some secondary	38.0	10.9	0.4	88.6	100.0	11.4	5.2	3,291
SLC or higher	55.8	18.4	0.5	81.1	100.0	18.9	7.5	3,140
Wealth quintile								
Lowest	26.3	7.6	0.6	91.8	100.0	8.2	3.5	2,176
Second	28.0	7.7	0.6	91.7	100.0	8.3	3.3	2,525
Middle	27.7	7.6	0.4	92.0	100.0	8.0	3.3	2,595
Fourth	33.4	9.7	0.3	90.0	100.0	10.0	4.2	2,765
Highest	50.7	17.9	0.4	81.7	100.0	18.3	6.7	2,801
Total	33.8	10.3	0.5	89.2	100.0	10.8	4.3	12,862

Note: An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

¹ Includes *don't know/missing* responses

Table 3.23.2 Coverage of prior HIV testing: Men

Percentage of men age 15-49 who know where to get an HIV test, percent distribution of men age 15-49 by testing status and by whether they received the results of the last test, percentage of men ever tested, and percentage of men who were tested in the past 12 months and received the results of the last test, according to background characteristics, Nepal DHS 2016

Background characteristic	Percent distribution of men by testing status and by whether they received the results of the last test				Total	Percentage ever tested	Percentage who have been tested for HIV in the past 12 months and received the results of the last test	Number of men
	Percentage who know where to get an HIV test	Ever tested and received results	Ever tested, did not receive results	Never tested ¹				
Age								
15-24	48.2	10.9	0.5	88.6	100.0	11.4	5.6	1,580
15-19	41.3	5.2	0.1	94.7	100.0	5.3	3.0	931
20-24	58.1	19.0	1.1	79.9	100.0	20.1	9.3	649
25-29	66.8	30.1	1.3	68.6	100.0	31.4	12.5	525
30-39	67.3	28.9	0.9	70.1	100.0	29.9	11.8	1,079
40-49	59.6	18.3	0.7	81.0	100.0	19.0	5.4	879
Marital status								
Never married	48.5	8.7	0.3	90.9	100.0	9.1	5.2	1,355
Ever had sex	55.5	15.6	1.1	83.3	100.0	16.7	10.3	390
Never had sex	45.7	6.0	0.0	94.0	100.0	6.0	3.1	965
Married or living together	63.4	25.3	1.0	73.7	100.0	26.3	9.6	2,675
Divorced/separated/ widowed	(24.8)	(20.7)	(0.0)	(79.3)	100.0	(20.7)	(4.1)	33
Residence								
Urban	60.2	19.8	0.9	79.3	100.0	20.7	8.5	2,647
Rural	54.3	19.7	0.5	79.8	100.0	20.2	7.2	1,416
Ecological zone								
Mountain	56.5	14.6	0.2	85.2	100.0	14.8	9.0	252
Hill	61.2	18.8	1.1	80.1	100.0	19.9	7.9	1,791
Terai	55.7	21.2	0.5	78.3	100.0	21.7	8.1	2,019
Development region								
Eastern	63.1	20.2	0.0	79.8	100.0	20.2	9.6	892
Central	57.4	20.5	0.9	78.6	100.0	21.4	8.4	1,604
Western	51.0	17.5	0.7	81.8	100.0	18.2	6.0	785
Mid-Western	61.8	20.0	0.5	79.5	100.0	20.5	6.1	453
Far-Western	60.2	20.1	2.2	77.7	100.0	22.3	10.0	330
Federal states								
State 1	62.2	14.2	0.0	85.8	100.0	14.2	8.0	691
State 2	58.8	29.6	0.6	69.7	100.0	30.3	11.2	795
State 3	58.1	17.3	1.0	81.7	100.0	18.3	7.6	1,009
State 4	57.0	19.6	0.6	79.8	100.0	20.2	6.3	376
State 5	49.4	19.3	0.7	80.1	100.0	19.9	6.0	658
State 6	69.1	13.4	0.6	85.9	100.0	14.1	5.4	203
State 7	60.2	20.1	2.2	77.7	100.0	22.3	10.0	330
Education								
No education	39.2	12.3	0.8	86.9	100.0	13.1	3.9	391
Primary	47.9	18.2	0.4	81.4	100.0	18.6	5.8	789
Some secondary	53.2	19.2	0.5	80.3	100.0	19.7	8.1	1,386
SLC or higher	73.1	23.0	1.2	75.8	100.0	24.2	10.4	1,497
Wealth quintile								
Lowest	48.3	13.0	1.1	85.9	100.0	14.1	5.3	623
Second	49.5	12.9	0.5	86.6	100.0	13.4	3.5	706
Middle	56.0	21.8	0.3	78.0	100.0	22.0	9.2	758
Fourth	60.6	24.5	0.4	75.1	100.0	24.9	10.6	982
Highest	69.6	22.6	1.4	76.0	100.0	24.0	9.7	994
Total 15-49	58.1	19.8	0.7	79.5	100.0	20.5	8.1	4,063

Note: Figures in parentheses are based on 25-49 unweighted cases.

¹ Includes *don't know/missing* responses

Tables 3.23.1 and 3.23.2 also show coverage of HIV testing services. Men are more likely than women to have been tested for HIV. Overall, 10% of women and 20% of men had ever been tested and had received the results of their last test. Among women and men, the likelihood of having ever had an HIV test and receiving the results was highest in the 25-29 age group (19% and 30%, respectively). Urban women are more likely than rural women to have been tested and to have received the results, though this is not the case for men. Among women and men, testing coverage increases with increasing education and wealth.

Four percent of women and 8% of men age 15-49 had been tested in the 12-month period preceding the survey and had been told the results of the last test they took.

3.18 BLOOD PRESSURE

The 2016 NDHS asked women and men age 15 and above in a subset of households if they would agree to have their blood pressure measured; almost all the respondents consented. Each consenting respondent got their blood pressure measured three times. The average of the second and third readings was taken as their measure. Upon completion of the blood pressure measurements, the results were recorded in a brochure and given to the respective person. Those showing hypertension were advised to go for a medical checkup.

Individuals were classified as hypertensive if their blood pressure was 140 mmHg or higher or if their diastolic blood pressure was 90 mmHg or higher. Elevated blood pressure was classified into three stages indicating mild, moderate, and severe, according to the cut-off points recommended by the World Health Organization and the National Institutes of Health (WHO 1999; NIH 1997). Following internationally recommended guidelines, individuals were also considered hypertensive if they had a normal average blood pressure reading but were taking antihypertensive medication.

The results of the 2016 NDHS show that 17% of women and 23% of men age 15 and above have hypertension in Nepal (Table 3.24.1 and 3.24.2). About 2% of women and men have normal blood pressure and are taking medication to control their blood pressure.

The prevalence of hypertension increases with age. Thirty-two percent of women and 36% of men age 55-59 have hypertension, with the proportion increasing in older age groups. Women and men in urban areas, those living in the Hill ecological zone, in the Western region, and belonging to State 4 are most likely to be hypertensive. Similarly, women and men in the highest wealth quintile are more likely to have hypertension.

Table 3.24.1 Blood pressure status: Women

Among women age 15 and above, prevalence of hypertension, percent distribution of blood pressure values, and percentage having normal blood pressure and taking medication to lower blood pressure, by background characteristics, Nepal DHS 2016

Background characteristic	Prevalence of hypertension ¹	Normal	Pre-hyper-tensive	Hypertensive			Total	Percentage with normal blood pressure and taking medicine	Number of women
		SBP <120 mmHg and DBP <80 mmHg	SBP 120-139 mmHg or DBP 80-89 mmHg	Stage 1: SBP 140-159 mmHg or DBP 90-99 mmHg	Stage 2: SBP 160-179 mmHg or DBP 100-109 mmHg	Stage 3: SBP ≥180 mmHg or DBP ≥110 mmHg			
Age									
15-19	2.9	83.0	14.3	2.7	0.1	0.0	100.0	0.1	1,260
20-24	3.2	81.3	15.7	2.7	0.1	0.2	100.0	0.2	1,176
25-29	6.7	73.2	20.3	5.4	0.6	0.6	100.0	0.2	999
30-34	9.8	65.2	25.9	6.7	1.7	0.4	100.0	1.0	933
35-39	16.6	56.7	27.7	12.5	2.5	0.5	100.0	1.0	813
40-44	22.4	47.9	31.7	12.8	6.9	0.8	100.0	2.0	662
45-49	27.9	44.8	30.2	16.4	6.9	1.7	100.0	2.8	522
50-54	27.5	44.3	30.1	18.1	5.9	1.5	100.0	2.0	533
55-59	32.2	40.0	34.3	15.7	8.3	1.7	100.0	6.6	430
60-64	39.2	36.1	30.7	18.9	10.4	3.9	100.0	6.1	389
65+	44.4	29.8	32.1	19.5	12.4	6.1	100.0	6.4	718
Residence									
Urban	17.2	60.8	24.3	9.6	4.1	1.2	100.0	2.2	5,153
Rural	16.2	60.5	24.6	10.2	3.4	1.3	100.0	1.3	3,282
Ecological zone									
Mountain	16.6	61.6	23.0	9.6	4.5	1.2	100.0	1.3	526
Hill	18.5	57.5	25.9	10.5	4.5	1.6	100.0	1.9	3,729
Terai	15.3	63.4	23.3	9.3	3.1	0.9	100.0	1.9	4,180
Development region									
Eastern	16.9	63.1	22.1	9.5	4.0	1.3	100.0	2.0	1,981
Central	16.4	61.8	24.6	9.1	3.5	1.0	100.0	2.8	2,986
Western	23.7	48.1	29.4	14.7	5.6	2.2	100.0	1.3	1,737
Mid-Western	10.7	67.9	22.1	6.9	2.6	0.5	100.0	0.7	987
Far-Western	10.2	69.3	21.3	6.6	2.1	0.6	100.0	0.8	744
Federal states									
State 1	17.7	61.5	23.2	9.2	4.5	1.6	100.0	2.3	1,479
State 2	13.1	66.6	22.2	7.8	2.6	0.7	100.0	2.0	1,699
State 3	19.1	58.9	25.2	10.6	4.1	1.2	100.0	3.2	1,789
State 4	23.8	47.9	29.9	14.0	5.5	2.7	100.0	1.6	877
State 5	18.8	55.9	26.2	12.1	4.6	1.2	100.0	0.8	1,406
State 6	10.1	68.1	22.6	6.6	2.2	0.5	100.0	0.8	440
State 7	10.2	69.3	21.3	6.6	2.1	0.6	100.0	0.8	744
Education									
No education	14.7	63.0	23.8	9.4	2.8	1.0	100.0	1.5	2,368
Primary	15.7	63.6	21.7	9.4	3.9	1.4	100.0	1.0	1,495
Some secondary	17.6	58.3	25.7	10.6	4.0	1.5	100.0	1.6	2,372
SLC or higher	19.0	58.7	25.5	9.9	4.7	1.2	100.0	3.3	2,201
Wealth quintile									
Lowest	14.9	59.4	26.0	9.9	3.3	1.4	100.0	0.3	1,540
Second	16.9	58.8	25.3	9.9	4.7	1.3	100.0	1.0	1,678
Middle	14.2	63.0	24.0	8.8	3.3	0.9	100.0	1.2	1,743
Fourth	14.6	64.2	23.0	9.1	2.8	1.0	100.0	1.8	1,808
Highest	23.6	57.4	24.0	11.7	5.1	1.7	100.0	5.0	1,667
Total	16.8	60.7	24.4	9.9	3.8	1.2	100.0	1.9	8,435

SBP = systolic blood pressure

DBP = diastolic blood pressure

¹ A woman is classified as having hypertension if she has SBP levels ≥140 mmHg or DBP ≥90 mmHg at the time of the survey, or she is currently taking antihypertensive medication to control blood pressure. The term hypertension as used in this table is not meant to be a clinical diagnosis of the disease, but rather to provide an indication of the disease burden in the population at the time of the survey.

Table 3.24.2 Blood pressure status: Men

Among men age 15 and above, prevalence of hypertension, percent distribution of blood pressure values, and percentage having normal blood pressure and taking medication to lower blood pressure, by background characteristics, Nepal DHS 2016

Background characteristic	Prevalence of hypertension ¹	Normal	Pre-hyper-tensive	Hypertensive			Total	Percentage with normal blood pressure and taking medicine	Number of men
		SBP <120 mmHg and DBP <80 mmHg	SBP 120-139 mmHg or DBP 80-89 mmHg	Stage 1: SBP 140-159 mmHg or DBP 90-99 mmHg	Stage 2: SBP 160-179 mmHg or DBP 100-109 mmHg	Stage 3: SBP ≥180 mmHg or DBP ≥110 mmHg			
Age									
15-19	2.5	76.0	21.7	1.8	0.4	0.1	100.0	0.2	949
20-24	8.4	63.1	29.1	6.5	1.3	0.0	100.0	0.6	635
25-29	13.6	53.6	33.9	11.0	1.0	0.5	100.0	1.1	532
30-34	21.1	42.3	36.7	13.9	6.5	0.6	100.0	0.0	557
35-39	26.1	37.7	38.1	15.9	6.5	1.7	100.0	1.9	541
40-44	28.7	38.5	34.4	17.8	5.6	3.6	100.0	1.6	465
45-49	34.6	34.5	33.7	21.3	7.5	3.0	100.0	2.8	427
50-54	29.5	37.4	36.0	14.5	8.3	3.7	100.0	2.9	462
55-59	36.3	34.6	32.3	22.4	8.4	2.3	100.0	3.2	404
60-64	39.2	36.5	30.4	21.1	8.3	3.6	100.0	6.1	337
65+	41.8	35.4	29.0	19.8	10.3	5.5	100.0	6.3	750
Residence									
Urban	25.2	46.3	31.1	14.7	5.8	2.2	100.0	2.6	3,741
Rural	20.5	49.4	31.8	12.2	4.7	1.9	100.0	1.7	2,318
Ecological zone									
Mountain	18.0	52.4	30.5	12.0	3.9	1.2	100.0	0.9	378
Hill	28.0	41.3	33.4	16.7	6.2	2.4	100.0	2.6	2,645
Terai	20.1	52.2	29.8	11.3	4.8	1.9	100.0	2.1	3,037
Development region									
Eastern	20.3	51.3	30.7	11.1	5.7	1.4	100.0	2.3	1,406
Central	24.0	49.7	29.1	14.3	4.9	2.0	100.0	2.8	2,303
Western	30.1	35.4	36.4	16.8	7.5	3.9	100.0	1.8	1,226
Mid-Western	19.3	51.6	30.2	13.1	4.0	1.0	100.0	1.2	657
Far-Western	18.2	50.6	33.2	11.7	3.2	1.3	100.0	2.0	468
Federal states									
State 1	20.8	49.8	32.0	11.5	5.3	1.4	100.0	2.6	1,075
State 2	17.6	60.0	24.5	9.8	4.1	1.6	100.0	2.0	1,276
State 3	28.7	41.5	32.9	17.4	6.0	2.1	100.0	3.1	1,357
State 4	30.7	38.1	34.0	16.1	7.9	3.9	100.0	2.8	616
State 5	24.9	40.5	35.7	15.6	5.7	2.6	100.0	1.1	974
State 6	21.8	49.1	29.9	14.1	5.0	1.8	100.0	0.8	293
State 7	18.2	50.6	33.2	11.7	3.2	1.3	100.0	2.0	468
Education									
No education	21.3	51.4	29.2	12.2	4.6	2.5	100.0	1.9	1,684
Primary	21.4	48.7	32.4	12.8	4.1	2.0	100.0	2.5	1,069
Some secondary	25.5	44.4	31.6	15.8	6.1	2.2	100.0	1.5	1,679
SLC or higher	24.7	45.7	32.8	13.8	6.1	1.6	100.0	3.2	1,626
Wealth quintile									
Lowest	21.4	45.8	34.0	13.1	4.6	2.6	100.0	1.1	1,062
Second	23.1	47.8	30.4	13.4	6.0	2.4	100.0	1.4	1,133
Middle	19.4	53.1	29.5	10.8	4.9	1.7	100.0	2.0	1,175
Fourth	20.9	50.1	30.8	12.3	4.9	1.9	100.0	1.7	1,375
Highest	31.5	40.7	32.5	18.6	6.3	1.9	100.0	4.7	1,315
Total	23.4	47.4	31.4	13.7	5.4	2.1	100.0	2.2	6,059

SBP = systolic blood pressure

DBP = diastolic blood pressure

¹ A man is classified as having hypertension if he has SBP levels ≥140 mmHg or DBP ≥90 mmHg at the time of the survey, or he is currently taking antihypertensive medication to control blood pressure. The term hypertension as used in this table is not meant to be a clinical diagnosis of the disease, but rather to provide an indication of the disease burden in the population at the time of the survey.

REFERENCES

- Bradley, S. E. K., T. N. Croft, J. D. Fishel, and C. F. Westoff. 2012. *Revising Unmet Need for Family Planning*. DHS Analytical Studies No. 25. Calverton, Maryland, USA: ICF International.
- Centers for Disease Control and Prevention. 1998. "Recommendations to Prevent and Control Iron Deficiency in the United States." *Morbidity and Mortality Weekly Report* 47(RR-3):1-29.
- Ministry of Health and Population (MOHP) [Nepal], New ERA, and ORC Macro. 2002. *Nepal Demographic and Health Survey 2001*. Calverton, Maryland, USA: Ministry of Health and Population, New ERA, and ORC Macro.
- Ministry of Health and Population (MOHP) [Nepal], New ERA, and Macro International Inc. 2007. *Nepal Demographic and Health Survey 2006*. Kathmandu, Nepal: MOPH, New ERA, and Macro International Inc.
- Ministry of Health and Population (MOPH) [Nepal], New ERA, and ICF International Inc. 2012. *Nepal Demographic and Health Survey 2011*. Kathmandu, Nepal: MOPH, New ERA, and ICF International.
- National Institutes of Health (NIH). 1997. *The Sixth Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure*. Bethesda, Maryland, USA: National High Blood Pressure Education Program, National Heart, Lung, and Blood Institute, National Institutes of Health. NIH Publication No. 98-4080.
- National Planning Commission (NPC). 2015. *Sustainable Development Goals 2016-2030, National (Preliminary) Report*. Kathmandu, Nepal: Government of Nepal, National Planning Commission.
- Pan American Health Organization (PAHO). 2002. *Guiding Principles for Complementary Feeding of the Breastfed Child*. Washington, DC: PAHO.
- United Nations Development Program (UNDP). 2007. *Measuring Human Development: A Primer*. New York: UNDP.
- Van Lerberghe, W., and V. De Brouwere. 2001. "Of Blind Alleys and Things That Have Worked: History's Lessons on Reducing Maternal Mortality." In: De Brouwere, V., and W. Van Lerberghe, eds. *Safe Motherhood Strategies: A Recent Review of the Evidence*. Antwerp: ITG Press, 7-33.
- World Health Organization (WHO). 1999. "1999 World Health Organization-International Society of Hypertension Guidelines for the Management of Hypertension." *Journal of Hypertension* 17(2):151-185.
- World Health Organization (WHO). 2003. *World Health Report 2003*. Geneva: WHO.
- World Health Organization (WHO). 2006. *Standards for Maternal and Neonatal Care*. Geneva: WHO.
- World Health Organization (WHO) Multicenter Growth Reference Study Group. 2006. *WHO Child Growth Standards: Length/Height-for-Age, Weight-for-Age, Weight-for-Length, Weight-for-Height and Body Mass Index-for-Age: Methods and Development*. Geneva: WHO.
- World Health Organization (WHO). 2015. *Verbal Autopsy Standards: The 2014 WHO Verbal Autopsy Instrument*. Geneva: WHO.