NEPAL TREND REPORT

Trends in Demographic and Reproductive Health Indicators in Nepal

Further analysis of the 1996, 2001, and 2006 Demographic and Health Surveys Data

This report presents the findings from a trend analysis undertaken as part of the follow-up to the 2006 Nepal Demographic and Health Survey. Funding was provided by the U.S. Agency for International Development through the MEASURE DHS project. Macro International provided technical assistance. The opinions expressed herein are those of the authors and do not necessarily reflect the views of USAID.

The Demographic and Health Surveys program is designed to collect, analyze, and disseminate data on fertility, family planning, maternal and child health, nutrition, and HIV/AIDS. Additional information about the MEASURE DHS project can be obtained from Macro International Inc., DHS Division, 11785 Beltsville Drive, Suite 300, Calverton, MD 20705 (telephone: 301-572-0200; fax: 301-572-0999; email: reports@orcmacro.com; internet: www.measuredhs.com).

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Trends in Demographic and Reproductive Health Indicators in Nepal

Further analysis of the 1996, 2001, and 2006 Demographic and Health Surveys Data

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1 INTRODUCTION

This report highlights trends in key demographic and health indicators in Nepal from data collected in the three demographic and health surveys: the 1996 Nepal Family Health Survey (NFHS), the 2001 Nepal Demographic and Health Survey (NDHS) and the 2006 Nepal Demographic and Health Survey (NDHS). Specifically, the report discusses changes in demographic and reproductive health outcomes over the last decade, including changes in fertility, knowledge and practice of family planning, maternal and child health, nutrition, and infant, child and adult mortality. The report also explores the knowledge of HIV/AIDS over the decade in the country. In addition, this report compares Nepal with other South and Southeast Asian countries that have data from similarly conducted demographic and health surveys. These include India, Bangladesh, Sri Lanka, Pakistan, Cambodia, Indonesia, Vietnam and the Philippines.

The primary objective of this report is to provide information needed by planners, policymakers and program administrators to assess the current situation and trends in Nepal, and to design more effective population and reproductive health programs aimed at achieving positive outcomes in the future. The study aims to present the relative importance of socio-demographic and economic variables in highlighting inter-regional differences in Nepal in 1996-2006 and to gauge the country's progress in achieving the Millennium Development Goals.

1.1 Data Sources

Nepal has a long history of demographic data collection with population censuses being carried out since 1911 at decennial intervals. It was only after the 1952/54 census that more detailed information was collected on the size and structure of the population. The Central Bureau of Statistics (CBS) was established in 1958 under the Statistics Act, 2015 BS as the central agency for the collection, consolidation, processing, analysis, publication and dissemination of statistics (www.cbs.gov.np). It is under the National Planning Commission Secretariat (NPCS) of Nepal and serves as the national statistical organization of the Government of Nepal (GoN).

Besides conducting national censuses, the CBS is a primary source of information for multi-sectoral data in the country. It was in the early nineties that the CBS established a separate Household Survey Section (HSS). This section initiated four small-scale surveys with funding from the GoN. Then a comprehensive survey for Nepal was launched by the CBS in 1995/96 through its multi-topic (consumption, income, housing, labor markets, education, health etc.) national household survey called the Nepal Living Standards Survey (NLSS I) with financial assistance from the World Bank. The survey followed the World Bank's Living Standards Measurement Survey (LSMS) methodology.

The NLSS was followed by the Nepal Labor Force Survey (NLFS), the first of its kind carried out by the CBS during 1998/99 with technical support from the International Labor Organization (ILO) through funding made available by the United Nations Development Program (UNDP), providing comprehensive information on employment statistics.

In January 2000 the Household Consumption Survey of Rural Nepal (HCSRN) was planned and launched, utilizing government resources and internal technical capability. This survey assessed the level of poverty and analyzed the well-being of the people and the economy of the country. As the Household Budget Survey conducted by the Nepal Rastra Bank in 1995/96 was limited in scope to urban areas, the Household Consumption Survey of Rural Nepal (HCSRN) survey focused on rural areas.

In addition, the Between Census Household Information for Monitoring and Evaluation Systems (BCHIMES) was conducted to provide information on social indicators (education, water and

sanitation, family planning, utilization of antenatal and postnatal services, breastfeeding and food supplementation, child health and knowledge of HIV/STD) on issues related to women and children and timed to coincide with the planning and reporting cycles of the GoN and UN agencies. This survey was conducted by the CBS in collaboration with UNICEF.

In 2003/04 a second Nepal Living Standards Survey (NLSS II) was conducted, which helped track changes in the living standards of the Nepalese population over the eight years since 1995/96.

However, to fulfill the demand for national and regional level socio-economic and demographic data, the GoN carried out several national demographic and health surveys to supplement and complement the censuses. The Nepal Fertility Survey 1976, conducted under the World Fertility Surveys, was the first nationally representative demographic and health survey, followed by the 1981 Nepal Contraceptive Prevalence Survey, the 1986 Nepal Fertility and Family Planning Survey and the 1991 Nepal Fertility, Family Planning and Health Survey.

Subsequently, the 1996 Nepal Family Health Survey, the 2001 Nepal Demographic and Health Survey and the 2006 Nepal Demographic and Health surveys were conducted. This trend report discusses key findings from these three DHS surveys in Nepal. All three Nepal DHS surveys sampled nationally representative populations, were conducted by the same organization (New ERA Ltd.), and managed by the same core group of survey personnel. In addition, the Nepal DHS surveys were conducted as part of the worldwide Demographic and Health Surveys (DHS) program funded by the United States Agency for International Development (USAID), with technical assistance from the US-based private entity, Macro International Inc., which has been monitoring the DHS surveys since its inception in the early 1980s, using standard data collection tools. This consistency allows Nepal to be compared with other South and Southeast Asian countries, which have also conducted similar DHS surveys. Except for anemia status, data from other surveys conducted in Nepal are avoided for comparison purpose as these data from non-DHS type surveys have not been conducted in the same way nor do they cover the same groups of people.

1.2 Population and Health Policy and Priorities

Population policies were first referenced in the first Five Year Plan (1956-61) that Nepal adopted. However, it was only from the Third Plan (1965-70) onwards that the policies were more extensively elaborated. Until the Eighth Plan, Nepalese population policies focused primarily on family planning programs. An enhanced integrated development approach was adopted in the Eighth (1992-97) and Ninth Plans (1997-2002). A long-term plan (20-year) was envisaged with major strategies including reduction in population growth through social awareness, expansion of education and family planning programs. The current Tenth Plan (2002-2007) builds on the long-term projected targets of the Ninth Plan. The primary focus is on population management such as encouraging a small family norm, promoting the development of an educated and healthy population, and discouraging the out-migration of skilled labor.

Similarly, the National Health Policy (NHP) was formulated in the country in 1991 with the objective of enhancing the health status of the population. The primary objective of the policy is to extend the primary health care system to the rural population so that they benefit from modern medical facilities and trained health care providers (Ministry of Health and Population, 2006). The NHP is a comprehensive policy that encompasses service delivery within the administrative structure of the health system. The subsequent health plans that were developed were based on the NHP. These include the Eighth Health Plan (1992-1997), the Ninth Health Plan (1997-2002) and the Second Long Term Health Plan (SLTHP) (1997-2017).

The SLTHP focuses primarily on the disparities in healthcare, assuring gender sensitivity and equitable community access to quality health care services. This includes making MCH/FP an integral

part of primary health care services, inter- and intra-sectoral coordination, decentralization of health administration, developing the traditional system of medicine, and promoting the participation of national and international NGOs, private enterprises and foreign investors.

The vision of SLTHP is to provide a healthcare system with equitable access and quality services in both rural and urban areas. The plan targets the most vulnerable and under-privileged groups of the community to promote essential health care services (EHCS). These are the priority public health measures and are essential clinical and curative services for the appropriate treatment of common disease.

The Tenth Plan focuses primarily on reducing the magnitude of poverty. The plan emphasizes investment in the provision of essential health care services to the poor and the backward community along with other activities. The National Health Sector Program (NHSP-IP) was developed to address inequities in the health system and improve the health of the Nepalese population in general, and especially the poor and vulnerable. This program intervention has two basic strategies: a) Strengthened Service Delivery through expansion of essential health care services and b) Institutional Capacity and Management Development through improved health sector management.

The achievement of the National Health Sector Program (NHSP) is assessed through four key programmatic indicators, namely: a) contraceptive prevalence rate (CPR); b) skilled attendance at birth; c) immunization rates; and d) population's knowledge of at least one method of preventing HIV/AIDS. The baseline data for these monitoring indicators are derived from the 2001 Nepal Demographic and Health Survey. Therefore, the results of the 2006 Nepal Demographic and Health Survey play a vital role in assessing the achievement of the NHSP.

1.3 Millennium Development Goals

As part of the world's commitment towards the right to development, peace and security, gender equality, eradication of multi-dimensional poverty and sustainable human development, the GoN endorsed the Millennium Declaration in September 2000. In order to achieve the Millennium Development Goals (MDGs), the GoN has incorporated the MDGs into the strategic framework of the country's Tenth Plan/Poverty Reduction Strategy Paper (2002/03-2006/07).

This section attempts to provide a snapshot of Nepal's achievement towards meeting its targets in relation to the MDGs and the SLTHP. The assessment is done only with respect to available information as derived from the 2006 Nepal Demographic and Health Survey.

Table 1.1
Achievement in relation to Basic Target Indicators

MDG goals		In 1990[a]	In 2006 (NDHS)[b]	MDG target in 2015[c]	SLTHP target in 2017[c]
Goal 1	**Eradicate extreme poverty and hunger**				
	Prevalence of underweight children under five years of age	na	38.6	na	na
Goal 2	**Achieve universal primary education**				
	Net enrolment ratio in primary education	na	86.6	na	na
	Primary completion rate	50.9	na	100.0	na
	Literacy rate of 15-24 years-olds	49.6	79.4	100.0	na
Goal 3	**Promote gender equality and empower women**				
	Ratio of girls to boys in primary education	0.63	0.98	1.0	na
	Ratio of girls to boys in secondary education	0.46	0.87	1.0	na
	Ratio of literate women to men, 15-24 years old	0.48	0.83	1.0	na
Goal 4	**Reduce child mortality**				
	Under-five mortality rate (per 1,000 live births)	145	61	54	62.5
	Infant mortality rate (per 1,000 live births)	97	48	34	34.4
	Percentage of 1 year-old children immunized against measles	42.4	85.0	90	na
Goal 5	**Improve maternal health**				
	Maternal mortality ratio (per 100,000 live births)	515	281	213-134	250
	Percentage of births attended by skilled birth attendant	7.0	18.7	60	95
Goal 6	**Combat HIV/AIDS, Malaria and other diseases**				
	Percentage of current users of contraception who are using condoms	2.6	1.09	na	na
	Percentage of population aged 15-24 years with comprehensive knowledge of HIV/AIDS	na	na	na	na
	Contraceptive prevalence rate (any)	24.1	48.0	na	58.2
Goal 7	**Ensure environmental sustainability**				
	Percentage of population using solid fuels	na	83.3	na	na
	Percentage of population with sustainable access to an improved water source	45.9	81.8	72.9	na
	Percentage of population with access to improved sanitation	19.8	22.7	59.9	na
SLTHP	Total fertility rate (TFR)	na	3.1	na	3.05
	Crude birth rate (CBR)	na	28.4	na	26.6
	Percentage of pregnant women with at least 4 ANC visits	na	29.4	na	80.0
	Iron deficiency anemia among pregnant women	na	42.4	na	15.0
	Percentage of child-bearing age women (15-44 years) who received tetanus toxoid (TT2)	na	63.2	na	90.0
	Percentage of newborn weighing <2500 grams	na	14.3	na	12.0

[a] Central Bureau of Statistics (CBS) [Nepal]. 2006c. *MDG indicators of Nepal, 1990/91-2005/06*. Kathmandu, Nepal.
[b] Ministry of Health and Population (MOHP) [Nepal], New ERA, and Macro International Inc. 2007. *Nepal Demographic and Health Survey 2006*.
[c] Ministry of Health and Population (MOHP) [Nepal]. 2006. *Annual Report. Department of Health Services 2061/62 (2004/2005)*.
na = Not applicable

The findings of the survey indicates that Nepal has come a long way in meeting the targets of the MDG, especially in relation to gender equity in education, child mortality, child nutrition, contraceptive prevalence rate and knowledge of HIV/AIDS. However, although maternal care indicators have improved over the years, they still have a long way to go. The focus on antenatal, delivery, and newborn care is vital for improving maternal health indicators.

1.4 Political Changes

Nepal has witnessed massive political upheaval during the past decade with insurgency forces actively expressing dissatisfaction with the existing status quo. It was in early 1996 that the Maoist insurgency took root in the country exerting a tremendous influence on the social, economic and political life of the country. The constant conflict forced the Nepalese people to migrate from rural to urban areas and to neighboring countries, resulting in the displacement of a large proportion of the population and impacting the demographic situation. Existing service delivery centers like health service, education and community works were all jeopardized. Government programs and activities have faced a huge turmoil due to these changes. These political changes need to be taken into account in understanding the trends in the demographic and reproductive outcomes of the country since 1996.

2 DEMOGRAPHIC, SOCIAL AND ECONOMIC INDICATORS

2.1 Population Size

Population censuses have been carried out in Nepal since 1911. However, the 1952/54 Census was the first one to provide detailed information about the size and structure of the population. Table 2.1 provides a summary of the basic demographic indicators based on data from the 1971, 1981, 1991 and 2001 Population Censuses. The total population of the country in 1971 was estimated at 11.6 million and this doubled to 23.2 million in 2001, thirty years later. There has been a steady increase in the population. Data from the 1981 and 1991 Population Censuses show that the overall population of the country increased at an annual rate of about 2.6 percent between 1971 and 1981, 2.1 percent between 1981 and 1991, and 2.2 percent between 1991 and 2001 (Central Bureau of Statistics, 2003).

Despite the 25 percent increase in the proportion of the urban population over the last three decades, Nepal has remained one of the least urbanized countries in the world, with only about 14 percent of the country urbanized in 2001. Though life expectancy in Nepal has improved by about 20 percent for both males and females, the improvement in female life expectancy at birth is more marked over the years than male life expectancy (60.7 years versus 60.1 years).

Table 2.1
Trend in Basic Demographic Indicators

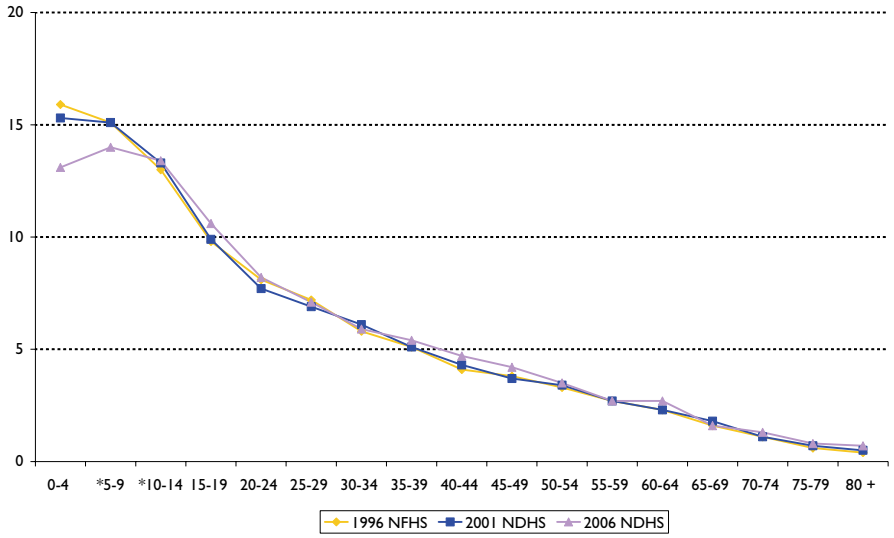
Indicator	1971 Census	1981 Census	1991 Census	2001 Census	Percent Change
Population (millions)	11.6	15.0	18.5	23.2	100.0
Intercensal Growth Rate (percent)	2.1	2.6	2.1	2.2	4.7
Population Density (pop./km^2)	79	102	126	157	98.7
Percent Urban	4.0	6.4	9.2	13.9	24.7
Life Expectancy at Birth (years)					
Male	42.0	50.9	55.0	60.1	43.0
Female	40.0	48.1	53.5	60.7	51.7

Source: Central Bureau of Statistics, 2003:3, 383; Ministry of Population and Environment and Central Bureau of Statistics, 2003:8

2.2 Composition of the Household Population

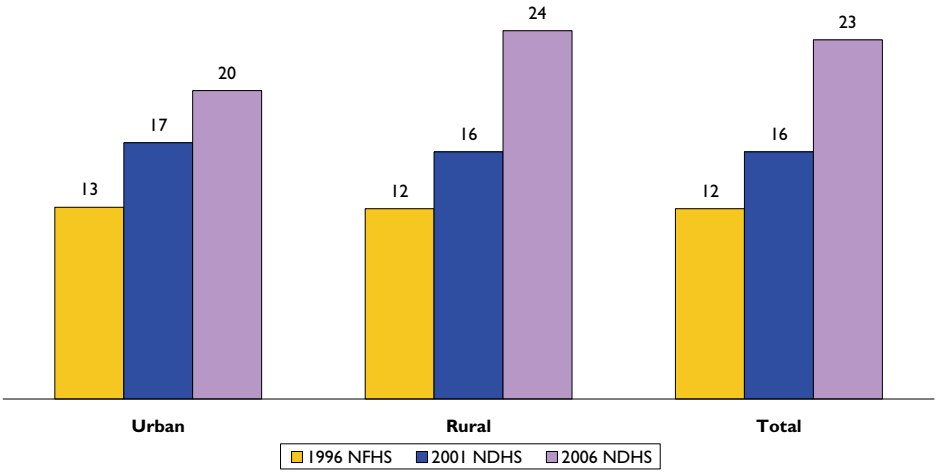
Age is an important demographic variable and the primary basis of demographic classification in vital statistics. Figure 2.1 shows the distribution of the household population by five-year age groups, from data collected in the 1996 NFHS, 2001 NDHS and 2006 NDHS. Children under 15 years of age account for nearly half of the total population. A comparison of the NDHS data over the last ten years shows little change in the age structure of the population. However, there is a slight reduction in case of children less than 5 years in 2006 (from 16 percent in 1996 to 13 percent in 2006).

Figure 2.1
Percent Distribution of Household Population, by Age Group



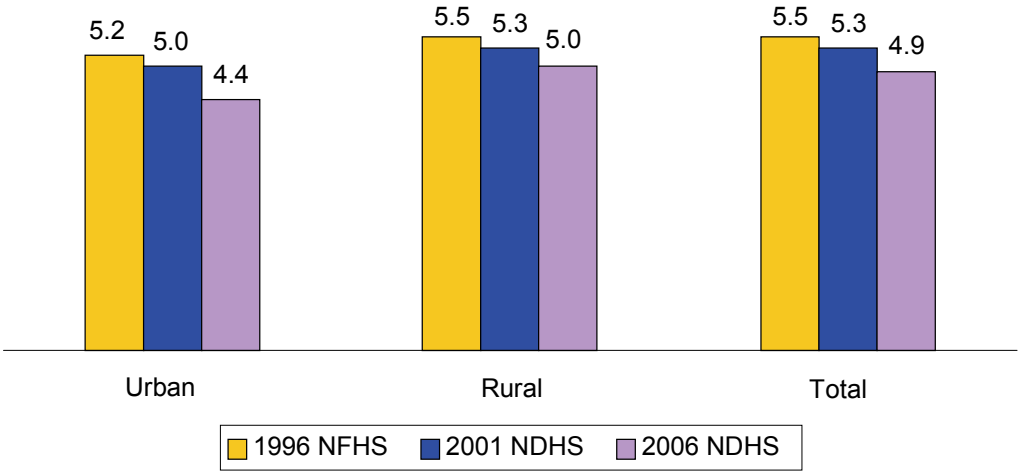
NDHS data indicate that currently nearly one-fifth of households in Nepal are headed by women (Figure 2.2). Overall, there was a nearly two-fold (or 11 percentage point) increase in female-headed households between 1996 and 2006. However, the rise was more noticeable in the most recent five years (from 16 percent in 2001 to 23 percent in 2006). The urban-rural difference has widened over the same period.

Figure 2.2
Percentage of Female-headed Households, by Residence



Data also indicate that the average household size has decreased slightly over the last ten years from 5.5 persons per household in 1996 to 4.9 persons per household in 2006 (Figure 2.3). This decrease occurred primarily in urban areas where the average household size decreased from 5.2 to 4.4 persons per household over the same period.

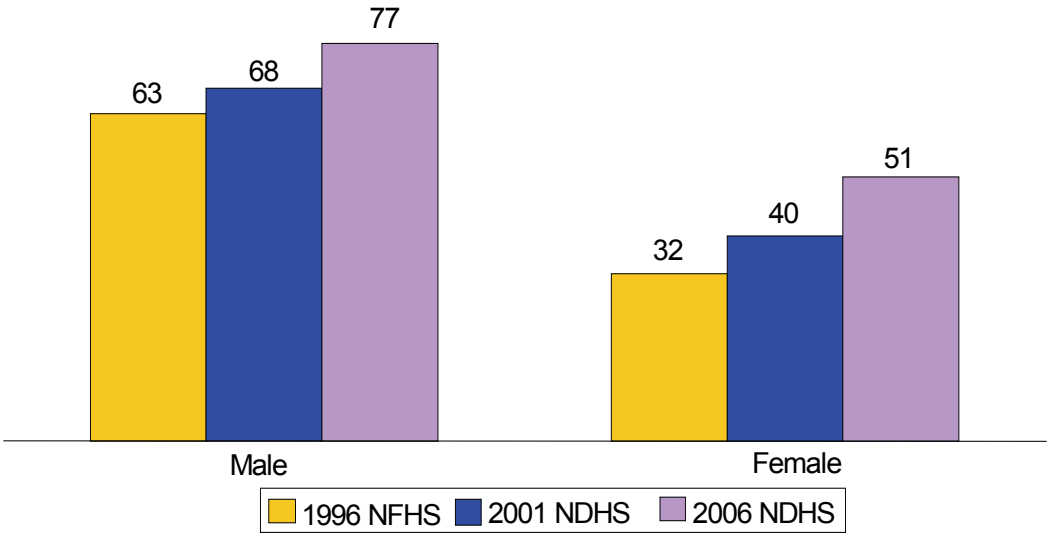
Figure 2.3
Average Household Size, by Residence



2.3 Educational Attainment

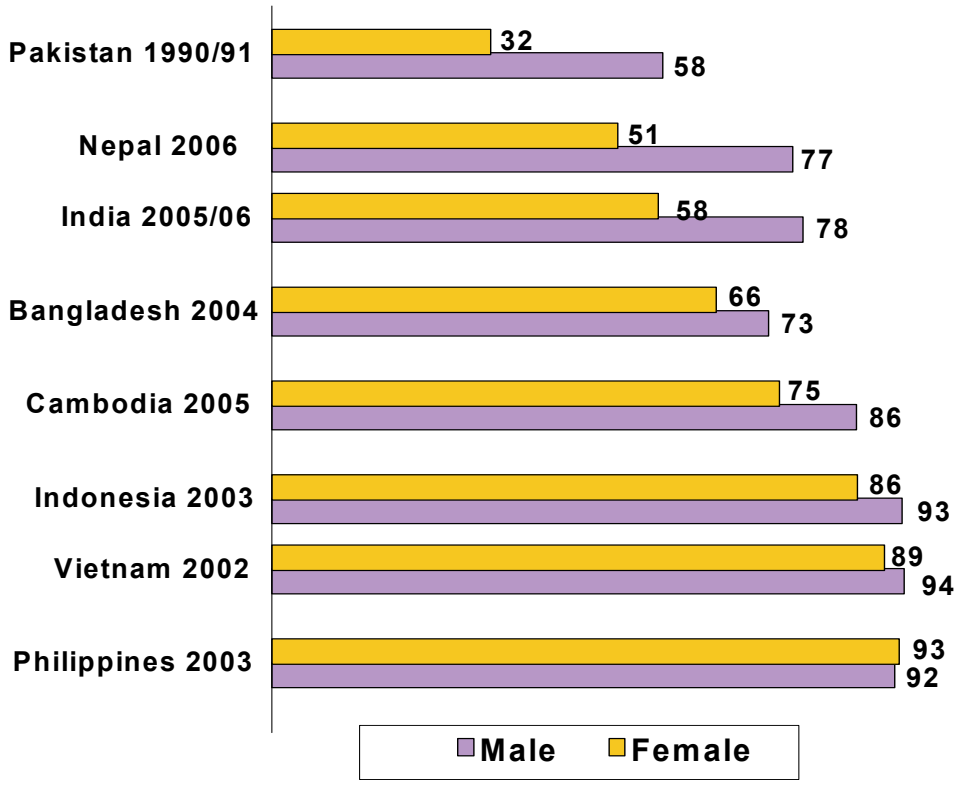
One of the most important indicators of socioeconomic development in a country is the educational level of its population. Moreover, education, especially for women, is closely linked to a number of demographic and health outcomes for which trends are examined in this report, including fertility, contraceptive use, and health and nutritional status of mothers and children. Figure 2.4 shows substantial improvement in household educational attainment in the past ten years. In 1996, 63 percent of males and 32 percent of females, age six years and over had ever attended school at some time in their lifetime and in 2006, the proportions increased to 77 percent for males and 51 percent for females. Nevertheless, women continue to lag behind men in educational attainment.

Figure 2.4
Percentage of Male and Female Household Population Age 6 Years and above who have ever Attended School



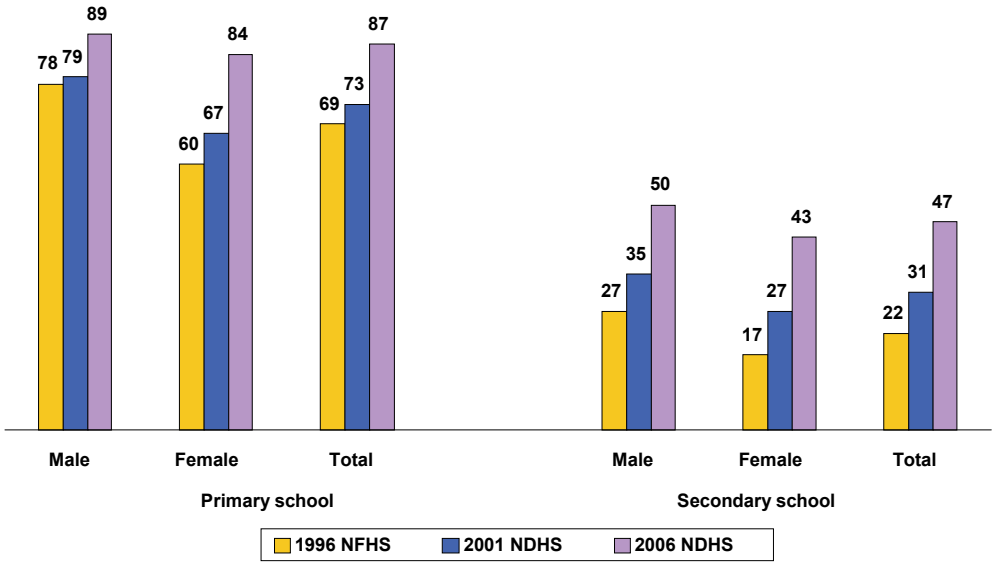
Despite the improvement over the past ten years, Nepalese females and males rank low with respect to education when compared with other South and Southeast Asian countries. As Figure 2.5 shows, about half of the female population and three-fourths of the male population age six years and over have ever attended school and this is noticeably lower than most other countries in the region for which recent and comparable DHS surveys have been conducted.

Figure 2.5
Percentage of Female and Male Population Age 6 Years and above who ever Attended School, South and Southeast Asia



School attendance is a good indication of the future progress in educational attainment of a population as it shows whether school-age children are taking advantage of the opportunity to attend school. Figure 2.6 indicates the overall net attendance ratio at the primary level. The percentage of the primary school-age population (6-10 years) attending primary school increased from 69 percent in 1996 to 87 percent in 2006.

Figure 2.6
Net School Attendance Ratios at Primary and Secondary Level, by Sex of Children



Similarly, the overall net attendance ratio at the secondary level, that is, the percentage of the secondary school age population (11-15 years) attending secondary school, also increased from 22 percent to 47 percent during the same ten-year period (Figure 2.6). The results also indicate that the percentage increment in net attendance ratio for primary level as well as secondary level was higher for girls than boys. Despite such progress, more than half (53 percent) of children eligible for secondary level schooling were not attending school. However, children at the primary level fared better as only 13 percent eligible for primary level schooling were not attending school.

Data from the NDHS can be used to examine in greater detail the changes in educational attainment among women and men in the reproductive ages. As Figure 2.7 shows, the proportion of women age 15-49, with no education fell from 80 percent in 1996 to 63 percent in 2006. At the same time the proportion with primary level and secondary or higher level of schooling increased from 11 percent and 9 percent, respectively, to 17 percent and 21 percent.

Figure 2.7
Percentage of Ever-married Women Age 15-49, by Level of Education

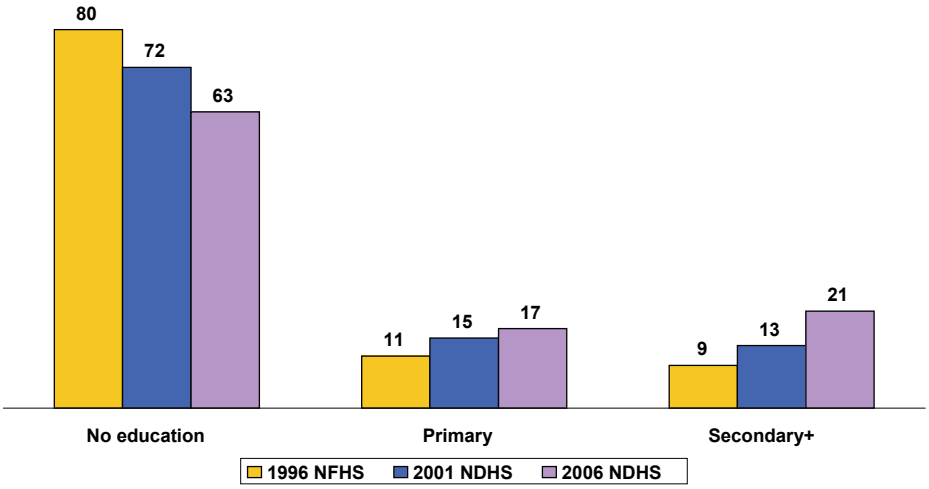


Table 2.2 shows changes over the last five years in the percentage of ever-married men and changes over the last ten years in the percentage of women, with no education. The percentage of women and men with no education decreased in most subregions of the country with the largest decline for men seen in the Western mountain and Mid-western terai subregions in the past five years. In the case of women, over the past ten years there was marked improvement in the Western hill (43 percent). The percentage of women with no education decreased in all subregions. The highest proportion of men with no education was in Central mountain (41 percent) and the highest proportion of women with no education was in Western mountain (81 percent).

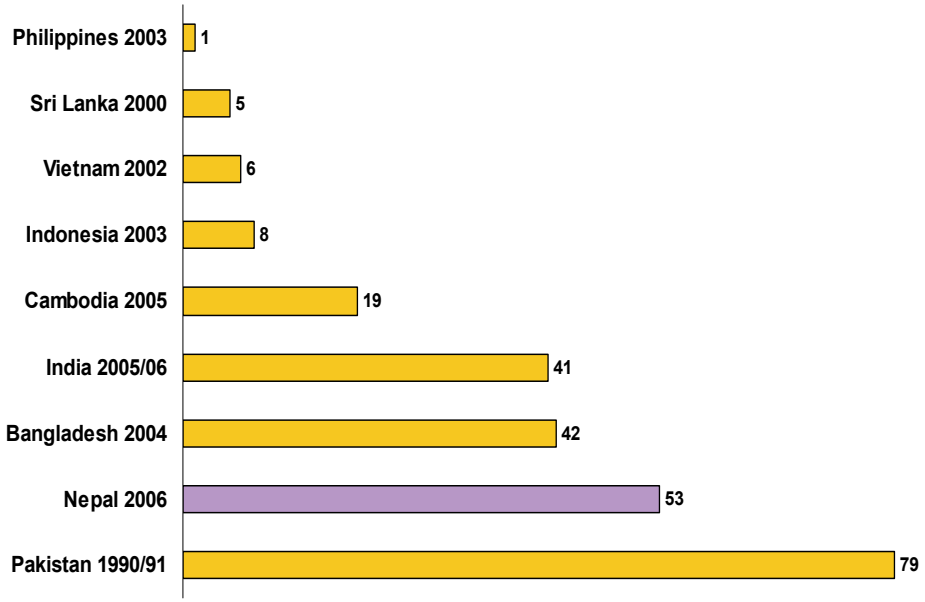
Table 2.2
Percentage of Ever-married Men Age 15-59 and Ever-married Women Age 15-49 with No Education, by Subregion

Subregion	Men		Women		
	2001 NDHS	2006 NDHS	1996 NFHS	2001 NDHS	2006 NDHS
Eastern mountain	33.7	27.0	76.6	57.9	51.8
Central mountain	44.4	40.8	91.4	80.3	72.6
Western mountain	51.0	28.5	94.6	92.7	80.5
Eastern hill	34.9	24.5	81.6	67.2	53.3
Central hill	30.4	21.1	70.3	63.8	52.9
Western hill	28.0	21.7	72.8	53.1	41.7
Mid-western hill	29.1	21.2	86.2	81.6	68.7
Far-western hill	33.9	20.4	91.3	89.6	77.0
Eastern terai	39.5	31.9	73.8	67.7	62.6
Central terai	47.4	38.1	84.2	80.1	72.6
Western terai	32.0	25.0	81.5	75.6	64.7
Mid-western terai	49.7	28.2	82.6	73.7	63.5
Far-western terai	38.7	30.7	87.8	76.9	74.8
Total	37.7	28.0	80.0	72.0	62.6

Note: In case of 1996 NFHS, information was not collected for men.

Despite more recent improvements in the country's overall educational level, Nepalese women of reproductive ages are among the least educated when compared with women in other South and Southeast Asian countries (Figure 2.8).

Figure 2.8
Percentage of Women of Reproductive Ages with No Education, South and Southeast Asia



3 HOUSEHOLD CHARACTERISTICS

Household characteristics such as housing conditions and ownership of consumer durables serve as indirect indicators of a household's standard of living. Trends in these characteristics reflect a society's material progress, which has implications both for the economic well being and overall health status of the population. This section examines changes in access to electricity, piped drinking water, toilet facilities, and exposure to the mass media over the last ten years and discusses how Nepalese households compare with households in other South and Southeast Asian countries with respect to these amenities.

3.1 Housing Characteristics

Figure 3.1 presents trends in the proportion of households with electricity and piped drinking water, by urban-rural residence. Overall, between 1996 and 2006, there was a marked increase in the percentage of households having access to electricity and a relatively smaller increase in the percentage of households with access to piped drinking water. Despite the overall increase, there continues to be a marked disparity in access to these basic amenities by place of residence, with urban areas much more likely to have electricity and piped drinking water than rural households, although the trend shows a narrowing of the urban-rural disparity over the last ten years. The decline in the proportion of urban households with piped drinking water can be attributed to the recently reclassified rural locations to urban locations which continue to display rural characteristics.

Figure 3.1
Percentage of Households with Electricity and Piped Drinking Water, by Residence

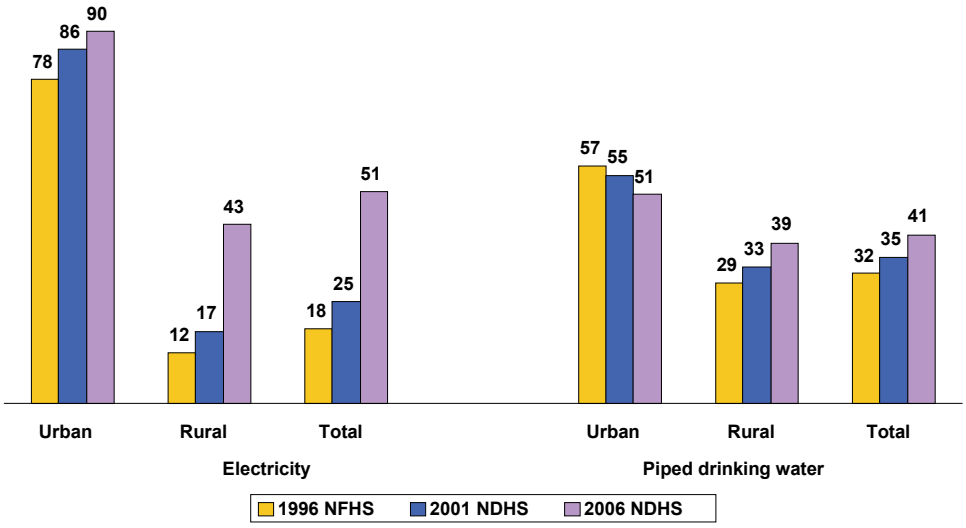
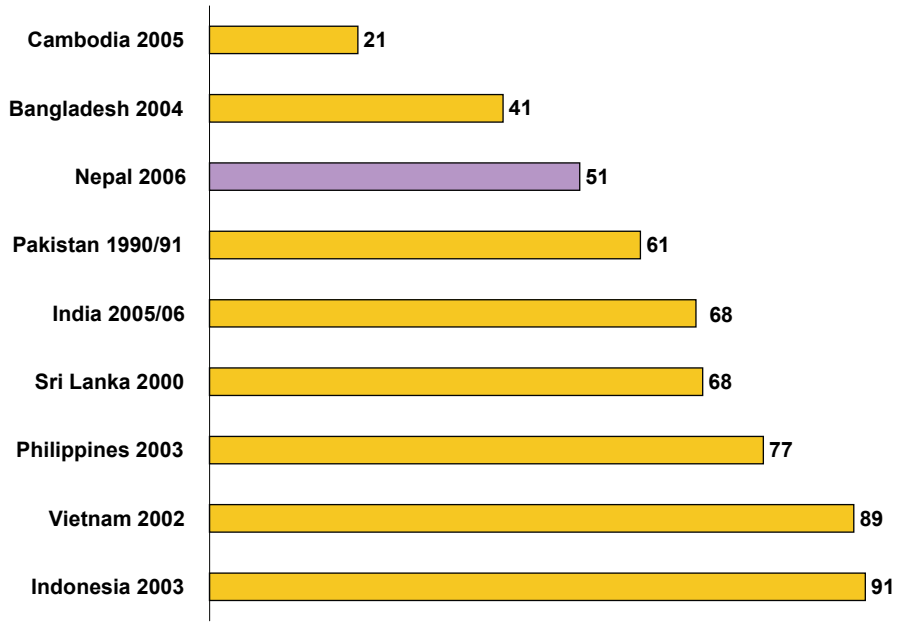


Figure 3.2 compares access to electricity in Nepal with access in other South and Southeast Asian countries. Nepal (51 percent) ranks low, with access to electricity among households being lowest in Cambodia (21 percent) and highest in Indonesia (91 percent).

Figure 3.2
Percentage of Households with Access to Electricity, South and Southeast Asia



Access to toilet facilities is another important indicator of the well-being of a population. Figure 3.3 shows that even though the overall percentage of households with no toilet facilities declined by 35 percent in the last ten years, a sizeable proportion of Nepalese households continue to have no toilets, with little change in the urban-rural gap.

Figure 3.3
Percentage of Households with No Toilet by Residence

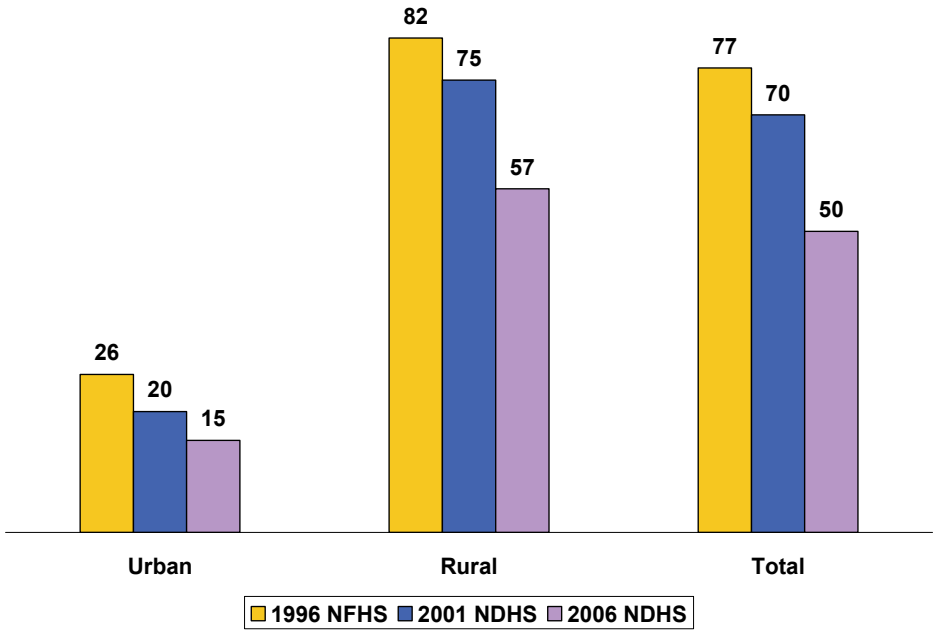
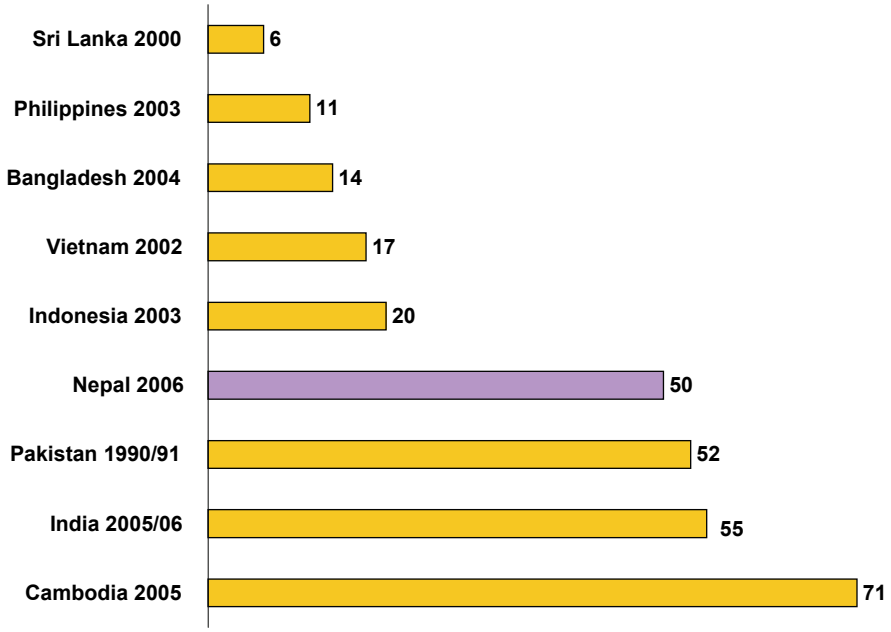


Figure 3.4 shows a huge disparity among countries of South and Southeast Asia, with respect to access to toilet facilities. The proportion of households with no toilet is 8 times higher in Nepal than in Sri Lanka, five times higher than in the Philippines, four times higher than in Bangladesh, and three times higher than in Vietnam or Indonesia.

Figure 3.4
Percentage of Households with No Toilet, South and Southeast Asia

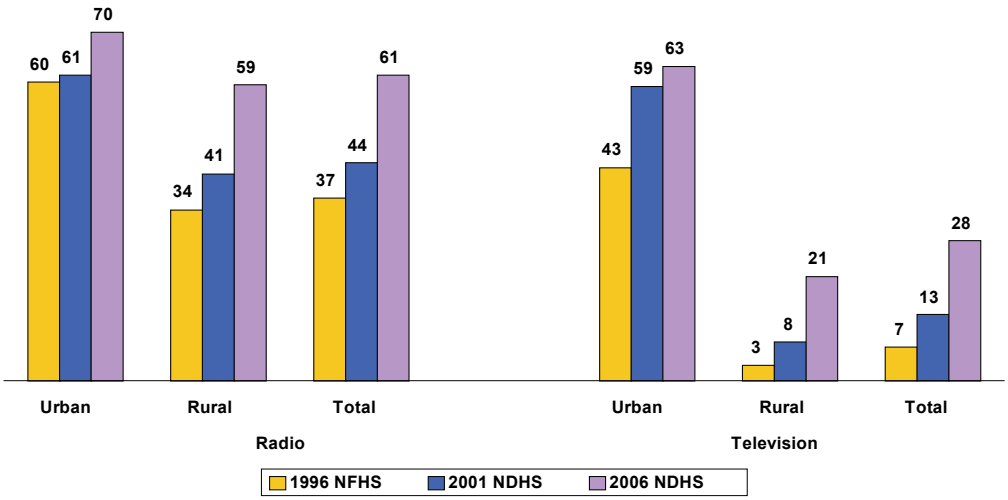


3.2 Exposure to Mass Media

Research has shown that listening to the radio and watching television can be powerful tools not only to create awareness about new technology but also to stimulate the desire for information and behavior change. Families who own a radio or television are more likely to have greater exposure to health education messages related to the management of common childhood diseases, infant feeding practices, family planning and the importance of vaccinating young children.

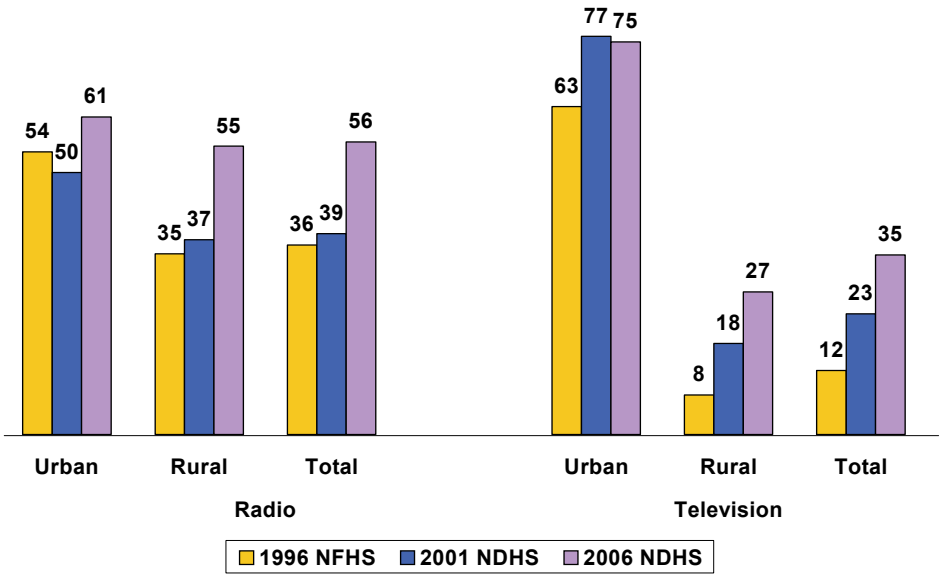
Data from the three NDHS surveys show that the percentage of households with a radio increased from 37 percent in 1996 to 61 percent in 2006 (Figure 3.5). Despite this positive trend, the data indicate a continued urban-rural disparity. In 2006, 70 percent of urban households in Nepal had a radio compared with 59 percent of rural households. The data also show that although the proportion of rural households with a television increased by 7 times in the last ten years, these households still lag behind when compared with urban households. Nearly two in three urban households have a television.

Figure 3.5
Percentage of Households with a Radio and Television, by Residence



Women of reproductive age are a very important target population for health education messages, especially those related to maternal and child health, nutrition, and family planning. Figure 3.6 shows the trend in the proportion of women of reproductive age who listen to the radio and who watch television at least once a week.

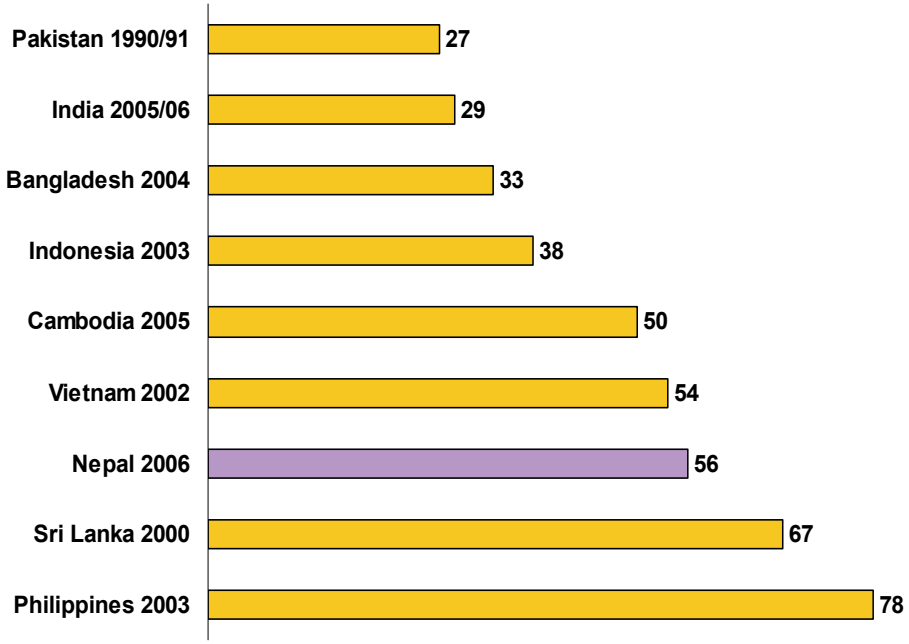
Figure 3.6
Percentage of Ever-married Women Age 15-49 who Listen to the Radio and Who Watch Television at Least Once a Week, by Residence



The data show an increase in women's exposure to both the radio and television between 1996 and 2006. Overall, 56 percent of women reported hearing a radio broadcast at least once a week in 2006 compared with 36 percent in 1996. During the same period, exposure to the television tripled (from 12 to 35 percent). Nevertheless, although exposure to the radio among rural women increased from 35 percent to 55 percent in the last ten years, smaller proportions of rural women were exposed to the television (27 percent). Urban women's exposure to the television increased in the last ten years, from 63 percent to 75 percent.

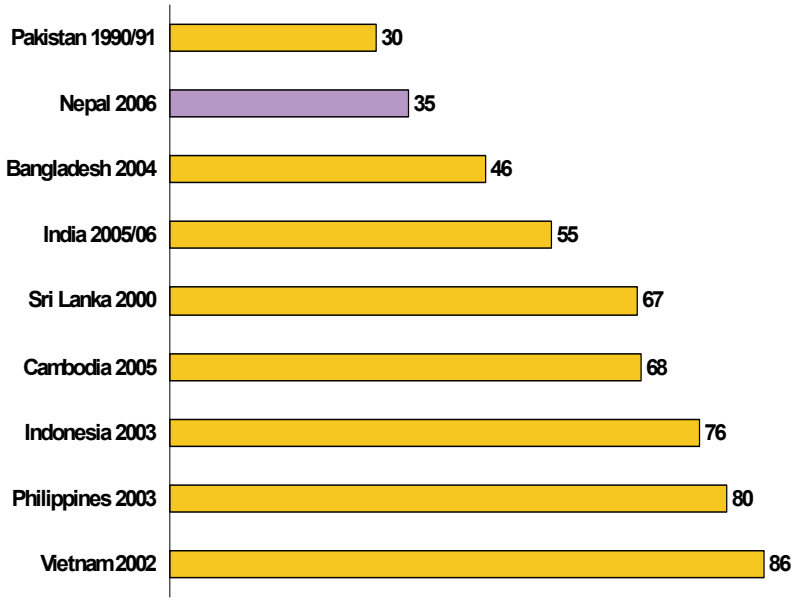
Nepal ranks midway in women's exposure to the radio when compared with other South and Southeast Asian countries. Nearly three in five Nepalese women listen to the radio at least once a week compared with nearly four in five women in the Philippines (Figure 3.7).

Figure 3.7
Percentage of Women Age 15-49 Who Listen to the Radio at Least Once a Week, South and Southeast Asia



On the other hand, women's exposure to the television is relatively lower in Nepal than in most other South and Southeast Asian countries (Figure 3.8). For example, more than two times as many women in Vietnam and the Philippines and two times as many women in Indonesia as in Nepal watch television at least once a week.

Figure 3.8
Percentage of Women Age 15-49 Who Watch Television at Least Once a Week, South and Southeast Asia



4 FERTILITY

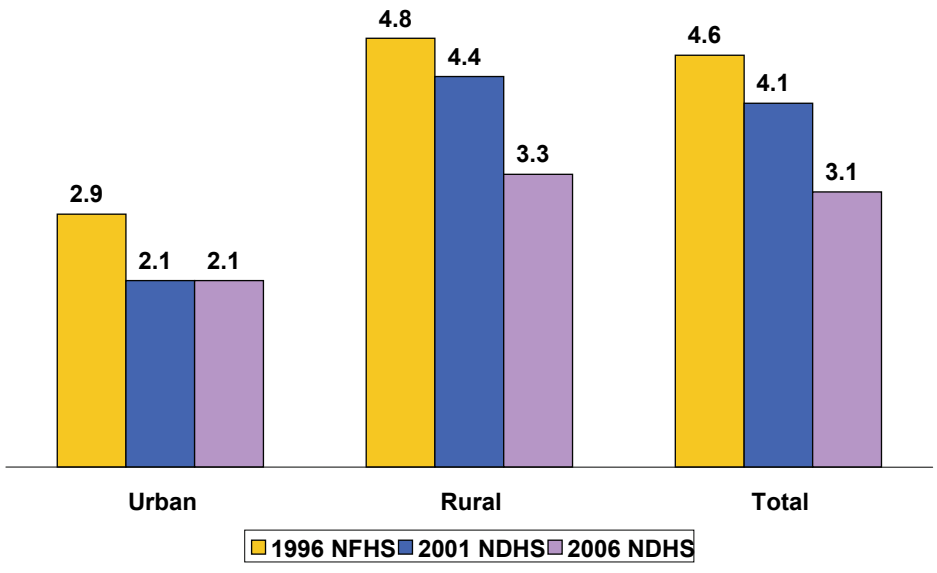
Fertility is one of the three principal determinants of the size and structure of the population of a country (the other two being mortality and migration). This section presents trends in fertility rates in Nepal based on data from the 1996 NFHS, the 2001 NDHS and the 2006 NDHS.

4.1 Fertility Rates

The most commonly used measures of current fertility are the total fertility rate (TFR) and its component age-specific fertility rates (ASFRs). The TFR is an estimate of the average number of births a woman would have at the end of her reproductive years if she bears children at the prevailing age-specific fertility rates throughout her childbearing years (age 15-49). The ASFRs are defined in terms of the number of live births among women in a particular age group divided by the number of woman-years in that age group during the specific period.

Figure 4.1 presents trends in TFRs in Nepal over the past 15 years, by urban-rural residence. The data show that the overall TFR declined by one and a half births per woman in the 10-year period between 1996 and 2006, from 4.6 births per woman in the 1996 NFHS to 3.1 births in the 2006 NDHS. The decline in TFR is more pronounced during the last five years declining from 4.1 births in 2001 to 3.1 in 2006, indicating a one birth decline compared to half a birth decline in the first five years (1996 to 2001). Rural fertility declined steadily throughout the 10-year period whereas urban fertility changed little during the same period.

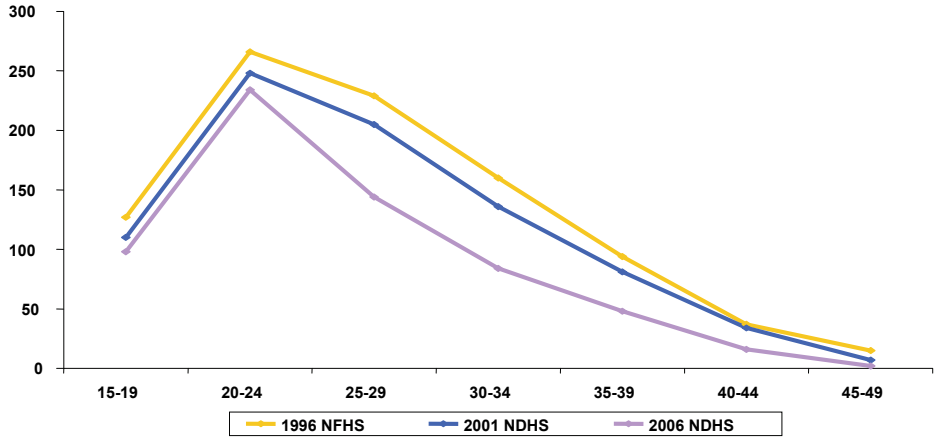
Figure 4.1
Total Fertility Rates, by Residence



Note: TFR: Total fertility rate expressed per woman. The rates are based on the number of births that occurred in the 3 years preceding the survey.

The data also show that fertility decline was experienced by all women in the reproductive age groups though the decline is relatively smaller among the youngest group of women (15-19). The decline was more rapid among women in the prime reproductive ages (20-24, 25-29, and 30-34). However, the patterns in ASFRs have remained almost the same over the past ten years (Figure 4.2).

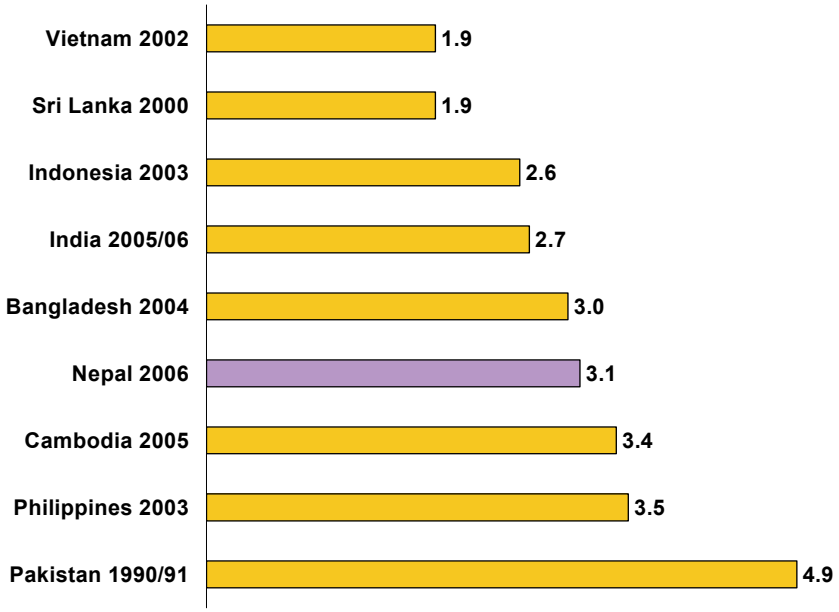
Figure 4.2
Trends in Age-specific Fertility Rates



Note: The rates are based on the number of births that occurred in the 3 years preceding the survey.

Figure 4.3 compares TFR in Nepal with other South and Southeast Asian countries. TFR is lowest in Vietnam (1.9) and Sri Lanka (1.9) and highest in Pakistan (4.9) compared to 3.1 in Nepal.

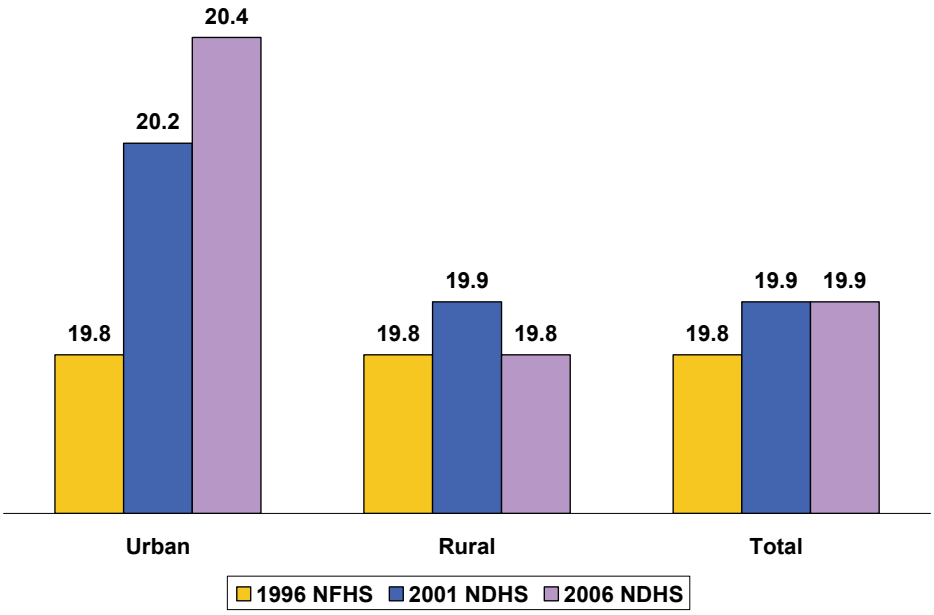
Figure 4.3
Total Fertility Rates for women age 15-49 for the 3-year period preceding the survey, South and Southeast Asia



4.2 Median Age at First Birth

Early initiation of childbearing has a detrimental effect on the health of both mother and child. It also lengthens the reproductive period, thereby increasing the level of fertility. There was no change in women's overall age at first birth in Nepal over the last ten years. Figure 4.4 shows trends in the median age at first birth by urban-rural residence. The median age at first birth among rural Nepalese women remained at around 20 years while it increased by nearly one year among urban women, from 19.8 years in 1996 to 20.4 years in 2006.

Figure 4.4
Median Age at First Birth for Women Age 25-49, by Residence



4.3 Adolescent Fertility

The issue of adolescent fertility is important for health, demographic and social reasons. Children born to very young mothers face an increased risk of illness and death. Adolescent mothers themselves are more likely than older women to suffer from severe complications during pregnancy and delivery because of physiological immaturity.

Figure 4.5 presents trends in the percentage of adolescent women age 15-19 years who have begun childbearing. The percentages of women who have begun childbearing at ages 15, 16, 17, 18 and 19 have decreased over the ten years with the exception of age 17 where there was a slight rise over the most recent five years. Despite the decline in the overall percentage of adolescents who have begun childbearing, the percentage of young urban women who have had a birth or are pregnant with the first birth has increased slightly over the last five years primarily because of the inclusion of areas with rural characteristics reclassified as urban localities.

Figure 4.5
Percentage of Women 15-19 Who Are Mothers or Pregnant with First Child, by Residence and Age

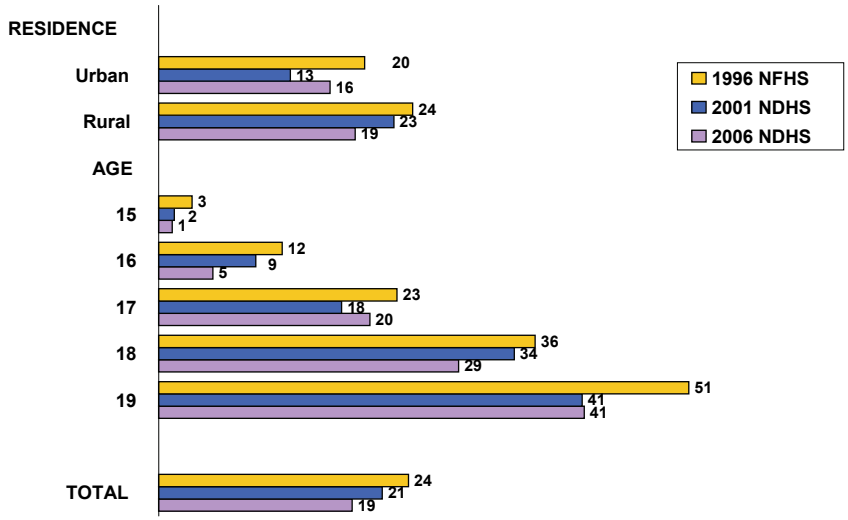
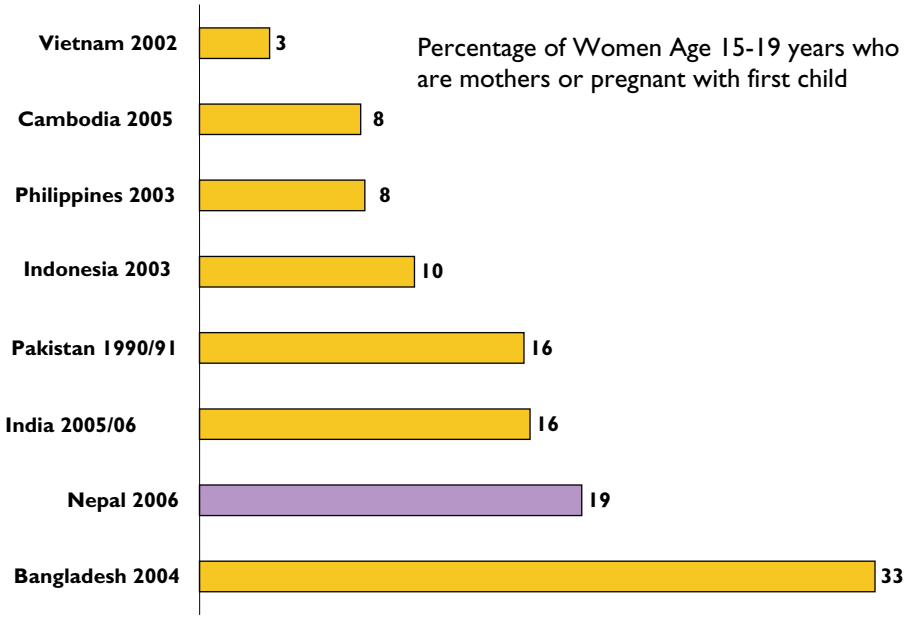


Figure 4.6 shows adolescent fertility among South and Southeast Asian countries. Childbearing at an early age is relatively lower in Nepal than in Bangladesh and ranges from a low of 3 percent of women age 15-19 years in Vietnam to a high of 33 percent in Bangladesh.

Figure 4.6
Adolescent Fertility, South and Southeast Asia



Note: Data for Bangladesh refers to women age 10-19.

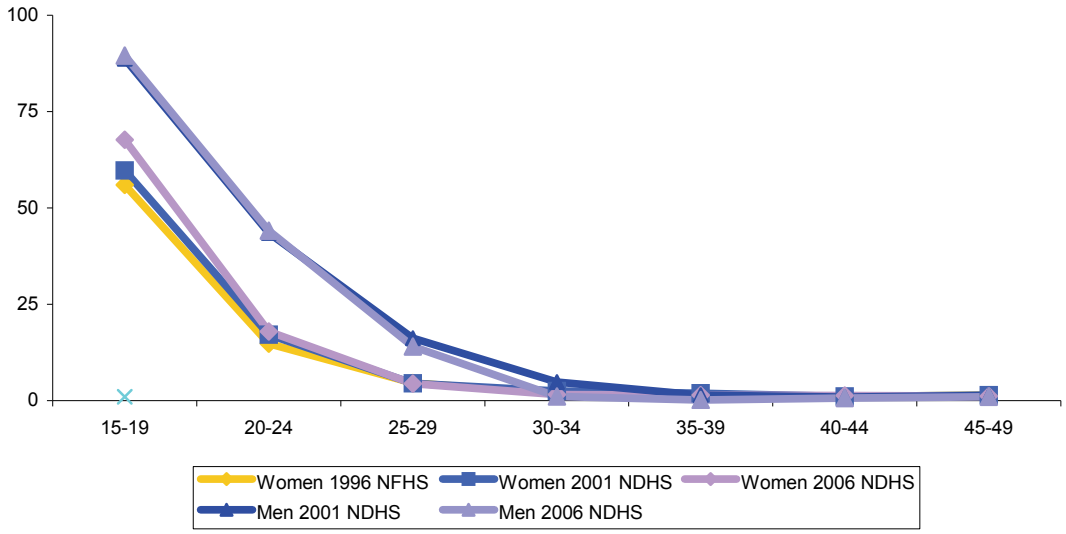
5 MARRIAGE PATTERNS

The age at which women marry has a strong influence on fertility levels in a society because it is a principal determinant of the length of time that women are exposed to the risk of pregnancy during their reproductive years. Early marriage is directly associated with the early initiation of childbearing and high fertility which may have adverse effects on the health of mothers and their newborns.

5.1 Never-married Women and Men

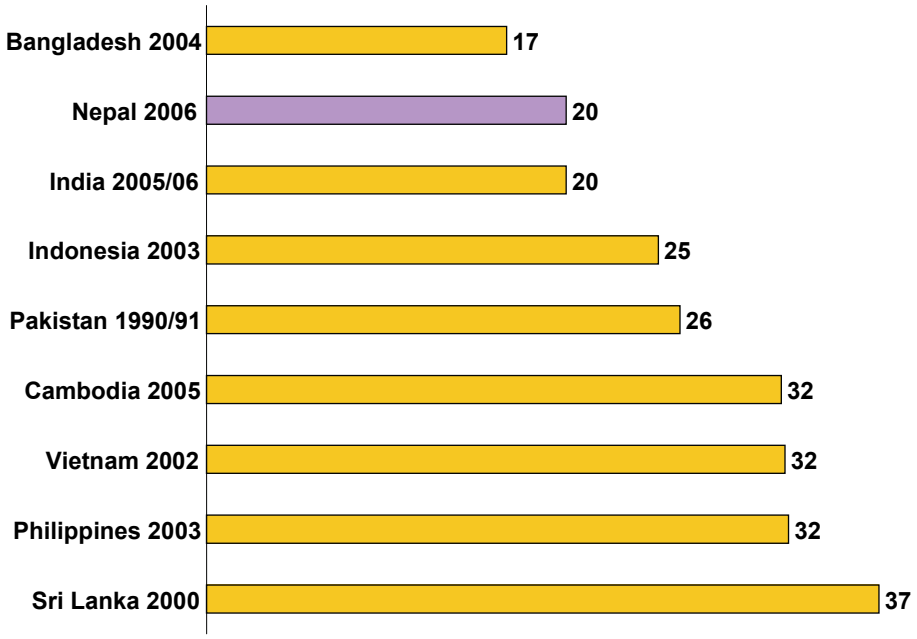
In the NDHS surveys, 'marriage' is defined as a stable cohabitation between a man and a woman irrespective of whether or not any validating legal, religious or customary ceremonies had been performed. However, informal unions are relatively uncommon in Nepal. Figure 5.1 shows the percentage of women and men who have never married in 1996, 2001 and 2006 by five-year age cohorts. The data show a consistent decline in the proportions never-married as age increases. However, there was little change in Nepal over the last five years in the proportions of women and men never married in each age group. There was a slight increase in the proportion of women in the younger age group (15-19 years) who were unmarried.

Figure 5.1
Percentage of Women and Men Never Married, by Age Group



When compared with the other countries in the South and Southeast Asian region, only one-fifth of Nepalese and Indian women age 15-49 are never married (20 percent) compared to nearly two-fifths of Sri Lankan women (15-49 years), about one-third of women in the Philippines, Vietnam and Cambodia, and one-fourth of women in Indonesia and Pakistan. Bangladesh has the lowest proportion of women never married.

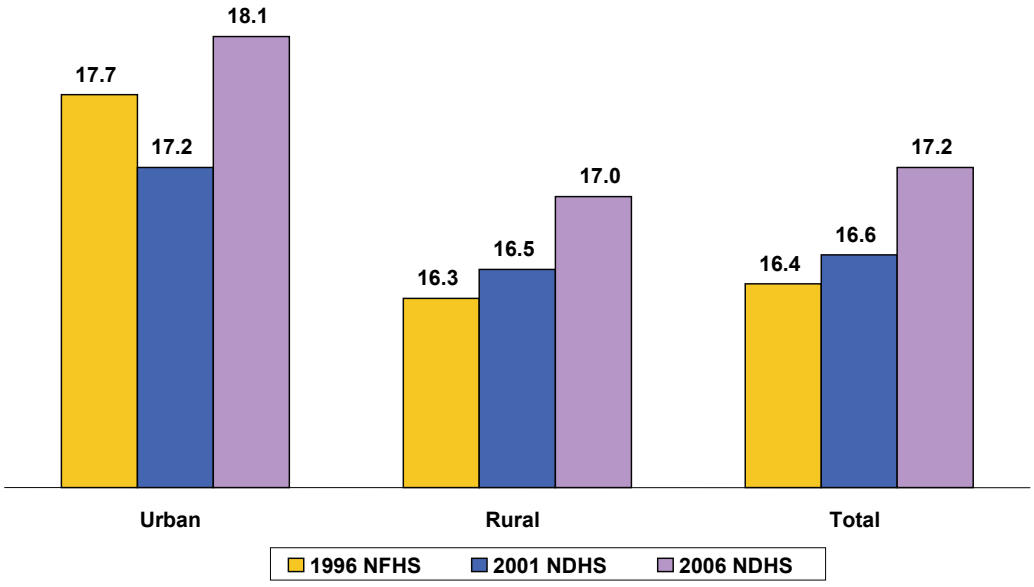
Figure 5.2
Percentage of Women Never Married, South and Southeast Asia



5.2 Median Age at First Marriage

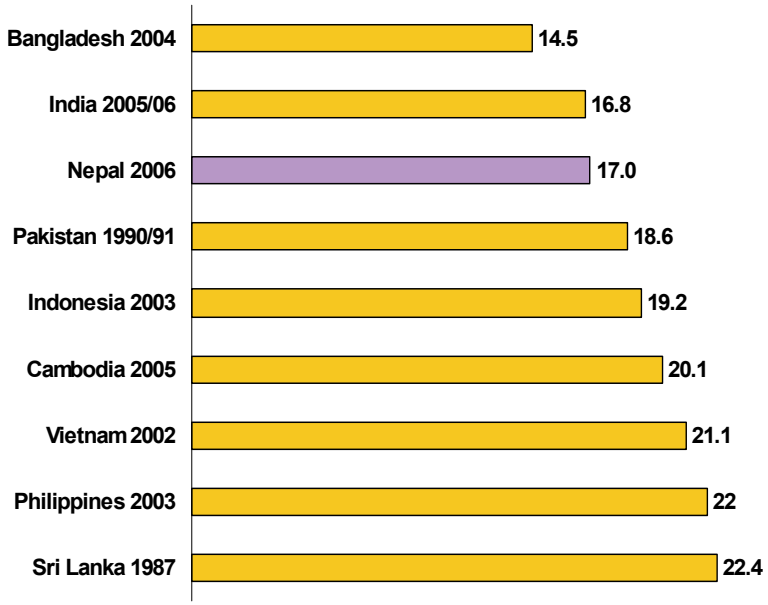
One indicator that is used to explore trends in the timing of marriage is the median age at first marriage, that is, the age by which 50 percent of women in a group are married for the first time. The overall median age at first marriage for Nepalese women is 17.2 years, and this increased during the last five years. The median age at first marriage among urban women declined between 1996 and 2001 but rose by nearly one year from 17.2 years in 2001 to 18.1 years in 2006 (Figure 5.3). There was a gradual increase in the median age at first marriage among rural women.

Figure 5.3
Median Age at First Marriage among Women Age 20-49, by Residence



Women in Nepal marry at a much earlier age than women in most other South and Southeast Asian countries (Figure 5.4). The median age at first marriage among women age 25-49 years was lowest in Bangladesh (14.5 years) followed by Indian (16.8 years) and Nepal (17.0 years). The highest median age at first marriage among the countries compared here was in Sri Lanka (22.4 years).

Figure 5.4
Median Age at First Marriage among Women Age 25-49, South and Southeast Asia



5.3 Prevalence of Polygyny

Polygyny, which is the practice of having more than one wife, has implications for the frequency of exposure to sexual activity and, therefore, fertility. Polygyny also contributes to a greater level of exposure to the risk of pregnancy, especially among women in the younger age groups, than might have prevailed in the absence of the practice.

There was an overall decline in the level of polygyny during the past ten years in Nepal, from 6 percent in 1996 to 4 percent in 2006. The data also show that though rural marriages were more likely to be polygynous than urban marriages in 1996, the proportion of women in a polygynous union has gradually increased in urban locations and declined in rural areas in the past five years (Figure 5.5).

Figure 5.5
Percentage of Currently Married Women 15-49 in a Polygynous Union, by Residence

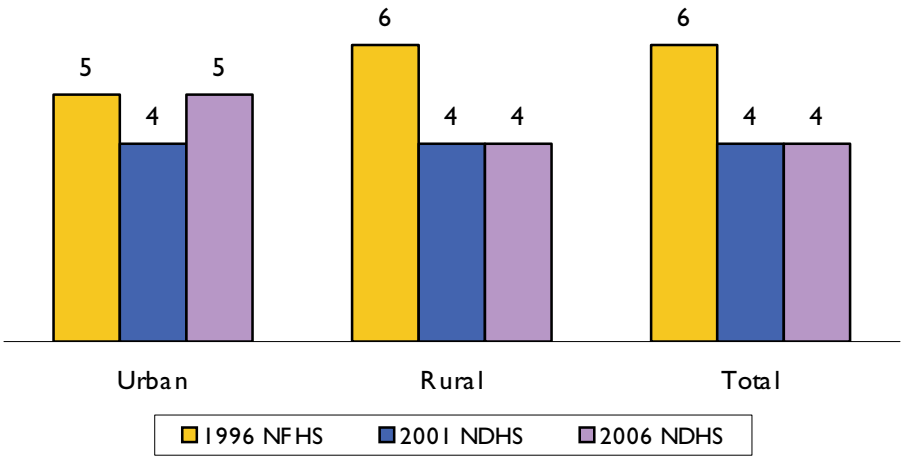


Table 5.1 shows the prevalence of polygyny by subregion in 1996, 2001 and 2006. The percentage of currently married women in a polygynous union increased in Central hill and Far-western terai in the last ten years, but declined in the other regions. The percentage increase was greatest in Far-western terai (41 percent) while the percentage decline was greatest in Western hill (59 percent).

Table 5.1
Percentage of Currently Married Women 15-49 in a Polygynous Union, by Subregion

Subregion	1996 NDHS	2001 NDHS	2006 NDHS
Eastern mountain	5.5	2.6	2.4
Central mountain	4.3	3.5	3.2
Western mountain	7.3	3.8	3.3
Eastern hill	8.4	4.6	4.6
Central hill	4.7	4.0	5.4
Western hill	7.0	4.3	2.9
Mid-western hill	5.8	5.0	5.3
Far-western hill	6.1	4.7	4.6
Eastern terai	5.7	6.1	5.2
Central terai	4.5	3.1	3.5
Western terai	6.8	4.0	3.7
Mid-western terai	5.7	5.0	3.4
Far-western terai	4.6	5.6	6.5
Total	5.7	4.4	4.4

6 FAMILY PLANNING

Information on knowledge and practice of family planning is of particular interest to policymakers, program managers and researchers concerned with planning and evaluating population and family planning interventions.

6.1 Knowledge of Family Planning

Knowledge of at least one method of family planning is a precursor to the use of contraception. Table 6.1 presents the percentage of currently married women age 15-49 years and men age 15-59 years, who have heard of at least one method of family planning. The data show that overall knowledge of family planning has remained consistently high over the years with nearly all currently married women and men having heard of at least one method.

The least heard of method was the IUD with about two in three women and men having heard about it followed by implants. However, knowledge about both of these methods has improved in the past ten years. Both women and men are less likely to hear about traditional methods than modern methods.

Table 6.1
Knowledge of Specific Contraceptive Methods among Currently-married Women Age 15-49 and Men Age 15-59

Method	Percentage of Women			Percentage of Men	
	1996 NFHS	2001 NDHS	2006 NDHS	2001 NDHS	2006 NDHS
Any method	98.4	99.5	99.9	99.6	99.9
Any modern method	98.3	99.5	99.9	99.6	99.9
Female sterilization	96.3	99.1	98.7	98.6	98.6
Male sterilization	89.7	98.2	96.3	98.4	98.8
Pill	80.5	93.4	95.4	90.3	92.2
IUD	35.9	54.7	67.2	59.3	67.0
Injectables	85.0	97.3	98.8	94.2	94.8
Implants	57.3	79.8	83.5	72.1	73.6
Condom	75.3	91.0	96.8	97.1	99.5
Any traditional method	44.4	55.4	51.6	81.0	78.3
Rhythm method	37.0	35.1	34.5	62.8	66.9
Withdrawal	29.1	41.1	39.8	70.7	69.8

Note: In case of 1996 NFHS, information was not collected for men.

6.2 Current Use of Family Planning

The current use of family planning measures actual contraceptive practice at the time of the survey regardless of whether the desire to use is for the purpose of spacing or limiting childbearing. Trends in current contraceptive use provide insight into one of the principal determinants of fertility and serve as a key measure for assessing the success of national family planning program efforts.

As Figure 6.1 shows, current use of contraceptive methods among currently married women increased by 68 percent in the 10 years between the 1996 NFHS and the 2006 NDHS (from 29 percent to 48 percent). The increase is especially marked for modern methods. Current use of modern methods increased by 36 percent in the first 5-year period (from 26 percent in 1996 to 35 percent in 2001), and by 25 percent during the last five years from 35 percent in 2001 to 44 percent in 2006.

Figure 6.1
Percentage of Currently Married Women Age 15-49 Using a Contraceptive Method

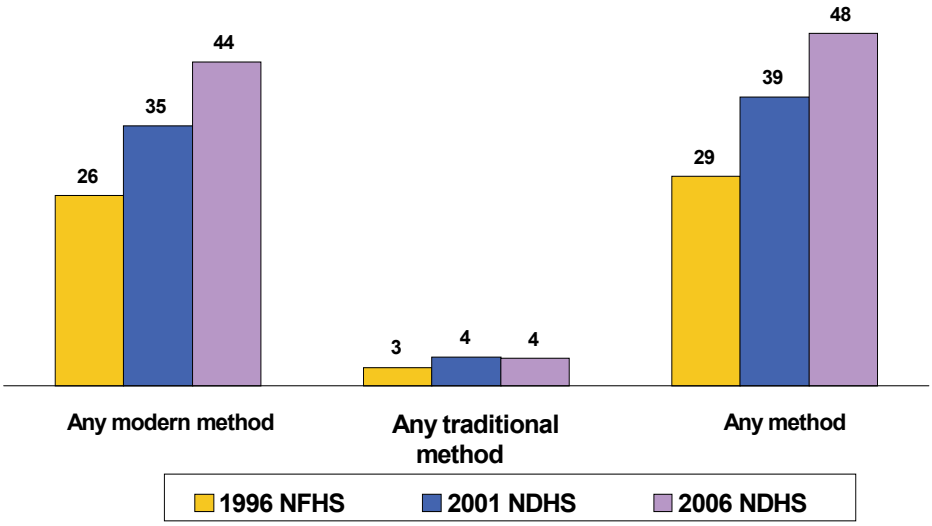


Figure 6.2 shows that the rate of increase in the percentage of currently married women age 15-49 years currently using a modern contraceptive method was higher in rural than in urban areas and among the uneducated than educated women, resulting in a narrowing of the urban-rural and educational differences. Contraceptive use in rural areas nearly doubled from 24 percent in 1996 to 43 percent in 2006, while use in urban areas increased by 20 percent from 45 percent to 54 percent over the same period. Similarly, contraceptive use among women with no education increased nearly two-fold while there was little change in use among women with SLC and higher level of education.

Figure 6.2
Percentage of Currently Married Women Age 15-49 Using a Modern Contraceptive Method, by Residence and Education

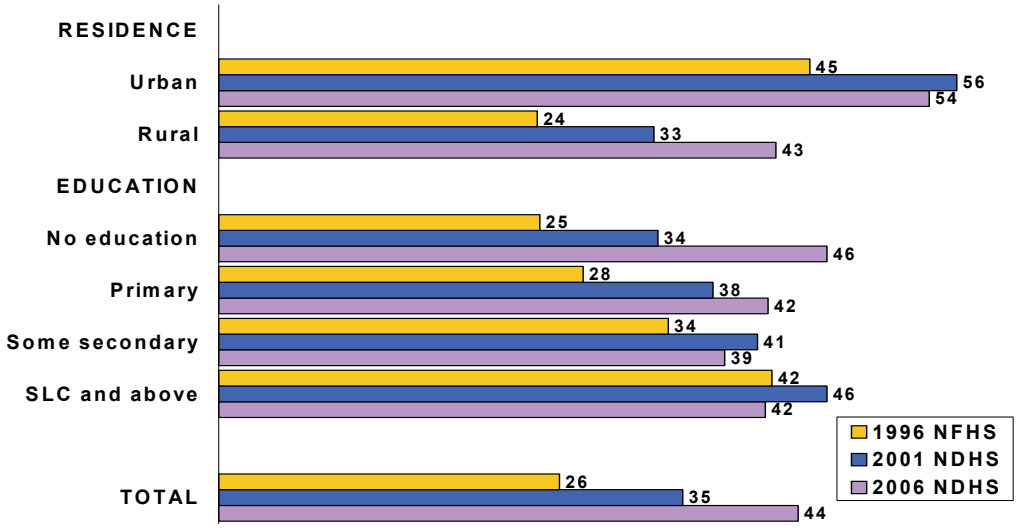


Table 6.2 shows an increase in the current use of modern contraceptive methods among currently married women of reproductive age in all subregions over the past 10 years. A similar trend is seen over the last five years with the exception of the Eastern mountain where the use of modern contraceptive methods has actually declined in the last 5 years by 27 percent. There are huge regional disparities in the increase in contraceptive use among the 13 subregions, over the past five years ranging from a 5 percent increase in the Western hill to a 103 percent increase in Western mountain.

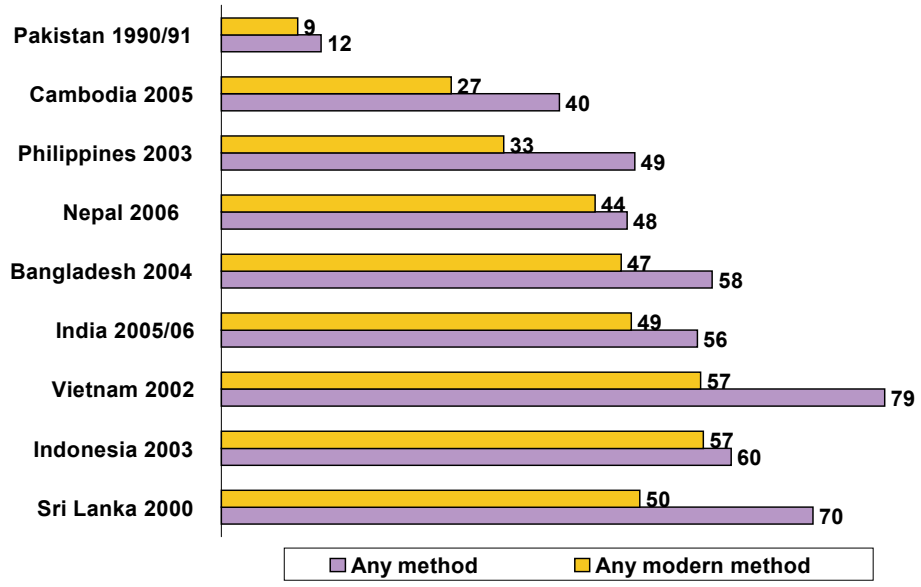
Table 6.2
Percentage of Currently Married Women Age 15-49 Using a Modern Contraceptive Method, by Subregion

Subregion	1996 NFHS	2001 NDHS	2006 NDHS
Eastern mountain	22.8	38.7	28.1
Central mountain	19.9	35.9	50.7
Western mountain	9.6	15.5	31.5
Eastern hill	21.8	27.5	43.3
Central hill	39.4	46.9	52.7
Western hill	26.8	31.0	32.7
Mid-western hill	16.1	26.9	33.8
Far-western hill	15.7	20.1	25.5
Eastern terai	29.5	42.1	47.2
Central terai	22.5	31.3	40.2
Western terai	22.6	39.3	42.2
Mid-western terai	37.7	48.9	56.6
Far-western terai	26.5	45.0	64.6
Total	26.0	35.4	44.2

Among all the subregions, the use of modern contraceptive method was highest in the Far-western terai subregion where 41 percent of currently married women use female sterilization (28 percent in 2001 and 17 percent in 1996).

The percentage of currently married women using modern contraceptive methods in Nepal is similar to that in several other countries in South and Southeast Asia, like Bangladesh (47 percent), India (49 percent) and Sri Lanka (50 percent) (Figure 6.3). The use of modern contraceptive methods in Nepal is higher than in Pakistan, Cambodia and the Philippines.

Figure 6.3
Percentage of Currently Married Women Age 15-49 Using Any method and Modern Contraceptive Method, South and Southeast Asia



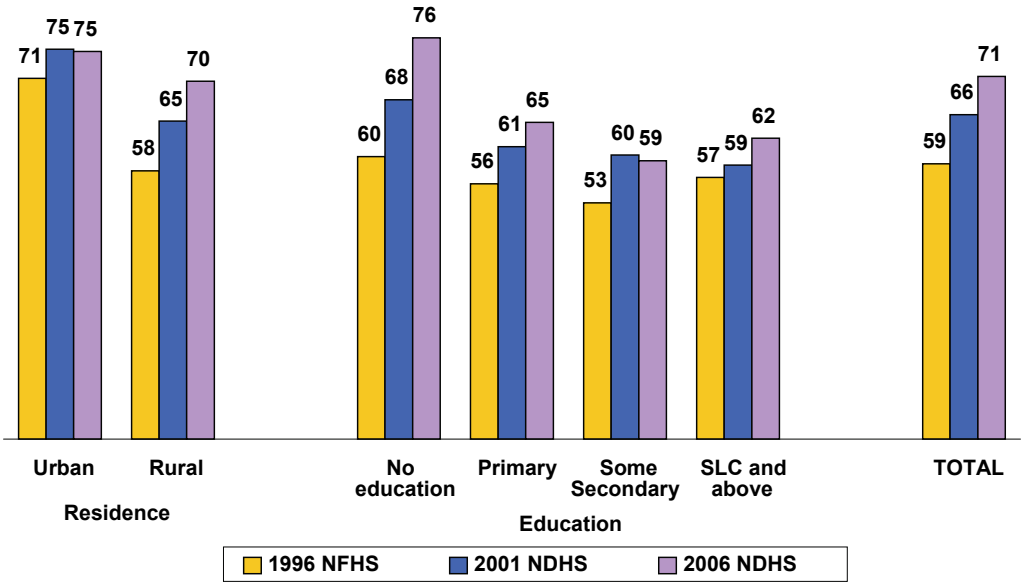
7 FERTILITY PREFERENCES

Information on fertility preference provides insight into a couple's attitude towards future childbearing, desired completed family size and prevailing unmet need for contraception.

7.1 Desire for Children

An important indicator of the potential demand for family planning is the percentage of women who want no more children. Figure 7.1 presents trends in the percentage of currently married women age 15-49 years who want no more children. Overall, the percentage of currently married women wanting no more children increased from 59 percent in 1996 to 71 percent in 2006, an increase of 21 percent, with the proportionate increase in rural areas higher than in urban areas (22 percent versus 5 percent).

Figure 7.1
Percentage of Currently Married Women Age 15-49 Who Want No More Children, by Residence and Education

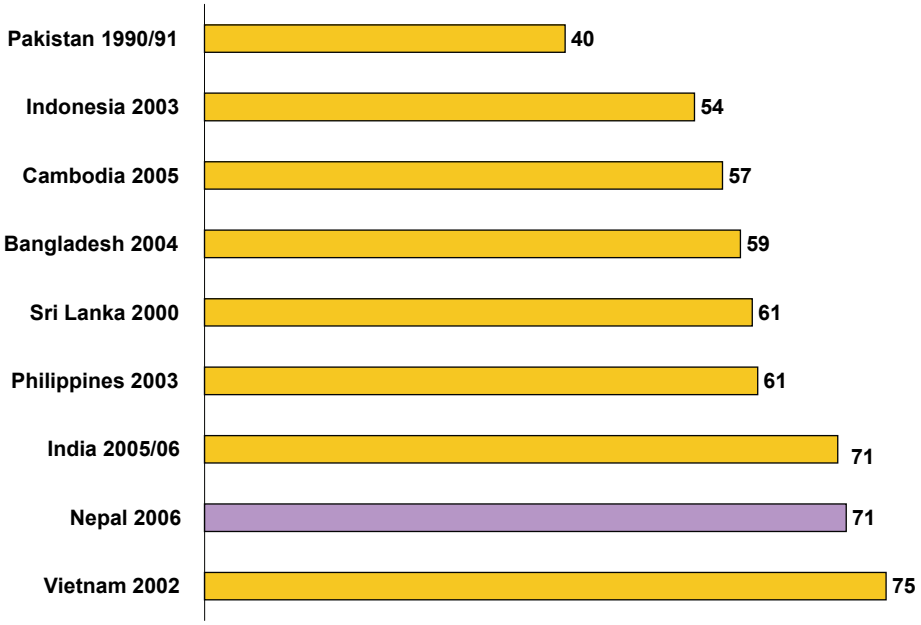


Note: Women who have been sterilized are considered to want no more children.

The overall increase in the percentage of currently married women wanting no more children was mostly concentrated among women with primary education and those with no education. The percentage of women who want no more children, increased by 28 percent among women with no education, and 15 percent among women with primary education.

Figure 7.2 compares Nepal with other South and Southeast Asian countries with respect to the percentage of currently married women who want no more children. The desire to limit childbearing is relatively high in Nepal compared to several other countries in the region. For example, about two in five currently married women in Pakistan and 54 percent of women in Indonesia want no more children compared to nearly three in four women in Nepal, India and Vietnam.

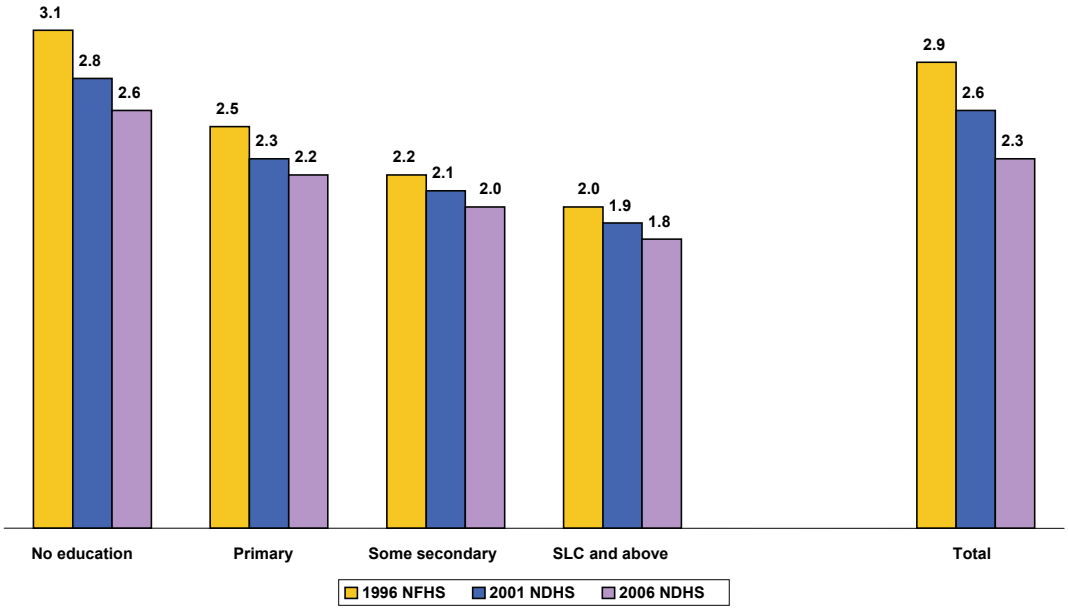
Figure 7.2
Percentage of Currently Married Women Age 15-49 Who Want No more Children, South and Southeast Asia



7.2 Ideal Family Size

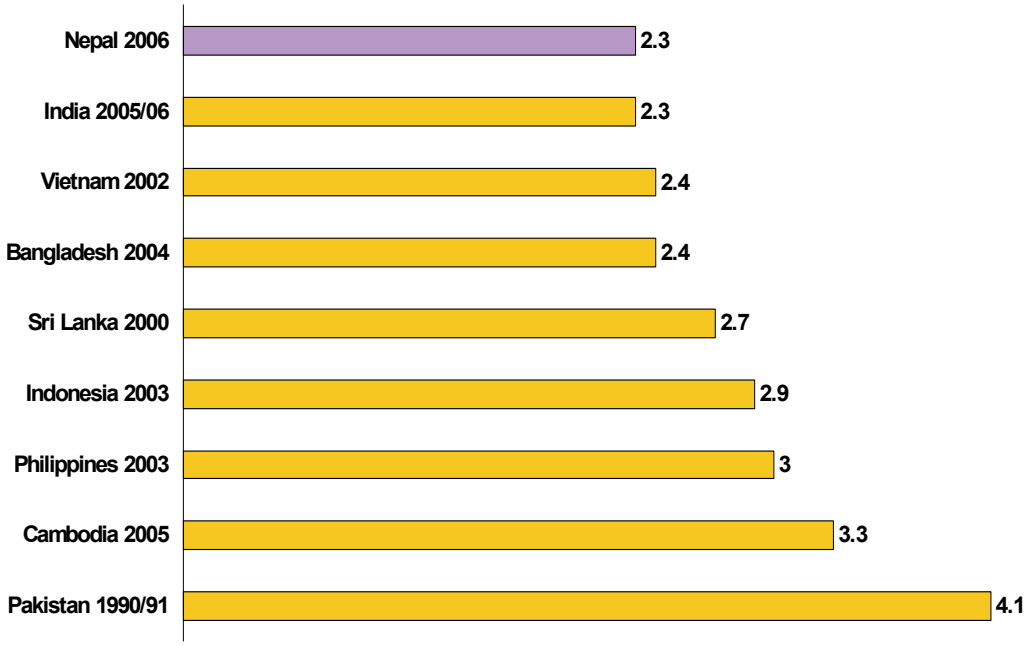
Another indicator of fertility preference is the ideal number of children preferred by women and men. There was a noticeable decline in the average family size reported by Nepalese women as ideal in the past ten years. Overall, the average ideal family size declined by about half a child per woman, from 2.9 in 1996 to 2.3 in 2006. The data also show that the pace of decline in ideal family size was somewhat higher among women with no education as compared to women with some secondary and women with SLC and higher level of education (Figure 7.3).

Figure 7.3
Mean Ideal Number of Children for All Women Age 15-49, by Education



When compared with women in other countries in the region, Nepalese women have a relatively small ideal family size (Figure 7.4). The ideal family size among women in Pakistan is nearly twice as large as among women in Nepal. Ideal family size ranges from a low of about 2.3 children in Nepal and India to a high of 4.1 children in Pakistan.

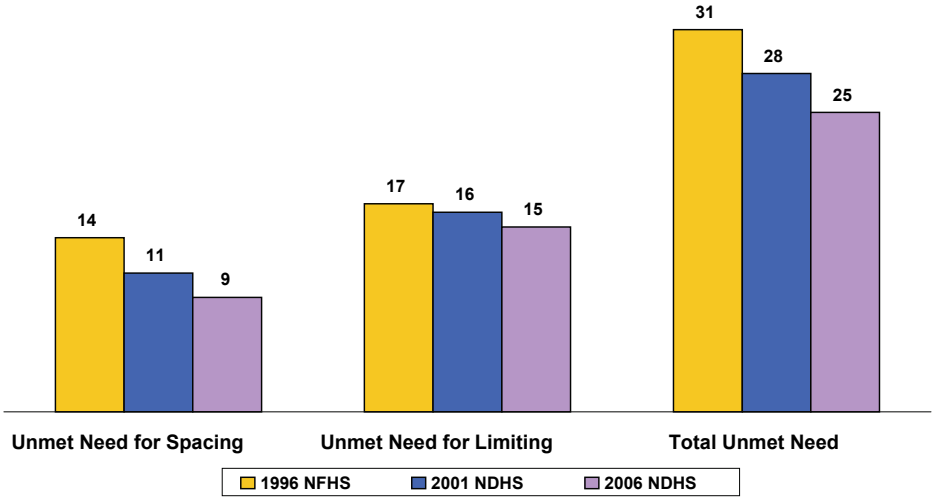
Figure 7.4
Mean Ideal Number of Children for Women Age 15-49, South and Southeast Asia



7.3 Unmet Need for Family Planning

Figure 7.5 shows unmet need for family planning among currently married women in the reproductive ages. The data show that there has been a decline in the unmet need for family planning over the past ten years, with unmet need in 2006 being 22 percent lower than it was in 1996 (25 percent vs. 31 percent). There was a 34 percent decrease in the proportion of women with unmet need for spacing while the proportion of women with an unmet need for limiting decreased by 11 percent during the same period.

Figure 7.5
Percentage of Currently Married Women Age 15-49 with Unmet Need for Family Planning



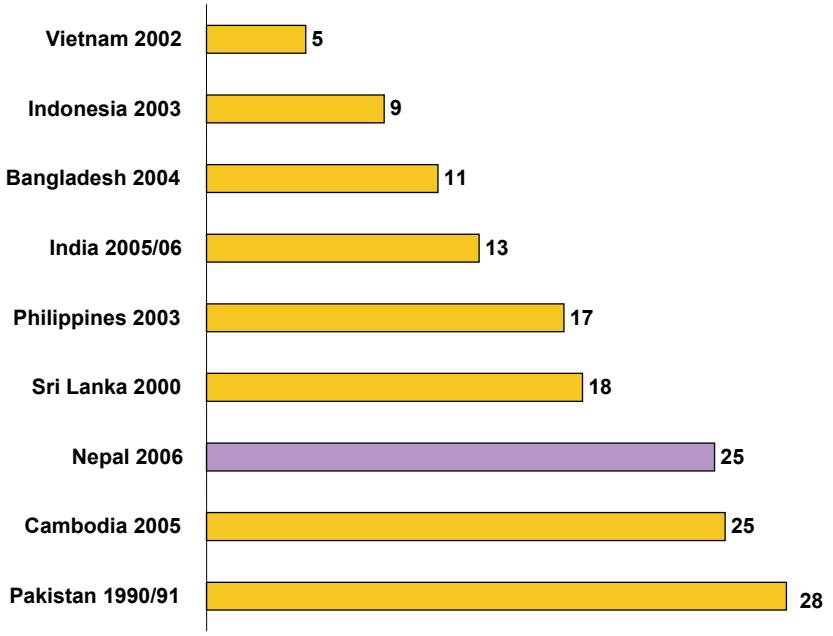
The decline in unmet need over the last ten years was more obvious in rural areas (21 percent) than in urban areas (9 percent). However, unmet need rose among women living in urban areas over the past 5 years (from 16 percent to 20 percent). The data also show that the unmet need for family planning declined in all subregions except in Eastern mountain, Western hill and Eastern terai, where unmet need increased between 2001 and 2006 (Table 7.1).

Table 7.1
Percentage of Currently Married Women Age 15-49 with Unmet Need for Family Planning, by Residence and Subregion

	1996 NFHS	2001 NDHS	2006 NDHS
Residence			
Urban	21.7	15.8	19.8
Rural	32.3	29.0	25.5
Subregion			
Eastern mountain	35.2	30.0	41.1
Central mountain	38.3	28.4	25.6
Western mountain	30.6	36.8	28.1
Eastern hill	34.5	33.3	26.1
Central hill	25.3	22.9	21.4
Western hill	37.2	33.8	38.1
Mid-western hill	36.2	32.7	29.1
Far-western hill	37.0	31.4	30.2
Eastern terai	26.3	19.7	20.8
Central terai	32.7	29.2	22.4
Western terai	30.1	25.6	23.8
Mid-western terai	25.5	23.8	20.9
Far-western terai	32.2	27.1	14.4
Total	31.4	27.8	24.6

Unmet need is relatively higher in Nepal than in most South and Southeast Asian countries (Figure 7.6). The proportion of currently married women with unmet need for family planning ranges from a low of 5 percent in Vietnam to a high of 28 percent in Pakistan.

Figure 7.6
Unmet Need for Family Planning among Currently Married Women Age 15-49, South and Southeast Asia



8 CHILD HEALTH INDICATORS

Childhood mortality in general and infant mortality in particular is often used as broad indicators of social development or as specific indicators of health status. Trends in childhood mortality therefore contribute to a better understanding of a country's changing socioeconomic situation and quality of life. Because the Nepalese government is undertaking a number of interventions aimed at reducing childhood diseases and mortality, trend analyses provide an opportunity to evaluate the performance of these programs.

8.1 Early Childhood Mortality

Infant, child and under-five mortality rates obtained for the five years preceding the NDHS surveys confirm a declining trend in childhood mortality. Infant mortality declined from 79 deaths to 48 deaths per 1000 live births between the 1996 NFHS and the 2006 NDHS, while under-five mortality declined from 118 deaths to 61 deaths per 1000 live births over the same period, a drop of 39 percent and 48 percent, respectively. The data also show that child mortality declined by 67 percent during the same period, a more rapid decline than the decline in the other two childhood mortality rates (Figure 8.1).

Figure 8.1
Early Childhood Mortality Rates for the Five Years Preceding the Survey

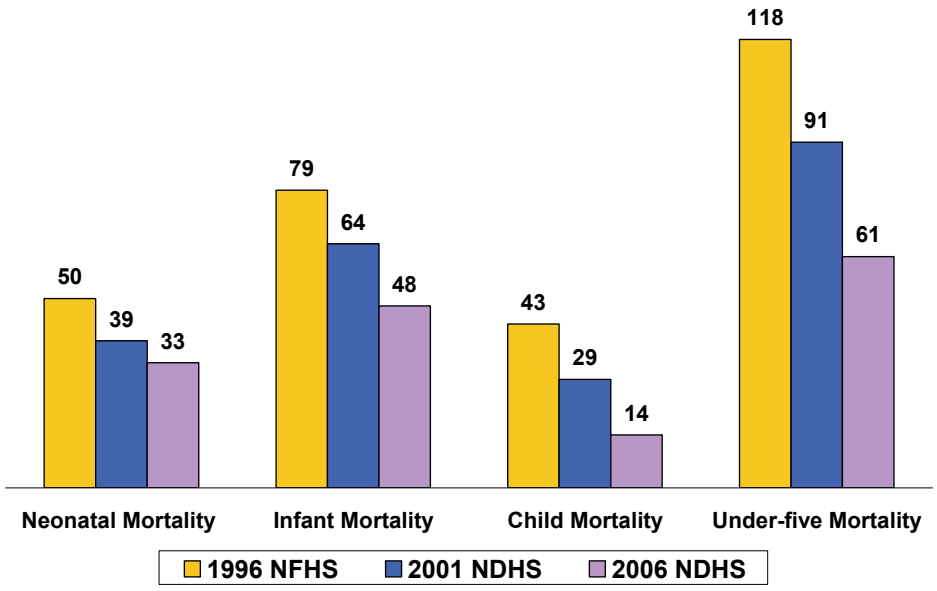


Figure 8.2 shows trends in infant mortality rates for the 10-year period preceding the surveys by residence and mother's education. The overall decline in infant mortality between the two surveys was more noticeable in urban areas than in rural areas. Similarly, the decline in infant mortality was more marked among women with secondary or higher level of education than among those with no education.

Figure 8.2
Infant Mortality Rates for the Ten Years Preceding the Survey, by Residence and Mother's Education

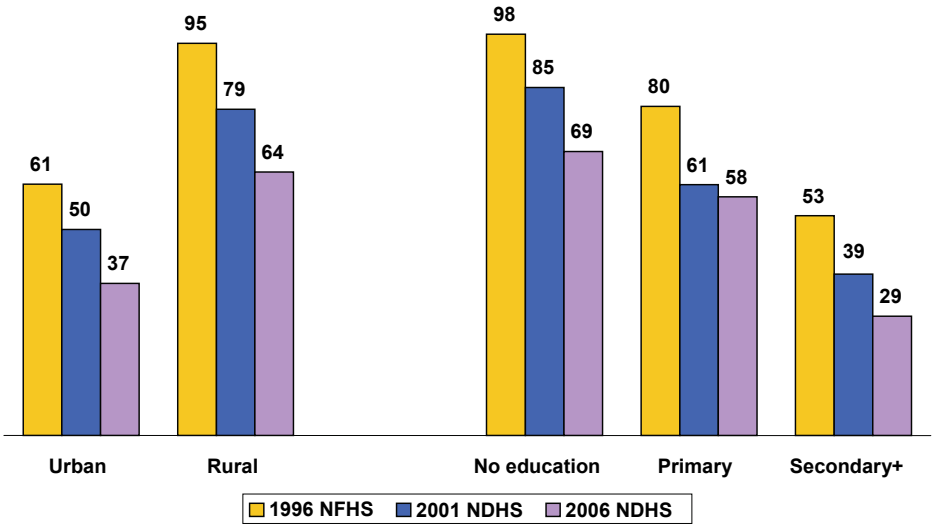


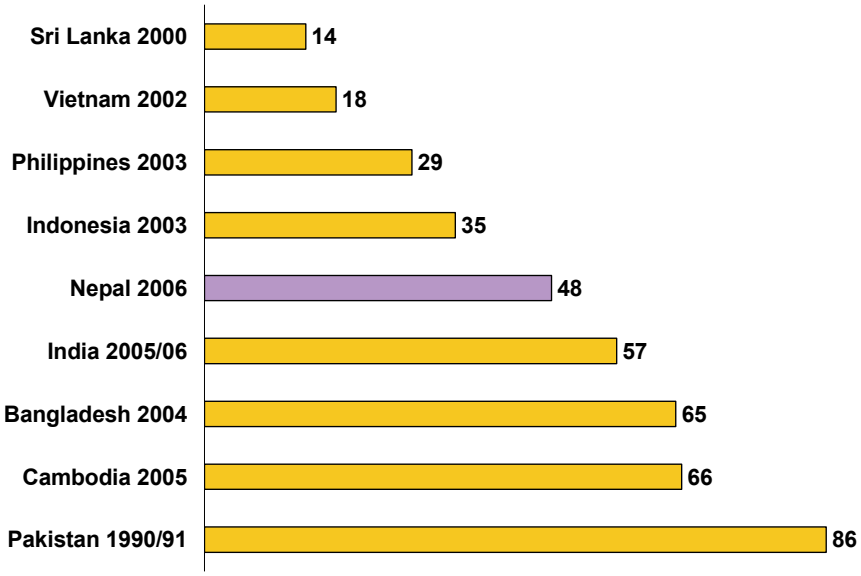
Table 8.1 shows that infant mortality declined in all the ecological regions, with the exception of the mid-western development region where infant mortality increased from 73 deaths per 1,000 live births to 97 deaths per 1,000 live births in the last five years.

Table 8.1
Infant Mortality Rate for the Ten Years Preceding the Survey, by Region

Regions	1996 NFHS	2001 NDHS	2006 NDHS
Ecological Region			
Mountain	136	112	99
Hill	87	66	47
Terai	91	81	65
Development Region			
Eastern	79	77	45
Central	86	77	52
Western	84	60	56
Mid-western	115	73	97
Far-western	124	112	74

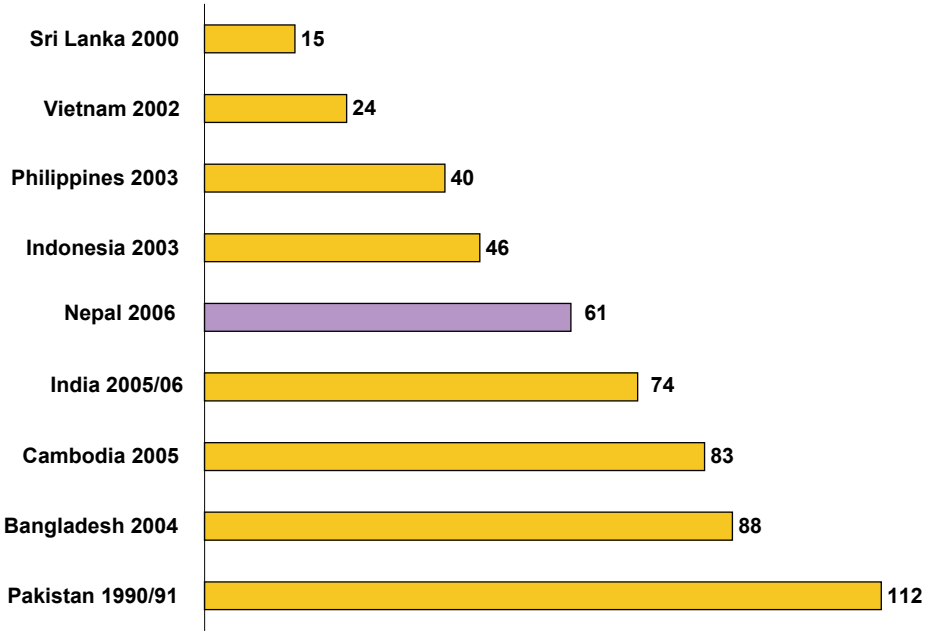
When compared with other countries in the region, Nepal falls midway with reference to childhood mortality (Figure 8.3). Infant mortality in Nepal is 71 percent higher than in Sri Lanka and 79 percent lower than in Pakistan.

Figure 8.3
Infant Mortality Rates, South and Southeast Asia



Under-five mortality in Nepal is higher than in Indonesia, Philippines, Vietnam and Sri Lanka. The under-five mortality in India, Cambodia, Bangladesh and Pakistan is higher than in Nepal (Figure 8.4).

Figure 8.4
Under-five Mortality Rates,
South and Southeast Asia



8.2 Child Immunization

Universal immunization of children from six vaccine-preventable diseases (tuberculosis, diphtheria, whooping cough, tetanus, polio, and measles) is crucial in reducing childhood mortality. Information on trends in vaccination coverage among children may give some indication of the success of Nepal's child immunization programs.

Figure 8.5 shows trends in the percentage of children 12-23 months who have received specific vaccines any time before the survey. The proportion of children who have received all vaccinations, that is, one dose of BCG, three doses each of DPT and polio and one dose of measles vaccination, almost doubled from 43 percent in 1996 to 83 percent in 2006. Similarly, the proportion of children who have received no vaccines decreased from 20 percent to 3 percent during the same period.

Figure 8.5
Percentage of Children 12-23 Months Who Received Specific Vaccines at Any Time Before the Survey

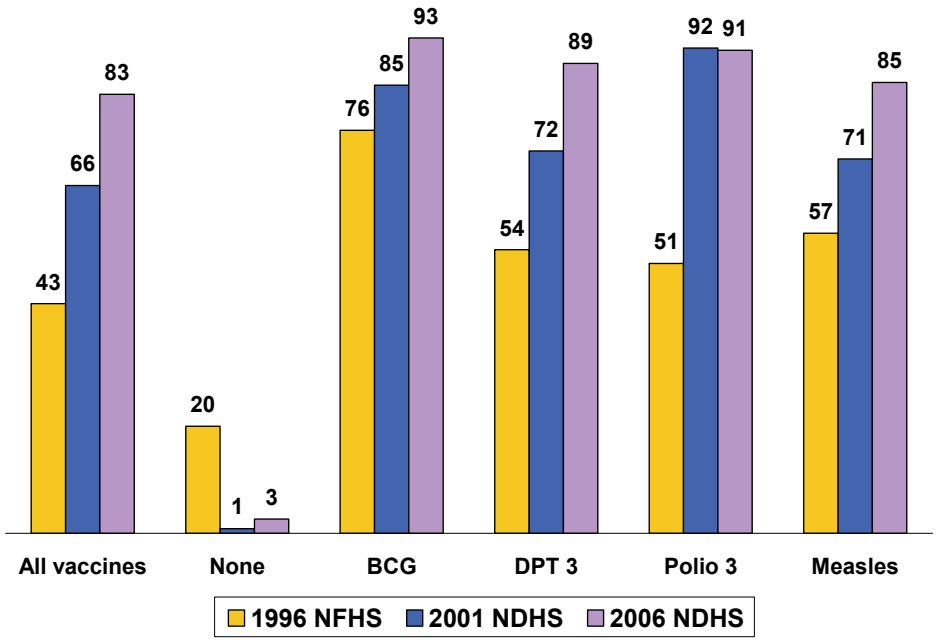
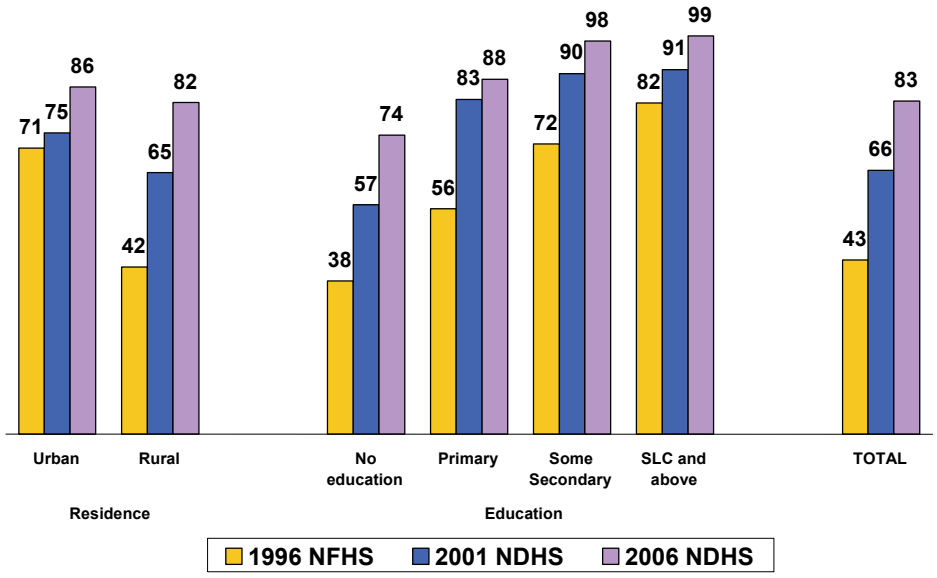


Figure 8.6 shows that the percentage of children receiving all vaccines increased in both rural and urban areas; however, the increase was higher in rural than in urban areas (98 percent versus 21 percent). Similarly, the increase in the proportion of children receiving all vaccines was highest among children of mothers with no education (95 percent) when compared with children of mothers with primary education (57 percent), some secondary (36 percent) and SLC and higher level of education (20 percent).

Figure 8.6
Percentage of Children 12-23 Months Who Received All Vaccines any time before the survey, by Residence and Mother's Education



Despite the overall increase in vaccination coverage among children, the proportion of children age 12-23 months fully immunized by the time of the survey decreased in two out of 13 subregions, between the 2001 NDHS and 2006 NDHS. The decline was marked in Central mountain (29 percent) while it was about 2 percent for mid-western hill subregion. On the contrary, the data also show that vaccination coverage increased by 71 percent in Western terai and by about 47 percent in Central terai during the same period (Table 8.2)

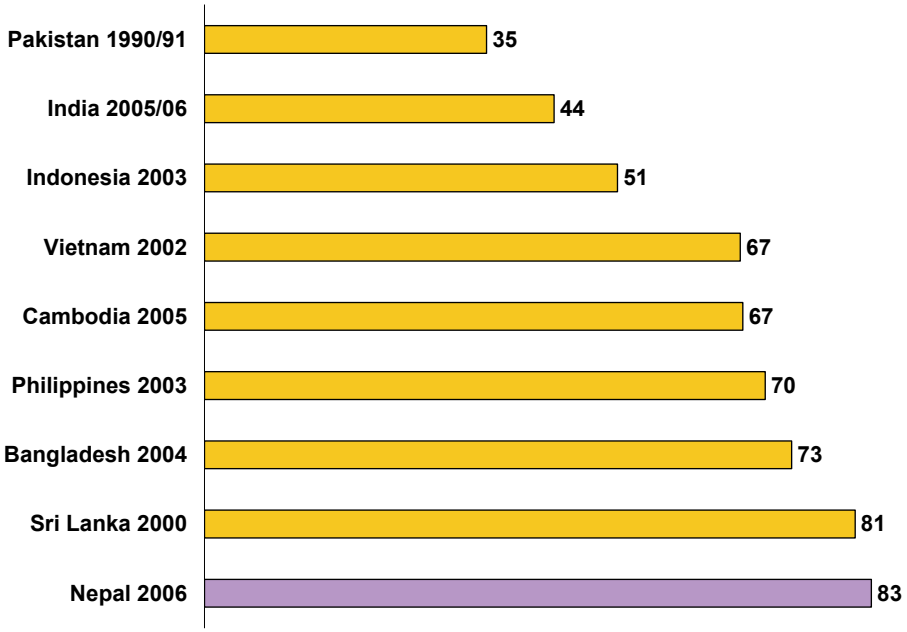
Table 8.2
Percentage of Children Age 12-23 Months Who Received All Vaccines, by Subregion

Subregion	1996 NFHS	2001 NDHS	2006 NDHS
Eastern mountain	35.6	(71.8)	83.8
Central mountain	51.5	76.8	(54.6)
Western mountain	26.3	49.3	70.8
Eastern hill	42.6	75.5	81.4
Central hill	67.9	68.5	82.1
Western hill	63.8	76.3	88.9
Mid-western hill	34.7	73.8	72.4
Far-western hill	23.8	47.6	71.6
Eastern terai	48.5	72.9	89.5
Central terai	26.1	53.2	78.1
Western terai	31.7	51.9	88.8
Mid-western terai	49.6	66.7	90.4
Far-western terai	45.3	81.8	94.4
Total	43.3	65.6	82.8

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

The improvement in immunization coverage in Nepal among children age 12-23 months in the past five years is commendable. Immunization coverage at 83 percent is highest in Nepal compared to other countries in the South and Southeast Asian region with coverage at 44 percent in India and 73 percent in Bangladesh (Figure 8.7).

Figure 8.7
Percentage of Children Age 12-23 Months Fully Immunized, South and Southeast Asia

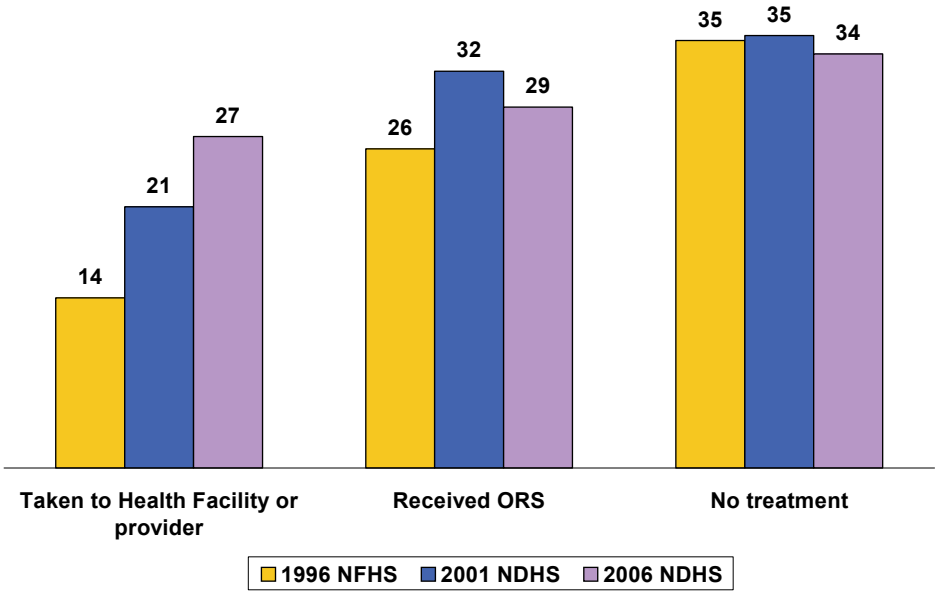


8.3 Treatment of Childhood Diseases

Prompt treatment of childhood diseases is an important element in improving the survival chances of young children. Dehydration associated with severe diarrhea is recognized as a major cause of morbidity and mortality among young children. A simple and effective response to dehydration is a prompt increase in the child's fluid intake through some form of oral rehydration therapy (ORT). ORT may include the use of a solution prepared from prepackaged oral rehydration salts (ORS) or the use of recommended home fluids (RHF) made at home from salt, sugar and water.

Figure 8.8 shows that among children under five years, who had diarrhea in the two weeks preceding the survey, there was a noticeable increase in the percentage of children who were taken to a health provider in the last ten years. Though treating with ORS or RHF over the first five years was encouraging, the proportion being treated by ORS has declined in 2006. At the same time, there was hardly any change in the percentage of children who did not receive any treatment.

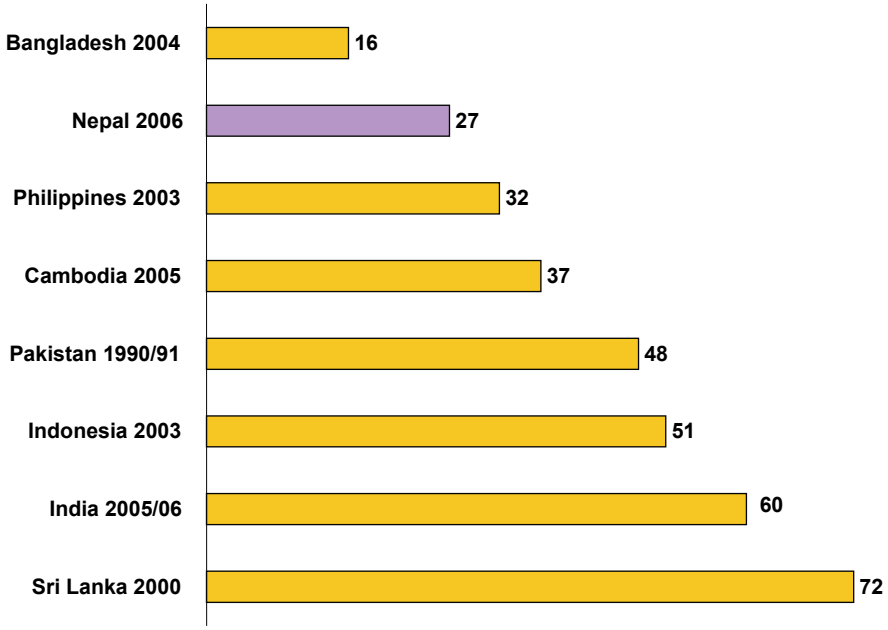
Figure 8.8
Percentage of Children under Age Five with Diarrhea, by Type of Treatments



Note: Health provider excludes pharmacy, shop and traditional practitioner.
ORS = Oral rehydration salts

Figure 8.9 compares Nepal with other South and Southeast Asian countries with respect to the percentage of children under age five with diarrhea in the two weeks preceding the survey and taken for treatment to a health provider. Relative to other countries in the region, a small percent of Nepalese children with diarrhea are taken to a health provider for treatment. The data show that children living in Bangladesh (16 percent) are least likely to be taken to a health provider for treatment than children in other countries.

Figure 8.9
Percentage of Children under Age Five with Diarrhea Taken to a Health Provider for Treatment, South and Southeast Asia



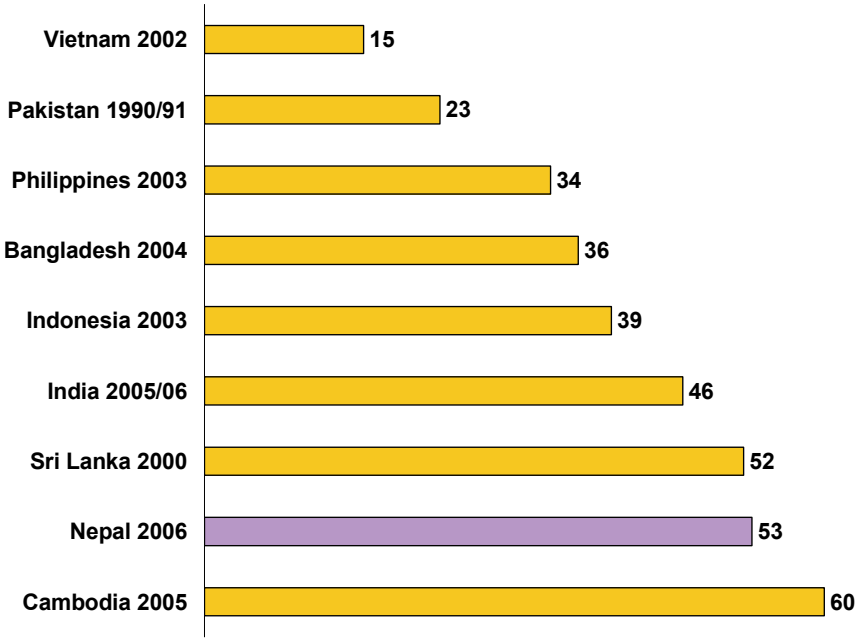
8.4 Nutritional Status of Children

Nutritional status is an important indicator of children's overall health and well-being. Childhood under-nutrition results from prolonged and improper treatment of illness and inadequate food intake, and undernourished children are at a greater risk of dying than well-nourished children. Further, improper feeding practices lead to under-nutrition in childhood. The NDHS 2006 collected information on breastfeeding practice and infant feeding, measurements of height and weight of children under-five, and anemia testing.

Though WHO and UNICEF recommend that children should be exclusively breastfed for the first six months of life and the National Nutrition Policy and Strategy 2004-05 further promotes this, only about half of the children of this age are exclusively breastfed in Nepal.

Figure 8.10 shows a similar situation in Sri Lanka (52 percent) and India (46 percent) where about one in two children under six months are exclusively breastfed as recommended.

Figure 8.10
Percentage of Children (<6 months) exclusively breastfed, South and Southeast Asia

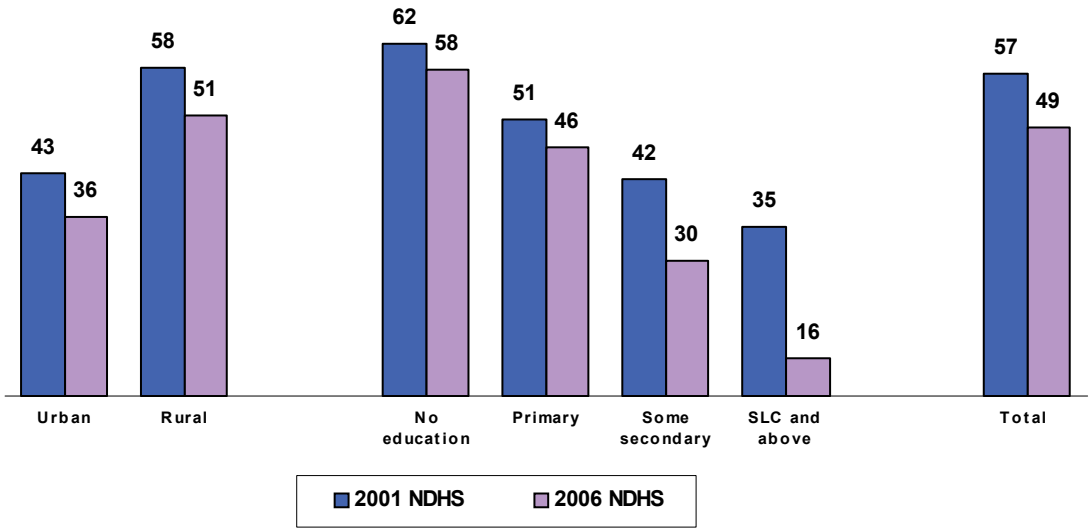


Anthropometric measurements were used to assess the nutritional status of children under-five years. The WHO Child Growth Standards, which are based on an international sample of ethnically, culturally, and genetically diverse healthy children living under optimum conditions, was used to determine the nutritional status in the 2006 NDHS. As the previous DHS surveys in Nepal used the standard reference of NCHS/CDC/WHO, these data were also run based on the current WHO Child Growth Standards for comparison. However, the comparison with other countries in the region has been done with the NCHS/CDC/WHO reference population as not all the countries have adopted the current WHO Child Growth Standards. In addition, the comparison of nutritional status of children under-five years has been limited to the last five years for Nepal, since the 1996 NFHS collected anthropometric measurements for children under three years. However, the 2006 data was recalculated restricting the data to children below three years to see changes in nutritional status (of children under three years) over the last ten years.

From the measurements of height and weight, three indices of nutritional status were calculated: height-for-age or stunting measures chronic malnourishment; weight-for-height or wasting measures acute malnourishment; and weight-for-age, a composite index of acute and chronic malnourishment, measures the percentage of children who are underweight.

Figure 8.11 shows a small improvement in the nutritional status of children as measured by the percentage of children under five years who are stunted, that is, whose height-for-age is below minus two standard deviations from the median of the reference population. The percentage of children stunted decreased from 57 percent in 2001 to 49 percent in 2006, and this decrease was seen among both urban and rural children and among all children regardless of the level of their mother's education. However, the decline is most pronounced for children of mothers with SLC and higher level of education.

Figure 8.11
Percentage of Children under Age Five Stunted, by Residence and Mother's Education (WHO Child Growth Standards)



There was a small increase in the overall percentage of children wasted during the past five years (Figure 8.12). Urban areas showed a slight decline in the proportion of children wasted in contrast to rural areas which showed a small increase.

Figure 8.12
Percentage of Children under Age Five Wasted, by Residence and Mother's Education (WHO Child Growth Standards)

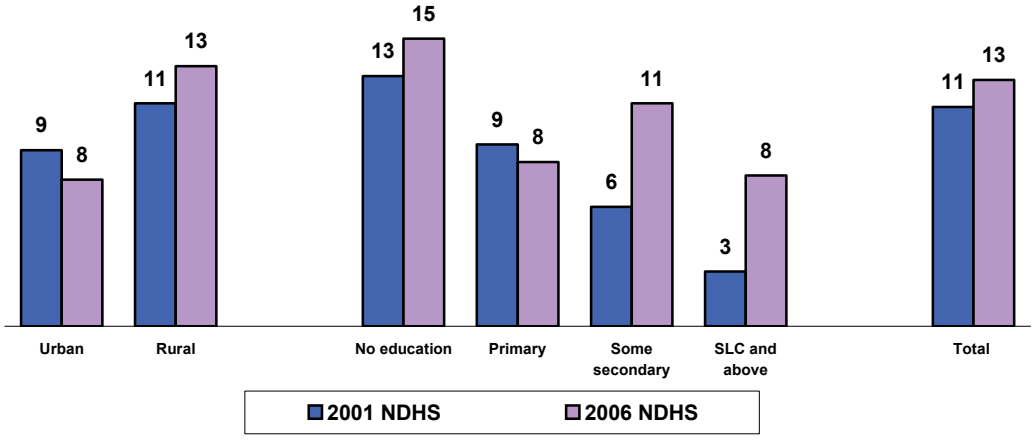
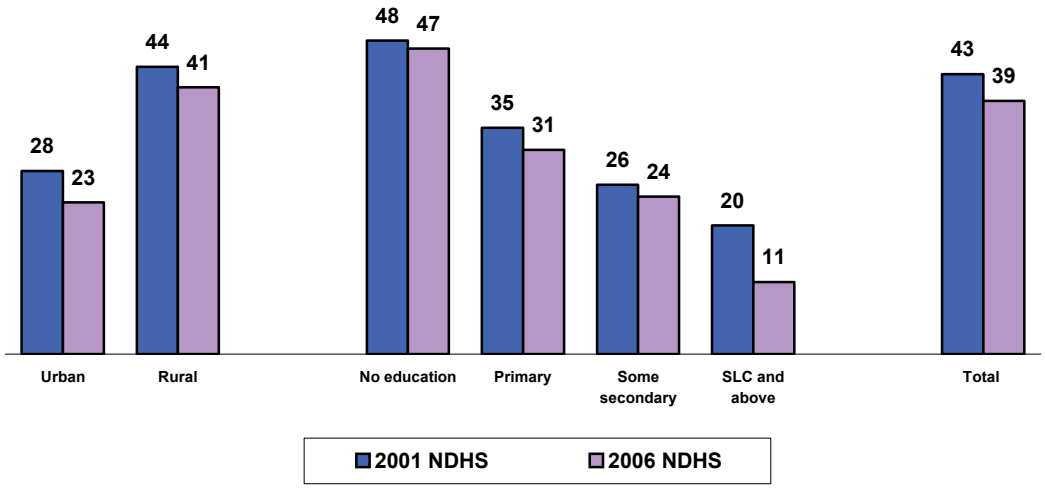


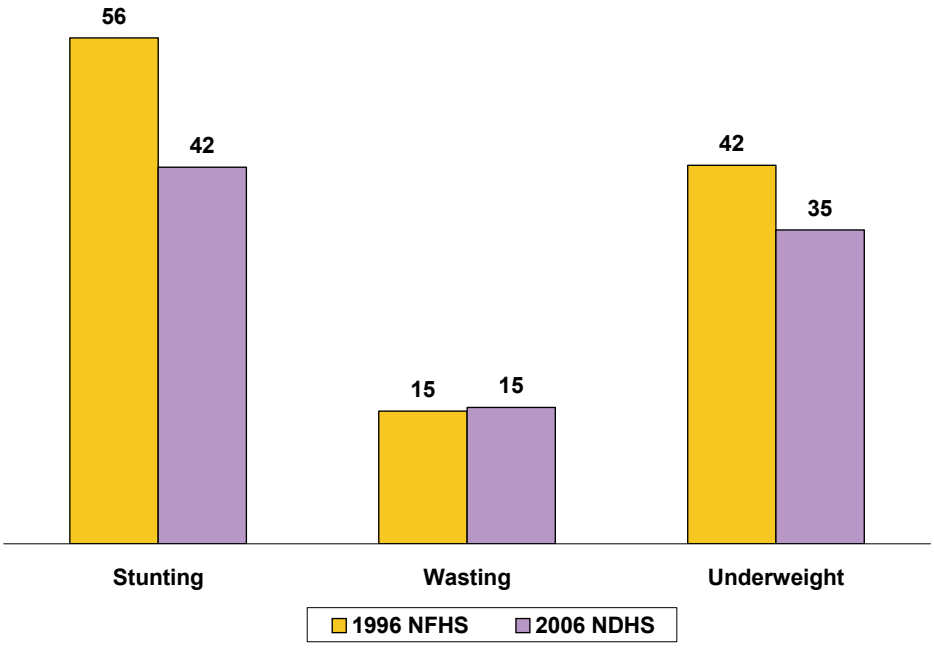
Figure 8.13 indicates a declining trend in the percentage of children underweight in the last five years. This was observed in urban and rural areas and among all children regardless of the level of mother's education, though slightly higher among children of mothers with SLC and higher education.

Figure 8.13
Percentage of Children under Age Five Underweight, by Residence and Mother's Education (WHO Child Growth Standards)



In order to assess changes over the last decade the nutritional status of children under-three years was also reviewed (Figure 8.14). There was a 33 percent decline in stunting among children under-three years in the last decade. Similarly, there was a 17 percent decrease in the percent of children under-three years who were underweight (from 42 percent in 1996 to 35 percent in 2006).

Figure 8.14
Percentage of Children under Age Three by Trends in Nutritional Status in a decade, 1996-2006 (WHO Child Growth Standards)



As mentioned earlier, the comparison of nutritional status of children in Nepal with other countries in South and Southeast Asia is based on the NCHS/CDC/WHO reference population. The findings indicate that despite the decrease over the last five years in the percentage of children stunted, Nepalese children are more likely than children in Sri Lanka (14 percent) and Cambodia (37 percent) to be stunted (Figure 8.15). Pakistan (50 percent) has higher rates of stunting among children under age five when compared with Nepal (43 percent).

Figure 8.15
Percentage of Children under Age Five Stunted, South and Southeast Asia

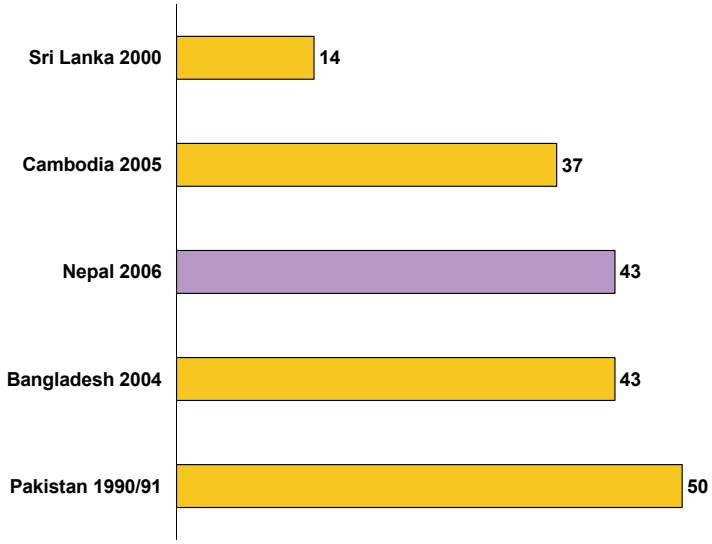


Figure 8.16 and Figure 8.17 compares Nepal with other countries in the South and Southeast Asian region with respect to the proportion of children under age five who are wasted and underweight. Data show that the proportions of Nepalese children wasted are high when compared with children in countries like Cambodia and Pakistan. The proportion of children wasted is twice as high in Nepal as in Cambodia, which has the lowest proportion of children wasted among the 5 countries being compared here. Similarly, the proportion of Nepalese children who are underweight is higher than in Cambodia (36 percent), Pakistan (40 percent) and Sri Lanka (29 percent).

Figure 8.16
Percentage of Children under Age Five Wasted, South and Southeast Asia

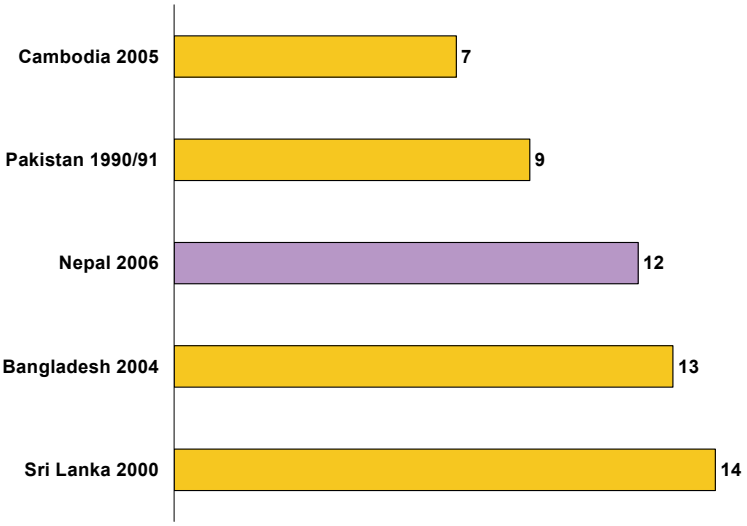
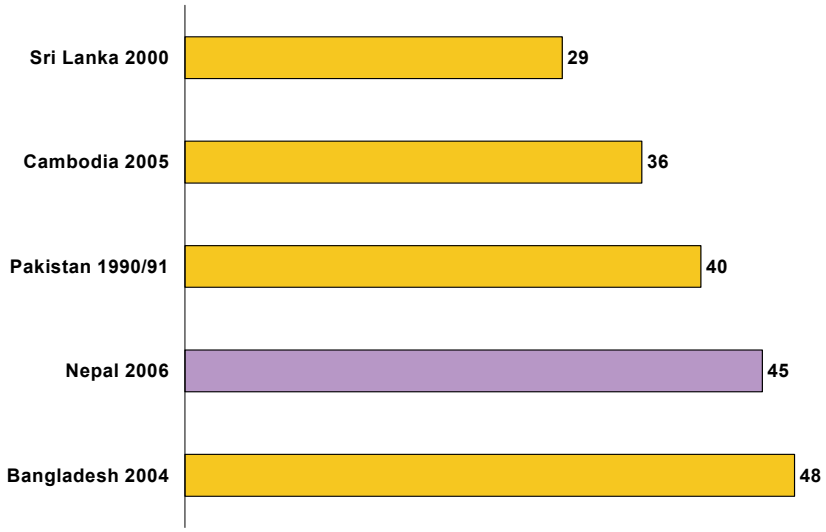


Figure 8.17
Percentage of Children under Age Five Underweight,
South and Southeast Asia

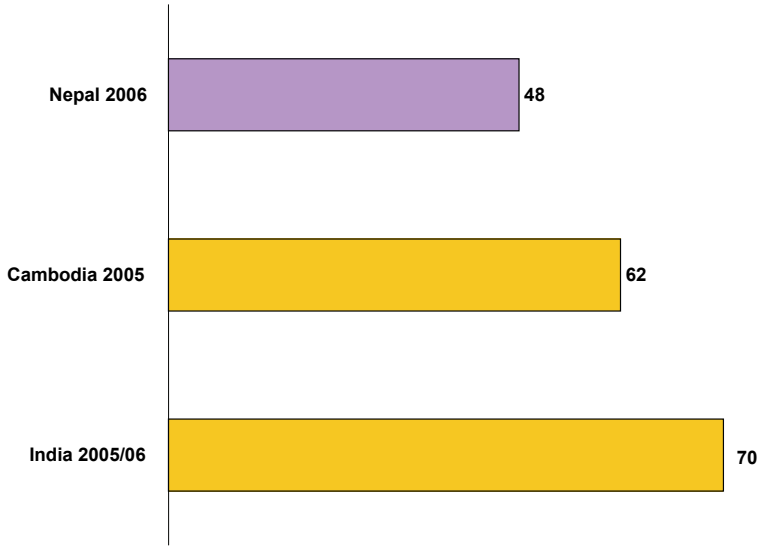


8.4.1 Anemia in Children

Iron deficiency anemia has been a public health problem for Nepal. The 2006 NDHS measured hemoglobin levels to identify anemia in children 6 to 59 months. Nearly one in two (48 percent) children in this age group is anemic. However, the proportion of children anemic has declined from 78 percent since 1998 as reported in the findings from the Nepal Micronutrient Status Survey.

When compared to Cambodia and India (for which similar data exist), Nepalese children are less anemic (Figure 8.18).

Figure 8.18
Percentage of Children (6-59 months) with Anemia, South and Southeast Asia



9 MATERNAL CARE

Child survival is directly linked to access to professional maternity care. In addition, there is overwhelming evidence to support the benefits of utilizing professional care for mothers.

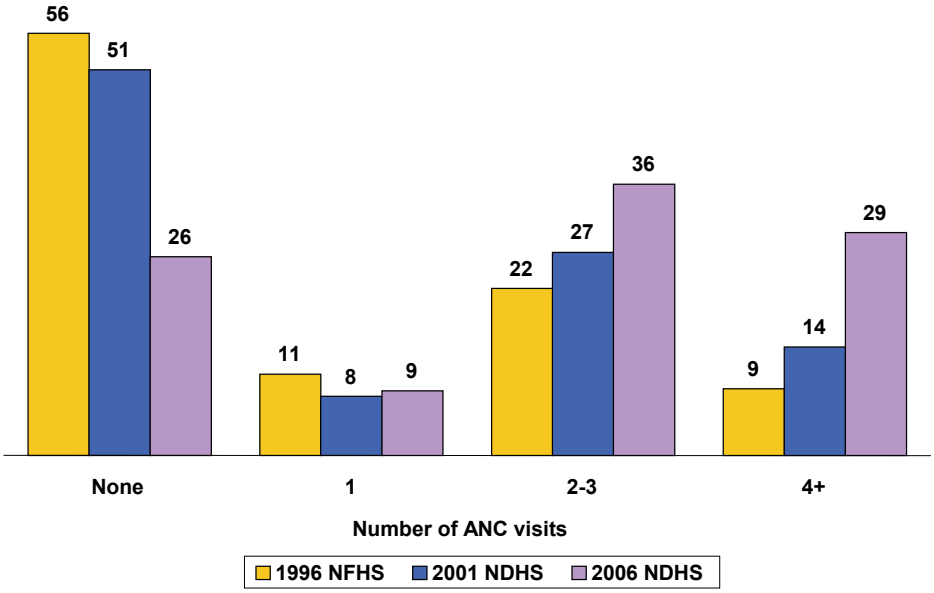
9.1 Antenatal Care and TT Coverage

Regular antenatal checkups from trained health providers are necessary to monitor the progress of a pregnancy and identify early on if a woman shows signs of complications. It is commonly recommended that a woman see a trained health provider at least four times during her pregnancy.

It can be noted that the data for the NFHS 1996 refers to all live births that occurred in the three years prior to the survey, whereas the data for 2001 and 2006 refer to the last live birth that occurred in the five years before the survey. Figure 9.1 shows a slight improvement in the utilization of antenatal care services by pregnant women in the ten years between the 1996 and 2006 surveys.

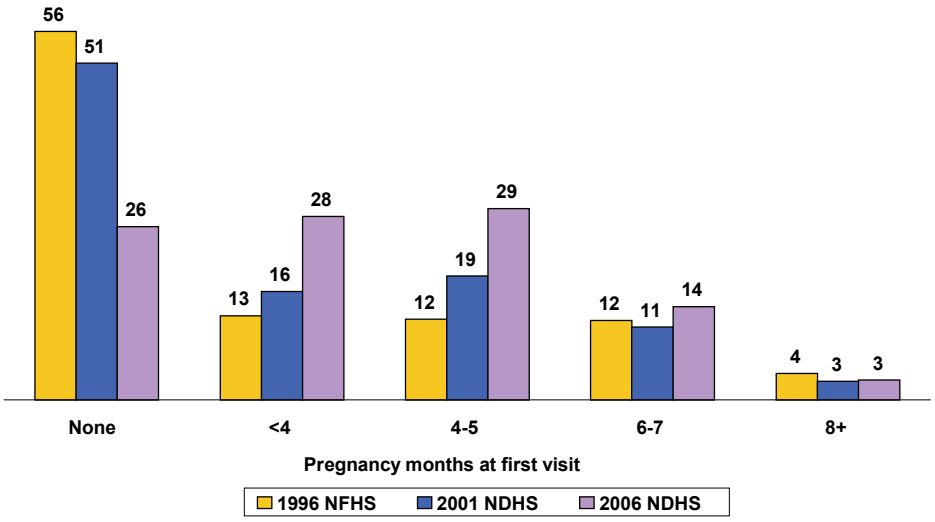
The data show that there was a marked decline (53 percent) in the percentage of women who did not go for an ANC visit in last ten years. The percentage of women who made four or more ANC visits increased from 9 percent to 29 percent during the same period. In addition, there was a marked improvement in the percentage of women who had ANC visits early on during the last pregnancy. It is recommended that women should have their first antenatal visit within 4 months of pregnancy. This proportion has increased from 13 percent to 28 percent over the past decade (Figure 9.2).

Figure 9.1
Percentage of Women Who Had a Live Birth in the Five Years Preceding the Survey, by Number of ANC Visits for the Most Recent Birth



Note: For women with two or more live births in the five years preceding the survey, data refer to the most recent birth for 2001 and 2006 surveys. However, in case of 1996 NFHS the reference point is for three years prior to the survey and includes all live births.

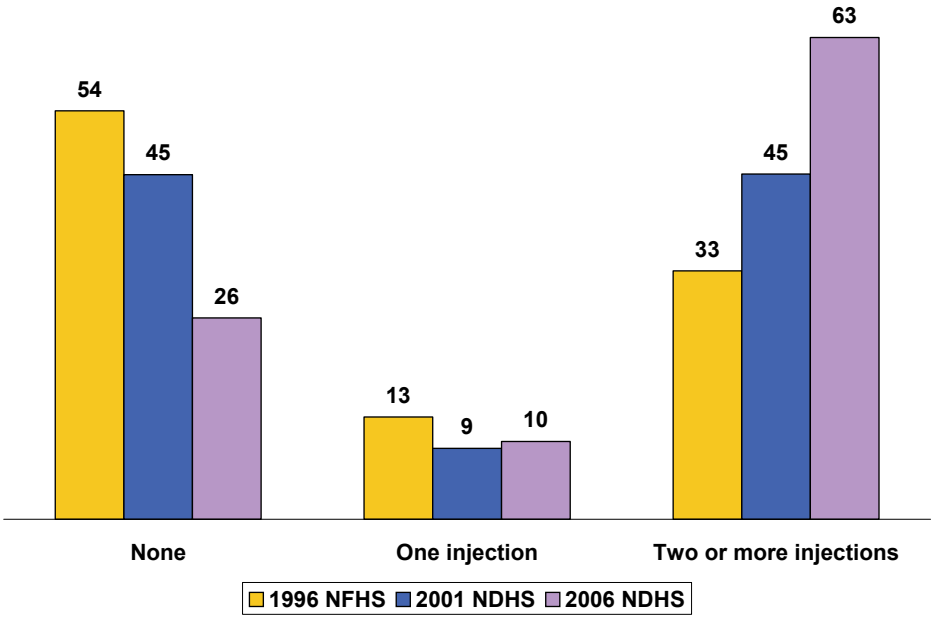
Figure 9.2
Percentage of Women Who Had a Live Birth in the Five Years Preceding the Survey, by Months Pregnant during first ANC Visit for the Most Recent Birth



Note: For women with two or more live births in the five years preceding the survey, data refer to the most recent birth for 2001 and 2006 surveys. However, in case of 1996 NFHS the reference point is for three years prior to the survey and includes all live births.

The percentage of women receiving two or more doses of tetanus toxoid injections during pregnancy has increased significantly over the decade from 33 percent in 1996 to 63 percent in 2006. At the same time, there has been a significant decline in the percentage of women who were not protected against neonatal tetanus over the same period.

Figure 9.3
Percentage of Women Who Had a Live Birth in the Five Years Preceding the Survey, by Number of Tetanus Toxoid Injections Received During the Most Recent Birth



Note: For women with two or more live births in the five years preceding the survey, data refer to the most recent birth for 2001 and 2006 surveys. However, in case of 1996 NFHS the reference point is for three years prior to the survey and includes all live births.

Table 9.1 shows noticeable changes by subregion in ANC coverage during the last ten years. Data show that there has been a decline in the proportion seeking ANC in 2001 in some subregions, like the mountain subregions and Mid and Far-western hill subregions, but an improvement for these subregions in 2006. The percentage increase in the past five years is highest in Western mountain with more than a four-fold rise. However, ANC coverage decreased in Eastern hill (by 11 percent) and Far-western terai (by 34 percent).

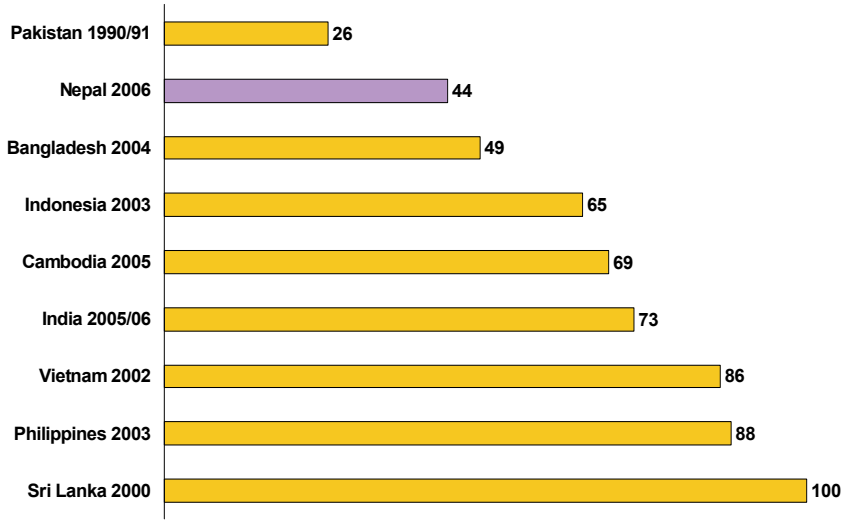
Table 9.1
Percentage of Women with a Live Birth in the Five Years Preceding the Survey Who Received ANC from a Skilled Birth Attendant for the Last Pregnancy, by Subregion

Subregion	1996 NFHS	2001 NDHS	2006 NDHS
Eastern mountain	23.4	15.6	29.4
Central mountain	23.1	17.9	39.7
Western mountain	7.5	7.3	31.1
Eastern hill	19.0	29.8	26.5
Central hill	33.7	35.4	64.2
Western hill	31.9	36.0	54.6
Mid-western hill	9.7	7.4	28.7
Far-western hill	14.7	10.7	25.0
Eastern terai	26.0	38.3	55.8
Central terai	18.3	22.8	33.4
Western terai	29.5	35.1	46.0
Mid-western terai	21.5	33.5	63.5
Far-western terai	37.7	44.0	29.1
Total	23.6	27.9	43.7

Note: For women with two or more live births in the five years preceding the survey, data refer to the most recent birth for 2001 and 2006 surveys. However, in case of 1996 NFHS the reference point is for three years prior to the survey and includes all live births.

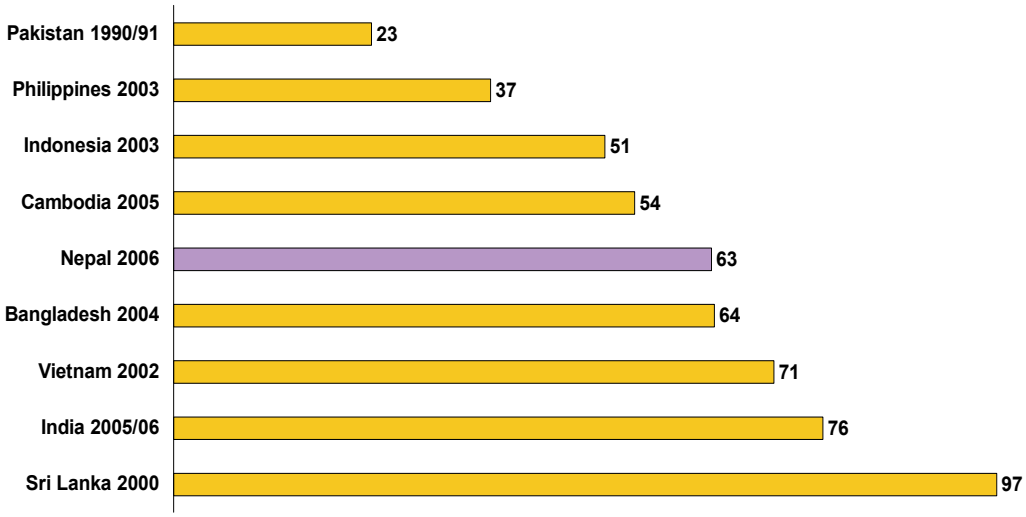
Women in Nepal are less likely to receive ANC from health professional (doctors, nurse/midwife) than women in the other countries of the region, with ANC coverage ranging from a low of 26 percent in Pakistan to a high of 100 percent in Sri Lanka (Figure 9.4).

Figure 9.4
Percentage of Women Receiving ANC Service from Health Professional, South and Southeast Asia



The proportion of Nepalese women who received at least two doses of tetanus toxoid (TT) injection during their most recent pregnancy is similar to that in Bangladesh (64 percent) with about two in three women receiving at least two doses of tetanus toxoid (TT) injection during their most recent pregnancy (Figure 9.5).

Figure 9.5
Percentage of Women Receiving Two or More Doses of TT Injection During Most Recent Pregnancy, South and Southeast Asia

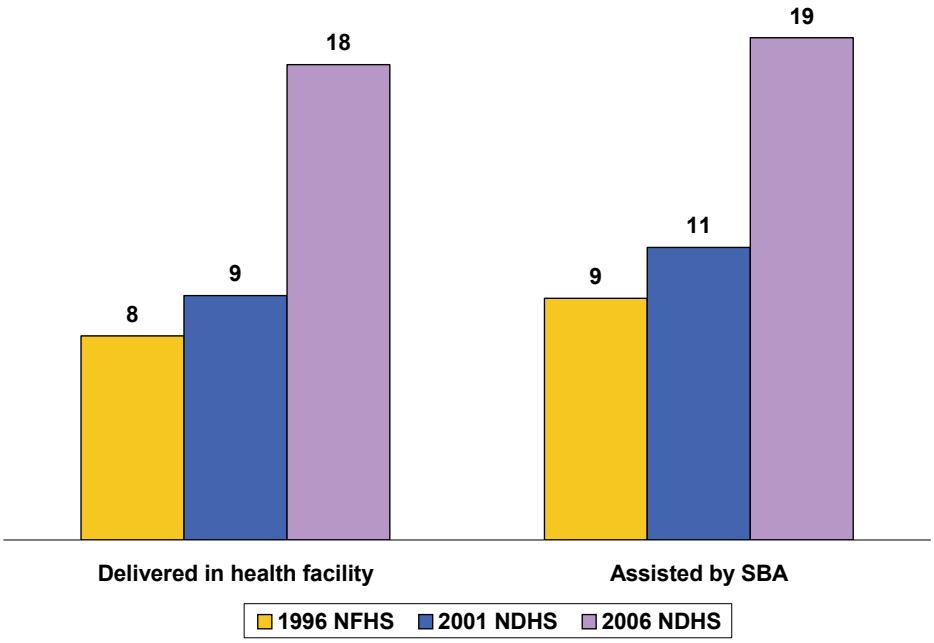


9.2 Place of Delivery and Attendance during Childbirth

An important contributor to lowering pregnancy-related health risks to mothers and children is increasing the proportion of babies delivered in a health facility and under the supervision of health professionals. Figure 9.6 presents trends in the percentage of live births in the ten years preceding the survey by place of delivery and by type of person providing assistance.

An overwhelming majority of births in Nepal continue to take place at home and without the assistance of a skilled birth attendant (SBA), that is, a doctor, nurse or midwife. The data show that the percentage of births delivered under the supervision of a SBA has increased from 9 percent in 1996 to 11 percent in 2001 and to 19 percent in 2006. Similarly, the practice of delivering in a health facility has increased from 8 percent in 1996 to 18 percent in 2006 (Figure 9.6).

Figure 9.6
Percentage of Live Births in the Five Years Preceding the Survey, by Place of Delivery and Person Assisting at Delivery



Note: For women with two or more live births in the five years preceding the survey, data refer to the most recent birth for 2001 and 2006 surveys. However, in case of 1996 NFHS the reference point is for three years prior to the survey and includes all live births.

Figure 9.7 shows that among the South and Southeast Asian countries, Nepal ranks low in terms of delivery assistance from a health professional. The percentage of births delivered by a health professional is 5 times higher in Sri Lanka (96 percent) than in Nepal (19 percent). Similarly, the proportion of births delivered in a health facility is 5 times lower than in Sri Lanka. However, Nepal fares better than Bangladesh and Pakistan (Figure 9.8).

Figure 9.7
Percentage of Births in the Five Years Preceding the Survey, Delivered by a Health Professional, South and Southeast Asia

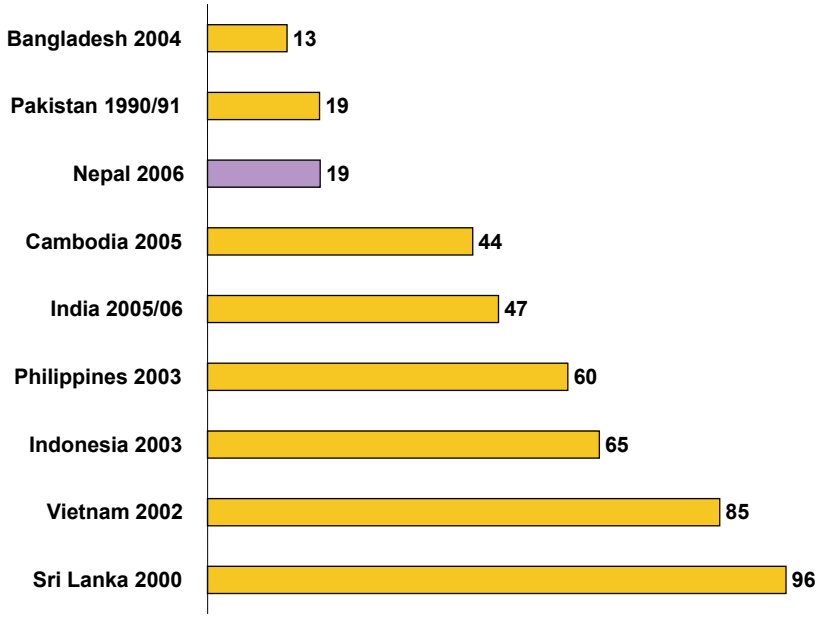
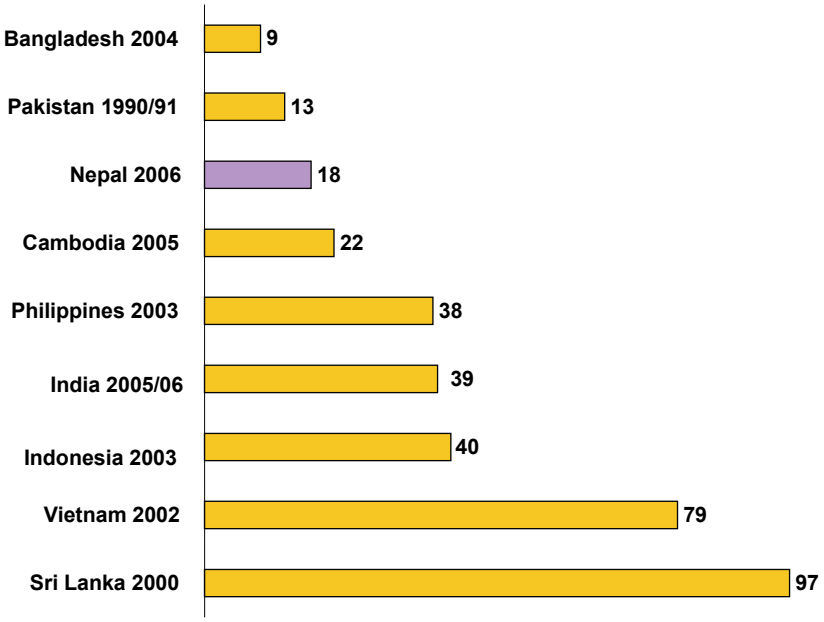


Figure 9.8
Percentage of Births in the Five Years Preceding the Survey, Delivered in a Health Facility, South and Southeast Asia

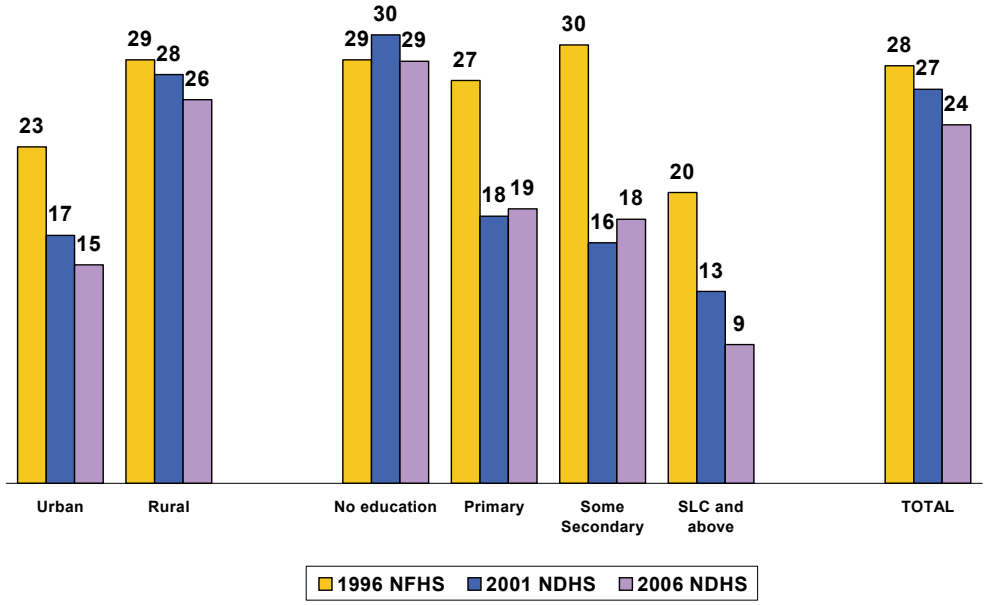


9.3 Nutritional Status

Maternal nutritional status has important implications for the health of both mothers and children. Women in poor nutritional health face a greater risk of an adverse pregnancy and are more likely to give birth to children who are not healthy. The body mass index (BMI) is an important indicator of adult nutritional status, and is defined as the weight in kilograms divided by the height squared in metres (kg/m^2). A cut-off point of 18.5 is used to define thinness or acute under-nutrition and a BMI of 25 or above usually indicates overweight or obesity.

Although the proportion of women age 15-49 years who are malnourished declined by 14 percent during the past ten years, almost a quarter of women have a BMI below the cutoff of 18.5. The decline in the percentage of women with chronic energy deficiency was somewhat higher in urban than rural areas and among women with SLC and higher level of education than women with little or no education (Figure 9.9).

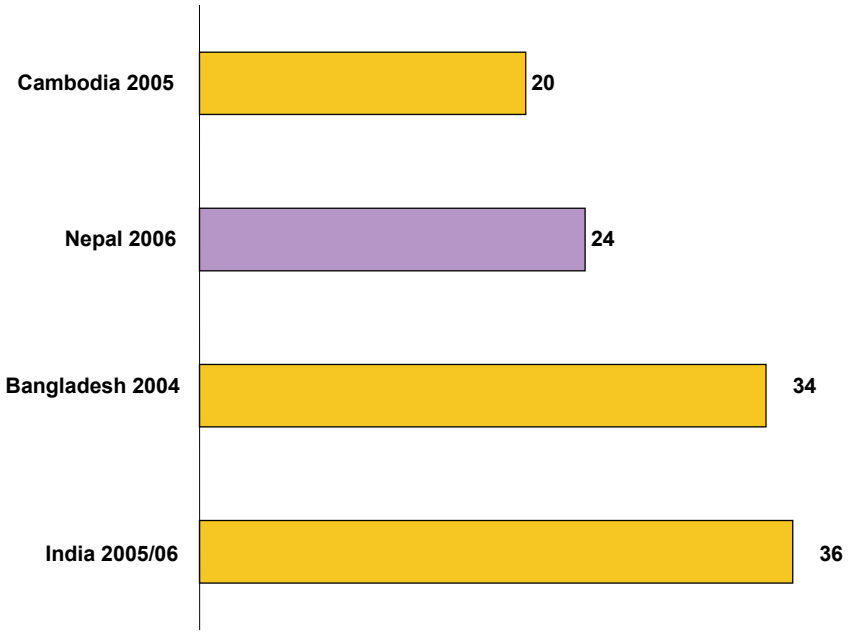
Figure 9.9
Percentage of Ever-married Women Age 15-49 with a Low Body Mass Index (BMI <18.5 Kg/M²), by Residence and Education



Note: Excludes pregnant women and those who had a birth in the two months before the survey.
In case of 1996 NFHS the status is for women with a birth in the three years before the survey.

Figure 9.10 compares the proportion of nonpregnant women in the reproductive age group who are malnourished in Nepal with other South and Southeast Asian countries. The data show that acute under-nutrition among Nepalese women is higher than in Cambodia but lower than in Bangladesh (34 percent) and India (36 percent).

Figure 9.10
Percentage of Non-pregnant Women Age 15-49 with a Low Body Mass Index (BMI<18.5 Kg/M²), South and Southeast Asia



Note: Excludes pregnant women and those who had a birth in the two months before the survey.

9.3.1 Anemia in Women

The 2006 NDHS measured anemia level among women 15-49 years. The findings indicate that there has been an improvement in the anemia level among women since 1998, when two-thirds of all women were anemic. The 2006 NDHS indicated that about one in three women in Nepal are anemic, a decline by 47 percent (from 68 percent to 36 percent).

Nepalese women fare better than women in Cambodia (47 percent) and India (55 percent) for which similar data are available (Figure 9.11).

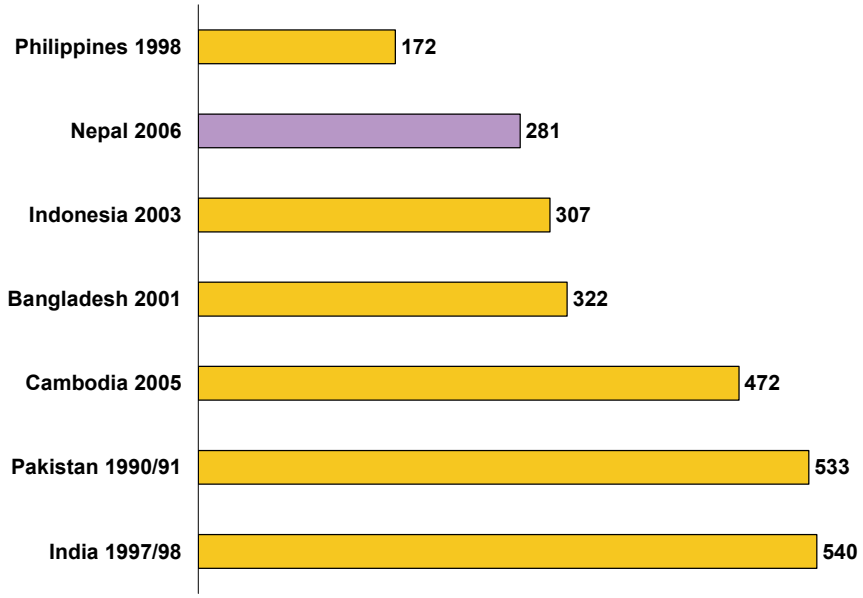
Figure 9.11
Percentage of women 15-49 years with Anemia status, South and Southeast Asia

9.4 Maternal Mortality

Improved maternal health lowers maternal mortality. This is clearly seen in the trend in maternal mortality data collected in the 1996 and 2006 surveys. The maternal mortality ratio has declined by almost 50 percent from 539 per 100,000 live births in 1996 to 281 per 100,000 live births in a decade.

Due to the lack of updated information on the maternal mortality ratio in the different countries of the region, the comparison with Nepal is limited to available data from different time periods. Caution has to be exercised when comparing maternal mortality data across different countries and across different time periods, since this measure is subject to large sampling errors and reporting bias. Figure 9.12 indicates that maternal mortality in Nepal is relatively low when compared with most of the South and Southeast Asian countries with the exception of the Philippines.

Figure 9.12
Maternal Mortality Ratio (MMR), South and Southeast Asia



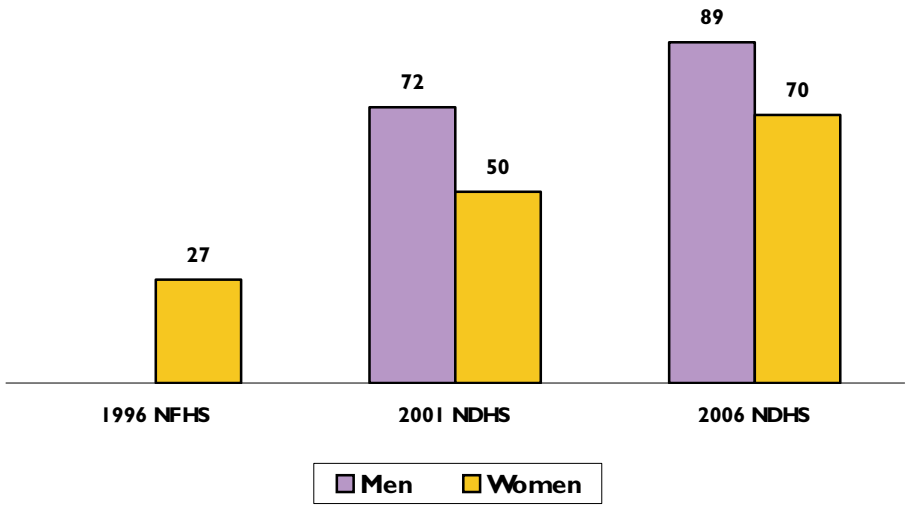
Note: Maternal mortality ratio expressed per 100,000 live births

10 HIV/AIDS

10.1 Knowledge on HIV/AIDS

The 2006 NDHS collected information on knowledge of HIV/AIDS and attitude and behavior towards people living with HIV/AIDS (PLHA). As the decade passed with tremendous efforts put forth by the government towards raising awareness about HIV/AIDS, the proportion of men and women with knowledge on HIV/AIDS has risen substantially. The percentage of ever-married women age 15-49 who has heard of HIV/AIDS has increased by two and half times within a decade. As men were not interviewed in 1996, data shows changes for the last 5 years only. There was a 21 percent increase in the percentage of ever-married men who have heard of HIV/AIDS between 2001 and 2006.

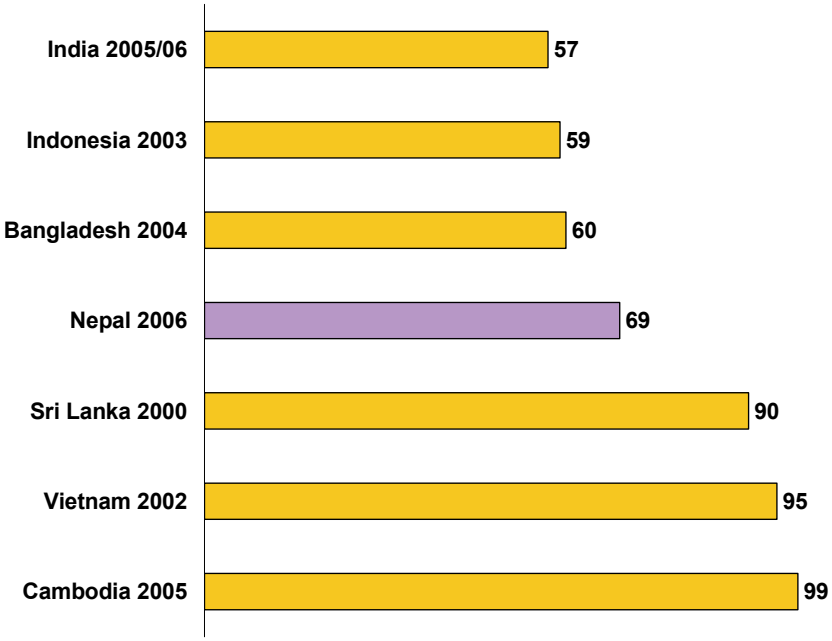
Figure 10.1
Percentage of Ever-married Women Age 15-49 and Men 15-59
Who has ever heard of AIDS



Note: In case of 1996 NFHS, information was not collected for men.

Ever-married women in Nepal are more likely than women in India, Indonesia and Bangladesh to have heard about HIV/AIDS (Figure 10.2).

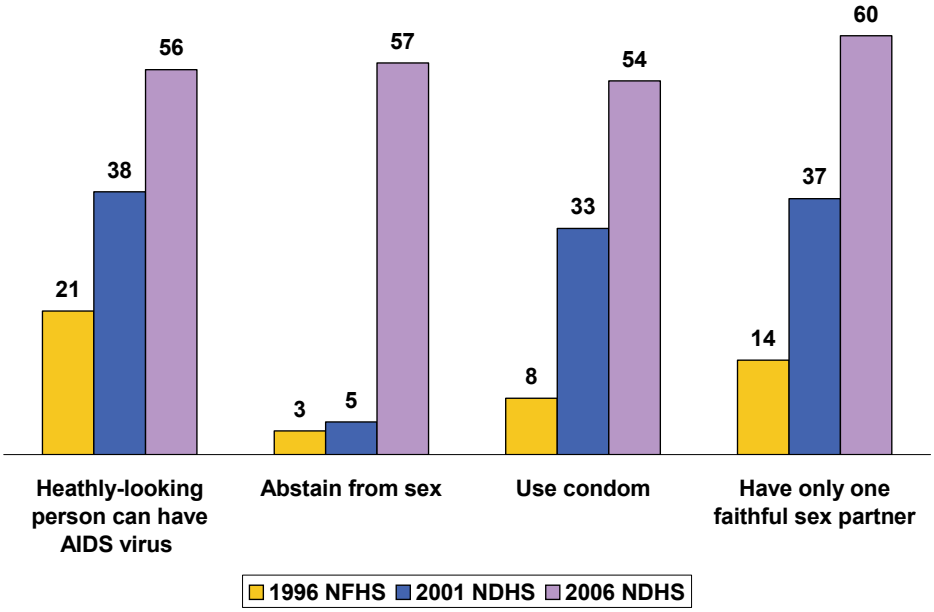
Figure 10.2
Percentage of Ever-married Women Age 15-49 Who has Ever Heard of AIDS, South and Southeast Asia



10.2 Perception about HIV/AIDS

Data from the three surveys can be used to compare trends in the knowledge and perception about HIV/AIDS prevention among women and men in the reproductive age group. Figure 10.3 indicates that there has been substantial improvement in the knowledge and perception about HIV prevention. For instance, the percentage of women stating that a healthy looking person could have HIV/AIDS rose by more than two and half times within a decade. A similar trend is seen with respect to the percentage mentioning abstinence, condom use and having one uninfected sex partner as a means of preventing the contraction of HIV/AIDS. It can be noticed that the rise has been marked in the first five years (1996-2001) and the trend maintained in the later five years (2001-2006).

Figure 10.3
Percentage of Ever-married Women Age 15-49 with their Perception on prevention of HIV/AIDS



REFERENCES

Badan Pusat Statistik-Statistics Indonesia (BPS) and ORC Macro. 2003. *Indonesia Demographic and Health Survey 2002-2003*. Calverton, Maryland, USA: BPS and ORC Macro.

Central Bureau of Statistics (CBS) [Nepal]. 2001. *Report on the Situation of Women, Children and Households: Between Census Household Information, Monitoring and Evaluation System (BCHIMES) March-May 200*0. Kathmandu, Nepal: Central Bureau of Statistics, National Planning Commission, UNICEF Nepal.

Central Bureau of Statistics (CBS) [Nepal]. 2003. *Population Monograph of Nepal Vol I.* Kathmandu, Nepal: Central Bureau of Statistics.

Central Bureau of Statistics (CBS) [Nepal]. 2004. *Nepal Living Standards Survey 2003/04,* Statistics Report, Vol. 1 and 2. Kathmandu, Nepal: Central Bureau of Statistics.

Central Bureau of Statistics (CBS) [Nepal]. 2006a. *Nepal in Figures.* Kathmandu, Nepal: Central Bureau of Statistics.

Central Bureau of Statistics (CBS) [Nepal]. 2006b. *Statistical Pocket Book.* Kathmandu, Nepal: Central Bureau of Statistics.

Central Bureau of Statistics (CBS) [Nepal]. 2006c. *MDG Indicators of Nepal, 1990/91-2005/06.* Kathmandu, Nepal. Central Bureau of Statistics, National Planning Commission.

Department of Health Services (DOHS) [Nepal]. 2006. *National Nutrition Policy and Strategy 2061 Paush.* Kathmandu, Nepal: Nutrition Section, Child Health Division, Department of Health Services, Ministry of Health and Population.

Department of Census and Statistics. 2002. *Sri Lanka Demographic and Health Survey 2000.* Department of Census and Statistics in Collaboration with Ministry of Health, Nutrition and Welfare, Colombo.

International Institute of Population Sciences (IIPS) and Macro International. 2007. *National Family Health Survey (NFHS-3), 2005-2006. India: Volume I,* Mumbai: IIPS.

Ministry of Health (MOH) [Nepal]. 199*8. Nepal Micronutrient Status Survey (NMSS) 1998.* Kathmandu, Nepal: Ministry of Health, Child Health Division, HMG/N, New ERA, Micronutrient Initiative, UNICEF Nepal, and WHO.

Ministry of Health [Nepal], New ERA, and ORC Macro. 2002. *Nepal Demographic and Health Survey 2001.* Calverton, Maryland, USA: Family Health Division, Ministry of Health; New ERA; and ORC Macro.

Ministry of Health and Population (MOHP) [Nepal]. 2005. *Five Year Plan of Action for the Control of Anemia among Women and Children in Nepal 2062/63-2066/67 (2005/06-2009/10].* Kathmandu, Nepal: Nutrition Section, Child Health Division, Department of Health Services, Ministry of Health and Population.

Ministry of Health and Population (MOHP) [Nepal]. 2006. *Annual Report. Department of Health Services 2061/62 (2004/2005).* Kathmandu, Nepal: Ministry of Health and Population.

Ministry of Health and Population (MOHP) [Nepal], New ERA, and Macro International Inc. 2007. *Nepal Demographic and Health Survey 2006.* Kathmandu, Nepal: Ministry of Health and Population, New ERA, and Macro International Inc.

Ministry of Population and Environment (MOPE) [Nepal] and Central Bureau of Statistics (CBS) [Nepal]. 2003. *Population Projections for Nepal, 2001-2021.* Kathmandu, Nepal.

National Institute of Population Research and Training (NIPORT), ORC Macro, Johns Hopkins University and ICDDR, B. 2003. *Bangladesh Maternal Health Services and Maternal Mortality Survey 2001.* Dhaka, Bangladesh and Calverton, Maryland, USA: NIPORT, ORC Macro, Johns Hopkins University, and ICDDR, B.

National Institute of Population Research and Training (NIPORT) [Bangladesh], Mitra and Associates, and ORC Macro. 2005. *Bangladesh Demographic and Health Survey 2004.* Dhaka Bangladesh and Calverton, Maryland, USA: National Institute of Population Research and Training, Mitra and Associates, and ORC Macro.

National Institute of Population Studies [Pakistan], Federal Bureau of Statistics, IRD/Macro International Inc. 1990-91. *Pakistan Demographic and Health Survey 1990-91.* Pakistan and Calverton, Maryland, USA: National Institute of Population Studies, and Macro International Inc.

National Institute of Public Health, National Institute of Statistics [Cambodia] and ORC Macro. 2006. *Cambodia Demographic and Health Survey 2005.* Phnom Penh, Cambodia and Calverton, Maryland, USA: National Institute of Public Health, National Institute of Statistics and ORC Macro.

National Planning Commission (NPC) [Nepal]. 2002. *Tenth Plan (2002-2007).* Kathmandu, Nepal: National Planning Commission.

Pradhan, A., R.H. Aryal, G. Regmi, B. Ban, and P. Govindasamy. 1997. *Nepal Family Health Survey 1996.* Kathmandu, Nepal, and Calverton, Maryland: Ministry of Health [Nepal], New ERA, and Macro International Inc.

Save the Children/US. 2002. *State of the World's Newborns: Nepal, Saving Newborn Lives.* Kathmandu, Nepal: Save the Children.

United Nations Children's Fund (UNICEF). 2006a. *Situation of Children and Women in Nepal.* Kathmandu, Nepal: United Nations Children's Fund.

United Nations Development Program (UNDP). 2004. *Nepal Human Development Report 2004.* Kathmandu, Nepal: United Nations Development Program, Kathmandu.

World Health Organization (WHO) Multicentre 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: World Health Organization.