India

National Family Health Survey (NFHS-2)

1998-99

International Institute for Population Sciences

MEASURE *DHS+*
ORC MACRO

World Summit for Children Indicators: India, 1998–99		
BASIC INDICATORS		
Childhood mortality	Infant mortality rate	68 per 1,000
	Under-five mortality rate	95 per 1,000
Childhood malnutrition	Percent stunted (children 0–35 months)	45.5
	Percent wasted (children 0–35 months)	15.5
	Percent underweight (children 0–35 months)	47.0
Clean water supply	Percent of households within 15 minutes of a safe water supply[1]	62.3
Sanitary excreta disposal	Percent of households with flush toilets	24.0
Basic education	Percent of women age 15–49 with completed primary education	44.4
	Percent of men age 15–49 with completed primary education	68.9
	Percent of girls age 6–12 attending school	76.5
	Percent of boys age 6–12 attending school	84.7
	Percent of women age 15–49 who are literate	50.8
Children in especially difficult situations	Percent of children age 0–14 who live in single adult households	2.3
SUPPORTING INDICATORS		
Birth spacing	Percent of births within 24 months of a previous birth	28.3
Safe motherhood	Percent of births with medical antenatal care	65.2
	Percent of births with antenatal care in first trimester	33.0
	Percent of births with medical assistance at delivery	42.3
	Percent of births in a medical facility	33.6
	Percent of births at high risk	50.7
Family planning	Contraceptive prevalence rate (any method, currently married women)	48.2
	Percent of currently married women with an unmet need for family planning	15.8
	Percent of currently married women with an unmet need for family planning to avoid a high-risk birth	11.2
Maternal nutrition	Percent of mothers with low BMI	35.8
Low birth weight	Percent of births with low birth weight (of those reporting a numeric weight)	22.7
Breastfeeding	Percent of children under 4 months who are exclusively breastfed	55.2
Iodized salt intake	Percent of households that use iodized salt	49.3
Vaccinations	Percent of children whose mothers received tetanus toxoid vaccinations during pregnancy	75.0
	Percent of children 12–23 months with measles vaccination	50.7
	Percent of children 12–23 months fully vaccinated	42.0
Diarrhoea control	Percent of children with diarrhoea in the preceding 2 weeks who received ORS, sugar-salt-water solution, or gruel	35.5
Acute respiratory infection	Percent of children with acute respiratory infection in the preceding 2 weeks seen by medical personnel	64.0

[1]Water from pipes, handpump, covered well, or tanker truck

NATIONAL FAMILY HEALTH SURVEY (NFHS-2)

1998–99

INDIA

International Institute for Population Sciences
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ORC MACRO
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ERRATA

In the NFHS-2 National Report the following changes may kindly be noted:

On page 47:

- Table 2.18 Availability of facilities and services

Category	Printed Value	Corrected Value
At least one village household has a telephone	61.0	52.1
Integrated Rural Development Programme (IRDP)	53.6	55.9
National Rural Employment Programme (NREP)	13.3	12.4
Employment Guarantee Scheme (EGS)	9.5	8.9
Development of Women and Children of Rural Areas (DWACRA)	28.4	23.1
Indira Awas Yojana (IAY)	59.1	61.5
Sanjay Gandhi Niradhar Yojana (SGNY)	27.4	11.7

- In the last paragraph, line number three, "61 percent live in villages..." should be "52 percent live in villages...".

On page 262:

- Table 7.12 Median duration of breastfeeding

Category	Any breastfeeding	
	Printed Value	Corrected Value
No religion	≥ 36.0	17.0
Self-employed	≥ 36.0	26.3

The last sentence of the general footnote in the above table should be deleted.

On page 263:

In the first paragraph, line number 9, "..Jains and particularly long for children in the.." should be "...Jains and for children in the..".

In the second paragraph, line number 2, "There are five states (mostly in the Eastern Region), where.." should be "There are three states in the Eastern Region where..".

On page 264:

- Table 7.13 Median duration of breastfeeding by state

Category	Any breastfeeding	
	Printed Value	Corrected Value
Madhya Pradesh	≥ 36.0	25.4
Assam	≥ 36.0	29.8

PREFACE

The success of the first National Family Health Survey, conducted in 1992–93, in creating an important demographic and health database in India has paved the way for repeating the survey. The second National Family Health Survey (NFHS-2), undertaken in 1998–99, is designed to strengthen the database further and facilitate implementation and monitoring of population and health programmes in the country. As in the earlier survey, the principal objective of NFHS-2 is to provide state and national estimates of fertility, the practice of family planning, infant and child mortality, maternal and child health, and the utilization of health services provided to mothers and children. In addition, the survey provides indicators of the quality of health and family welfare services, women's reproductive health problems, and domestic violence, and includes information on the status of women, education, and the standard of living.

Another feature of NFHS-2 is measurement of the nutritional status of women. Height and weight measurements, which were available only for young children in the earlier survey, were extended to cover all eligible women in NFHS-2. In addition, ever-married women and their children below age three had their blood tested for the level of haemoglobin, using the HemoCue instrument. Through these blood tests, for the first time the survey provides information on the prevalence of anaemia throughout India. In two metropolitan cities, Delhi and Mumbai, a further test was done for children below age three to measure the lead content in their blood. The survey also measured the extent to which households in India use cooking salt that has been fortified with iodine.

The NFHS-2 survey was funded by the United States Agency for International Development (USAID) through ORC Macro, USA. UNICEF provided additional financial support for the nutritional components of the survey. The survey is the outcome of the collaborative efforts of many organizations. The International Institute for Population Sciences (IIPS) was designated as the nodal agency for this project by the Ministry of Health and Family Welfare, Government of India, New Delhi. Thirteen reputed field organizations (FOs) in India, including five Population Research Centres, were selected to carry out the houselisting operation and data collection for NFHS-2. ORC Macro, Calverton, Maryland, USA, and the East-West Center, Honolulu, Hawaii, USA, provided technical assistance for all survey operations.

The NFHS-2 survey covered a representative sample of more than 90,000 eligible women age 15–49 from 26 states that comprise more than 99 percent of India's population. The data collection was carried out in two phases, starting in November 1998 and March 1999. The survey provides state-level estimates of demographic and health parameters as well as data on various socioeconomic and programmatic factors that are critical for bringing about desired changes in India's demographic and health situation. The survey provides urban and rural estimates for most states, regional estimates for four states (Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh), separate estimates for three metro cities (Calcutta, Chennai and Mumbai), and estimates for slum areas in Mumbai.

The survey used uniform questionnaires, sample designs, and field procedures to facilitate comparability of the data and to achieve a high level of data quality. Preliminary reports with selected results were prepared earlier for each state and presented to policymakers and programme administrators responsible for improving health and family welfare programmes in

the states. The report presents survey findings from all Indian states except Tripura, where the fieldwork was delayed due to a local problem.

The contents of this report are based on a standard tabulation plan developed at a workshop held in Kodaikanal during the period 15–17 January 1999. IIPS finalized the tabulation plan according to the recommendations of the NFHS-2 Technical Advisory Committee and produced the tables and figures for the final reports. This report has been written jointly by authors from IIPS, ORC Macro, and the East-West Center.

We are happy to present the final NFHS-2 national report, through which the information collected in NFHS-2 is being made public. We hope that the report will provide helpful insights into the changes that are taking place in the country and will provide policymakers and programme managers with up-to-date estimates of indicators that can be used for effective management of health and family welfare programmes, with an emphasis on reproductive health dimensions. The report should also contribute to the knowledge of researchers and analysts in the fields of population, health, and nutrition.

T.K. Roy
Director
International Institute for
Population Sciences
Mumbai

ACKNOWLEDGEMENTS

The second National Family Health Survey was successfully completed due to the efforts and involvement of numerous organizations and individuals at different stages of the survey. We would like to thank everyone who was involved in the survey and made it a success.

First of all, we are grateful to the Ministry of Health and Family Welfare, Government of India, New Delhi, for its overall guidance and support during the project. Mr. Y.N. Chaturvedi and Mr. K.S. Sugathan, the then Secretary and Joint Secretary, respectively, at the Department of Family Welfare deserve special thanks. They initiated the project and designated the International Institute for Population Sciences (IIPS) as the nodal agency for the survey. They also formed the Steering Committee, the Administrative and Financial Management Committee, and the Technical Advisory Committee for the smooth and efficient functioning of the project. Special thanks are due to Mr. A.R. Nanda, the present Secretary of the Department of Family Welfare, who continued to take an active interest in the project and provided timely guidance and support. The contributions of Mr. Vijay Singh, Joint Secretary (FA), Ms. Meenakshi Dutta Ghosh, Joint Secretary (S), Mr. Gautam Basu, Joint Secretary (RCH), Mr. P.K. Saha, Chief Director (S), and Dr. K.V. Rao, Chief Director (S), are acknowledged with gratitude.

We gratefully acknowledge the immense help received from the Office of the Registrar General, India, New Delhi (particularly Dr. M. Vijayanunni, the then Registrar General of India, Mr. J.K. Banthia, the present Registrar General of India, Mr. S.P. Sharma, Consultant, and Mr. S.K. Sinha, Deputy Registrar General, Vital Statistics) in implementing the sample design and making the latest SRS results available to cite in the reports. We thank all the expert participants in the series of workshops to finalize the questionnaire design, the sample design and tabulations plans for the survey. Special mention and thanks are due to Dr. Vijay Verma for his expert advice on the sample design and the calculation of sample weights.

We are grateful to the Directorate of Census Operations, Directorate of Health Services, and Office of the Integrated Child Development Scheme, Maharashtra, for their support in conducting training of the houselisters and investigators. We acknowledge the support of the All India Institute of Medical Sciences, New Delhi, which extended its facilities for training of the health investigators.

We are thankful to the Department of Health and Family Welfare of each state covered in NFHS-2 for helping the Field Organizations (FOs) by providing them with logistic assistance, whenever possible. Special thanks go to the local officials in all of the sample areas for facilitating the data collection.

The United States Agency for International Development (USAID) provided generous funding for NFHS-2. USAID's contribution to the project is sincerely acknowledged. Special thanks are due to Mr. William Goldman, the former Director of the Office of Population, Health and Nutrition (PHN), USAID, New Delhi, Ms. Sheena Chhabra, Team Leader, Policy, Research, Evaluation, and Marketing (PHN), and Dr. Victor K. Barbiero, current Director of PHN, for their initiative and involvement in the project. Many thanks are due to UNICEF for providing additional funding for the nutrition component of the project and the most modern medical equipment for carrying out the height-weight measurements and anaemia testing. Special thanks are due to

Dr. Sanjiv Kumar, Project Officer (Health), UNICEF, New Delhi, for his earnest cooperation in this respect.

We gratefully acknowledge the help and cooperation given by Dr. Rameshwar Sharma, the then Director, and Dr. Shiv Chandra Mathur, Professor, State Institute of Health and Family Welfare (SIHFW), Jaipur, during the national pretest of the NFHS-2 questionnaires in Rajasthan.

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FACT SHEET - INDIA

NATIONAL FAMILY HEALTH SURVEY, 1998–99

Sample Size

Households	91,196
Ever-married women age 15–49	89,199

Characteristics of Households

Percent with electricity	60.1
Percent within 15 minutes of safe water supply[1]	62.3
Percent with flush toilet	24.0
Percent with no toilet facility	64.0
Percent using govt. health facilities for sickness	28.7
Percent using iodized salt (at least 15 ppm)	49.3

Characteristics of Women[2]

Percent urban	26.2
Percent illiterate	58.2
Percent completed high school and above	14.3
Percent Hindu	81.7
Percent Muslim	12.5
Percent Christian	2.5
Percent regularly exposed to mass media	59.7
Percent working in the past 12 months	39.2

Status of Women[2]

Percent involved in decisions about own health	51.6
Percent with control over some money	59.6

Marriage

Percent never married among women age 15–19	66.4
Median age at marriage among women age 20–49	16.7

Fertility and Fertility Preferences

Total fertility rate (for the past 3 years)	2.85
Mean number of children ever born to women 40–49	4.45
Median age at first birth among women age 20–49	19.6
Percent of births[3] of order 3 and above	45.2
Mean ideal number of children[4]	2.7
Percent of women with 2 living children wanting another child	23.0

Current Contraceptive Use[5]

Any method	48.2
Any modern method	42.8
Pill	2.1
IUD	1.6
Condom	3.1
Female sterilization	34.2
Male sterilization	1.9
Any traditional method	5.0
Rhythm/safe period	3.0
Withdrawal	2.0
Other traditional or modern method	0.4

Unmet Need for Family Planning[5]

Percent with unmet need for family planning	15.8
Percent with unmet need for spacing	8.3

[1]Water from pipes, handpump, covered well or tanker truck
[2]Ever-married women age 15–49
[3]For births in the past 3 years
[4]Excluding women giving non-numeric responses
[5]Among currently married women age 15–49

Quality of Family Planning Services[6]

Percent told about side effects of method	21.7
Percent who received follow-up services	69.1

Childhood Mortality

Infant mortality rate[7]	67.6
Under-five mortality rate[7]	94.9

Safe Motherhood and Women's Reproductive Health

Maternal mortality ratio	540
Percent of births[8] within 24 months of previous birth	28.3
Percent of births[3] whose mothers received:	
Antenatal check-up from a health professional	65.1
Antenatal check-up in first trimester	33.0
Two or more tetanus toxoid injections	66.8
Iron and folic acid tablets or syrup	57.6
Percent of births[3] whose mothers were assisted at delivery by a:	
Doctor	30.3
Nurse/midwife	11.4
Traditional birth attendant	35.0
Percent[5] reporting at least one reproductive health problem	39.2

Awareness of AIDS

Percent of women who have heard of AIDS	40.3

Child Health

Percent of children age 0–3 months exclusively breastfed	55.2
Median duration of breastfeeding (months)	25.4
Percent of children[9] who received vaccinations:	
BCG	71.6
DPT (3 doses)	55.1
Polio (3 doses)	62.8
Measles	50.7
All vaccinations	42.0
Percent of children[10] with diarrhoea in the past 2 weeks who received oral rehydration salts (ORS)	26.8
Percent of children[10] with acute respiratory infection in the past 2 weeks taken to a health facility or provider	64.0

Nutrition

Percent of women with anaemia[11]	51.8
Percent of women with moderate/severe anaemia[11]	16.7
Percent of children age 6–35 months with anaemia[11]	74.3
Percent of children age 6–35 months with moderate/severe anaemia[11]	51.3
Percent of children chronically undernourished (stunted)[12]	45.5
Percent of children acutely undernourished (wasted)[12]	15.5
Percent of children underweight[12]	47.0

[6]For current users of modern methods
[7]For the 5 years preceding the survey (1994–98)
[8]For births in the past 5 years (excluding first births)
[9]Children age 12–23 months
[10]Children under 3 years
[11]Anaemia–haemoglobin level < 11.0 grams/decilitre (g/dl) for children and pregnant women and < 12.0 g/dl for nonpregnant women. Moderate/severe anaemia –haemoglobin level < 10.0 g/dl.
[12]Stunting assessed by height-for-age, wasting assessed by weight-for-height, underweight assessed by weight-for-age

SUMMARY OF FINDINGS

The second National Family Health Survey (NFHS-2), conducted in 1998–99, provides information on fertility, mortality, family planning, and important aspects of nutrition, health, and health care. The International Institute for Population Sciences (IIPS) coordinated the survey, which collected information from a nationally representative sample of more than 90,000 ever-married women age 15–49. The NFHS-2 sample covers 99 percent of India's population living in all 26 states. This report is based on the survey data for 25 of the 26 states, however, since data collection in Tripura was delayed due to local problems in the state.

IIPS also coordinated the first National Family Health Survey (NFHS-1) in 1992–93. Most of the types of information collected in NFHS-2 were also collected in the earlier survey, making it possible to identify trends over the intervening period of six and one-half years. In addition, the NFHS-2 questionnaire covered a number of new or expanded topics with important policy implications, such as reproductive health, women's autonomy, domestic violence, women's nutrition, anaemia, and salt iodization.

The NFHS-2 survey was carried out in two phases. Ten states were surveyed in the first phase which began in November 1998 and the remaining states (except Tripura) were surveyed in the second phase which began in March 1999. The field staff collected information from 91,196 households in these 25 states and interviewed 89,199 eligible women in these households. In addition, the survey collected information on 32,393 children born in the three years preceding the survey. One health investigator on each survey team measured the height and weight of eligible women and children and took blood samples to assess the prevalence of anaemia.

Background Characteristics of the Survey Population

Three-quarters (73 percent) of the population lives in rural areas. The age distribution is typical of populations that have recently experienced a fertility decline, with relatively low proportions in the younger and older age groups. Thirty-six percent of the population is below age 15, and 5 percent is age 65 and above. The sex ratio is 957 females for every 1,000 males in rural areas but only 928 females for every 1,000 males in urban areas, suggesting that more men than women have migrated to urban areas.

The survey provides a variety of demographic and socioeconomic background information. In the country as a whole, 82 percent of household heads are Hindu, 12 percent are Muslim, 3 percent are Christian, and 2 percent are Sikh. Muslims live disproportionately in urban areas, where they comprise 15 percent of household heads. Nineteen percent of household heads belong to scheduled castes, 9 percent belong to scheduled tribes, and 32 percent belong to other backward classes (OBCs). Two-fifths of household heads do not belong to any of these groups.

Questions about housing conditions and the standard of living of households indicate some improvements since the time of NFHS-1. Sixty percent of households in India now have electricity and 39 percent have piped drinking water compared with 51 percent and 33 percent, respectively, at the time of NFHS-1. Sixty-four percent of households have no toilet facility compared with 70 percent at the time of NFHS-1.

About three-fourths (75 percent) of males and half (51 percent) of females age six and above are literate, an increase of 6–8 percentage points from literacy rates at the time of NFHS-1. The percentage of illiterate males varies from 6–7 percent in Mizoram and Kerala to 37 percent in Bihar and the percentage of illiterate females varies from 11 percent in Mizoram and 15 percent in Kerala to 65 percent in Bihar. Seventy-nine percent of children age 6–14 are attending school, up from 68 percent in NFHS-1. The proportion of children attending school has increased for all ages, particularly for girls, but girls continue to lag behind boys in school attendance. Moreover, the disparity in school attendance by sex grows with increasing age of children. At age 6–10, 85 percent of boys attend school compared with 78 percent of girls. By age 15–17, 58 percent of boys attend school compared with 40 percent of girls. The percentage of girls 6–17 attending school varies from 51 percent in Bihar and 56 percent in Rajasthan to over 90 percent in Himachal Pradesh and Kerala.

Women in India tend to marry at an early age. Thirty-four percent of women age 15–19 are already married including 4 percent who are married but *gauna* has yet to be performed. These proportions are even higher in the rural areas. Older women are more likely than younger women to have married at an early age: 39 percent of women currently age 45–49 married before age 15 compared with 14 percent of women currently age 15–19. Although this indicates that the proportion of women who marry young is declining rapidly, half the women even in the age group 20–24 have married before reaching the legal minimum age of 18 years. On average, women are five years younger than the men they marry. The median age at marriage varies from about 15 years in Madhya Pradesh, Bihar, Uttar Pradesh, Rajasthan, and Andhra Pradesh to 23 years in Goa.

As part of an increasing emphasis on gender issues, NFHS-2 asked women about their participation in household decisionmaking. In India, 91 percent of women are involved in decision-making on at least one of four selected topics. A much lower proportion (52 percent), however, are involved in making decisions about their own health care. There are large variations among states in India with regard to women's involvement in household decisionmaking. More than three out of four women are involved in decisions about their own health care in Himachal Pradesh, Meghalaya, and Punjab compared with about two out of five or less in Madhya Pradesh, Orissa, and Rajasthan. Thirty-nine percent of women do work other than housework, and more than two-thirds of these women work for cash. Only 41 percent of women who earn cash can decide independently how to spend the money that they earn. Forty-three percent of working women report that their earnings constitute at least half of total family earnings, including 18 percent who report that the family is entirely dependent on their earnings. Women's work-participation rates vary from 9 percent in Punjab and 13 percent in Haryana to 60–70 percent in Manipur, Nagaland, and Arunachal Pradesh.

Fertility and Family Planning

Fertility continues to decline in India. At current fertility levels, women will have an average of 2.9 children each throughout their childbearing years. The total fertility rate (TFR) is down from 3.4 children per woman at the time of NFHS-1, but is still well above the replacement level of just over two children per woman. There are large variations in fertility among the states in India. Goa and Kerala have attained below replacement level fertility and Karnataka, Himachal Pradesh, Tamil Nadu, and Punjab are at or close to replacement level fertility. By contrast, fertility is 3.3 or more children per woman in Meghalaya, Uttar Pradesh, Rajasthan, Nagaland,

Bihar, and Madhya Pradesh. More than one-third to less than half of all births in these latter states are fourth or higher-order births compared with 7–9 percent of births in Kerala, Goa, and Tamil Nadu.

Efforts to encourage the trend towards lower fertility might usefully focus on groups within the population that have higher fertility than average. In India, rural women and women from scheduled tribes and scheduled castes have somewhat higher fertility than other women, but fertility is particularly high for illiterate women, poor women, and Muslim women. Another striking feature is the high level of childbearing among young women. More than half of women age 20–49 had their first birth before reaching age 20, and women age 15–19 account for almost one-fifth of total fertility. Studies in India and elsewhere have shown that health and mortality risks increase when women give birth at such young ages—both for the women themselves and for their children. Family planning programmes focusing on women in this age group could make a significant impact on maternal and child health and help to reduce fertility.

The appropriate design of family planning programmes depends, to a large extent, on women's fertility preferences. Women may have large families because they want many children, or they may prefer small families but, for a variety of reasons, may have more children than they actually want. For 9 percent of births over the three years preceding the survey and current pregnancies, mothers report that they did not want the pregnancy at all, and for another 12 percent, mothers say that they would have preferred to delay the pregnancy. When asked about their preferred family size, 41 percent of women who already have three children and 24 percent of women with four or more children respond that they consider the two-child family ideal. This gap between women's actual fertility experience and what they want or would consider ideal suggests a need for expanded or improved family welfare services to help women achieve their fertility goals. On average, a woman in India considers less than 3 children (2.7) ideal, but in Bihar, Uttar Pradesh, and several of the northeastern states, women's ideal number of children is 3.1 or above. In the country as a whole, 85 percent of women want at least one son and 80 percent want at least one daughter. A preference for sons is indicated by the fact that one-third want more sons than daughters but only a negligible proportion want more daughters than sons.

If many women in India are not using family planning, it is not due to lack of knowledge. Knowledge of contraception is nearly universal: 99 percent of currently married women know at least one modern family planning method. Women are most familiar with female sterilization (98 percent), followed by male sterilization (89 percent), the pill (80 percent), the condom (71 percent), and the IUD (71 percent). Knowledge of modern spacing methods has increased by 10–13 percentage points since the time of NFHS-1, although use rates for these methods remain extremely low.

Forty-eight percent of currently married women are using some method of contraception, up from 41 percent at the time of NFHS-1. Contraceptive prevalence is considerably higher in urban areas (58 percent) than in rural areas (45 percent). Female sterilization is by far the most popular method: 34 percent of currently married women are sterilized, a substantial increase from 27 percent at the time of NFHS-1. By contrast, only 2 percent of women report that their husbands are sterilized, a decrease from 4 percent in NFHS-1. Overall, sterilization accounts for 75 percent of total contraceptive use. Only 18 percent of sterilized couples have ever used any

method other than sterilization. Current-use rates for the pill, IUD, and condom remain very low, each at about 2–3 percent.

Contraceptive prevalence varies widely among socioeconomic groups. Muslim women, scheduled-tribe women, and women belonging to poor households are less likely (37–40 percent) than most other women to use contraception at all. The three modern spacing methods—pills, IUDs, and condoms—are used more by Sikh women, more educated women, women from households with a high standard of living, Jain women, and urban women (13–23 percent) than other women. Contraceptive prevalence varies by state from 20 percent in Meghalaya, 25 percent in Bihar, and 28 percent in Uttar Pradesh to 67–68 percent in Punjab and Himachal Pradesh. Other states where contraceptive prevalence is at or below the national average of 48 percent are Rajasthan, Madhya Pradesh, Orissa, Goa, and all northeastern states except Mizoram and Sikkim. Modern temporary methods are most prevalent in Delhi, Punjab, and Sikkim (17–28 percent) and are also relatively common (9–14 percent) in West Bengal, Haryana, Jammu and Kashmir, and other northeastern states. Traditional methods are used most widely in West Bengal, followed by Assam, Manipur, Punjab, and Sikkim. Sterilization dominates the contraceptive method-mix in most states, but especially so in Maharashtra, Madhya Pradesh, Bihar, Rajasthan, and all the southern states.

Given the near-exclusive emphasis on sterilization in the contraceptive method-mix, women tend to adopt family planning only after they have achieved their desired family size. As a result, contraceptive use can be expected to rise steadily with age and with number of living children. In India, contraceptive use does indeed go up with age, peaking at 67 percent for women age 35–39. Use also goes up with the number of children, peaking at 68 percent for women with three living children. Son preference appears to have a strong effect on contraceptive use, especially the adoption of sterilization. Among women with two or more living children, only 23–30 percent of women with only daughters have been sterilized compared with 41–67 percent of women with at least one son.

Eight percent of currently married women are not using contraception but say that they want to wait at least two years before having another child. Another 8 percent are not using contraception although they do not want any more children. These women are described as having an 'unmet need' for family planning. Unmet need is highest (27 percent) for young women below age 20, who are particularly interested in spacing their births. Unmet need in different states varies from 7–9 percent of currently married women in Punjab, Haryana, Andhra Pradesh, Gujarat, and Himachal Pradesh to 25–36 percent in Meghalaya, Nagaland, Arunachal Pradesh, Uttar Pradesh, and Bihar. These results underscore the need for strategies that provide spacing as well as terminal methods in order to meet the changing needs of women over their lifecycle.

For many years, the Government of India has been using electronic and other mass media to promote family planning. Among the different types of media, television has the broadest reach across almost all categories of women, including illiterate women and women living in rural areas. Overall, 46 percent of ever-married women watch television at least once a week. Despite the fact that 40 percent of women are not regularly exposed to television, radio, and other types of media, however, 60 percent of women saw or heard a family planning message in the media during the few months before the survey. Women are more likely to have seen or heard a family planning message on television than through any other form of media. Exposure

to family planning messages is relatively low among poor, scheduled-tribe, illiterate, and rural women. Nonetheless, family planning messages are reaching about two out of five or more socioeconomically disadvantaged women. Exposure to family planning messages is particularly limited in Rajasthan, Bihar, Uttar Pradesh, and Madhya Pradesh, where less than half the women were exposed to a family planning message in the past few months.

More than three-fourths (76 percent) of current users of modern contraceptives obtained their method from a government hospital or other source in the public sector. Only 17 percent obtained their method from the private medical sector. The private medical sector along with shops is the major source of pills and condoms, however. Overall, the public medical sector plays a larger role in rural areas than in urban areas, and at least two-thirds of modern contraceptive users obtain their method from a public-sector source in every state except Meghalaya, Delhi, Nagaland, Assam, and Punjab.

An important indicator of the quality of family planning services is the information that women receive when they obtain contraception and the extent to which they receive follow-up services after accepting contraception. In India, only 15 percent of users of modern contraceptives who were motivated by someone to use their method were told about any other method. Only 22 percent were told about possible side effects of their current method by a health or family planning worker at the time of adopting the method. Sixty-nine percent of contraceptive users, however, received follow-up services.

From the information provided in NFHS-2, a picture emerges of women marrying early, having their first child soon after marriage, having a second and possibly a third child in close succession, and then being sterilized—all by the time they reach their mid-20s. The median age for female sterilization has been declining in recent years and is now 26 years, one year earlier than at the time of NFHS-1. Very few women use modern spacing methods that could help them delay their first births and increase intervals between pregnancies.

Infant and Child Mortality

NFHS-2 provides estimates of infant and child mortality and examines factors associated with the survival of young children. During the five years preceding the survey, the infant mortality rate was 68 deaths at age 0–11 months per 1,000 live births, substantially lower than 79 per 1,000 in the five years preceding the NFHS-1 survey. The child mortality rate, 29 deaths at age 1–4 years per 1,000 children reaching age one, also declined from the corresponding rate of 33 per 1,000 in NFHS-1. Ninety-five children out of 1,000 born do not live to age five years. Expressed differently, 1 in 15 children die in the first year of life, and 1 in 11 die before reaching age five. Child-survival programmes might usefully focus on specific groups of children with particularly high infant and child mortality rates, such as children who live in rural areas, children whose mothers are illiterate, children belonging to scheduled castes or scheduled tribes, and children from poor households. Infant mortality rates are more than two and one-half times as high for women who did not receive any of the recommended types of maternity related medical care than for mothers who did receive all recommended types of care.

Along with various socioeconomic groups, efforts to promote child survival need to concentrate on very young mothers and mothers whose children are closely spaced. Infant mortality is almost 50 percent higher among children born to mothers under age 20 than among

children born to mothers age 20–29 (93 deaths, compared with 63, per 1,000 live births). Infant mortality is nearly three times as high among children born less than 24 months after a previous birth as among children born after a gap of 48 months or more (110 deaths, compared with 39, per 1,000 live births). Clearly, efforts to expand the use of temporary contraceptive methods for delaying and spacing births would help reduce infant mortality as well as fertility. There are large variations in infant mortality among states. Infant mortality ranges from a high of 80–89 deaths per 1,000 live births in Meghalaya, Uttar Pradesh, Madhya Pradesh, Orissa, and Rajasthan to a low of 16 per 1,000 live births in Kerala and 34–37 per 1,000 live births in Himachal Pradesh, Goa, Mizoram, and Manipur.

Health, Health Care, and Nutrition

Promotion of maternal and child health has been one of the most important components of the Family Welfare Programme of the Government of India. One goal is for each pregnant woman to receive at least three antenatal check-ups plus two tetanus toxoid injections and a full course of iron and folic acid supplementation. In India, mothers of 65 percent of the children born in the three years preceding NFHS-2 received at least one antenatal check-up and 44 percent received at least three check-ups. For 67 percent of these births, mothers received the recommended number of tetanus toxoid vaccinations during pregnancy, up from 54 percent in NFHS-1. For 58 percent, mothers received iron and folic acid supplementation during pregnancy. Women in disadvantaged socioeconomic groups are less likely than other women to be covered by each of these interventions. Coverage is also low for women who already have four or more children. States that perform well below the national average with regard to the provision of recommended components of antenatal care include Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh, and several of the northeastern states. Kerala, Goa, and Tamil Nadu, by contrast, have achieved relative success with regard to antenatal care. In these states, mothers of over 90 percent of births receive at least three antenatal check-ups, at least 86 percent receive two or more tetanus toxoid injections, and at least 93 percent receive iron and folic acid tablets. Even in these states, however, a substantial proportion of women do not receive all of the recommended components of antenatal care.

The Family Welfare Programme encourages women to deliver in a medical facility or if at home, with assistance from a trained health professional and to receive at least three check-ups after delivery. During the three years preceding NFHS-2, only one-third of births in India took place in a medical facility, up from one-fourth at the time of NFHS-1. Among births at home, over 50 percent were assisted by a traditional birth attendant, and only 13 percent were assisted by a health professional. Only 17 percent of births outside a medical facility were followed by a postpartum check-up within two months of delivery. While over 84 percent of deliveries were assisted by a health professional in Kerala, Goa, and Tamil Nadu, less than one-fourth were assisted by a health professional in Meghalaya, Assam, Uttar Pradesh, and Bihar. The proportion of noninstitutional deliveries with a postpartum check-up within two months ranges from a high of only 53 percent in Tamil Nadu to below 10 percent in Nagaland, Rajasthan, and Uttar Pradesh. Overall, these results show that maternal health services in India are reaching many more women during pregnancy than during delivery or after childbirth. They also point to the important role of traditional birth attendants for the substantial proportion of births that occur at home.

The Government of India recommends that breastfeeding should begin immediately after childbirth and that infants should be exclusively breastfed for the first four months of life. Although breastfeeding is nearly universal in India, very few children begin breastfeeding immediately after birth—only 16 percent in the first hour and 37 percent in the first day. Fifty-five percent of children under four months of age are exclusively breastfed. The median duration of breastfeeding is 25 months, or slightly over two years, and the median duration of exclusive breastfeeding is two months. At age 6–9 months, all children should be receiving solid or mushy food in addition to breast milk to provide sufficient nutrients for optimal growth. However, only 34 percent of children age 6–9 months receive the recommended combination of breast milk and solid or mushy food. The proportion of children age 6–9 months who receive solid or mushy food is even lower than the national average in six states, including Bihar, Uttar Pradesh, and Rajasthan, where this proportion is only 15–18 percent.

NFHS-2 uses three internationally recognized standards to assess children's nutritional status—weight-for-age, height-for-age, and weight-for-height. Children who are more than two standard deviations below the median of an international reference population are considered underweight (measured in terms of weight-for-age), stunted (height-for-age), or wasted (weight-for-height). Stunting is a sign of chronic, long-term undernutrition, wasting is a sign of acute, short-term undernutrition, and underweight is a composite measure that takes into account both chronic and acute undernutrition.

Based on international standards, 47 percent of children under age three years in India are underweight, down slightly from 52 percent at the time of NFHS-1. Forty-six percent of children are stunted and 16 percent are wasted. Undernutrition is much higher in rural areas than in urban areas, and is particularly high among children from disadvantaged socioeconomic groups. Nearly three-quarters (74 percent) of children age 6–35 months are anaemic, with very little variation in anaemia rates for children in most subgroups of the population. Christian children, children whose mothers have completed at least high school, children from households with a relatively high standard of living, and children whose mothers are not anaemic, have anaemia rates that are substantially below the national average. Even among these groups, however, at least 61 percent of children are anaemic. The prevalence of anaemia among children age 6–35 months varies from 44 percent in Kerala and Nagaland to 80–84 percent in Haryana, Rajasthan, Bihar, and Punjab.

Child immunization is an important component of child-survival programmes in India, with efforts focussing on six serious but preventable diseases—tuberculosis, diphtheria, pertussis, tetanus, polio, and measles. The objective of the Universal Immunization Programme (UIP), launched in 1985–86, was to extend immunization coverage against these diseases to at least 85 percent of infants by 1990. In India, 42 percent of children age 12–23 months have received all the recommended vaccinations, 44 percent have received some but not all, and 14 percent have received none of the recommended vaccinations.

Immunization coverage, although far from complete, has improved substantially since NFHS-1, when only 36 percent of children were fully vaccinated and 30 percent had not been vaccinated at all. Coverage of individual vaccines has also increased considerably, and is much higher than would appear from information on full coverage alone. According to NFHS-2, 72 percent of children age 12–23 months have been vaccinated against tuberculosis, 63 percent have received three doses of the polio vaccine, 55 percent have received three doses of the DPT

vaccine, and 51 percent have been vaccinated against measles. The largest increases in vaccination coverage between NFHS-1 and NFHS-2 are for the first two doses of polio vaccine, undoubtedly because of the introduction of the Pulse Polio Immunization Campaign in 1995. Dropout rates for the series of DPT and polio vaccinations continue to be a problem, however. Eighty-four percent of children received the first polio vaccination, but only 63 percent received all three doses; 71 percent received the first DPT vaccination, but only 55 percent received all three doses. It is also recommended that children under age five years should receive oral doses of vitamin A every six months starting at age nine months. However, only 30 percent of children age 12–35 months have received any vitamin A supplementation and only 17 percent received a dose of vitamin A in the six months preceding the survey.

NFHS-2 collected information on the prevalence and treatment of three health problems that cause considerable mortality in young children—fever, acute respiratory infection (ARI), and diarrhoea. In India 30 percent of children under age three had fever during the two weeks preceding the survey, 19 percent had symptoms of ARI, and 19 percent had diarrhoea. About two-thirds of the children who had symptoms of ARI or diarrhoea were taken to a health facility or health-care provider. Knowledge of the appropriate treatment of diarrhoea remains low. Only 62 percent of mothers of children age less than 3 years know about oral rehydration salt (ORS) packets and 34 percent of mothers incorrectly believe that children should be given less to drink than usual when sick with diarrhoea. Forty-eight percent of children with diarrhoea received some form of oral rehydration therapy (ORT), including 27 percent who received ORS. The percentage of children with diarrhoea who received ORS has increased substantially since NFHS-1, when it was only 18 percent, suggesting some improvement in the management of childhood diarrhoea. Among children sick with diarrhoea in the two weeks prior to the survey, the proportion who were given some form of ORT varies from 90 percent in Kerala, 76 percent in Goa, and 73 percent in West Bengal to 34 percent in Rajasthan and 36 percent in Uttar Pradesh. The proportion given ORS varies from 56 percent in Goa and 51 percent in Manipur to only 15–16 percent in Bihar and Uttar Pradesh.

Based on a weight-for-height index (the body mass index), more than one-third (36 percent) of women in India are undernourished. Nutritional deficiency is particularly acute for women in rural areas, younger women, women in disadvantaged socioeconomic groups, and women who work for someone else. Women who are undernourished themselves are also much more likely than other women to have children who are undernourished. The proportion of women undernourished is highest in Orissa (48 percent) and West Bengal (44 percent) and lowest in Arunachal Pradesh (11 percent), Sikkim (11 percent), and Delhi (12 percent). Obesity is a substantial problem among several groups of women in India, particularly urban women, well-educated women, and women from households with a high standard of living. Approximately one-quarter of these women have a body mass index of 25 or more, compared with 11 percent of all women in India. Obesity is particularly prevalent in Delhi and Punjab.

Overall, 52 percent of women in India have some degree of anaemia and 40 percent or more of women in every population subgroup are anaemic. The prevalence of anaemia is particularly high for scheduled-tribe women and poor women. Pregnant women are much more likely than nonpregnant women to be moderately to severely anaemic. The prevalence of anaemia is lowest in Kerala, Manipur, Goa, and Nagaland, where 23–38 percent of women are anaemic, and highest in Assam, Bihar, Meghalaya, Orissa, West Bengal, Arunachal Pradesh, and Sikkim, where 61–70 percent are anaemic.

Less than half of the households use cooking salt that is iodized at the recommended level of 15 parts per million, suggesting that iodine deficiency disorders are likely to be a serious problem. Rural households and households with a low standard of living are much less likely than other households to be using adequately iodized cooking salt. While 88–91 percent of households in Himachal Pradesh, Mizoram, Delhi, and Manipur consume adequately iodized salt, only 21 percent of households in Tamil Nadu and 27 percent in Andhra Pradesh do so.

About two-fifths (39 percent) of currently married women in India report some type of reproductive-health problem, including abnormal vaginal discharge, symptoms of a urinary tract infection, and pain or bleeding associated with intercourse. Among these women, 66 percent have not sought any advice or treatment. These results suggest a need to expand reproductive-health services and IEC programmes that encourage women to discuss their problems with a health-care provider. The percentage of currently married women reporting at least one reproductive-health problem varies among states from 19 percent in Karnataka to above 60 percent in Meghalaya and Jammu and Kashmir.

In recent years, there has been growing concern about domestic violence in India. NFHS-2 found that there is widespread acceptance among ever-married women that the beating of wives by husbands is justified under some circumstances. More than half (56 percent) the women accept at least one of six reasons as justification for a husband beating his wife. Domestic violence is also fairly common. At least one in five women have experienced beatings or physical mistreatment since age 15 and at least one in nine experienced such violence in the 12 months preceding the survey. Most of these women have been beaten or physically mistreated by their husbands. Domestic violence against women is especially prevalent (27–29 percent) among women working for cash, poor women, scheduled-caste women, and widowed, divorced, or deserted women.

Overall, only 13 percent of women received a home visit from a health or family planning worker during the 12 months preceding the survey. Women who received visits were visited three times, on average, in the year preceding the survey. A large majority of women who received a home visit expressed satisfaction with the amount of time that the worker spent with them and with the way the worker talked to them. Home visits are much more common in the southern states, western states, Mizoram, and West Bengal, where 17–33 percent of ever-married women received a home visit from a health and family planning worker, than in all other states.

The survey collected information on the prevalence of tuberculosis, asthma, malaria, and jaundice among all household members. Disease prevalence based on reports from household heads must be interpreted with caution, however. The survey found that less than 1 percent of the population suffers from tuberculosis, 2 percent suffers from asthma, 4 percent suffered from malaria during the three months preceding the survey, and 1 percent suffered from jaundice during the 12 months preceding the survey. Prevalence of all four conditions is higher in rural areas than in urban areas and among men than among women.

Most households in India (65 percent) go to private hospitals/clinics or doctors for treatment when a family member is ill. Only 29 percent normally use the public medical sector. Even among poor households, only 34 percent normally use the public medical sector when members become ill. Most respondents are generally satisfied with the health care they receive.

Ratings on quality of services are, however, lower for public-sector facilities both in rural and urban areas than for private sector/NGO/trust facilities.

NFHS-2 also collected information on selected lifestyle indicators for household members. According to household respondents, 29 percent of men and 3 percent of women smoke, 17 percent of men and 2 percent of women drink alcohol, and 28 percent of men and 12 percent of women chew *paan masala* or tobacco.

Although the spread of HIV/AIDS is a major concern in India, 60 percent of women in India have not heard of AIDS. Awareness of AIDS is particularly low among women who are not regularly exposed to media, scheduled-tribe women, illiterate women, women living in households with a low standard of living, and rural women. Among women who have heard of AIDS, 79 percent learned about the disease from television and 42 percent from radio, suggesting that the government's efforts to promote AIDS awareness through the electronic mass media have achieved some success. Among women who have heard of AIDS, however, one-third do not know of any way to avoid infection. Survey results suggest that health personnel could play a much larger role in promoting AIDS awareness. In India, only 4 percent of women who know about AIDS learned about the disease from a health worker. Only 12 percent of women have heard of AIDS in Bihar and 20–23 percent in Uttar Pradesh, Rajasthan, and Madhya Pradesh, compared with 87 percent or more in Mizoram, Manipur, Tamil Nadu, and Kerala. Among women who have heard of AIDS, at least one-fourth do not know of any way to avoid it in all states except Mizoram, Tamil Nadu, Orissa, and Delhi. These results suggest the need for effective IEC strategies throughout India.

CHAPTER 1

INTRODUCTION

1.1 Background of the Survey

India's first National Family Health Survey (NFHS-1) was conducted in 1992–93. The Ministry of Health and Family Welfare (MOHFW) subsequently designated the International Institute for Population Sciences (IIPS), Mumbai, as the nodal agency to initiate a second survey (NFHS-2), which was conducted in 1998–99. An important objective of NFHS-2 is to provide state-level and national-level information on fertility, family planning, infant and child mortality, reproductive health, child health, nutrition of women and children, and the quality of health and family welfare services. Another important objective is to examine this information in the context of related socioeconomic and cultural factors. The survey is also intended to provide estimates at the regional level for four states (Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh) and estimates for three metro cities (Calcutta, Chennai, and Mumbai), as well as slum areas in Mumbai. This information will assist policymakers and programme administrators in planning and implementing strategies for improving population, health, and nutrition programmes.

The NFHS-2 sample covers more than 99 percent of India's population living in all 26 states. It does not cover the union territories. NFHS-2 is a household survey with an overall target sample size of approximately 90,000 ever-married women in the age group 15–49. This report presents findings based on the analysis of all the states in India except Tripura, where the fieldwork was delayed.

NFHS-2 was conducted with financial support from the United States Agency for International Development (USAID), with additional funding from UNICEF. Technical assistance was provided by ORC Macro, Calverton, Maryland, USA, and the East-West Center, Honolulu, Hawaii, USA. Thirteen field organizations were selected to collect the data. Eight of the field organizations are private sector organizations and five are Population Research Centres (PRCs) established by the Government of India in various states. Each field organization had responsibility for collecting the data in one or more states. A complete list of these field organizations is given in Appendix A.

1.2 Basic Demographic Features of India

India crossed the one billion population mark in May 2000. According to the Census of India, India had a population of 548 million in 1971, 683 million in 1981, and 846 million in 1991. The exponential growth rate was virtually constant between 1961–71 and 1971–81 (2.22 and 2.20 percent, respectively), but it declined to 2.14 in 1981–91. The sex ratio of the Indian population has been unfavourable to females since the beginning of this century and has declined in every decade except 1971–81. The sex ratios were 930, 934, and 927 females per 1,000 males in 1971, 1981, and 1991, respectively. Population density increased from 177 persons per km^2 in 1971 to 216 in 1981 and 267 in 1991, indicating increasing population pressure on the land. As per the 1991 Census, 37 percent of the population is in the childhood ages (0–14 years), 7 percent is in the age group 60 and over, and 55 percent is in the working-age group 15–59, which indicates a

high dependency burden. The process of urbanization has been rather slow in India. The percentage of the total population living in urban areas increased from 20 percent in 1971 to 23 percent in 1981 and 26 percent in 1991. During the decade 1981–91 the growth rate of the rural population was 2.00 percent per annum, while that of the urban population was 3.65 percent per annum. One-fifth of India's population lives in Class I cities and Class II towns that have populations of 50,000 and above. One-fourth of India's population lives in villages that have fewer than 1,000 residents. As per the 1991 Census, 16 percent of India's population belongs to scheduled castes and 8 percent belongs to scheduled tribes[1] (Central Statistical Organisation, 1999; Ministry of Health and Family Welfare, 1998a).

1.3 Economic Development

India's gross national product in the year 1999–2000 was Rs. 17.5 trillion at current prices. India's national income (NNP at factor cost) was five times as high in 1992–93 (Rs. 2.0 trillion) as in 1950–51 (Rs. 0.4 trillion) at constant (1980–81) prices. From 1993–94 to 1998–99, the NNP increased by an additional 38 percent, reaching Rs. 9.5 trillion at 1993–94 prices. Between 1950–51 and 1992–93, however, per capita income only doubled and it increased further by only 27 percent between 1993–94 and 1998–99. In 1998–99, India's per capita income was Rs. 14,682 at current prices. The growth rate of national income at constant prices increased from 3.6 percent per annum during the first plan (1951–56) to 6.6 percent per annum during the eighth plan (1992–97). The corresponding increase in the growth rate of per capita income was from 1.8 percent to 4.6 percent per annum (Ministry of Finance, 2000). Between 1950–51 and 1998–99, gross domestic savings and gross domestic capital formation as a percentage of the gross domestic product (GDP) increased from around 10 percent to 22 percent.

Agricultural production increased nearly fourfold from 1950–51 to 1998–99. The century ended with the country's output of food grains crossing 200 million tonnes, a fourfold increase since 1950–51, mainly due to the success of the green revolution since the 1970s. Although the area under cultivation with food grains has remained virtually constant since 1970–71, the yield has increased by 65 percent. India had to import food grains for some time after independence, but now it has emerged as a marginal exporter of food grains (Ministry of Finance, 2000). Agriculture contributes nearly one-fourth of the GDP (Reserve Bank of India, 1999) and provides a livelihood to about two-thirds of all workers in the country (Central Statistical Organisation, 1999). Although the percentage of land cultivated with food crops that is irrigated increased from 24 percent in 1970–71 to 41 percent in 1996–97, the performance of Indian agriculture still largely depends on monsoon rains. In spite of a fourfold increase in food production since the early fifties, daily per capita net availability of cereals and pulses has increased by only 18 percent, from 395 grams to 467 grams per day (Ministry of Finance, 2000).

At the time of independence, India had a weak industrial base. Since 1948, within the framework of planned development of the economy, India has adopted the concept of a mixed economy for overall industrial development. The industrial policy resolution of 1948 demarcated the scope for development of industries in the private sector and also provided for reservation of some areas for exclusive development in the public sector. In subsequent industrial policy statements, the government adopted a variety of measures to modify licensing policies and

[1]Scheduled castes and scheduled tribes are castes and tribes that the Government of India officially recognizes as socially and economically backward and in need of special protection from injustice and exploitation.

regulate the private sector. Since 1980, however, the government has taken several steps towards liberalization of industrial policy (Singh, 1986). With the introduction of the New Industrial Policy, 1991, a substantial programme of structural reforms for liberalization and globalization has been undertaken to accelerate the process of making Indian industry internationally competitive.

The industrial production index was more than 18 times as high in 1999–2000 (148) as it was in 1950–51 (8). Production of finished steel has increased from 1 million tonnes to 24 million tonnes, and production of coal from 32 million tonnes to 316 million tonnes. The generation of electricity has increased from 5 billion kwh to 448 billion kwh. The Indian economy is expected to grow by 5 percent in 1999–2000 and, as a result of industrial recovery, the growth of GDP from manufacturing will almost double to 7.0 percent in 1999–2000 from 3.6 percent in 1998–99. From 1950–51 to 1998–99, exports increased from US $1.3 billion to US $33.7 billion, while imports increased from US $1.3 billion to US $41.9 billion (Ministry of Finance, 2000). India's achievements in the field of information technology have been internationally recognized. Software exports continued to show vigorous growth of over 50 percent from April to September 1999.

1.4 Performance of Social Sectors and Demographic Change

The approach to the Ninth Five-Year Plan adopted by the National Development Council has accorded priority to social sector development. The goal is growth with social justice and equity. As per the latest Human Development Report (United Nations Development Program, 2000), India's rank among countries in terms of GDP per capita is 121, while in terms of the human development index India ranks somewhat lower (128). In contrast, China's rank in terms of the human development index (99) is not only much above India's rank, but China ranks slightly higher than India in terms of GDP per capita (106). Some indicators of the performance of social sectors in India underscore the need for giving high priority to key sectors like education, health, and poverty eradication; these areas are also crucial for accelerating the demographic transition in India.

As per the estimates of the Planning Commission, the percentage of the population living below the poverty line declined from 55 percent in 1973–74 to 36 percent in 1993–94 (Central Statistical Organisation, 1999). The literacy rate in India increased from 18 percent in 1951 to 52 percent in 1991. The literacy rate for adults in India (62 percent) is much lower than the rate in China (83 percent); in the Philippines and Thailand, the adult literacy rate is as high as 95 percent. In India, gross enrolment as a percentage of the total population for the age group 6–11 years increased from 43 percent in 1950–51 to 90 percent in 1997–98, while for ages 11–14 the corresponding increase was from 13 percent to 59 percent (Central Statistical Organisation, 1999).

During the half century since India adopted the family planning programme as its official programme, India has seen the following improvements in its demographic situation (Ministry of Health and Family Welfare, 2000):

- A reduction of the crude birth rate from 40.8 births per 1,000 population in 1951 to 26.4 in 1998

- A halving of the infant mortality rate from 146 per 1,000 live births in 1951 to 72 per 1,000 live births in 1998
- A quadrupling of the couple protection rate from 10 percent in 1971 to 44 percent in 1999
- A reduction of the crude death rate from 25 deaths per 1,000 population in 1951 to 9 in 1998
- The addition of 25 years to life expectancy from 37 years to 62 years
- A reduction in the total fertility rate from 6.0 in 1951 to 3.3 in 1997

However, achievements in these areas have been less evident in India than in most other countries in Asia. India's maternal mortality ratio (estimated at 408 maternal deaths per 100,000 live births in 1997) is several times as high as the MMR of 115 in China or 30 in Sri Lanka (Ministry of Health and Family Welfare, 2000). India's infant mortality rate is much higher than that of China (31), Indonesia (46), and Thailand (22). Life expectancy at birth in India (62 years) is much lower than that of China, the Republic of Korea, and Malaysia (all above 70 years). India's total fertility rate (3.3) is much higher than that of countries like China (1.8), Sri Lanka (2.1), and Thailand (1.9). Although India's crude death rate is fairly low (9), it is still somewhat higher than the crude death rate in countries like China, Vietnam, and Sri Lanka (6). Similarly, India' s crude birth rate is much higher than the birth rate of China (15), Thailand (16), and Sri Lanka (18) (Population Reference Bureau, 2000).

India's population, which already exceeds one billion, is expected to reach 1.26 billion by March 2016 (Ministry of Health and Family Welfare, 2000). With the objective of stabilizing the population at a level consistent with the requirements of the national economy for improving the quality of life, several measures have been adopted recently to make the family welfare programme more broad based. These measures are summarized in the next section.

1.5 Population Policies and Programmes

The Family Welfare Programme in India has undergone important changes in recent years, particularly during the last five or six years. The government has dispensed with its procedure, initiated during the Fourth Five-Year Plan, of monitoring the family welfare programme on the basis of method-specific family planning targets to achieve a couple protection rate (CPR) of 60 percent. Experience has shown that the emphasis on achieving method-specific targets, particularly sterilization targets, has created a situation in which targets for numbers of acceptors gained precedence over everything else and the programme was not driven by demand. This led to the acceptance of sterilization by older and higher-parity couples at the expense of the promotion of spacing between children among younger couples. The target approach, along with incentive schemes to encourage better performance, led to unhealthy competition among states and among personnel at different levels within states. This emphasis had an adverse impact on the quality of services and care provided by the programme. Adequate emphasis was not placed on informed choice, counselling, and follow-up services to clients.

The scope of the services provided by the progamme has increased consistently over the years. At the time of initiation of the programme in 1952, it was primarily a clinic-based family planning programme. After the adoption of the extension approach in 1963 and subsequent

integration with the maternal and child health (MCH) programme, the activities of the programme broadened significantly. In addition to family planning, the programme was supposed to provide a variety of services to mothers and children, including antenatal, delivery, and postnatal care, immunization of children against various vaccine-preventable diseases, and counselling on maternal and child health problems and nutrition. In 1992, the Child Survival and Safe Motherhood (CSSM) Programme was launched as part of the Family Welfare Programme. This was done with the intention of having an integrated package of interventions for the betterment of the health status of mothers and children. Under this programme, treatment of diarrhoea and acute respiratory infections, essential newborn care, and strengthening of emergency obstetric care services were the additional areas emphasized.

In 1993, the Government of India constituted a committee under the chairmanship of Dr. M.S. Swaminathan to draft a new National Population Policy. The committee submitted its report in May 1994. The report consisted of a number of important recommendations, one of which was to abolish the target-oriented approach. After the International Conference on Population and Development (ICPD) in 1994 in Cairo, the programme was gradually reoriented towards the holistic approach of the Reproductive and Child Health (RCH) Programme. In addition to the activities covered under the CSSM Programme, the RCH Programme includes components relating to sexually transmitted diseases (STD) and reproductive tract infections (RTI).

The family welfare programme's target-free approach (TFA) was implemented throughout the country in 1996. This was done after some initial experiments to gauge the impact of making the programme target free in a few selected districts. The essence of the TFA was to modify the system of monitoring the programme and to make it a demand-driven system in which a worker would assess the needs of the community at the beginning of each year. Such an assessment would form the basis for planning and monitoring the programme during the year. Workers are supposed to assess the needs of the community on the basis of consultations with families in the area, Mahila Swasthya Sangh, anganwadis, and panchayats (Ministry of Health and Family Welfare, 1998b). To remove any misconceptions about the TFA, it was subsequently renamed the community needs assessment (CNA) approach.

The recent National Population Policy (NPP), released in February 2000, paid special attention to the health and education of women and children to achieve population stabilization for the country by 2045. This suggests a paradigm shift to reproductive and child health with utmost concern towards improving the quality of care. The policy document begins with the statement that 'the overriding objective of economic and social development is to improve the quality of lives that people lead, to enhance their well-being, and to provide them with opportunities and choices to become productive assets in society' (Ministry of Health and Family Welfare, 2000).

For the first time, the policy prepones to 2010 the time period for attaining the goal of replacement level fertility (that is, a net reproduction rate of 1.0). The NPP has elaborated 12 strategies to achieve its socio-demographic goals. The strategies can have far-reaching implications, including reductions in the high level of unwanted as well as wanted fertility. Unwanted fertility is high due to high levels of unmet need for family planning as first revealed by the 1992–93 National Family Health Survey (International Institute for Population Sciences, 1995). Wanted fertility is expected to decline with the control of infant and child mortality.

To achieve its objectives, the NPP reaffirms continuation of the TFA and emphasizes informed contraceptive choice and the availability of good quality services. The policy proposes decentralized planning and programme implementation. Towards the goal of lowering fertility, a number of strategies were suggested to improve RCH services, including an emphasis on education, women's empowerment, and the involvement of men in the programme. The policy envisages free and compulsory school education up to age 14, a reduction in the infant mortality rate to less than 30 infant deaths per 1,000 live births, and a reduction in the maternal mortality ratio to less than 100 maternal deaths per 100,000 live births. The policy also aims to achieve universal immunization of children, delivery assistance by trained personnel for all births, and 100 percent registration of births, deaths, marriages, and pregnancies. Another important emphasis of the policy is the need for promoting delayed marriages for girls, the provision of wider choice and universal access to family planning information and services, and the prevention of major infectious diseases, including RTIs and AIDS. All these goals are to be achieved by 2010 to realize replacement level fertility by that year with an estimated population of 1.11 billion and population stabilization by 2045.

1.6 Questionnaires

NFHS-2 collected information on a variety of indicators that will assist policymakers and programme managers to formulate and implement strategies to reach the goals set in the National Population Policy. NFHS-2 used three types of questionnaires: the Household Questionnaire, the Woman's Questionnaire, and the Village Questionnaire. The overall content and format of the questionnaires were determined through a series of workshops held at IIPS in Mumbai in 1997 and 1998. The workshops were attended by representatives of a wide range of organizations in the population and health fields, as well as experts working on gender issues. The questionnaires for each state were bilingual, with questions in both the language of the state and English.

The Household Questionnaire listed all usual residents in each sample household plus any visitors who stayed in the household the night before the interview. For each listed person, the survey collected basic information on age, sex, marital status, relationship to the head of the household, education, and occupation. The Household Questionnaire also collected information on the prevalence of asthma, tuberculosis, malaria, and jaundice, as well as three risk behaviours—chewing *paan masala* or tobacco, drinking alcohol, and smoking. Information was also collected on the usual place where household members go for treatment when they get sick, the main source of drinking water, type of toilet facility, source of lighting, type of cooking fuel, religion of the household head, caste/tribe of the household head, ownership of a house, ownership of agricultural land, ownership of livestock, and ownership of other selected items. In addition, a test was conducted to assess whether the household uses cooking salt that has been fortified with iodine. Finally, the Household Questionnaire asked about deaths occurring to household members in the two years before the survey, with particular attention to maternal mortality. The information on the age, sex, and marital status of household members was used to identify eligible respondents for the Woman's Questionnaire.

The Woman's Questionnaire collected information from all ever-married women age 15–49 who were usual residents of the sample household or visitors who stayed in the sample household the night before the interview. The questionnaire covered the following topics:

Background characteristics: Questions on age, marital status, education, employment status, and place of residence provide information on characteristics likely to influence demographic and health behaviour. Questions are also asked about a woman's husband, gender roles, and the treatment of women in the household.

Reproductive behaviour and intentions: Questions cover dates and survival status of all births, current pregnancy status, and future childbearing intentions of each woman.

Quality of care: Questions assess the quality of family planning and health services.

Knowledge and use of contraception: Questions cover knowledge and use of specific family planning methods. For women not using family planning, questions are included about reasons for nonuse and intentions about future use.

Sources of family planning: Questions determine where a user obtained her family planning method.

Antenatal, delivery, and postpartum care: The questionnaire collects information on whether women received antenatal and postpartum care, who attended the delivery, and the nature of complications during pregnancy for recent births.

Breastfeeding and health: Questions cover feeding practices, the length of breastfeeding, immunization coverage, and recent occurrences of diarrhoea, fever, and cough for young children.

Reproductive health: Questions assess various aspects of women's reproductive health and the type of care sought for health problems.

Status of Women: The questionnaire asks about women's autonomy and violence against women.

Knowledge of AIDS: Questions assess women's knowledge of AIDS and the sources of their knowledge, as well as knowledge about ways to avoid getting AIDS.

In addition, the health investigator on each survey team measured the height and weight of each woman and each of her children born since January 1995 (in states where fieldwork started in 1998) or January 1996 (in states where fieldwork started in 1999) [see Table 1.1 for the month and year of fieldwork in each state]. This height and weight information is useful for assessing levels of nutrition prevailing in the population. The health investigators also took blood samples from each woman and each of her children born since January 1995/1996 to assess haemoglobin levels. This information is useful for assessing prevalence rates of anaemia among women and children. Haemoglobin levels were measured in the field at the end of each interview using portable equipment (the HemoCue) that provides test results in less than one minute. Severely anaemic women and children were referred to local medical authorities for treatment. In

Delhi and Mumbai, the blood samples of young children were also used to test levels of lead using the portable LeadCare instrument.

For each village selected in the NFHS-2 sample, the Village Questionnaire collected information on the availability of various facilities in the village (especially health and education facilities) and amenities such as electricity and telephone connections. Respondents to the Village Questionnaire were also asked about development and welfare programmes operating in the village. The village survey included a short, open-ended questionnaire that was administered to the village head, with questions on major problems in the village and actions that could be taken to alleviate the problems.

1.7 Sample Design and Implementation

Sample Size and Reporting Domains

The sample size for each state was specified in terms of a target number of completed interviews with eligible women. The target sample size was set considering the size of the state, the resources available for the survey, and the aggregate level (urban/rural, region, metropolitan cities) at which separate estimates were needed. The initial target sample size was 4,000 completed interviews with eligible women in states with a 1991 population of more than 25 million, 3,000 completed interviews with eligible women in states with a 1991 population between 2 and 25 million, and 1,500 completed interviews with eligible women in states with a population of less than 2 million. However, there are some exceptions. For Uttar Pradesh, Bihar, Madhya Pradesh, and Rajasthan, the samples were designed to provide estimates for major regions of the states. The target sample size was set at 10,000 completed interviews with eligible women in Uttar Pradesh and 7,000 completed interviews with eligible women in Madhya Pradesh, Bihar, and Rajasthan.

For Maharashtra, West Bengal, and Tamil Nadu, the initial target samples were increased to allow separate estimates to be made for the metropolitan cities of Mumbai, Calcutta, and Chennai. The target sample size was 5,500 in Maharashtra, 4,750 in West Bengal, and 4,750 in Tamil Nadu. For Mumbai, the target sample was large enough to allow separate estimates for its slum and non-slum populations.

The urban and rural samples within each state were drawn separately and, to the extent possible, the sample within each state was allocated proportionally to the size of the state's urban and rural populations. In states where the proportion of urban population was not sufficiently large to provide a sample of at least 1,000 completed interviews with eligible women, the urban areas were appropriately oversampled (except in Goa, Sikkim, and the six small northeastern states where the target sample size was only 1,500 eligible women each). The state samples are not large enough to provide reliable estimates for individual districts in any state.

Sample Design

A uniform sample design was adopted in all the states (see Table B.1 in Appendix B for a summary of the sample characteristics). In each state, the rural sample was selected in two stages: the selection of Primary Sampling Units (PSUs), which are villages, with probability proportional to population size (PPS) at the first stage, followed by the random selection of

households within each PSU in the second stage. In urban areas, a three-stage procedure was followed. In the first stage, wards were selected with PPS sampling. In the next stage, one census enumeration block (CEB) was randomly selected from each sample ward (except in Jammu and Kashmir, where two CEBs were randomly selected from each sample ward). In the final stage, households were randomly selected within each sample CEB.

Sample Selection in Rural Areas

In rural areas, the 1991 Census list of villages served as the sampling frame. The list was stratified by a number of variables. Except in Delhi, the first level of stratification was geographic, with districts being subdivided into contiguous regions. Within each of these regions, villages were further stratified using selected variables from the following list: subregions, village size, percentage of males working in the nonagricultural sector, percentage of the population belonging to scheduled castes or scheduled tribes, and female literacy. However, not all variables were used in every state. Each state was examined individually and a subset of variables was selected for stratification with the aim of creating not more than 6 strata for small states, not more than 12 strata for medium size states, and not more than 15 strata for large states. Female literacy was used for implicit stratification (i.e., the villages were ordered prior to selection according to the proportion of females who were literate) in every state except Kerala and Orissa, where female literacy was an explicit stratification variable. From the list of villages arranged in this way, villages were selected systematically with probability proportional to the 1991 Census population of the village. Small villages with 5–49 households were linked with an adjoining village to form PSUs with a minimum of 50 households. Villages with fewer than five households were excluded from the sampling frame.

In every state, a mapping and household listing operation was carried out in each sample area. The listing provided the necessary frame for selecting households at the second stage. The household listing operation involved preparing up-to-date notional and layout sketch maps of each selected PSU, assigning numbers to structures, recording addresses of these structures, identifying residential structures, and listing the names of heads of all the households in residential structures in the selected PSUs. Large sample villages (with more than a specified number of households, usually 500) were segmented, and two segments were selected randomly using the PPS method. Household listing in the segmented PSUs was carried out only in the selected segments. Each household listing team comprised one lister and one mapper. Senior field staff of the concerned field organization supervised the listing operation.

The households to be interviewed were selected with equal probability from the household list in each area using systematic sampling. The interval applied for the selection was determined to obtain a self-weighting sample of households. On average, 30 households were initially targeted for selection in each selected enumeration area. To avoid extreme variations in the workload, minimum and maximum limits were put on the number of households that could be selected from any area, at 15 and 60, respectively. Each survey team supervisor was provided with the original household listing, layout sketch map, and the list of selected households for each PSU. All the households which were selected were contacted during the main survey, and no replacement was made if a selected household was absent during data collection. However, if a PSU was inaccessible, a replacement PSU with similar characteristics was selected by IIPS and provided to the field organization.

Sample Selection in Urban Areas

The procedure adopted for the first stage of the sample design in urban areas was similar to the one followed in rural areas. The 1991 Census list of wards was arranged according to districts and within districts by the level of female literacy, and a sample of wards was selected systematically with probability proportional to size. Next, one census enumeration block, consisting of approximately 150–200 households, was selected from each selected ward using the PPS method. In Jammu and Kashmir, two census enumeration blocks were selected in each selected ward. As in rural areas, a household listing operation was carried out in each selected census enumeration block, which provided the necessary frame for selecting households in the third stage of sample selection. On average, 30 households per block were targeted for selection (except in Jammu and Kashmir and in Mumbai, where the target was 20 households per block).

Sample Weights[2]

At the national level, the overall sample weight for each household or woman is the product of the design weight for each state (after adjustment for nonresponse) and the state weight.

The national weights are defined below:

Let

W_{sij} = weight for the jth household (or woman) in the ith PSU in state s

W^a_{sij} = weight for the jth household (or woman) in the ith PSU in state s for the national estimate

$$= \frac{P_s}{\sum_{ij} W_{sij}} * W_{sij}$$

where P_s = projected population of state s

After adjustment for nonresponse, the weights are normalized so that the total number of weighted cases is equal to the total number of unweighted cases. The final normalized weight for a household (or eligible woman) for the national estimate is:

W^b_{sij} = normalized weight for the jth household (or woman) in the ith PSU in state s for the national estimate

$$= \frac{\sum n_i}{P} * \frac{P_s}{\sum_{ij} W_{sij}} * W_{sij}$$

[2]The population covered in NFHS-2 differs slightly from that in NFHS-1. NFHS-1 did not include Sikkim and the Kashmir region of Jammu and Kashmir. NFHS-2 covered all the 26 states, but the survey work in Tripura was delayed considerably due to some local problems. Therefore, estimates for Tripura are not included in the national estimates. However, the population of the regions not common in the two surveys is small and should have only a negligible impact on the comparability of the national estimates from the two surveys.

where P = projected population of the 25 states[3]

n_i = sample size in the ith state

For the tabulations on anaemia and height/weight of women and children, two separate sets of weights were calculated using a similar procedure. In this case, however, the response rates for anaemia (for both women and children) are based on the percentage of eligible women whose haemoglobin level was measured and the response rates for height/weight (for both women and children) are based on the percentage of eligible women who were weighed or measured.

Sample Implementation

In order to achieve better coordination and supervision, the NFHS-2 survey operation was carried out in two phases. The first phase included the states of Andhra Pradesh, Bihar, Gujarat, Haryana, Madhya Pradesh, Punjab, Rajasthan, Sikkim, Uttar Pradesh, and West Bengal. The second phase states were Arunachal Pradesh, Assam, Delhi, Goa, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, and Tamil Nadu. Tripura fieldwork was delayed due to local problems.

Table 1.1 shows the period of fieldwork, number of households and eligible women interviewed (excluding Tripura), and the household and women's response rates. A total of 91,196 households were interviewed, two-thirds of which were rural. The overall household response rate—the number of households interviewed per 100 occupied households—was 98 percent. The household response rate was more than 94 percent in every state except Meghalaya and Delhi where it was 89 percent and 91 percent, respectively. The household response rate was almost 100 percent in Tamil Nadu.

In the interviewed households, interviews were completed with 89,199 eligible women who stayed in the household the night before the household interview. The individual response rate—the number of completed interviews per 100 identified eligible women in the households with completed interviews—was 96 percent for the country as a whole. The variation in the women's response rate by state was similar to that observed for the household response rate.

1.8 Recruitment, Training, and Fieldwork

In order to maintain uniform survey procedures across the states, four manuals dealing with different aspects of the survey were prepared. The *Interviewer's Manual* consists of instructions to the interviewers regarding interviewing techniques, field procedures, and the method of asking questions and recording answers. The *Manual for Field Editors and Supervisors* contains a detailed description of the role of field editors and supervisors in the survey. A list of checks to be made by the field editor in the filled-in questionnaires is also provided in this manual. The *Household Listing Manual*, designed for household listing teams, contains procedures to be adopted for household listing. Guidelines for the training of the field staff are described in the manual entitled *Training Guidelines.*

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[3]All states except Tripura

Table 1.1 Number of households and women interviewed by state

Month and year of fieldwork and number of households and women interviewed by residence and state (based on the unweighted sample), India, 1998–99

State	Month and year of fieldwork		Number of households interviewed			Number of women interviewed			Household response rate	Women's response rate
	From	To	Urban	Rural	Total	Urban	Rural	Total		
India	11/98	12/99	30,435	60,761	91,196	27,862	61,337	89,199	97.5	95.5
North										
Delhi	3/99	4/99	2,564	199	2,763	2,287	190	2,477	91.3	90.8
Haryana	11/98	5/99	891	1,950	2,841	826	2,082	2,908	98.5	97.6
Himachal Pradesh	4/99	8/99	1,086	2,357	3,443	835	2,177	3,012	99.3	96.5
Jammu & Kashmir	4/99	9/99	887	1,899	2,786	797	1,947	2,744	97.0	93.4
Punjab	11/98	5/99	1,066	1,901	2,967	993	1,803	2,796	98.5	97.3
Rajasthan	11/98	2/99	1,546	4,765	6,311	1,592	5,221	6,813	95.9	92.8
Central										
Madhya Pradesh	11/98	4/99	1,799	4,950	6,749	1,829	5,112	6,941	97.5	97.5
Uttar Pradesh	12/98	3/99	1,835	6,847	8,682	1,813	7,479	9,292	96.7	93.0
East										
Bihar	12/98	4/99	701	5,644	6,345	687	6,337	7,024	98.8	96.2
Orissa	3/99	6/99	932	3,757	4,689	868	3,557	4,425	99.2	98.4
West Bengal	12/98	4/99	2,335	2,390	4,725	1,947	2,461	4,408	96.6	96.6
Northeast										
Arunachal Pradesh	5/99	8/99	174	1,245	1,419	145	972	1,117	94.4	91.6
Assam	3/99	6/99	838	2,283	3,121	808	2,633	3,441	98.1	96.1
Manipur	7/99	10/99	536	1,153	1,689	479	956	1,435	99.6	96.8
Meghalaya	5/99	12/99	256	984	1,240	193	752	945	89.0	90.5
Mizoram	6/99	8/99	781	592	1,373	597	451	1,048	97.6	94.3
Nagaland	5/99	12/99	237	896	1,133	167	651	818	98.4	98.0
Sikkim	12/98	3/99	164	1,135	1,299	129	978	1,107	96.2	94.3
West										
Goa	3/99	6/99	623	976	1,599	491	755	1,246	98.6	95.0
Gujarat	11/98	3/99	1,709	2,223	3,932	1,657	2,188	3,845	98.4	96.6
Maharashtra	3/99	6/99	3,662	2,168	5,830	3,191	2,200	5,391	97.6	94.1
South										
Andhra Pradesh	11/98	3/99	1,018	2,854	3,872	1,068	2,964	4,032	99.4	98.2
Karnataka	3/99	9/99	1,552	2,721	4,273	1,504	2,870	4,374	97.1	94.7
Kerala	3/99	7/99	855	1,979	2,834	846	2,038	2,884	98.0	92.9
Tamil Nadu	3/99	6/99	2,388	2,893	5,281	2,113	2,563	4,676	99.8	99.7

Note: This table is based on the unweighted sample; all other tables are based on the weighted sample unless otherwise specified. This table shows the number of households and *de facto* women with completed interviews. The household response rate is defined as the number of households interviewed per 100 occupied households. The women's response rate is defined as the number of eligible women interviewed per 100 eligible women identified in the selected households. Information on Tripura is not included in this report because the fieldwork was not completed at the time this report was prepared.

Representatives of each field organization were trained in Training of Trainers Workshops organized by IIPS at the beginning of each phase of data collection. The purpose of these workshops was to ensure uniformity in data collection procedures in different states. The workshops covered the objectives of NFHS-2, different aspects of the survey, roles of various organizations participating in the survey, details of each of the three questionnaires used in the survey, methods of data collection and field supervision, and guidelines for the training of the field staff. Persons who were trained in each workshop subsequently trained the field staff in each state according to the standard procedures discussed in the Training of Trainers Workshops.

The fieldwork in each state was carried out by a number of interviewing teams, each team consisting of one field supervisor, one female field editor, four female interviewers, and one health investigator. The number of interviewing teams in each state varied according to the sample size. In each state, interviewers were hired specifically for NFHS-2, taking into consideration their educational background, experience, and other relevant qualifications. All interviewers were female, a stipulation that was necessary to ensure that women who were survey respondents would feel comfortable talking about topics that they may find somewhat sensitive.

Training of the field staff lasted for a minimum of three weeks in each state. The training course consisted of instruction in interviewing techniques and survey field procedures, a detailed review of each item in the questionnaires, instruction and practice in weighing and measuring children, mock interviews between participants in the classroom, and practice interviews in the field. In addition, at least two special lectures were arranged in each state: one on the topic of family planning at the beginning of training on the section on contraception in the Woman's Questionnaire, and one on maternal and child health practices, including immunizations, at the beginning of training on the section on the health of children. In addition to the main training, two days' training was arranged for field editors and supervisors, which focused on the organization of fieldwork as well as methods of detecting errors in field procedures and in the filled-in questionnaires. Health investigators attached to interviewing teams were given additional specialized training on measuring height and weight and testing for anaemia in a centralized training programme conducted by IIPS in collaboration with the All India Institute of Medical Sciences (AIIMS), New Delhi. This specialized training included classroom training and extensive field practice in schools, *anganwadis*, and communities.

Assignment of Primary Sampling Units (PSUs) to the teams and various logistical decisions were made by the survey coordinators from each field organization. Each interviewer was instructed not to conduct more than three individual interviews a day and was required to make a minimum of three callbacks if no suitable informant was available for the household interview or if the eligible woman identified in the selected household was not present at the time of the household interview.

The main duty of the field editor was to examine the completed questionnaires in the field for completeness, consistency, and legibility of the information collected, and to ensure that all necessary corrections were made. Special attention was paid to missing information, skip instructions, filter questions, age information, and completeness of the birth history and the health section. If major problems were detected, such as discrepancies between the birth history and the health section, the interviewers were required to revisit the respondent to correct the errors. An additional duty of the field editor was to observe ongoing interviews and verify the accuracy of the method of asking questions, recording answers, and following skip instructions.

The field supervisor was responsible for the overall operation of the field team and collection of information on villages using the Village Questionnaire. In addition, the field supervisor conducted spot-checks to verify the accuracy of information collected on the eligibility of respondents. IIPS also appointed one or more research officers in each state to help with monitoring throughout the training and fieldwork period in order to ensure that correct survey procedures were followed and data quality was maintained. Survey directors and other senior staff from the field organizations, project coordinators, other faculty members from IIPS,

senior research officers, and staff members from ORC Macro and the East-West Center also visited the field sites to monitor the data collection operation. Medical health coordinators appointed by IIPS monitored the nutritional component of the survey. Field data were quickly entered into microcomputers, and field-check tables were produced to identify certain types of errors that might have occurred in eliciting information and filling out questionnaires. Information from the field-check tables was fed back to the interviewing teams and their supervisors so that their performance could be improved.

1.9 Data Processing

All completed questionnaires were sent to the office of the concerned field organization (FO) for editing and data processing (including office editing, coding, data entry, and machine editing). Although field editors examined every completed questionnaire in the field, the questionnaires were re-edited at the FO headquarters by specially trained office editors. The office editors checked all skip sequences, response codes that were circled, and information recorded in filter questions. Special attention was paid to the consistency of responses to age questions and the accurate completion of the birth history. In the second stage of office editing, appropriate codes were assigned for open-ended responses on occupation and cause of death, and commonly mentioned "other" responses were added to the coding scheme. For each state, the data were processed with microcomputers using the data entry and editing software known as the Integrated System for Survey Analysis (ISSA). The data were entered directly from the precoded questionnaires, usually starting within one week of the receipt of the first set of completed questionnaires. Data entry and editing operations were usually completed a few days after the end of fieldwork in each state. Computer-based checks were used to clean the data and remove inconsistencies. Age imputation was also completed at this stage. Age variables such as the woman's current age and the year and month of birth of all of her children were imputed for those cases in which information was missing or incorrect entries were detected.

Preliminary reports with selected results were prepared for each state within a few months of data collection and presented to policymakers and programme administrators responsible for improving health and family welfare programmes. Detailed NFHS-2 state reports are being prepared by IIPS, in collaboration with the Population Research Centres, other local organizations, ORC Macro, and the East-West Center. The state reports contain detailed information on such topics as the state's survey design and implementation, household and respondent background characteristics, fertility and fertility preferences, family planning, mortality, morbidity, child immunization, lifestyle indicators, domestic violence, knowledge of HIV/AIDS, nutritional status of women and children, infant feeding practices, anaemia among women and children, maternal care and reproductive health, and the quality of care of health and family welfare services.

CHAPTER 2

BACKGROUND CHARACTERISTICS OF HOUSEHOLDS

This chapter presents a profile of the demographic and socioeconomic characteristics of NFHS-2 households and describes facilities and services that are available in villages in India. The chapter also includes some comparisons of NFHS-2 results with results from NFHS-1, the Census of India, and the Sample Registration System (SRS).

2.1 Age-Sex Distribution of the Household Population

The NFHS-2 household population can be tabulated in two ways: *de facto* (the place each person stayed the night before the survey interview) or *de jure* (the place of usual residence). The *de facto* and *de jure* populations in India may differ because of temporary population movements within or between states. Table 2.1 shows the *de facto* population in the NFHS-2 household sample for India, classified by age, residence, and sex. The total *de facto* sample population is 486,011. The sample is 27 percent urban and 73 percent rural.

The age distribution of the population in India is typical of populations in which fertility has fallen recently, with relatively low proportions of the population in the younger and older age groups (Figure 2.1). Thirty-six percent are below 15 years of age and 5 percent are age 65 or older. The proportion below age 15 is slightly higher in rural areas (38 percent) than in urban areas (32 percent).

The single-year age distributions by sex in the *de facto* population (see Appendix Table D.1) indicate that there is some misreporting of ages, including considerable preference for ages ending in particular digits, especially 0, 2, and 5. One of the most commonly used measures of digit preference in age reporting is Myers' Index (United Nations, 1955). This index provides an overall summary of preferences for, or avoidance of, each of the 10 digits, from 0 to 9. Values of Myers' Index computed for the age range 10–69 in the household sample population in India are 23 for males and 18 for females. The index is often used as one indicator of survey quality. The lower estimate for females is probably due to the emphasis during the interviewer training on obtaining accurate age information for women to correctly determine the eligibility of women for the individual interview. The values of Myers' Index from NFHS-2 are almost the same as from NFHS-1 (revised from the published NFHS-1 estimates). This indicates that age reporting on the household questionnaire is of the same quality in NFHS-2 and NFHS-1.

Table 2.2 compares the age distributions by sex from the NFHS-2 *de jure* sample with the age distributions by sex from the Sample Registration System for 1997. The SRS baseline survey, which is *de jure*, counts all usual residents in a sample area (Office of the Registrar General, 1999a). The NFHS-2 and SRS age distributions are similar for broad age groups, despite the misreporting of age that is evident in the NFHS-2 single-year age data.

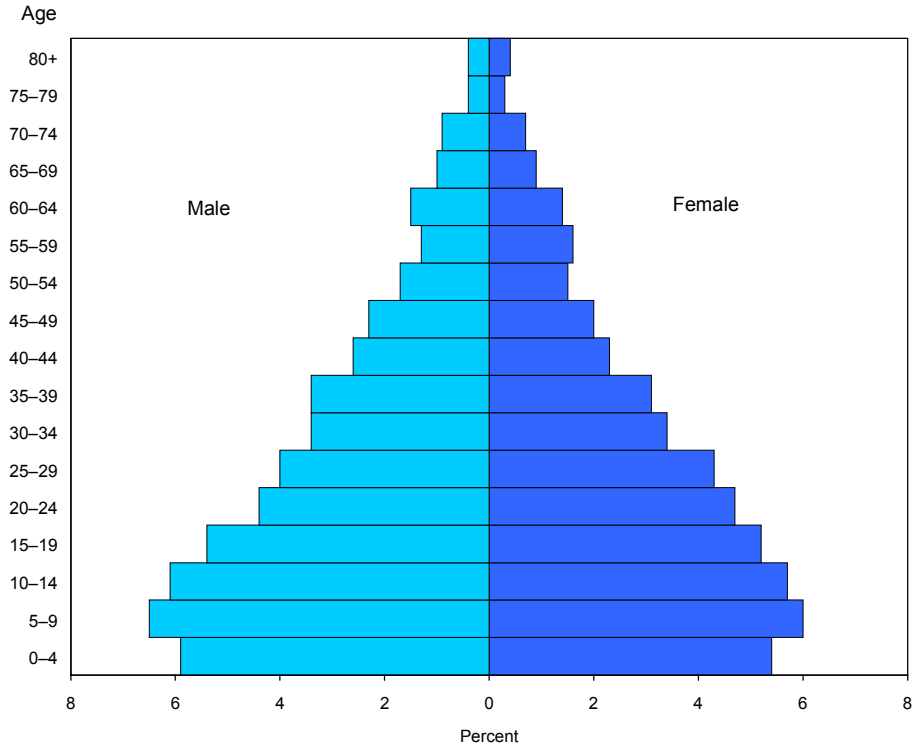
Table 2.1 Household population by age and sex

Percent distribution of the household population by age, according to residence and sex, India, 1998–99

	Urban			Rural			Total		
Age	Male	Female	Total	Male	Female	Total	Male	Female	Total
< 1	2.0	1.9	1.9	2.6	2.4	2.5	2.4	2.3	2.3
1–4	7.7	7.8	7.8	9.7	9.5	9.6	9.2	9.0	9.1
5–9	10.7	10.6	10.6	13.8	13.0	13.4	13.0	12.4	12.7
10–14	11.5	11.1	11.3	12.5	11.9	12.2	12.2	11.7	12.0
15–19	11.1	10.8	11.0	10.0	10.3	10.1	10.3	10.4	10.4
20–24	9.8	10.3	10.0	7.8	9.2	8.5	8.4	9.5	8.9
25–29	8.7	9.1	8.9	7.4	8.6	8.0	7.7	8.7	8.2
30–34	7.2	7.5	7.3	6.4	6.9	6.6	6.6	7.0	6.8
35–39	7.0	7.2	7.1	6.4	6.0	6.2	6.5	6.3	6.4
40–44	5.7	5.3	5.5	4.8	4.4	4.6	5.1	4.7	4.9
45–49	5.1	4.6	4.8	4.2	3.9	4.1	4.4	4.1	4.3
50–54	3.6	3.4	3.5	3.3	2.9	3.1	3.4	3.0	3.2
55–59	2.8	3.1	3.0	2.6	3.2	2.9	2.6	3.2	2.9
60–64	2.6	2.6	2.6	3.0	3.1	3.1	2.9	3.0	2.9
65–69	1.8	2.0	1.9	2.1	2.0	2.0	2.0	2.0	2.0
70–74	1.4	1.4	1.4	1.8	1.4	1.6	1.7	1.4	1.6
75–79	0.7	0.6	0.7	0.7	0.6	0.6	0.7	0.6	0.6
80+	0.6	0.8	0.7	0.9	0.8	0.8	0.8	0.8	0.8
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of persons	66,790	62,520	129,310	181,223	175,477	356,700	248,014	237,997	486,011
Sex ratio[1]	NA	NA	936	NA	NA	968	NA	NA	960

Note: Table is based on the *de facto* population, i.e., persons who stayed in the household the night before the interview (including both usual residents and visitors).
NA: Not applicable
[1]Females per 1,000 males

Figure 2.1
Population Pyramid



NFHS-2, India, 1998–99

Table 2.2 Population by age and sex from the SRS and NFHS-2

Percent distribution of population by age and sex from the SRS and NFHS-2, India, 1997–99

	SRS (1997)		NFHS-2 (1998–99)		
Age	Male	Female	Male	Female	Sex ratio[1]
URBAN					
0–4	9.9	9.8	9.4	9.5	931
5–9	10.7	10.6	10.6	10.5	920
10–14	11.2	11.2	11.5	11.2	902
15–19	10.1	10.0	11.1	10.7	893
20–24	10.0	10.5	9.8	10.2	958
25–29	9.3	9.4	8.6	9.0	966
30–34	8.3	8.6	7.2	7.5	968
35–39	7.3	6.9	7.1	7.3	951
40–44	6.2	5.9	5.8	5.3	857
45–49	4.9	4.4	5.1	4.7	856
50–54	3.8	3.7	3.6	3.4	869
55–59	2.7	2.7	2.8	3.2	1,055
60–64	2.3	2.5	2.6	2.6	950
65–69	1.5	1.7	1.8	2.0	1,010
70+	1.9	2.1	2.7	2.9	972
Total	100.0	100.0	100.0	100.0	928
Median age	U	U	23.6	23.8	NA
RURAL					
0–4	11.8	11.5	11.9	11.7	948
5–9	13.5	13.2	13.6	13.0	915
10–14	12.4	11.9	12.3	12.0	929
15–19	10.1	9.3	10.2	10.1	953
20–24	8.9	9.0	8.0	9.0	1,075
25–29	8.1	8.4	7.5	8.6	1,096
30–34	7.0	7.6	6.5	6.9	1,022
35–39	6.3	6.0	6.5	6.0	891
40–44	5.1	5.3	4.9	4.5	890
45–49	4.2	4.0	4.2	4.0	891
50–54	3.6	3.7	3.3	2.9	850
55–59	2.6	2.8	2.6	3.3	1,221
60–64	2.6	2.9	3.0	3.2	996
65–69	1.7	1.9	2.1	2.0	928
70+	2.2	2.6	3.4	2.7	755
Total	100.0	100.0	100.0	100.0	957
Median age	U	U	20.8	21.2	NA

Table 2.2 Population by age and sex from the SRS and NFHS-2 (contd.)

Percent distribution of population by age and sex from the SRS and NFHS-2, India, 1997–99

	SRS (1997)		NFHS-2 (1998–99)		
Age	Male	Female	Male	Female	Sex ratio[1]
			TOTAL		
0–4	11.4	11.1	11.2	11.1	944
5–9	12.8	12.6	12.8	12.4	916
10–14	12.1	11.7	12.1	11.8	922
15–19	10.1	9.5	10.4	10.3	936
20–24	9.2	9.4	8.5	9.3	1,039
25–29	8.3	8.6	7.8	8.7	1,057
30–34	7.3	7.8	6.7	7.1	1,007
35–39	6.5	6.2	6.6	6.4	908
40–44	5.4	5.4	5.1	4.7	880
45–49	4.3	4.1	4.5	4.2	880
50–54	3.6	3.7	3.4	3.1	855
55–59	2.6	2.8	2.6	3.3	1,173
60–64	2.5	2.8	2.9	3.0	985
65–69	1.7	1.9	2.0	2.0	948
70+	2.2	2.5	3.3	2.8	803
Total	100.0	100.0	100.0	100.0	949
Median age	U	U	21.8	22.1	NA

Note: Table is based on the *de jure* population, i.e., usual residents.
NA: Not applicable
U: Not available
[1]Females per 1,000 males
Source for SRS: Office of the Registrar General, 1999a

Tables 2.1 and 2.2 also present sex ratios (females per 1,000 males) in India from NFHS-2. The sex ratio for the *de facto* population (960) in Table 2.1 is slightly higher than the sex ratio of the *de jure* population (949) in Table 2.2. The sex ratio for the *de facto* sample is 936 in urban areas and 968 in rural areas, suggesting that rural-urban migration has been dominated by males in India.

2.2 Marital Status

NFHS-2 includes information on the marital status of all household members age six and above. Table 2.3 shows the marital status distribution of the *de facto* household population, classified by age, residence, and sex. Among females age six and above, 53 percent are currently married and 36 percent have never been married. The proportion never married is higher for males (48 percent) than for females (36 percent) and slightly higher in urban areas (49 percent for males and 38 percent for females) than in rural areas (47 percent for males and 35 percent for females). The proportion divorced, separated, or deserted is small and widowhood is quite limited until the older ages. Forty-three percent of women age 50 or older are widowed, but only 12 percent of men in that age group are widowed.

Table 2.3 Marital status of the household population

Percent distribution of the household population age 6 and above by marital status, according to age, residence, and sex, India, 1998–99

Age	Marital status							Total percent
	Never married	Currently married	Married, *gauna* not performed	Widowed	Divorced	Separated	Deserted	
				URBAN				
				Male				
6–12	99.7	0.2	0.1	0.0	0.0	0.0	0.0	100.0
13–14	99.6	0.2	0.2	0.0	0.0	0.0	0.0	100.0
15–19	97.5	2.0	0.5	0.0	0.0	0.0	0.0	100.0
20–24	78.4	20.7	0.5	0.2	0.1	0.0	0.1	100.0
25–29	39.1	59.7	0.2	0.3	0.1	0.3	0.4	100.0
30–49	5.7	92.4	0.0	1.0	0.2	0.2	0.4	100.0
50+	1.3	89.0	0.0	9.3	0.0	0.1	0.2	100.0
Total	49.4	48.3	0.2	1.8	0.1	0.1	0.2	100.0
				Female				
6–12	99.6	0.2	0.2	0.0	0.0	0.0	0.0	100.0
13–14	99.0	0.6	0.5	0.0	0.0	0.0	0.0	100.0
15–19	82.2	16.4	1.2	0.1	0.1	0.1	0.1	100.0
20–24	36.3	61.8	0.4	0.3	0.5	0.2	0.5	100.0
25–29	9.8	87.4	0.0	1.1	0.5	0.3	0.7	100.0
30–49	2.3	88.9	0.1	6.8	0.5	0.5	0.9	100.0
50+	1.0	52.8	0.0	45.2	0.2	0.4	0.4	100.0
Total	38.2	51.3	0.3	9.2	0.3	0.3	0.5	100.0
				RURAL				
				Male				
6–12	99.3	0.4	0.3	0.0	0.0	0.0	0.0	100.0
13–14	98.7	0.4	0.9	0.0	0.0	0.0	0.0	100.0
15–19	92.2	4.9	2.8	0.0	0.0	0.0	0.1	100.0
20–24	59.6	37.6	2.1	0.3	0.1	0.1	0.1	100.0
25–29	23.1	74.9	0.6	0.6	0.3	0.2	0.3	100.0
30–49	3.3	94.2	0.1	1.7	0.2	0.2	0.3	100.0
50+	1.3	85.0	0.0	13.3	0.1	0.1	0.2	100.0
Total	46.8	49.4	0.7	2.8	0.1	0.1	0.2	100.0
				Female				
6–12	98.8	0.4	0.8	0.0	0.0	0.0	0.0	100.0
13–14	95.0	1.6	3.4	0.0	0.0	0.0	0.0	100.0
15–19	60.4	34.4	4.5	0.1	0.2	0.1	0.2	100.0
20–24	15.1	81.7	0.9	0.8	0.6	0.3	0.6	100.0
25–29	3.9	92.7	0.1	1.7	0.5	0.4	0.6	100.0
30–49	1.0	90.0	0.0	6.9	0.6	0.5	1.0	100.0
50+	0.5	55.7	0.0	42.8	0.2	0.3	0.4	100.0
Total	35.1	53.9	1.0	9.0	0.3	0.3	0.5	100.0

Table 2.3 Marital status of the household population (contd.)

Percent distribution of the household population age 6 and above by marital status, according to age, residence, and sex, India, 1998–99

Age	Marital status							Total percent
	Never married	Currently married	Married, *gauna* not performed	Widowed	Divorced	Separated	Deserted	
				TOTAL				
				Male				
6–12	99.4	0.3	0.2	0.0	0.0	0.0	0.0	100.0
13–14	98.9	0.4	0.7	0.0	0.0	0.0	0.0	100.0
15–19	93.7	4.0	2.1	0.0	0.0	0.0	0.1	100.0
20–24	65.6	32.3	1.6	0.3	0.1	0.1	0.1	100.0
25–29	27.9	70.3	0.5	0.5	0.2	0.3	0.3	100.0
30–49	4.0	93.7	0.1	1.5	0.2	0.2	0.3	100.0
50+	1.3	86.0	0.0	12.3	0.1	0.1	0.2	100.0
Total	47.5	49.1	0.6	2.5	0.1	0.1	0.2	100.0
				Female				
6–12	99.0	0.3	0.6	0.0	0.0	0.0	0.0	100.0
13–14	96.1	1.3	2.6	0.0	0.0	0.0	0.0	100.0
15–19	66.4	29.5	3.6	0.1	0.2	0.1	0.2	100.0
20–24	21.2	76.0	0.8	0.6	0.6	0.3	0.6	100.0
25–29	5.5	91.3	0.1	1.5	0.5	0.4	0.7	100.0
30–49	1.4	89.7	0.1	6.9	0.6	0.5	1.0	100.0
50+	0.6	55.0	0.0	43.4	0.2	0.3	0.4	100.0
Total	35.9	53.2	0.8	9.0	0.3	0.3	0.5	100.0

Note: Table is based on the *de facto* population, i.e., persons who stayed in the household the night before the interview (including both usual residents and visitors). The marital status distribution for females by age cannot be directly compared with the published distribution for NFHS-1 because the ages in the current table are based entirely on the reports of the household respondents, whereas in NFHS-1 the ages of ever-married women age 13–49 were taken from the Woman's Questionnaire.

Also of interest is the proportion of persons who marry young. At age 15–19, the proportions ever married are 3 percent for males and 18 percent for females in urban areas, 8 percent for males and 40 percent for females in rural areas, and 6 percent for males and 34 percent for females in the country as a whole. By age 25–29, almost all women (95 percent) have ever been married. Only 72 percent of males in this age group have ever been married (61 percent in urban areas and 77 percent in rural areas). Overall, the table shows that women in India marry at much younger ages than men, and that both men and women marry at younger ages in rural areas than in urban areas.

Table 2.4 shows estimates of the singulate mean age at marriage (SMAM), which can be calculated from age-specific proportions single in a census or household survey. SMAM is calculated from the *de jure* population in NFHS-2 in order to arrive at estimates that are more comparable to those derived from the censuses, which are modified *de jure* counts. According to the SMAM measure, men in India tend to marry women who are five years younger than themselves. The census and NFHS-2 data indicate that the age at marriage has been rising for both men and women at approximately the same rate (about two and one-half years between 1971 and 1998–99). Marriage ages are higher in urban areas, with urban men and women marrying about two and one-half years later than their rural counterparts. The SMAM for

Table 2.4 Singulate mean age at marriage by state

Singulate mean age at marriage from selected sources by sex and state, India, 1971–1998/99

							NFHS-2 (1998–99)					
	1971 Census		1981 Census		1991 Census		Urban		Rural		Total	
State	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
India	22.6	17.2	23.5	18.4	24.0	19.3	26.5	21.5	24.2	19.0	24.9	19.7
North												
Delhi	24.0	20.0	24.3	20.5	24.2	20.6	26.0	22.1	24.1	19.9	25.8	21.9
Haryana	20.9	17.7	25.2	17.9	22.8	18.8	25.2	21.4	24.3	19.2	24.6	19.8
Himachal Pradesh	23.5	17.7	24.2	19.2	24.5	20.3	27.2	23.7	26.6	21.9	26.7	22.1
Jammu & Kashmir	U	U	U	U	U	U	29.1	24.5	26.5	21.9	27.1	22.5
Punjab	24.1	20.1	25.0	21.1	24.3	21.0	26.4	23.2	25.5	21.6	25.7	22.1
Rajasthan	19.9	15.1	20.6	16.1	21.3	17.5	24.1	19.9	21.6	17.8	22.3	18.3
Central												
Madhya Pradesh	19.5	15.0	20.8	16.6	21.7	17.8	26.0	20.9	22.4	18.2	23.5	18.9
Uttar Pradesh	19.8	15.5	21.3	16.7	21.9	18.0	26.2	21.5	22.4	18.3	23.3	19.0
East												
Bihar	20.0	15.3	21.6	16.6	22.1	17.5	26.3	20.9	23.5	18.5	23.8	18.8
Orissa	22.7	17.3	24.3	19.1	25.0	20.2	27.7	22.8	26.4	21.0	26.6	21.2
West Bengal	24.6	18.0	26.0	19.3	25.9	19.7	29.0	22.4	25.2	18.7	26.2	19.6
Northeast												
Arunachal Pradesh	25.6	19.6	U	U	25.1	20.1	23.9	21.9	25.3	21.6	25.1	21.6
Assam	25.8	18.7	U	U	U	U	29.3	23.6	27.7	21.5	27.8	21.7
Manipur	26.4	22.2	27.3	23.4	28.1	24.7	28.7	25.9	28.6	25.0	28.6	25.4
Meghalaya	25.5	20.2	26.0	21.0	25.8	21.4	27.8	25.0	26.7	22.2	27.0	23.0
Mizoram	U	U	U	U	26.7	22.4	27.5	24.7	26.3	23.2	27.0	24.1
Nagaland	27.8	24.0	29.0	24.8	28.9	24.9	28.4	23.4	27.3	22.9	27.6	23.0
Sikkim	U	U	U	U	25.8	21.4	24.7	23.0	26.5	21.7	26.2	21.9
West												
Goa	U	U	28.5	23.0	29.4	24.2	30.3	25.2	30.1	24.4	30.2	24.8
Gujarat	22.4	18.5	23.3	19.6	23.4	19.9	25.0	21.1	23.8	19.6	24.4	20.2
Maharashtra	23.8	17.6	24.4	18.8	24.8	19.7	26.0	21.3	24.6	18.6	25.3	19.8
South												
Andhra Pradesh	22.8	16.3	23.1	17.3	23.5	18.3	25.8	20.3	23.1	17.6	23.9	18.3
Karnataka	25.2	17.9	26.0	19.3	26.2	20.1	27.8	21.5	26.1	19.4	26.7	20.1
Kerala	27.0	21.3	27.5	22.1	27.7	22.2	28.9	22.7	27.6	21.2	27.9	21.5
Tamil Nadu	26.1	19.6	26.1	20.3	26.4	20.9	27.1	21.7	26.4	20.4	26.6	20.9

Note: Table is based on the *de jure* population.
U: Not available

females in India as estimated in NFHS-2 is 21.5 years in urban areas, 19.0 years in rural areas, and 19.7 years for the country as a whole. SMAM varies substantially across states. The female SMAM is lowest in Rajasthan and Andhra Pradesh (18.3 years) and highest in Manipur (25.4 years), followed by Goa (24.8 years). The mean age at marriage for females is also below the national average in the Central Region, and in Bihar and West Bengal. In addition to Goa, the SMAM is higher than 21 years in all of the northeastern states, most states in the North Region, Kerala and Orissa. Similar differences across the states are also found for the SMAM for males.

2.3 Household Composition

Table 2.5 shows the percent distribution of households by various characteristics of the household head (sex, age, religion, and caste/tribe), as well as by household type and the number of usual household members. The table is based on the *de jure* population because household type and the number of usual household members pertain to the usual-resident population. The table shows that 89–90 percent of household heads are male, regardless of area of residence (rural or urban). More than two-thirds of household heads are 30–59 years of age and the median age of household heads is 45 years in both urban and rural areas. Eighty-two percent of household heads are Hindu, 12 percent are Muslim, 3 percent are Christian, 2 percent are Sikh, 1 percent are Buddhist or Neo-Buddhist, and less than 0.5 percent are Jain. The percent distribution of household heads by religion is almost identical in NFHS-2 and NFHS-1, and is very close to the religious distribution of the population enumerated in the 1991 Census. Muslims constitute 15 percent of urban households, but only 10 percent of rural households. Christians, Jains, and Buddhists are also more concentrated in urban areas than in rural areas. Nineteen percent of household heads belong to scheduled castes and 9 percent belong to scheduled tribes. Both of these groups, but especially scheduled tribes, constitute higher proportions of households in rural areas than in urban areas. Almost one-third of household heads belong to other backward classes (OBC)[1]. The largest proportion of household heads (39 percent) belong to the 'other' caste category. Fifty-seven percent of all households are nuclear family households (consisting of an unmarried adult living alone or a married person or couple and their unmarried children, if any). Mean household size (5.4 persons per household in India as a whole) is slightly higher in rural areas (5.5) than in urban areas (5.2).

States differ substantially in terms of the distribution of household heads by religion and caste/tribe (Table 2.6). In 18 of the 25 states, a large majority of household heads are Hindu. More than half of household heads in Jammu and Kashmir, more than one-quarter in Assam and Kerala, and more than one-fifth in West Bengal are Muslim. Other states with at least 15 percent of Muslim household heads are Uttar Pradesh and Bihar and with at least 10 percent of Muslim household heads are Karnataka and Maharashtra. The largest percentages of households headed by Christians are in Mizoram (96 percent), Nagaland (82 percent), Meghalaya (73 percent), Manipur (37 percent), and Goa (33 percent). Sikhs are concentrated primarily in Punjab, where they constitute 54 percent of households. One-third of household heads in Sikkim are Buddist or Neo-Buddhist. Eleven percent of household heads in Arunchal Pradesh and 7 percent in Maharashtra are also Buddhist or Neo-Buddhist. The proportion of household heads who come from 'other religions' is 36 percent in Arunachal Pradesh (almost all of whom are from the Doni-polo religion) and 11 percent in Manipur (almost all of whom are from the Sanamahi religion).

[1]Other backward classes are castes and communities that have been designated by the Government of India as socially and educationally backward and in need of protection from social injustice.

Table 2.5 Household characteristics

Percent distribution of households by selected characteristics of the household head, household type, and household size, according to residence, India, 1998–99

Characteristic	Urban	Rural	Total
Sex of household head			
Male	88.9	90.0	89.7
Female	11.1	10.0	10.3
Age of household head			
< 30	9.7	11.4	10.9
30–44	39.1	38.2	38.4
45–59	32.1	28.1	29.2
60+	19.2	22.4	21.5
Median age	45.2	45.1	45.1
Religion of household head			
Hindu	77.2	83.7	81.9
Muslim	15.0	10.4	11.7
Christian	3.6	2.7	3.0
Sikh	1.6	1.8	1.7
Jain	0.9	0.2	0.4
Buddhist/Neo-Buddhist	1.4	0.6	0.8
Other	0.1	0.3	0.3
No religion	0.0	0.1	0.1
Missing	0.1	0.1	0.1
Caste/tribe of household head			
Scheduled caste	14.7	20.2	18.7
Scheduled tribe	3.7	11.2	9.1
Other backward class	29.6	33.5	32.4
Other	51.5	33.9	38.8
Don't know/missing	0.5	1.1	1.0
Household type			
Nuclear household	59.3	55.6	56.6
Non-nuclear household	40.7	44.3	43.3
Number of usual members			
1	3.2	3.1	3.1
2	7.6	7.9	7.8
3	13.1	10.9	11.5
4	21.4	17.5	18.6
5	19.3	18.4	18.7
6	13.7	14.9	14.5
7	7.9	10.0	9.4
8	4.9	6.3	5.9
9+	8.8	11.0	10.4
Mean household size	5.2	5.5	5.4
Total percent	100.0	100.0	100.0
Number of households	25,243	65,953	91,196

Note: Table is based on the *de jure* population.

Table 2.6 Religion and caste/tribe of household head by state

Percent distribution of households by religion and caste/tribe of the household head, according to state, India, 1998–99

State	Religion of household head										Caste/tribe of household head					
	Hindu	Muslim	Christian	Sikh	Jain	Buddhist/ Neo-Buddhist	Other[1]	No religion	Missing	Total percent	Sched-uled caste	Sched-uled tribe	Other back-ward class	Other	Missing	Total percent
India	81.9	11.7	3.0	1.7	0.4	0.8	0.3	0.1	0.1	100.0	18.7	9.1	32.4	38.8	1.0	100.0
North																
Delhi	84.3	8.3	1.2	4.6	0.8	0.1	0.2	0.1	0.3	100.0	17.7	0.9	14.9	66.4	0.1	100.0
Haryana	88.5	4.1	0.1	7.1	0.1	0.0	0.0	0.0	0.1	100.0	21.3	0.1	21.4	57.2	0.0	100.0
Himachal Pradesh	93.1	3.1	0.1	1.3	0.1	2.3	0.0	0.0	0.1	100.0	22.4	0.6	17.3	59.7	0.0	100.0
Jammu & Kashmir	45.2	52.8	0.3	1.6	0.0	0.0	0.0	0.0	0.0	100.0	14.8	2.5	11.3	71.5	0.0	100.0
Punjab	41.9	2.1	2.0	53.9	0.0	0.0	0.0	0.0	0.1	100.0	29.8	0.1	16.8	53.4	0.0	100.0
Rajasthan	88.6	9.1	0.1	1.0	1.2	0.0	0.1	0.0	0.0	100.0	18.6	12.0	23.2	46.1	0.1	100.0
Central																
Madhya Pradesh	92.2	5.0	1.4	0.2	1.0	0.2	0.0	0.0	0.0	100.0	16.1	23.7	39.8	20.2	0.0	100.0
Uttar Pradesh	82.6	16.3	0.1	0.7	0.0	0.0	0.0	0.0	0.2	100.0	20.2	2.2	26.2	46.2	5.1	100.0
East																
Bihar	83.2	14.8	1.1	0.0	0.0	0.0	0.9	0.0	0.0	100.0	20.8	9.9	49.9	19.3	0.0	100.0
Orissa	96.5	1.6	1.9	0.0	0.0	0.0	0.0	0.0	0.0	100.0	21.6	21.7	29.6	27.0	0.0	100.0
West Bengal	75.8	21.8	0.3	0.1	0.0	0.4	1.3	0.1	0.2	100.0	22.8	7.2	4.5	65.1	0.5	100.0
Northeast																
Arunachal Pradesh	37.5	1.3	13.0	0.1	0.0	11.0	35.8	1.1	0.2	100.0	13.7	68.0	12.4	5.9	0.0	100.0
Assam	66.9	29.4	2.4	0.0	0.0	0.2	0.3	0.1	0.7	100.0	9.9	21.3	12.5	54.0	2.4	100.0
Manipur	49.5	3.0	36.8	0.0	0.0	0.1	10.6	0.1	0.0	100.0	5.0	38.0	4.5	52.2	0.3	100.0
Meghalaya	9.6	3.4	73.1	0.0	0.0	0.0	2.1	11.6	0.2	100.0	2.1	89.5	1.2	7.1	0.2	100.0
Mizoram	2.5	0.4	95.6	0.1	0.0	1.2	0.1	0.0	0.2	100.0	0.4	98.4	0.2	1.1	0.0	100.0
Nagaland	10.3	6.3	81.8	0.0	0.0	0.1	0.3	0.4	0.9	100.0	5.7	83.5	3.4	6.8	0.6	100.0
Sikkim	59.9	1.3	5.3	0.0	0.0	32.9	0.3	0.0	0.3	100.0	7.1	27.9	33.3	31.5	0.2	100.0
West																
Goa	63.0	3.8	32.9	0.0	0.2	0.0	0.0	0.1	0.0	100.0	6.2	0.3	6.4	86.8	0.2	100.0
Gujarat	89.8	8.1	0.7	0.2	1.2	0.0	0.1	0.0	0.0	100.0	14.7	19.7	23.6	42.0	0.0	100.0
Maharashtra	79.7	9.8	1.3	0.2	1.4	7.1	0.5	0.1	0.0	100.0	13.4	10.2	22.6	53.3	0.5	100.0
South																
Andhra Pradesh	87.8	6.1	6.0	0.0	0.0	0.0	0.0	0.1	0.0	100.0	20.1	5.0	43.5	31.1	0.2	100.0
Karnataka	85.4	10.6	3.2	0.0	0.7	0.0	0.0	0.0	0.0	100.0	16.7	5.6	40.3	36.3	1.0	100.0
Kerala	55.0	25.6	19.3	0.1	0.1	0.0	0.0	0.0	0.0	100.0	9.3	1.1	40.5	49.2	0.0	100.0
Tamil Nadu	89.1	5.3	5.3	0.0	0.1	0.0	0.1	0.0	0.1	100.0	23.5	0.9	73.4	2.2	0.0	100.0

[1]Includes 34.2 percent belonging to the Doni-polo religion in Arunachal Pradesh and 9.9 percent belonging to the Sanamahi religion in Manipur

Thirty percent of households in Punjab, and more than one-fifth in Tamil Nadu, Himachal Pradesh, Haryana, Uttar Pradesh, Andhra Pradesh, and the East Region, belong to scheduled castes. Between 10 and 20 percent of households belong to scheduled castes in Rajasthan, Delhi, Karnataka, Madhya Pradesh, Jammu and Kashmir, Gujarat, Arunachal Pradesh, and Maharashtra. Scheduled tribes are more concentrated in the northeastern states, particularly Mizoram (where 98 percent of household heads belong to scheduled tribes), Meghalaya (90 percent), Nagaland (84 percent), and Arunachal Pradesh (68 percent). Scheduled tribes constitute 38 percent of the household heads in Manipur, 28 percent in Sikkim, 24 percent in Madhya Pradesh, 22 percent in Orissa, and 21 percent in Assam. The percentage of scheduled tribes is negligible (3 percent or less) in the North Region (except for Rajasthan), and in Goa, Tamil Nadu, Kerala, and Uttar Pradesh.

Other backward classes (OBCs) are particularly prominent in the South Region (where 40–73 percent of household heads belongs to OBCs), and in Bihar (50 percent), Madhya Pradesh (40 percent), and Sikkim (33 percent). The highest proportions of household heads who do not belong to scheduled castes, scheduled tribes, and OBCs are in Goa (87 percent), Jammu and Kashmir (72 percent), Delhi (66 percent), West Bengal (65 percent), and Himachal Pradesh (60 percent).

2.4 Educational Attainment

The level of education of household members may affect reproductive behaviour, contraceptive use, the health of children, and proper hygienic practices. Table 2.7 shows the percent distribution of the *de facto* household population by literacy and educational level, according to age, residence, and sex. (This table and all subsequent tables and figures in this report are based on the *de facto* sample, unless otherwise specified.)

Table 2.7 shows that in India 49 percent of females and 26 percent of males age six and above are illiterate. Comparable figures from NFHS-1 are 57 percent of females and 31 percent of males, indicating a substantial decline in illiteracy in only six and one-half years. Cohort differences in literacy also suggest that there has been considerable progress over time (Table 2.7 and Figure 2.2). For example, while only 21 percent of women age 50 and over are literate, the literacy rate doubles for those age 30–39, and steadily increases to 76 percent for women age 10–14. The literacy gap between males and females has narrowed over time, but even at age 10–14 there is still a gap of 11 percentage points (although the gap has decreased from 18 percentage points in NFHS-1).

Changes over time in educational attainment can be seen by examining the differences in educational levels by age. For example, the proportion of males completing at least high school rises from 18 percent at age 50 and above to 40 percent at ages 20–29. For females, the proportion completing at least high school is almost negligible (only 4 percent) at age 50 and above but reaches a level of 23 percent at age 20–29.

A higher percentage of males than of females have completed each level of schooling. The median number of years of schooling is 5.5 for males and 1.6 for females. The proportion illiterate is lowest at age 10–14 for both males and females and is highest at age 50 and above.

Table 2.7 Educational level of the household population

Percent distribution of the household population age 6 and above by literacy and level of education, and median number of completed years of schooling, according to age, residence, and sex, India,1998–99

Age	Educational level[1]							Total percent	Number of persons	Median number of years of schooling
	Illiterate	Literate, < primary school complete	Primary school complete	Middle school complete	High school complete	Higher secondary complete and above	Missing			
					URBAN					
					Male					
6–9	16.2	83.1	0.7	0.0	0.0	0.0	0.0	100.0	5,648	1.8
10–14	7.0	30.0	48.9	13.6	0.5	0.0	0.0	100.0	7,714	5.7
15–19	8.8	5.4	18.1	31.0	24.7	12.0	0.0	100.0	7,418	9.3
20–29	9.1	4.4	13.1	17.3	19.4	36.6	0.0	100.0	12,338	10.4
30–39	12.8	5.8	14.4	13.9	18.6	34.5	0.0	100.0	9,504	10.2
40–49	14.4	6.8	15.1	12.7	20.3	30.7	0.0	100.0	7,193	10.1
50+	20.6	12.6	16.7	9.5	18.6	22.0	0.0	100.0	8,987	8.1
Total	12.5	17.2	18.2	14.6	15.6	21.9	0.0	100.0	58,804	8.3
					Female					
6–9	19.7	79.5	0.8	0.0	0.0	0.0	0.0	100.0	5,293	1.9
10–14	9.6	28.4	46.2	15.2	0.6	0.0	0.0	100.0	6,926	5.7
15–19	13.4	5.3	17.3	26.0	24.1	13.9	0.0	100.0	6,770	9.3
20–29	21.6	4.7	14.1	13.3	15.4	30.9	0.0	100.0	12,107	9.4
30–39	32.5	5.6	16.0	11.5	14.3	20.1	0.0	100.0	9,153	7.3
40–49	36.7	7.7	17.0	9.5	14.6	14.4	0.0	100.0	6,178	5.7
50+	55.9	10.8	14.4	6.3	6.9	5.6	0.1	100.0	8,721	0.0
Total	27.8	16.4	17.9	12.0	11.5	14.3	0.0	100.0	55,156	5.8
					Total					
6–9	17.9	81.3	0.7	0.0	0.0	0.0	0.0	100.0	10,942	1.9
10–14	8.2	29.3	47.6	14.4	0.5	0.0	0.0	100.0	14,640	5.7
15–19	11.0	5.4	17.7	28.6	24.4	12.9	0.0	100.0	14,187	9.3
20–29	15.3	4.6	13.6	15.3	17.4	33.8	0.0	100.0	24,445	10.1
30–39	22.4	5.7	15.2	12.7	16.5	27.4	0.0	100.0	18,656	9.0
40–49	24.7	7.2	16.0	11.2	17.7	23.2	0.0	100.0	13,371	8.3
50+	38.0	11.7	15.6	7.9	12.8	14.0	0.1	100.0	17,708	5.1
Total	19.9	16.8	18.1	13.3	13.6	18.2	0.0	100.0	113,959	7.3

Table 2.7 Educational level of the household population (contd.)

Percent distribution of the household population age 6 and above by literacy and level of education, and median number of completed years of schooling, according to age, residence, and sex, India,1998–99

Age	Educational level[1]							Total percent	Number of persons	Median number of years of schooling
	Illiterate	Literate, < primary school complete	Primary school complete	Middle school complete	High school complete	Higher secondary complete and above	Missing			
RURAL										
Male										
6–9	30.0	69.1	0.8	0.0	0.0	0.0	0.1	100.0	19,420	1.4
10–14	15.0	39.3	37.3	8.1	0.2	0.0	0.0	100.0	22,646	4.7
15–19	17.0	9.0	22.7	30.0	16.1	5.1	0.0	100.0	18,196	8.1
20–29	23.7	8.0	16.7	18.3	15.9	17.3	0.0	100.0	27,623	8.2
30–39	35.1	10.5	16.9	13.9	11.6	11.9	0.0	100.0	23,153	5.6
40–49	37.9	12.2	17.8	11.7	11.8	8.7	0.0	100.0	16,339	5.0
50+	52.3	15.8	15.6	6.1	6.4	3.7	0.0	100.0	25,973	0.0
Total	30.5	22.6	18.4	12.5	8.9	7.1	0.0	100.0	153,381	4.6
Female										
6–9	36.4	63.1	0.4	0.0	0.0	0.0	0.1	100.0	17,951	1.2
10–14	28.6	32.8	31.5	7.0	0.3	0.0	0.0	100.0	20,958	4.1
15–19	38.7	8.2	18.6	19.8	11.0	3.7	0.0	100.0	17,992	5.5
20–29	55.2	6.8	13.9	9.8	7.7	6.5	0.0	100.0	31,136	0.0
30–39	68.4	7.2	12.4	5.3	4.2	2.5	0.0	100.0	22,533	0.0
40–49	74.3	7.9	10.2	3.5	2.8	1.3	0.0	100.0	14,662	0.0
50+	87.1	6.0	4.8	1.0	0.7	0.3	0.1	100.0	24,452	0.0
Total	56.3	17.4	13.2	6.7	4.0	2.4	0.0	100.0	149,714	0.0
Total										
6–9	33.1	66.2	0.6	0.0	0.0	0.0	0.1	100.0	37,371	1.3
10–14	21.5	36.2	34.5	7.6	0.2	0.0	0.0	100.0	43,604	4.5
15–19	27.8	8.6	20.7	24.9	13.6	4.4	0.0	100.0	36,188	7.1
20–29	40.4	7.4	15.3	13.8	11.5	11.6	0.0	100.0	58,759	5.4
30–39	51.5	8.9	14.7	9.7	8.0	7.3	0.0	100.0	45,687	2.1
40–49	55.1	10.2	14.2	7.8	7.5	5.2	0.0	100.0	31,001	0.0
50+	69.2	11.1	10.4	3.6	3.7	2.1	0.0	100.0	50,425	0.0
Total	43.3	20.0	15.9	9.6	6.5	4.7	0.0	100.0	303,095	2.6

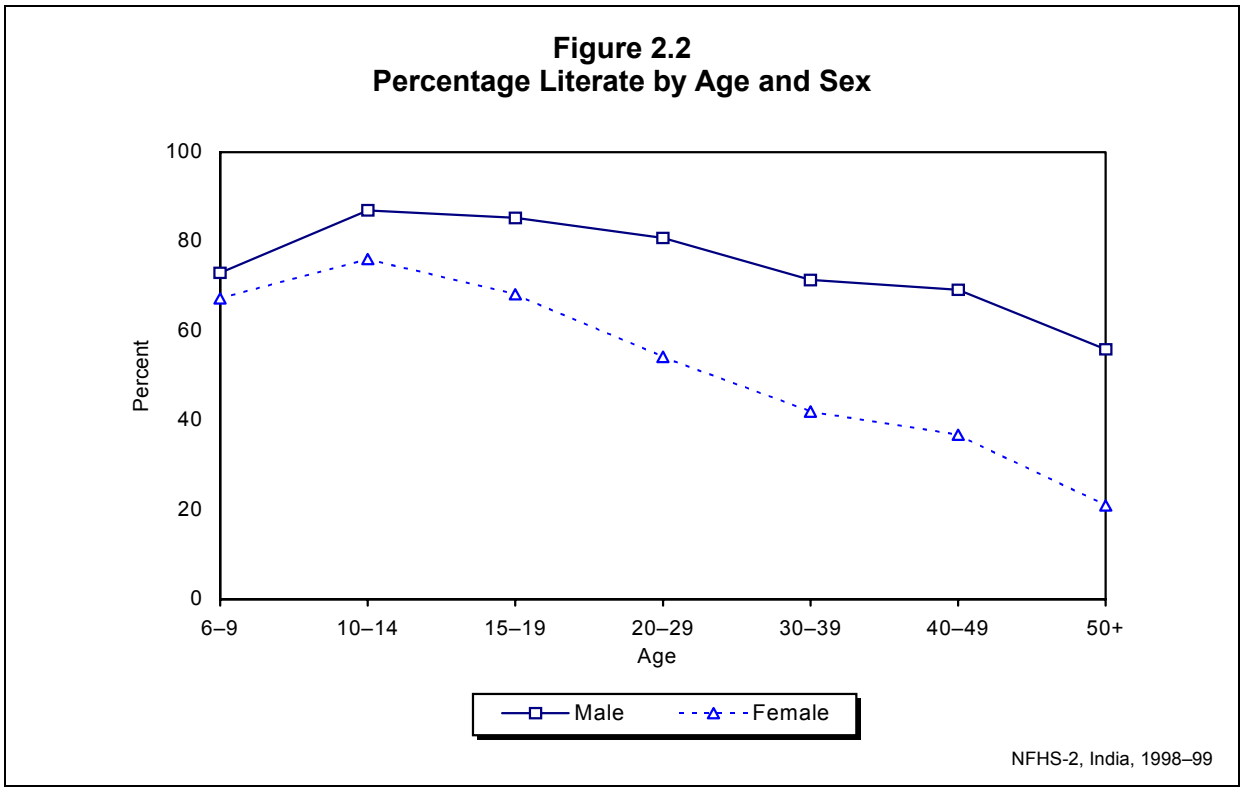
Table 2.7 Educational level of the household population (contd.)

Percent distribution of the household population age 6 and above by literacy and level of education, and median number of completed years of schooling, according to age, residence, and sex, India,1998–99

Age	Educational level[1]							Total percent	Number of persons	Median number of years of schooling
	Illiterate	Literate, < primary school complete	Primary school complete	Middle school complete	High school complete	Higher secondary complete and above	Missing			
					TOTAL					
					Male					
6–9	26.9	72.3	0.8	0.0	0.0	0.0	0.1	100.0	25,068	1.5
10–14	13.0	37.0	40.3	9.5	0.3	0.0	0.0	100.0	30,359	5.0
15–19	14.7	8.0	21.4	30.3	18.6	7.1	0.0	100.0	25,614	8.5
20–29	19.2	6.9	15.6	18.0	17.0	23.3	0.0	100.0	39,961	9.0
30–39	28.6	9.1	16.2	13.9	13.7	18.5	0.0	100.0	32,657	7.3
40–49	30.8	10.5	17.0	12.0	14.4	15.4	0.0	100.0	23,532	6.2
50+	44.1	15.0	15.9	7.0	9.5	8.4	0.0	100.0	34,960	3.5
Total	25.5	21.1	18.4	13.0	10.7	11.2	0.0	100.0	212,185	5.5
					Female					
6–9	32.6	66.8	0.5	0.0	0.0	0.0	0.1	100.0	23,244	1.4
10–14	23.9	31.7	35.1	9.0	0.3	0.0	0.0	100.0	27,885	4.6
15–19	31.8	7.4	18.2	21.5	14.6	6.5	0.0	100.0	24,762	7.0
20–29	45.8	6.2	14.0	10.8	9.9	13.3	0.0	100.0	43,243	4.5
30–39	58.0	6.8	13.4	7.1	7.1	7.6	0.0	100.0	31,686	0.0
40–49	63.2	7.9	12.2	5.3	6.3	5.2	0.0	100.0	20,840	0.0
50+	78.9	7.2	7.3	2.4	2.3	1.7	0.1	100.0	33,173	0.0
Total	48.6	17.1	14.5	8.1	6.0	5.6	0.0	100.0	204,870	1.6
					Total					
6–9	29.6	69.6	0.7	0.0	0.0	0.0	0.1	100.0	48,312	1.5
10–14	18.2	34.4	37.8	9.3	0.3	0.0	0.0	100.0	58,244	4.8
15–19	23.1	7.7	19.8	26.0	16.6	6.8	0.0	100.0	50,376	7.9
20–29	33.0	6.5	14.8	14.3	13.3	18.1	0.0	100.0	83,204	7.2
30–39	43.1	8.0	14.8	10.6	10.4	13.1	0.0	100.0	64,343	4.8
40–49	46.0	9.3	14.7	8.8	10.6	10.6	0.0	100.0	44,372	3.9
50+	61.1	11.2	11.7	4.7	6.0	5.2	0.0	100.0	68,133	0.0
Total	36.9	19.2	16.5	10.6	8.4	8.4	0.0	100.0	417,055	4.0

Note: This table and all the subsequent tables (unless otherwise indicated) are based on the *de facto* population. Illiterate persons may have been to school, but they cannot read and write. Total includes persons with missing information on age, who are not shown separately.

[1]In this report, 'primary school complete' means 5–7 completed years of education, 'middle school complete' means 8–9 completed years of education, 'high school complete' means 10–11 completed years of education, and 'higher secondary complete and above' means 12 or more completed years of education.



Education levels are much higher in urban areas than in rural areas for both males and females. The proportion illiterate is twice as high for rural females (56 percent) as for urban females (28 percent), and is more than twice as high for rural males (31 percent) as for urban males (13 percent).

There are large interstate variations in the level of female and male literacy and educational attainment (Table 2.8 and Figure 2.3). At least three-quarters of females age six and above are literate in Mizoram (89 percent), Kerala (85 percent), Delhi (78 percent), and Goa (75 percent). At the other extreme, less than half of females age six and over are literate in Bihar (35 percent), Rajasthan (37 percent), Uttar Pradesh (43 percent), Madhya Pradesh (45 percent), Jammu and Kashmir (45 percent), and Andhra Pradesh (46 percent). The percentage of females who have a high school level of education or above is highest in Delhi (33 percent, up from 29 percent in NFHS-1), followed by Kerala (31 percent, up from 19 percent in NFHS-1), Goa (28 percent, up from 23 percent in NFHS-1), and Punjab (23 percent, up from 15 percent in NFHS-1).

Table 2.8 Educational level of the household population by state

Percent distribution of the *de facto* household population age 6 and above by literacy and level of education, and median number of completed years of schooling, according to sex and state, India, 1998–99

State	Educational level								
	Illiterate	Literate, < primary school complete	Primary school complete	Middle school complete	High school complete	Higher secondary complete and above	Miss-ing	Total percent	Median number of years of schooling
				MALE					
India	25.5	21.1	18.4	13.0	10.7	11.2	0.0	100.0	5.5
North									
Delhi	8.5	15.4	15.9	14.6	16.9	28.7	0.0	100.0	9.3
Haryana	21.2	19.6	17.8	13.1	16.0	12.3	0.0	100.0	6.2
Himachal Pradesh	14.6	17.8	21.0	14.8	19.7	12.1	0.0	100.0	7.5
Jammu & Kashmir	31.2	15.0	14.9	18.1	11.6	9.1	0.0	100.0	5.7
Punjab	22.1	18.0	17.3	12.9	17.4	12.3	0.0	100.0	6.4
Rajasthan	28.2	22.0	18.4	13.2	9.3	8.9	0.0	100.0	5.0
Central									
Madhya Pradesh	27.9	24.0	20.4	11.4	5.6	10.7	0.0	100.0	4.8
Uttar Pradesh	28.2	22.0	15.9	13.8	8.9	11.2	0.1	100.0	5.0
East									
Bihar	36.8	19.7	14.2	9.7	10.4	9.2	0.0	100.0	3.6
Orissa	24.0	24.8	20.8	13.2	8.5	8.6	0.0	100.0	5.1
West Bengal	24.0	29.0	16.7	12.5	7.6	10.2	0.0	100.0	4.7
Northeast									
Arunachal Pradesh	27.0	26.6	16.5	13.2	7.4	9.2	0.1	100.0	4.4
Assam	25.4	27.2	15.7	15.8	6.9	8.9	0.1	100.0	4.7
Manipur	20.3	15.0	14.7	20.5	12.3	17.3	0.0	100.0	8.0
Meghalaya	28.3	35.1	14.0	11.2	5.5	5.8	0.1	100.0	3.2
Mizoram	6.4	31.9	24.4	19.7	7.6	9.9	0.1	100.0	6.4
Nagaland	19.4	27.6	20.3	15.3	8.7	8.5	0.1	100.0	5.4
Sikkim	20.7	32.0	20.2	11.2	7.2	8.6	0.1	100.0	4.7
West									
Goa	11.3	19.3	17.4	15.8	17.7	18.5	0.1	100.0	8.3
Gujarat	23.3	18.3	20.3	13.4	12.2	12.4	0.0	100.0	6.3
Maharashtra	17.3	21.6	19.0	16.0	12.8	13.3	0.0	100.0	7.1
South									
Andhra Pradesh	33.1	18.1	19.8	8.9	10.5	9.6	0.0	100.0	4.9
Karnataka	25.7	17.6	19.6	10.9	12.8	13.4	0.0	100.0	6.0
Kerala	7.2	18.4	23.4	17.4	21.2	12.4	0.0	100.0	8.1
Tamil Nadu	20.3	15.2	24.2	16.4	12.8	11.0	0.0	100.0	6.4

The states with the highest literacy rates for males are the same states that have the highest literacy rates for females (Mizoram, Kerala, Delhi, and Goa). Literacy rates for males are lowest in Bihar (63 percent), Andhra Pradesh (67 percent), and Jammu and Kashmir (69 percent). In every state, the percentage of the population that is literate is higher for males than for females, and a higher percentage of males than females have completed at least high school. The literacy gap between males and females is highest in Rajasthan and Uttar Pradesh, and the differences are least pronounced in Mizoram, Meghalaya, and Kerala.

Table 2.8 Educational level of the household population by state (contd.)

Percent distribution of the *de facto* household population age 6 and above by literacy and level of education, and median number of completed years of schooling, according to sex and state, India, 1998–99

State	Educational level								
	Illiterate	Literate, < primary school complete	Primary school complete	Middle school complete	High school complete	Higher secondary complete and above	Miss-ing	Total percent	Median number of years of schooling
				FEMALE					
India	48.6	17.1	14.5	8.1	6.0	5.6	0.0	100.0	1.6
North									
Delhi	21.7	15.3	17.6	12.3	12.4	20.6	0.0	100.0	7.0
Haryana	42.7	17.4	16.5	8.4	7.8	7.2	0.0	100.0	2.4
Himachal Pradesh	31.3	16.0	21.7	12.1	11.8	7.1	0.0	100.0	5.2
Jammu & Kashmir	55.3	12.1	11.6	10.8	5.6	4.7	0.0	100.0	0.0
Punjab	35.1	14.7	17.3	9.5	13.3	10.1	0.0	100.0	5.0
Rajasthan	62.9	15.7	9.9	5.3	3.2	2.9	0.0	100.0	0.0
Central									
Madhya Pradesh	55.5	18.7	12.7	5.6	2.7	4.8	0.0	100.0	0.0
Uttar Pradesh	57.3	16.2	11.4	6.3	3.6	5.1	0.1	100.0	0.0
East									
Bihar	65.2	14.5	9.3	4.8	4.1	2.0	0.0	100.0	0.0
Orissa	48.7	20.4	15.8	7.8	4.1	3.2	0.0	100.0	1.2
West Bengal	42.6	26.4	13.9	8.4	4.1	4.6	0.0	100.0	2.1
Northeast									
Arunachal Pradesh	43.0	22.0	14.5	11.3	5.2	4.0	0.1	100.0	2.1
Assam	40.9	24.0	12.5	13.7	4.9	3.8	0.2	100.0	2.5
Manipur	41.3	13.1	11.6	15.5	7.4	11.0	0.0	100.0	4.3
Meghalaya	33.2	35.9	13.0	9.4	4.6	3.9	0.1	100.0	2.3
Mizoram	10.6	36.3	21.7	17.9	7.5	6.0	0.1	100.0	5.5
Nagaland	31.7	26.3	19.1	13.2	5.4	4.3	0.0	100.0	3.7
Sikkim	35.6	26.4	18.0	10.3	5.2	4.5	0.0	100.0	3.3
West									
Goa	25.2	17.6	15.8	13.5	13.6	14.2	0.1	100.0	6.7
Gujarat	46.4	13.7	16.5	8.4	7.0	8.1	0.0	100.0	3.2
Maharashtra	38.6	18.1	17.8	10.8	7.9	6.9	0.0	100.0	4.1
South									
Andhra Pradesh	54.0	15.2	16.3	5.4	5.5	3.6	0.0	100.0	0.0
Karnataka	44.5	15.1	16.6	7.9	8.9	7.0	0.0	100.0	3.2
Kerala	14.9	16.9	21.4	16.0	18.5	12.3	0.0	100.0	7.6
Tamil Nadu	41.7	12.6	19.4	12.5	7.2	6.5	0.1	100.0	4.5

The median years of schooling for males and females also vary substantially over the states. All states in the West Region, all states in the South Region except Andhra Pradesh, and all states in the North Region except Rajasthan have median years of schooling above the national average for males. In the Central and East Regions, all states are below the national average. Among the northeastern states, only Manipur and Mizoram have a median number of years of schooling higher than the national average. For females, the median number of years of schooling ranges from a high of 7–8 years in Kerala, Delhi, and Goa to a low of zero years in six states where the majority of women have never been to school.

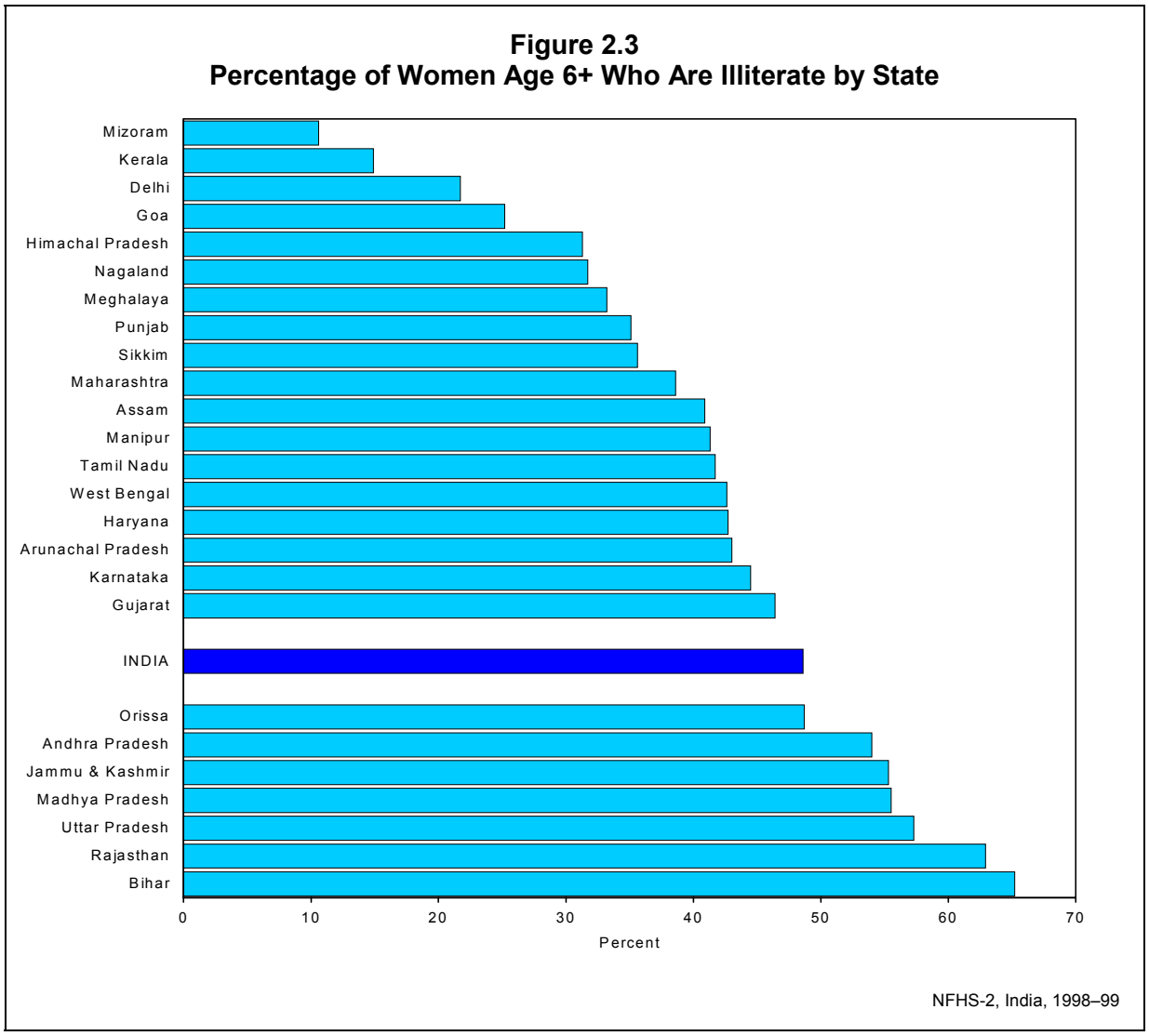


Table 2.9 and Figure 2.4 show school attendance rates for the school-age household population by age, sex, and residence in different states. In the country as a whole, 79 percent of children age 6–14 are attending school, up from 68 percent in NFHS-1. The attendance rate drops off sharply to 49 percent at age 15–17. For the age group 6–17, the attendance rate is 78 percent for males, 66 percent for females, and 72 percent for India as a whole. In urban areas, attendance rates for males and females differ by less than 5 percentage points for every age group. In rural areas, however, attendance rates are considerably higher for males than for females at every age, and the gap widens with increasing age. For both males and females, school attendance rates are much higher in urban areas than in rural areas in every age group.

School attendance at age 6–17 years is more than 90 percent in Himachal Pradesh and Kerala, and 85–90 percent in Goa, Delhi, Manipur, Mizoram, and Punjab. Overall, school attendance is lowest in Bihar (only 60 percent), and it is also 70 percent or lower in the Central Region, Rajasthan, Gujarat, and Andhra Pradesh. Generally, the lower the overall attendance rate, the higher the difference in children's school attendance by residence and sex.

Table 2.9 School attendance by state

Percentage of the household population age 6–17 years attending school by sex, residence, age, and state, India, 1998–99

State	Male			Female			Total		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
India									
Age									
6–10 years	91.7	83.2	85.2	89.1	75.1	78.3	90.4	79.3	81.9
11–14 years	85.1	78.5	80.2	82.8	61.6	67.0	84.0	70.4	73.9
15–17 years	65.3	54.8	57.7	60.5	32.8	40.3	63.0	44.0	49.3
6–14 years	88.7	81.4	83.1	86.3	69.7	73.7	87.6	75.7	78.6
6–17 years	83.0	75.8	77.6	80.0	61.7	66.2	81.5	69.0	72.1
North									
Delhi	86.0	89.2	86.2	87.6	83.2	87.2	86.7	86.2	86.7
Haryana	87.1	85.4	85.9	86.1	74.7	77.8	86.7	80.5	82.2
Himachal Pradesh	96.4	95.4	95.5	96.3	92.8	93.0	96.3	94.1	94.3
Jammu & Kashmir	83.0	85.8	85.3	85.2	67.6	70.4	84.0	76.6	77.8
Punjab	93.0	84.1	86.7	92.7	78.1	82.7	92.8	81.5	84.9
Rajasthan	83.9	80.4	81.3	73.5	49.9	55.6	79.0	66.0	69.1
Central									
Madhya Pradesh	84.0	73.1	75.9	77.9	58.0	62.8	81.2	65.7	69.6
Uttar Pradesh	77.7	77.3	77.3	77.0	57.3	61.4	77.3	68.0	69.9
East									
Bihar	79.1	66.8	68.2	72.1	47.5	50.5	75.5	57.4	59.6
Orissa	78.2	77.1	77.2	75.4	65.8	66.8	76.9	71.5	72.1
West Bengal	78.5	72.5	73.7	76.1	65.9	68.0	77.3	69.3	70.9
Northeast									
Arunachal Pradesh	96.7	82.3	84.2	87.3	74.3	75.9	92.2	78.3	80.1
Assam	86.8	73.3	74.2	81.1	69.0	69.9	83.8	71.2	72.1
Manipur	91.8	87.8	89.1	89.3	82.0	84.4	90.5	84.7	86.6
Meghalaya	91.4	75.3	78.5	91.3	76.8	79.9	91.3	76.0	79.2
Mizoram	92.6	78.6	85.5	89.8	79.8	85.3	91.0	79.2	85.4
Nagaland	87.3	84.5	85.1	84.8	78.0	79.4	86.0	81.1	82.2
Sikkim	88.0	82.7	83.2	73.4	83.6	82.6	80.6	83.2	82.9
West									
Goa	91.2	88.5	89.6	87.2	86.5	86.8	89.2	87.5	88.1
Gujarat	82.8	69.6	74.8	73.4	56.7	63.1	78.3	63.2	69.1
Maharashtra	86.3	82.6	84.1	84.6	75.7	79.1	85.5	79.3	81.8
South									
Andhra Pradesh	80.1	71.3	73.5	78.5	56.0	61.5	79.4	63.9	67.7
Karnataka	81.9	71.4	74.9	79.7	62.4	68.0	80.8	66.9	71.4
Kerala	95.6	89.7	91.0	94.5	89.8	90.8	95.0	89.8	90.9
Tamil Nadu	84.4	81.6	82.6	84.7	73.3	76.9	84.5	77.4	79.7

Fifty percent of school-age girls in Bihar are not attending school. School attendance for school-age girls is also low in Rajasthan (56 percent), Uttar Pradesh (61 percent), Andhra Pradesh (62 percent), and Madhya Pradesh and Gujarat (63 percent each). Among females age 6–14 years, less than three-quarters attend school in 5 states compared with 11 states in NFHS-1. Similarly, for males age 6–14 years, less than 75 percent attend school only in Bihar, whereas there were eight such states in NFHS-1 (data not shown).

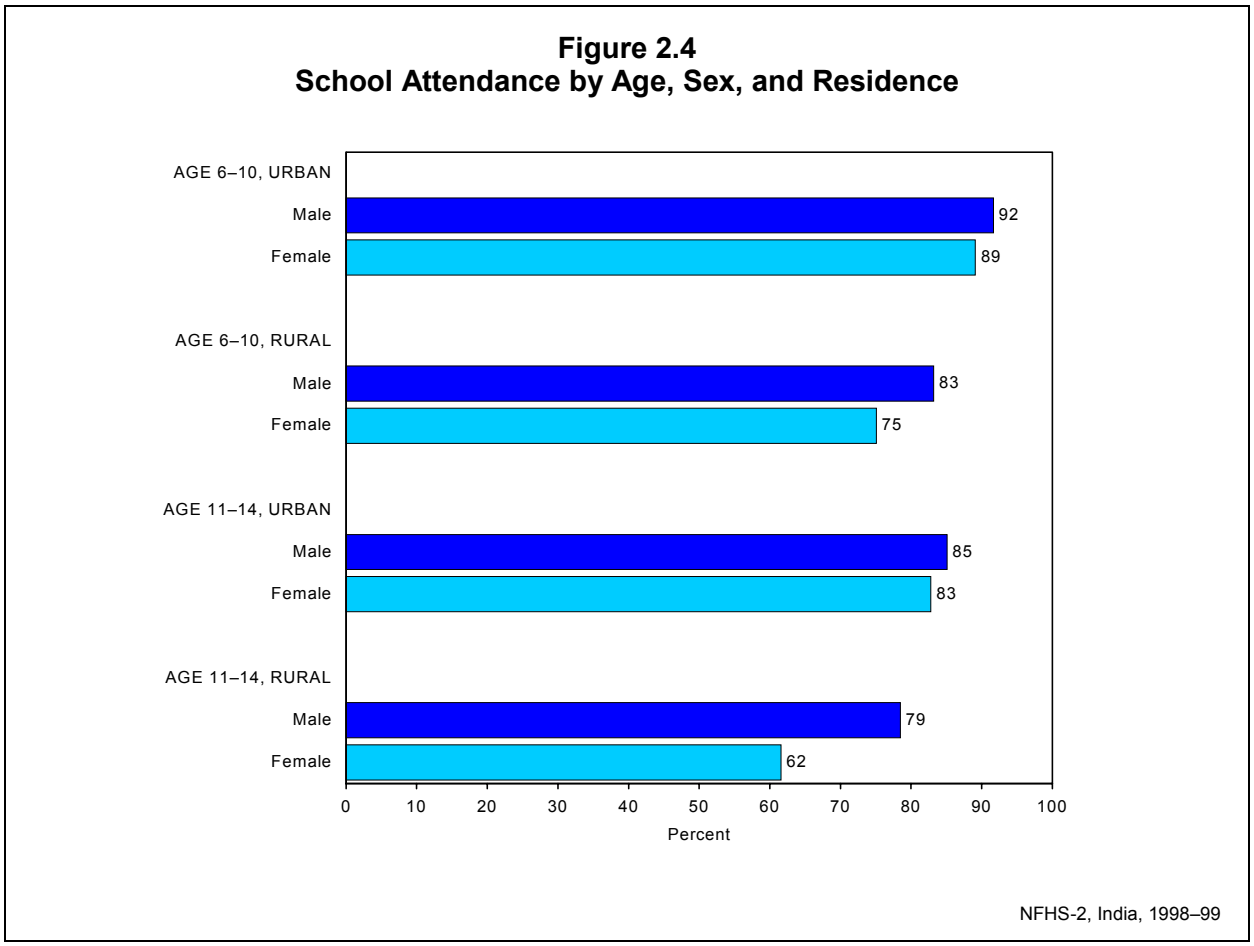


Table 2.10 shows reasons for children never attending school or not currently attending school. For both boys and girls, the cost of schooling is cited most often as the main reason for never attending school. This reason is mentioned in one-quarter of cases for both boys and girls. This reason is almost twice as likely to be mentioned for children never attending school as for children not currently attending school. The most mentioned reason for not currently attending school is that the child is not interested in studies, which was cited for 41 percent of boys and 26 percent of girls. A lack of interest in school is also frequently given as a reason for children (especially boys) never attending school. Not surprisingly, the need for children to work in the household is mentioned more for girls than for boys, and the need for children to work on the family farm, in the family business, or outside the home for payment is more frequently mentioned for boys than for girls. Education is not considered necessary for 13 percent of girls and 8 percent of boys who never attended school. The lack of accessibility of schools ('school too far away' or 'transport not available') is mentioned infrequently for both boys and girls. The pattern of the reasons for not attending school for boys and girls is similar in urban and rural areas with the exception that the cost of schooling is cited more often in urban areas and the distance from school and the need for work (in the household, on a family farm, or in a family business) are mentioned slightly less often in urban areas.

Table 2.10 Reasons for children not attending school

Percent distribution of children age 6–17 years who never attended school by the main reason for never attending school and percent distribution of children age 6–17 years who have dropped out of school by the main reason for not currently attending school, according to residence and sex, India, 1998–99

	Urban		Rural		Total	
Reason	Male	Female	Male	Female	Male	Female
Main reason for never attending school[1]						
School too far away	1.3	2.8	3.8	4.5	3.5	4.3
Transport not available	0.2	0.6	0.6	0.7	0.6	0.7
Education not considered necessary	6.1	12.9	7.8	13.1	7.6	13.1
Required for household work	4.6	9.6	6.7	15.5	6.4	14.9
Required for work on farm/family business	2.8	1.2	5.2	3.4	4.9	3.2
Required for outside work for payment in cash or kind	4.6	2.9	4.3	2.6	4.4	2.6
Costs too much	28.5	30.1	25.8	23.8	26.2	24.5
No proper school facilities for girls	0.0	1.1	0.0	2.6	0.0	2.5
Required for care of siblings	0.6	1.7	0.9	3.0	0.9	2.9
Not interested in studies	26.5	15.7	25.7	15.9	25.8	15.8
Other	21.9	18.6	17.0	12.8	17.6	13.4
Don't know	3.0	2.8	2.0	2.1	2.2	2.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of children	1,107	1,438	7,081	12,614	8,188	14,052
Main reason for not currently attending school[2]						
School too far away	0.2	1.0	1.0	5.9	0.8	4.8
Transport not available	0.1	0.2	0.4	1.6	0.3	1.3
Further education not considered necessary	2.4	5.4	2.3	4.3	2.4	4.5
Required for household work	5.7	14.7	8.7	17.3	8.0	16.7
Required for work on farm/family business	4.7	1.6	9.2	2.9	8.0	2.6
Required for outside work for payment in cash or kind	11.3	3.0	9.9	3.7	10.3	3.5
Costs too much	15.2	17.0	13.3	11.4	13.8	12.6
No proper school facilities for girls	0.0	1.2	0.0	3.5	0.0	3.0
Required for care of siblings	0.2	1.5	0.6	2.3	0.5	2.2
Not interested in studies	42.5	30.2	40.0	24.8	40.6	26.0
Repeated failures	6.0	6.1	5.3	3.7	5.5	4.2
Got married	0.1	4.9	0.2	8.5	0.2	7.7
Other	5.8	8.2	5.3	6.2	5.5	6.6
Don't know	5.7	5.1	3.8	4.0	4.2	4.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of children	1,852	1,747	5,475	6,121	7,327	7,868

[1]For children who have never attended school
[2]For children who have dropped out of school

2.5 Housing Characteristics

Table 2.11 provides information on housing characteristics by residence. Overall, three in every five households in India have electricity (up from one in two households in NFHS-1). The proportion of households with electricity is 91 percent in urban areas and 48 percent in rural areas, an increase of 10 and 24 percent, respectively, over the NFHS-1 results.

Table 2.11 Housing characteristics

Percent distribution of households by housing characteristics, according to residence, India, 1998–99

Housing characteristic	Urban	Rural	Total
Electricity			
Yes	91.3	48.1	60.1
No	8.7	51.9	39.9
Total percent	100.0	100.0	100.0
Source of drinking water			
Piped	74.5	25.0	38.7
Hand pump	18.1	47.3	39.2
Well water	6.0	23.5	18.7
Surface water	0.4	3.5	2.6
Other	1.0	0.7	0.8
Total percent	100.0	100.0	100.0
Time to get drinking water			
Percentage < 15 minutes	86.4	69.3	74.1
Median time (minutes)	0.0	4.9	4.3
Method of drinking water purification[1]			
Strains water by cloth	25.1	16.1	18.6
Uses alum	1.4	1.2	1.2
Uses water filter	14.8	2.4	5.8
Boils water	13.6	6.1	8.2
Uses electronic purifier	1.2	0.1	0.4
Uses other method	0.6	0.8	0.7
Does not purify water	50.4	75.3	68.4
Sanitation facility			
Flush toilet	63.9	8.8	24.0
Pit toilet/latrine	16.8	10.0	11.9
Other	0.0	0.1	0.1
No facility	19.3	81.1	64.0
Total percent	100.0	100.0	100.0
Main type of fuel used for cooking			
Wood	23.1	73.1	59.3
Crop residues	0.5	8.1	6.0
Dung cakes	1.4	8.4	6.5
Coal/coke/lignite/charcoal	4.9	1.7	2.6
Kerosene	21.5	2.7	7.9
Electricity	0.8	0.2	0.4
Liquid petroleum gas	46.9	5.1	16.7
Biogas	0.6	0.5	0.5
Other	0.2	0.2	0.2
Total percent	100.0	100.0	100.0
Type of house			
Kachha	9.4	41.4	32.5
Semi-*pucca*	24.4	39.5	35.3
Pucca	66.0	19.0	32.0
Missing	0.2	0.2	0.2
Total percent	100.0	100.0	100.0
Persons per room			
< 3	68.6	60.2	62.5
3–4	19.5	24.4	23.1
5–6	8.3	10.7	10.0
7+	3.5	4.5	4.2
Missing	0.1	0.1	0.1
Total percent	100.0	100.0	100.0
Mean number of persons per room	2.5	2.8	2.7
Number of households	25,243	65,953	91,196

[1]Totals add to more than 100.0 because households may use more than one method of purification.

Water sources and sanitation facilities have an important influence on the health of household members, especially children. NFHS-1 and NFHS-2 included questions on sources of drinking water and types of sanitation facilities. NFHS-2 found that 39 percent of households in India use piped drinking water (up from 31 percent in NFHS-1), the same proportion drink water from hand pumps (also up from 31 percent in NFHS-1), 19 percent drink water from wells (down from 26 percent in NFHS-1), and 3 percent drink surface water (down from 11 percent in NFHS-1). As in the case of electricity, there are large urban-rural differences in sources of drinking water. Three-quarters of households in urban areas use piped drinking water compared with only one-quarter in rural areas. The median time to get drinking water is five minutes in rural areas, whereas in urban areas the majority of households do not have any travel time to their source of drinking water. Only one-third of households in India purify water by any method (half of households in urban areas and one-quarter of households in rural areas). The most popular methods of water purification are straining and boiling water. Water filters are used by 30 percent of urban households that purified their drinking water.

Regarding sanitation facilities, only 24 percent of households have a flush toilet that uses either piped water or bucket water for flushing (up slightly from 22 percent in NFHS-1), 12 percent have a pit toilet or latrine, and 64 percent have no facility. Again there are large urban-rural differences: 64 percent of urban households have a flush toilet compared with only 9 percent of rural households. A large majority (81 percent) of rural households have no toilet facility at all.

Several types of fuel are used for cooking in India, with wood as the most common type. Overall, 59 percent of households rely mainly on wood, 17 percent on liquid petroleum gas, 13 percent on either crop residues or dung cakes, 8 percent on kerosene, and the rest on other fuels. Sixty-eight percent of urban households rely mainly on liquid petroleum gas or kerosene, while 73 percent of rural households rely mainly on wood.

Regarding type of house construction, one-third of households in India live in houses that are *kachha* (made from mud, thatch, or other low-quality materials), one-third live in semi-*pucca* houses (using partly low-quality and partly high-quality materials), and one-third live in *pucca* houses (made with high-quality materials throughout, including the roof, walls, and floor). By residence, 66 percent of households in urban areas live in *pucca* houses compared with 19 percent of households in rural areas.

Crowded housing conditions may affect health as well as the quality of life. Thirty-seven percent of households live in houses with three or more persons per room. The mean number of persons per room is 2.5 in urban areas, 2.8 in rural areas, and 2.7 overall (only a slight decrease from 2.8 persons per room in NFHS-1).

Table 2.12 presents an interstate comparison of housing characteristics. The percentage of households with electricity is lowest in Bihar (18 percent), Assam (26 percent), Orissa (34 percent), and West Bengal and Uttar Pradesh (37 percent each). At least 90 percent of households have electricity in Delhi (98 percent), Himachal Pradesh (97 percent), Punjab (96 percent), Goa (94 percent), and Jammu and Kashmir (90 percent). In addition, over three-quarters of households have electricity in Haryana, Gujarat, Mizoram, Sikkim, Tamil Nadu, and Manipur. More than 60 percent of households use piped water or water from a hand pump for drinking in every state except Kerala and a few states in the Northeast Region. In Manipur,

Table 2.12 Housing characteristics by state

Selected housing characteristics by state, India, 1998–99

State	Percentage of households: With electricity	With drinking water that is piped or from a hand pump	With a toilet or latrine facility	Using biomass fuel for cooking	Living in a *pucca* house	Mean number of persons per room
India	60.1	77.9	35.9	71.7	32.0	2.7
North						
Delhi	97.7	98.7	94.4	3.6	88.2	2.2
Haryana	89.1	88.0	39.0	66.9	46.7	2.4
Himachal Pradesh	97.2	77.4	26.7	64.0	28.7	1.8
Jammu & Kashmir	90.1	70.6	51.0	65.8	36.1	2.2
Punjab	95.5	98.9	51.4	60.6	52.1	2.1
Rajasthan	64.4	69.8	27.8	81.0	41.4	3.0
Central						
Madhya Pradesh	68.1	63.5	22.2	79.3	19.2	2.9
Uttar Pradesh	36.6	85.6	26.5	82.8	24.8	3.1
East						
Bihar	18.2	75.4	16.8	85.9	15.5	2.9
Orissa	33.8	65.3	13.5	86.8	14.8	2.4
West Bengal	36.7	89.3	44.8	65.7	32.8	2.7
Northeast						
Arunachal Pradesh	68.9	80.7	73.0	80.8	14.2	2.2
Assam	26.4	60.1	63.0	87.1	10.9	2.1
Manipur	75.3	48.9	92.0	69.2	7.1	2.1
Meghalaya	41.2	42.1	52.0	83.5	14.5	2.0
Mizoram	84.1	63.2	97.7	57.4	16.2	2.6
Nagaland	56.3	40.5	74.3	86.1	18.1	1.6
Sikkim	80.7	84.6	72.7	63.2	50.6	2.0
West						
Goa	93.5	61.8	58.9	41.4	51.0	1.6
Gujarat	84.3	84.5	44.9	54.5	45.2	2.7
Maharashtra	82.1	81.9	45.9	51.9	28.3	3.0
South						
Andhra Pradesh	74.4	78.5	27.3	74.1	39.9	2.9
Karnataka	80.9	87.0	38.6	67.8	41.2	2.5
Kerala	71.8	19.9	85.2	81.7	79.8	1.3
Tamil Nadu	78.8	85.0	34.0	66.5	27.6	2.2

Meghalaya, and Nagaland, piped water or water from a hand pump is used for drinking by 41–49 percent of households, and less than 20 percent of households use these water sources in Kerala. The majority of households in Kerala obtain their drinking water from wells.

Most of the states in India have inadequate toilet facilities. There are only seven states where more than 70 percent of households have any type of toilet facility. In order of decreasing proportions, these states are Mizoram, Delhi, Manipur, Kerala, Nagaland, Arunachal Pradesh, and Sikkim. Less than 30 percent of households have a toilet or latrine facility in Central India and in Orissa, Bihar, Himachal Pradesh, Andhra Pradesh, and Rajasthan. In Delhi, only 4 percent of households use biomass fuel for cooking. In every other state except Goa, a majority of households use biomass fuel for cooking.

Table 2.13 Household ownership of agricultural land, house, and livestock

Percent distribution of households owning agricultural land and percentage owning a house and livestock by residence, India, 1998–99

Asset	Urban	Rural	Total
No agricultural land	80.0	38.6	50.1
Irrigated land only			
< 1 acre	1.6	9.4	7.2
1–5 acres	5.4	16.1	13.2
6+ acres	2.2	4.2	3.6
Nonirrigated land only			
< 1 acre	1.5	5.1	4.1
1–5 acres	4.2	13.2	10.7
6+ acres	1.4	3.6	3.0
Both irrigated and nonirrigated land			
< 1 acre	0.2	0.8	0.6
1–5 acres	0.9	5.0	3.9
6+ acres	1.1	3.4	2.8
Missing	1.4	0.6	0.8
Total percent	100.0	100.0	100.0
Percentage owning a house	78.2	94.8	90.2
Percentage owning livestock	13.7	59.3	46.7
Number of households	25,243	65,953	91,196

The percentage of households living in *pucca* houses is quite low in most states. In Orissa, Bihar, Madhya Pradesh, and all the states in the Northeast Region except Sikkim, less than 20 percent of households live in *pucca* houses. Delhi (88 percent) and Kerala (80 percent) are the only states in which more than 60 percent of households live in houses classified as *pucca*. Households are least crowded in Kerala (1.3 persons per room), followed by Goa and Nagaland (where the average number of persons per room is 1.6). Households in Uttar Pradesh, Rajasthan, Maharashtra, Andhra Pradesh, Bihar, and Madhya Pradesh have an average of around 3 persons per room, which puts them in the most crowded category.

Table 2.13 gives a number of measures related to the socioeconomic status of the household (ownership of land, a house, and livestock). Overall, half of households in India do not own any agricultural land. Thirty-nine percent of households in rural areas do not own agricultural land (up slightly from 36 percent in NFHS-1), compared with 80 percent of households in urban areas. In rural areas, among those who own land, 64 percent have at least some irrigated land. The proportion of households owning a house is 78 percent in urban areas, 95 percent in rural areas, and 90 percent overall. The proportion of households owning livestock is 14 percent in urban areas, 59 percent in rural areas, and 47 percent overall.

The possession of durable goods is another indicator of a household's socioeconomic level, although these goods may also have other benefits. For example, having access to a radio or television may expose household members to innovative ideas or important information about health and family welfare; a refrigerator prolongs the wholesomeness of food; and a means of transportation allows greater access to many services outside the local area. Table 2.14 shows that the majority of Indian households have a cot or a bed (81 percent) or a clock or watch (67

Table 2.14 Household ownership of durable goods and standard of living

Percentage of households owning selected durable goods and percent distribution of households by type of kitchenware and the standard of living index, according to residence, India, 1998–99

Asset	Urban	Rural	Total
Durable goods			
Mattress	71.7	38.1	47.4
Pressure cooker	65.2	16.0	29.6
Chair	71.3	35.6	45.5
Cot/bed	86.1	79.4	81.2
Table	64.9	30.0	39.6
Clock/watch	90.1	57.5	66.5
Electric fan	82.2	31.4	45.5
Bicycle	53.5	45.7	47.8
Radio/transistor	53.2	32.2	38.0
Sewing machine	35.5	11.9	18.4
Telephone	20.1	2.6	7.4
Refrigerator	28.8	3.7	10.6
Television (black and white)	44.8	17.0	24.7
Television (colour)	27.3	3.5	10.1
Moped/scooter/motorcycle	25.0	6.0	11.2
Car	4.4	0.6	1.6
Water pump	9.3	8.2	8.5
Bullock cart	1.4	9.4	7.2
Thresher	0.7	2.5	2.0
Tractor	0.8	2.0	1.6
None of the above	1.9	7.3	5.8
Main type of kitchenware used			
Clay	0.5	1.1	0.9
Aluminium	29.8	45.5	41.1
Cast iron	0.2	0.3	0.3
Brass/copper	0.6	1.2	1.0
Stainless steel	68.9	51.9	56.6
Total percent	100.0	100.0	100.0
Standard of living index			
Low	14.3	44.7	36.3
Medium	45.2	44.0	44.3
High	39.0	10.3	18.2
Missing	1.5	1.0	1.2
Total percent	100.0	100.0	100.0
Number of households	25,243	65,953	91,196

percent). Other durable goods found in many households are bicycles (48 percent), mattresses (47 percent), chairs or electric fans (46 percent each), tables (40 percent), radios (38 percent), pressure cookers (30 percent), and black and white televisions (25 percent). A small proportion of households own sewing machines (18 percent), motorcycles, scooters, or mopeds (11 percent), refrigerators (11 percent), colour televisions (10 percent), water pumps (9 percent), telephones (7 percent), or cars (2 percent). Urban households are much more likely than rural households to own each of these durable goods. In rural areas, 9 percent of households own a bullock cart, 3 percent own a thresher, and 2 percent own a tractor. Six percent of households in India do not own any of the above durable goods. The majority of households (57 percent) use stainless steel kitchenware and two in every five households use aluminium kitchenware.

Table 2.14 shows a summary household measure called the standard of living index (SLI), which is calculated by adding the following scores:

House type: 4 for *pucca*, 2 for semi-*pucca*, 0 for *kachha*;

Toilet facility: 4 for own flush toilet, 2 for public or shared flush toilet or own pit toilet, 1 for shared or public pit toilet, 0 for no facility;

Source of lighting: 2 for electricity, 1 for kerosene, gas, or oil, 0 for other source of lighting;

Main fuel for cooking: 2 for electricity, liquid petroleum gas, or biogas, 1 for coal, charcoal, or kerosene, 0 for other fuel;

Source of drinking water: 2 for pipe, hand pump, or well in residence/yard/plot, 1 for public tap, hand pump, or well, 0 for other water source;

Separate room for cooking: 1 for yes, 0 for no;

Ownership of house: 2 for yes, 0 for no;

Ownership of agricultural land: 4 for 5 acres or more, 3 for 2.0–4.9 acres, 2 for less than 2 acres or acreage not known, 0 for no agricultural land;

Ownership of irrigated land: 2 if household owns at least some irrigated land, 0 for no irrigated land;

Ownership of livestock: 2 if owns livestock, 0 if does not own livestock;

Ownership of durable goods: 4 each for a car or tractor, 3 each for a moped/scooter/motorcycle, telephone, refrigerator, or colour television, 2 each for a bicycle, electric fan, radio/transistor, sewing machine, black and white television, water pump, bullock cart, or thresher, 1 each for a mattress, pressure cooker, chair, cot/bed, table, or clock/watch.

Index scores range from 0–14 for a low SLI to 15–24 for a medium SLI and 25–67 for a high SLI. By this measure, more than one-third (36 percent) of Indian households have a low standard of living, 44 percent have a medium standard of living, and 18 percent have a high standard of living. The proportion with a low standard of living is much higher in rural areas than in urban areas (45 and 14 percent, respectively), and the proportion with a high standard of living is much higher in urban areas than in rural areas (39 and 10 percent, respectively). The proportion with a medium standard of living is almost the same in urban and rural areas.

2.6 Lifestyle Indicators

The NFHS-2 Household Questionnaire asked about certain aspects of the lifestyle of household members. Table 2.15 shows the percentages of men and women age 15 and above who chew *paan masala* or tobacco, drink alcohol, or smoke. These lifestyle indicators are of considerable interest because the use of *paan masala*, tobacco, and alcohol all have detrimental effects on health.

Table 2.15 Lifestyle indicators

Percentage of usual household members age 15 and above who chew *paan masala* or tobacco, drink alcohol, currently smoke, or have ever smoked by selected background characteristics and sex, India, 1998–99

Background characteristic	Chew *paan masala* or tobacco	Drink alcohol	Currently smoke	Ever smoked[1]	Number of household members
		MALE			
Age					
15–19	9.4	2.4	4.4	4.8	26,297
20–24	20.3	7.7	13.7	14.6	21,461
25–29	28.0	14.9	25.1	27.3	19,641
30–39	34.1	23.6	37.6	41.2	33,554
40–49	35.6	26.1	45.0	49.9	24,151
50–59	35.4	23.9	45.3	52.3	15,195
60+	37.6	18.6	38.2	46.6	20,571
Residence					
Urban	20.8	12.4	21.4	24.5	46,245
Rural	31.3	18.5	32.6	36.5	114,626
Education					
Illiterate	38.0	26.7	44.8	49.6	44,661
Literate, < middle school complete	31.5	17.8	33.1	37.5	43,328
Middle school complete	23.2	11.8	21.2	23.7	25,376
High school complete and above	18.9	8.9	15.9	18.5	47,485
Standard of living index					
Low	37.6	24.8	39.4	43.5	46,887
Medium	27.7	15.0	29.1	32.7	76,510
High	17.2	9.8	16.9	20.2	35,463
Total	28.3	16.7	29.4	33.1	160,871
		FEMALE			
Age					
15–19	2.1	0.6	0.2	0.3	24,602
20–24	4.3	1.1	0.6	0.6	22,288
25–29	8.0	2.0	1.1	1.2	20,761
30–39	12.3	2.5	2.2	2.4	32,127
40–49	18.6	3.1	4.0	4.5	21,253
50–59	22.8	3.8	5.7	6.4	15,108
60+	25.0	3.1	5.3	6.0	18,588
Residence					
Urban	8.8	0.5	0.9	1.0	43,173
Rural	13.8	2.9	3.1	3.4	111,554
Education					
Illiterate	17.4	3.5	4.0	4.5	86,359
Literate, < middle school complete	10.2	0.8	0.8	0.9	30,563
Middle school complete	3.8	0.5	0.3	0.3	14,217
High school complete and above	1.8	0.2	0.1	0.2	23,529
Standard of living index					
Low	18.7	4.4	4.2	4.7	47,225
Medium	11.7	1.7	2.2	2.4	71,497
High	5.2	0.3	0.6	0.8	34,144
Total	12.4	2.2	2.5	2.8	154,726
Total male and female	20.5	9.6	16.2	18.2	315,598

Note: Total includes 23 males and 58 females with missing information on education and 2,012 males and 1,861 females with missing information on the standard of living index, who are not shown separately.
[1]Includes household members who currently smoke

The respondent to the Household Questionnaire reports on these lifestyle indicators for all persons in the household, and therefore the results should be interpreted with caution because the household respondent may not be aware of use that takes place outside the household environs. In addition, to the extent that social stigma may be attached to the use of some of the substances, underreporting is likely.

Twenty-one percent of persons age 15 and above are reported to chew *paan masala* or tobacco. This proportion rises from 9 percent of men and 2 percent of women at age 15–19 to 38 percent and 25 percent, respectively, at age 60 and above. Chewing of *paan masala* or tobacco for both men and women is about one and one-half times as common in rural areas as in urban areas. Chewing of *paan masala* or tobacco is inversely related with education. It is twice as high among illiterate men as among men who have completed at least high school. Chewing of *paan masala* or tobacco is rare among educated women, and it is much higher among men and women in households with a low standard of living than in households with a high standard of living.

Seventeen percent of men, but only 2 percent of women, age 15 and above are reported to drink alcohol. The proportion of men who drink alcohol rises with age up to age 40–49. The proportion of men who drink is one and one-half times as high in rural areas as in urban areas. Illiterate men are three times as likely to drink alcohol as men who have completed at least high school. Drinking alcohol by household members is negatively related to the household's standard of living.

Only 3 percent of women are reported to have ever smoked and to currently smoke. Among men age 15 and above, 29 percent currently smoke. The proportion of men who smoke rises from 4 percent at age 15–19 to 45 percent at age 40–59 and then falls to 38 percent at age 60 and above. As for chewing *paan masala* or tobacco and drinking alcohol, the proportion of men who smoke is one and one-half times as high in rural areas as in urban areas. It is much higher among illiterate than literate men, and more than twice as high among men with a low standard of living as among men with a high standard of living. Eighty-nine percent of men who ever smoked were still smokers at the time of the survey. The pattern of differentials for ever-smokers closely resembles the pattern for current smokers.

An interstate comparison of life style indicators is presented in Table 2.16. The percentage of men chewing *paan masala* or tobacco is quite low (7–10 percent) in Jammu and Kashmir, Goa, Himachal Pradesh, Haryana, Punjab, and Kerala. More than half of men in Mizoram, Arunachal Pradesh, and Bihar and 40–50 percent in Orissa, Assam, Nagaland, Madhya Pradesh, and Sikkim chew *paan masala* or tobacco. In the northeastern states, chewing *paan masala* or tobacco is also quite common among women, particularly in Mizoram where the proportion chewing *paan masala* or tobacco is the same for men and women. Outside of the Northeast Region, chewing *paan masala* or tobacco is most common for women in Orissa, Maharashtra, West Bengal, Karnataka, and Madhya Pradesh.

Table 2.16 Lifestyle indicators by state

Percentage of usual household members age 15 and above who chew *paan masala* or tobacco, drink alcohol, currently smoke, or have ever smoked by sex and state, India, 1998–99

State	Chew *paan masala* or tobacco	Drink alcohol	Currently smoke	Ever smoked[1]
		MALE		
India	28.3	16.7	29.4	33.1
North				
Delhi	13.1	17.9	24.0	26.4
Haryana	8.0	20.7	40.6	42.4
Himachal Pradesh	7.9	24.2	38.8	42.3
Jammu & Kashmir	7.2	10.0	44.5	49.0
Punjab	9.3	28.3	13.9	15.8
Rajasthan	19.1	10.7	37.9	41.0
Central				
Madhya Pradesh	40.6	20.6	29.5	35.1
Uttar Pradesh	36.3	11.6	34.0	37.2
East				
Bihar	51.7	22.4	26.3	32.0
Orissa	49.5	19.2	25.4	29.4
West Bengal	23.3	11.0	39.6	43.1
Northeast				
Arunachal Pradesh	52.0	64.5	25.1	34.3
Assam	48.2	24.9	31.7	34.9
Manipur	34.4	30.5	35.2	39.2
Meghalaya	16.7	28.1	55.2	57.6
Mizoram	60.3	16.8	59.4	67.1
Nagaland	45.3	26.8	38.2	49.5
Sikkim	39.6	31.9	19.5	29.0
West				
Goa	7.7	28.7	17.8	23.5
Gujarat	24.6	6.6	25.5	29.1
Maharashtra	34.7	12.1	13.4	15.5
South				
Andhra Pradesh	10.8	26.1	35.7	39.0
Karnataka	13.9	16.4	26.0	29.6
Kerala	9.5	14.5	28.3	35.0
Tamil Nadu	13.0	20.5	27.0	29.8

Alcohol consumption is highest in Arunachal Pradesh, where 65 percent of men and 49 percent of women drink alcohol. There are only two other states, Sikkim and Assam, where more than 10 percent of women drink alcohol. In addition to Arunachal Pradesh, more than one-quarter of men drink alcohol in Sikkim, Manipur, Goa, Punjab, Meghalaya, Nagaland, and Andhra Pradesh. The lowest prevalence of alcohol consumption is in Gujarat, where there is a state ban on alcohol.

Table 2.16 Lifestyle indicators by state (contd.)

Percentage of usual household members age 15 and above who chew *paan masala* or tobacco, drink alcohol, currently smoke, or have ever smoked by sex and state, India, 1998–99

State	Chew *paan masala* or tobacco	Drink alcohol	Currently smoke	Ever smoked[1]
		FEMALE		
India	12.4	2.2	2.5	2.8
North				
Delhi	2.5	0.1	1.8	1.9
Haryana	0.9	0.1	3.6	3.8
Himachal Pradesh	0.5	0.2	2.4	2.6
Jammu & Kashmir	0.9	0.3	8.5	10.2
Punjab	0.2	0.2	0.3	0.4
Rajasthan	3.9	0.2	4.3	4.4
Central				
Madhya Pradesh	14.8	3.4	0.9	1.1
Uttar Pradesh	11.4	0.2	3.1	3.5
East				
Bihar	6.9	3.3	6.4	7.2
Orissa	34.9	6.2	0.9	1.0
West Bengal	15.6	2.0	2.6	2.8
Northeast				
Arunachal Pradesh	33.2	48.9	5.4	7.2
Assam	24.9	11.1	2.7	3.1
Manipur	19.6	2.0	12.2	14.4
Meghalaya	27.6	3.1	6.8	7.0
Mizoram	60.7	0.4	22.1	29.3
Nagaland	16.5	2.6	2.5	3.7
Sikkim	18.9	17.1	8.3	11.8
West				
Goa	8.2	4.5	2.1	3.1
Gujarat	8.2	1.0	1.4	1.7
Maharashtra	18.5	0.5	0.2	0.2
South				
Andhra Pradesh	10.3	7.5	4.4	4.9
Karnataka	14.9	1.0	0.3	0.4
Kerala	10.5	0.2	0.4	0.6
Tamil Nadu	11.0	0.5	0.4	0.4

[1]Includes household members who currently smoke

More than half of men have ever smoked in Mizoram and Meghalaya, and 41–50 percent have ever smoked in Nagaland, Jammu and Kashmir, West Bengal, Haryana, Himachal Pradesh, and Rajasthan. Current smoking is also highest in these states. Less 20 percent of men smoke in Maharashtra, Punjab, Goa, and Sikkim. In most states, around 90 percent of men who ever smoked currently smoke. In Mizoram, where the proportion of women who chew *paan masala* or tobacco is the highest, the proportions of women who have ever smoked and who currently smoke are also the highest. In a large majority of states, less than 5 percent of women smoke or have ever smoked. Between 5 and 15 percent of women currently smoke in Manipur, Jammu and Kashmir, Sikkim, Meghalaya, Bihar, and Arunachal Pradesh.

Table 2.17 Distance from the nearest health facility

Percent distribution of ever-married rural women age 15–49 by distance from the nearest health facility, India, 1998–99

Distance	Health facility					Any health facility
	Primary Health Centre	Sub-centre	Either PHC or sub-centre	Hospital[1]	Dispensary/ clinic	
Within village	13.1	33.0	36.5	9.7	28.3	47.4
< 5 km	28.4	39.7	40.8	25.0	32.4	38.9
5–9 km	29.2	16.3	15.3	25.1	17.4	9.7
10+ km	28.8	9.6	7.0	40.0	21.7	3.9
Don't know/missing	0.5	1.4	0.3	0.2	0.2	0.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Median distance	4.9	1.3	1.0	6.7	2.4	0.0

Note: The category '< 5 km' excludes cases where the facility is within the village. When median distance is calculated, 'within village' cases and cases with a facility less than 1 km from the village are assigned a distance of zero.
PHC: Primary Health Centre
[1]Includes community health centre, rural hospital, government hospital, and private hospital

2.7 Availability of Facilities and Services to the Rural Population

The NFHS-2 Village Questionnaire collected information from the *sarpanch*, other village officials, or other knowledgeable persons in the village on facilities and services in the village that can affect health and family planning. One important set of questions was on the distance of the village from various types of health facilities, including Primary Health Centres (PHCs), sub-centres, hospitals, and dispensaries or clinics. Table 2.17 summarizes findings on distance from a health facility. The unit of analysis is ever-married women age 15–49 who reside in rural areas. Thirteen percent of rural women live in a village with a Primary Health Centre, 33 percent live in a village with a sub-centre, and 37 percent live in a village with either a PHC or a sub-centre. The proportions who live in a village with other health facilities are 10 percent for hospitals and 28 percent for dispensaries or clinics. Nearly half of women (47 percent) live in a village that has some kind of health facility. Median distances from particular health facilities are 4.9 km for a Primary Health Centre, 1.3 km for a sub-centre, 6.7 km for a hospital, and 2.4 km for a dispensary or a clinic. Fourteen percent of rural women need to travel at least five kilometres to reach the nearest health facility.

Table 2.18 shows the proportion of residents (the *de jure* rural population) in rural India that live in villages which have various facilities and services. Eighty percent of rural residents live in villages that have a primary school, 45 percent live in villages with a middle school, and more than one-quarter (26 percent) live in villages that have a secondary school. Higher secondary schools are available in villages where 14 percent of the rural population live. Almost two-thirds of rural residents (64 percent) live in villages that have an *anganwadi*[2] (a nursery school for children age 3–6 years) and nearly one-quarter (24 percent) live in villages with an adult education centre. Forty-two percent of rural residents live in villages that have a private doctor and 59 percent live in villages with a traditional birth attendant.

[2]*Anganwadi* workers provide integrated child development services and may also engage in the promotion of family planning among parents of preschool age children.

Table 2.18 Availability of facilities and services

Percentage of rural residents living in villages that have selected facilities and services, India, 1998–99

Facility/service	Percentage of residents	Facility/service	Percentage of residents
Primary school	79.7	At least one village household has a telephone	61.0
Middle school	44.6	Mill/small-scale industry	24.8
Secondary school	26.3	Credit cooperative society	25.0
Higher secondary school	14.0	Agricultural cooperative society	27.2
College	2.8	Fishermen's cooperative society	5.5
		Milk cooperative society	21.8
Anganwadi	63.8	*Kirana*/general market shop	67.0
Adult education centre	24.2	Weekly market	23.1
		Fair price shop	61.1
Primary Health Centre	12.9	*Paan* shop	57.6
Sub-centre	32.3	Pharmacy/medical shop	25.6
Hospital[1]	9.6	*Mahila mandal*	33.7
Dispensary/clinic	28.3	Youth club	38.8
		Community centre	19.9
Private doctor	41.9	Community television set	17.7
Visiting doctor	31.4	Cable connection	28.3
Village health guide	33.0		
Traditional birth attendant	58.9	Integrated Rural Development Programme (IRDP)	53.6
Mobile health unit	12.1	National Rural Employment Programme (NREP)	13.3
		Training Rural Youth for Self-Employment (TRYSEM)	22.2
Electricity	81.3	Employment Guarantee Scheme (EGS)	9.5
Bank	20.7	Development of Women and Children of Rural Areas (DWACRA)	28.4
Post office	43.2	Indira Awas Yojana (IAY)	59.1
Telegraph office	10.9	Sanjay Gandhi Niradhar Yojana (SGNY)	27.4
STD (Subscriber Trunk Dialling) phone booth	13.7	Total population	360,764

Note: Table is based on the *de jure* population.
[1]Includes community health centre, rural hospital, government hospital, and private hospital

Eighty-one percent of rural residents live in villages that are at least partly electrified. Although only 14 percent of rural residents live in villages with an STD booth (for telephoning within India), 61 percent live in villages that have at least one household with a private telephone. Almost one-fifth of rural Indians live in villages that have a community television set, and 28 percent of rural residents live in villages that have cable television service, providing further evidence that the exposure to electronic mass media is limited in rural India. Slightly more than one-third live in villages with a *mahila mandal*, a women's community group. Other facilities and clubs that are available in villages where more than one-third of rural residents live are *kirana* shops (small grocery stores), fair price shops, *paan* shops, post offices, and youth clubs. The most widely available rural development programmes as reported by the respondents to the Village Questionnaire are the Indira Awas Yojana (IAY) and the Integrated Rural Development Programme (IRDP).

CHAPTER 3

BACKGROUND CHARACTERISTICS OF RESPONDENTS

Women's demographic and health-seeking behaviour is associated with several characteristics including their age, marital status, religion, and caste. Modernizing influences such as education and exposure to mass media are also important catalysts for demographic and socioeconomic change. In addition, women's status and autonomy are critical in promoting change in reproductive attitudes and behaviour, especially in patriarchal societies (Dyson and Moore, 1983; Das Gupta, 1987; Jeffery and Basu, 1996). The National Population Policy, 2000, of the Government of India identifies the low status of women in India, typified by factors such as discrimination against the girl child and female adolescents, early age at marriage, and high rates of maternal mortality, as an important barrier to the achievement of population and maternal and child welfare goals (Ministry of Health and Family Welfare, 2000).

This chapter presents a profile of the demographic and socioeconomic characteristics of ever-married women age 15–49 who were identified by the NFHS-2 Household Questionnaire as eligible respondents for the Woman's Questionnaire. In addition, data are presented on the extent to which women in India enjoy autonomy as measured by their participation in household decisionmaking, freedom of movement, and access to money they can spend as they wish. Finally, data on women's attitudes towards the acceptance of spousal violence under specific circumstances and their experience of physical violence are discussed.

3.1 Background Characteristics

Table 3.1 presents the percentage distribution of ever-married women age 15–49 by age, marital status, coresidence with husband, education, religion, caste/tribe, work status, and husband's education. In India, the proportion of respondents in five-year age groups increases from 9 percent in the age group 15–19 years to 20 percent in the age group 25–29 years, and then falls steadily to 9 percent in the age group 45–49 years. The initial increase reflects the increasing share of ever-married women in each of these age groups. The decline after age 25–29 (an age by which most women have been married) reflects the normal pyramid shape of the population's age distribution. The age distribution of rural and urban respondents is similar with the notable exception that the proportion of rural respondents who are age 15–19 (11 percent) is more than twice as high as the proportion of urban respondents in this age group (5 percent). The proportion of rural respondents age 20–24 years is also somewhat higher than the proportion of urban respondents in this age group. Thus, the average rural respondent is somewhat younger than the average urban respondent. The higher share of younger respondents, especially respondents age 15–19, among rural women than among urban women is largely a consequence of the lower age at marriage in rural areas.

Ninety-four percent of respondents are currently married, 4 percent are widowed, and 2 percent are divorced, separated, or deserted. The proportion of respondents living with their husbands is 89 percent, indicating that an overwhelming majority of all currently married women were coresident with their husbands at the time of the survey. Women in rural areas are slightly more likely than women in urban areas to be living apart from their husbands.

Table 3.1 Background characteristics of respondents

Percent distribution of ever-married women age 15–49 by selected background characteristics, according to residence, India, 1998–99

Background characteristic	Residence		Total	Number of women	
	Urban	Rural		Weighted	Unweighted
Age					
15–19	5.1	10.6	9.2	8,182	6,962
20–24	16.2	19.2	18.4	16,389	15,787
25–29	19.8	19.9	19.9	17,745	17,941
30–34	18.3	16.4	16.9	15,094	15,612
35–39	16.6	14.0	14.7	13,089	13,603
40–44	13.4	11.2	11.8	10,521	10,839
45–49	10.6	8.7	9.2	8,179	8,455
Marital status					
Currently married	93.7	93.8	93.8	83,649	83,832
Widowed	4.3	4.2	4.2	3,749	3,598
Divorced	0.4	0.4	0.4	344	373
Separated	0.9	1.0	1.0	860	828
Deserted	0.7	0.7	0.7	599	568
Coresidence with husband					
Living with husband	90.7	88.5	89.0	79,424	79,515
Not living with husband	3.0	5.4	4.7	4,225	4,317
Not currently married	6.3	6.2	6.2	5,550	5,367
Education					
Illiterate	33.2	67.0	58.2	51,871	48,410
Literate, < primary school complete	5.5	6.1	5.9	5,284	5,377
Primary school complete	16.4	12.4	13.4	11,986	12,256
Middle school complete	12.2	6.8	8.2	7,328	8,300
High school complete	14.5	4.9	7.4	6,627	7,527
Higher secondary complete and above	18.3	2.8	6.8	6,092	7,317
Missing	0.0	0.0	0.0	11	12
Religion					
Hindu	76.0	83.8	81.7	72,903	69,234
Muslim	16.5	11.1	12.5	11,190	10,668
Christian	3.3	2.3	2.5	2,263	4,987
Sikh	1.5	1.6	1.6	1,427	2,084
Jain	0.9	0.2	0.4	331	358
Buddhist/Neo-Buddhist	1.5	0.5	0.8	676	922
Jewish	0.0	0.0	0.0	1	4
Zoroastrian/Parsi	0.0	0.0	0.0	8	7
Doni-polo	0.0	0.0	0.0	29	361
Sanamahi	0.0	0.0	0.0	16	142
Other	0.1	0.3	0.3	231	197
No religion	0.0	0.1	0.0	44	154
Missing	0.1	0.1	0.1	79	81
Caste/tribe					
Scheduled caste	14.7	19.5	18.3	16,301	15,000
Scheduled tribe	3.6	10.5	8.7	7,750	10,740
Other backward class	30.1	33.9	32.9	29,383	25,751
Other	51.1	34.9	39.1	34,904	37,062
Missing	0.5	1.1	1.0	862	646

Contd...

For India as a whole, 82 percent of all respondents are Hindu, 13 percent are Muslim, 3 percent are Christian, 2 percent are Sikh, and 1 percent are Buddhist/Neo-Buddhist. The remaining religions together account for only 1 percent of all respondents. The proportion of respondents who are Hindu is lower in urban areas (76 percent) than in rural areas (84 percent), whereas the proportion who are Muslim is higher in urban areas (17 percent) than in rural areas

Table 3.1 Background characteristics of respondents (contd.)

Percent distribution of ever-married women age 15–49 by selected background characteristics, according to residence, India, 1998–99

Background characteristic	Residence		Total	Number of women	
	Urban	Rural		Weighted	Unweighted
Work status					
Working in family farm/business	4.4	18.0	14.4	12,849	12,987
Employed by someone else	15.3	21.3	19.7	17,571	15,449
Self-employed	5.9	4.7	5.0	4,483	4,727
Not worked in past 12 months	74.4	56.0	60.8	54,271	56,016
Missing	0.0	0.0	0.0	25	20
Husband's education					
Illiterate	14.9	36.4	30.8	27,449	24,953
Literate, < primary school complete	6.4	9.9	9.0	7,991	7,675
Primary school complete	14.8	16.9	16.4	14,614	14,282
Middle school complete	13.6	13.3	13.3	11,907	12,815
High school complete	19.4	12.8	14.5	12,936	14,039
Higher secondary complete and above	30.6	10.4	15.7	14,037	15,183
Don't know/missing	0.3	0.3	0.3	266	252
Total percent	100.0	100.0	100.0	NA	NA
Number of women					
Weighted	23,370	65,829	89,199	89,199	NA
Unweighted	27,862	61,337	89,199	NA	89,199

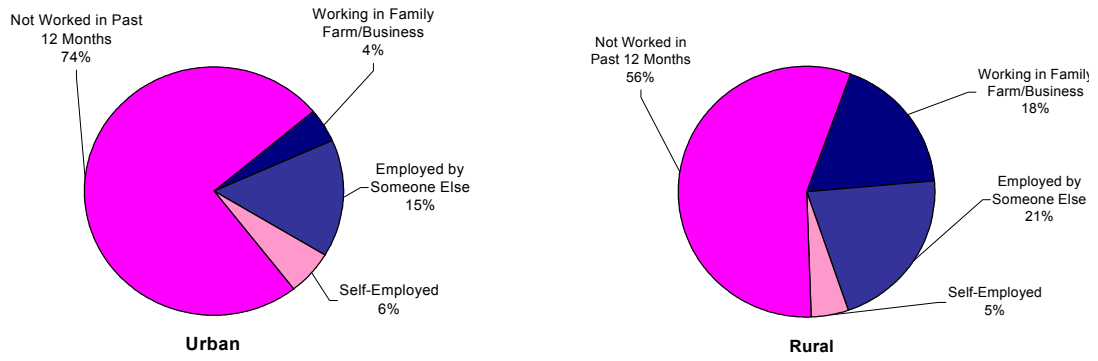
NA: Not applicable

(11 percent). Also, a higher proportion of urban respondents than rural respondents are Christian, Jain, or Buddhist/Neo-Buddhist. One-third of all respondents belong to other backward classes, about one-fifth (18 percent) belong to scheduled castes, and about one-tenth (9 percent) belong to scheduled tribes. The largest proportion (39 percent), however, are respondents who do not belong to any scheduled caste, scheduled tribe, or other backward class, and this proportion is much higher in urban areas (51 percent) than in rural areas (35 percent). Women belonging to scheduled castes, scheduled tribes, or other backward classes constitute a higher proportion of rural than urban respondents.

The educational levels of respondents and their husbands have an important influence on demographic and health-seeking behaviour. Fifty-eight percent of ever-married women age 15–49 in India are illiterate, down from 63 percent at the time of NFHS-1. This decline is due to declines in illiteracy for both rural and urban women. Between NFHS-1 and NFHS-2, the proportion illiterate declined from 72 percent to 67 percent in rural areas and from 37 percent to 33 percent in urban areas. Notably, however, the urban-rural difference in illiteracy remains high. Only 14 percent of all respondents have completed at least high school, slightly higher than at the time of NFHS-1 when this proportion was 11 percent. Thirty-three percent of urban respondents have attained this educational level compared with 8 percent of rural respondents. Among respondents who are literate, the largest proportion are those who have completed primary school (but not middle school). Sixteen percent of women in urban areas have completed primary school (but not middle school) compared with 12 percent in rural areas.

Thirty-one percent of respondents have illiterate husbands, down from 35 percent in NFHS-1. The proportion of respondents with illiterate husbands is more than twice as high in rural areas (36 percent) as in urban areas (15 percent). In both rural and urban areas, the

Figure 3.1
Employment Status of Women by Residence



Note: Urban percents add to less than 100 due to rounding

NFHS-2, India, 1998–99

proportion of women with illiterate husbands has declined since NFHS-1 (when the percentages were 41 and 17 in rural and urban areas, respectively). At the other educational extreme, 30 percent of women have husbands who have completed at least high school (up from 27 percent in NFHS-1), and the percentage in urban areas (50 percent) is more than twice that in rural areas (23 percent). By contrast, there are only small differences by residence in the proportion of women with husbands who have completed primary or middle school.

Sixty-one percent of respondents in India did not participate in work other than their regular housework during the 12 months preceding the NFHS-2 survey. More than half (56 percent) of rural respondents and almost three-quarters (74 percent) of urban respondents fall into this category. The highest proportions of working women in both urban and rural areas were employed by someone else (21 percent of all rural women and 15 percent of all urban women). Eighteen percent of rural women worked on their own family farm or in a family business compared with only 4 percent of urban women (Figure 3.1). The proportion of women who were self-employed is about the same in rural and urban areas (5–6 percent).

3.2 Educational Level

Table 3.2 presents the percent distribution of ever-married women age 15–49 by the highest level of education attained, according to age, religion, caste/tribe, and husband's education. The educational distribution of women in different age groups illustrates the progress in the spread of education over a period of about three decades. Illiteracy declines with declining age from 65 percent for women age 45–49 to 52 percent for women age 20–24, but rises to 59 percent for women age 15–19 (undoubtedly because illiterate women are more likely than literate women to marry at a young age). Thus, even though illiteracy is declining, more than half of even the youngest cohorts of ever-married women continue to be illiterate. At the other end of the educational spectrum, the proportion of respondents who have completed at least high school, although still very low, is almost 50 percent higher for women age 20–24 (17 percent) than for

Table 3.2 Respondent's level of education by background characteristics

Percent distribution of ever-married women age 15–49 by highest level of education attained, according to selected background characteristics, India, 1998–99

Background characteristic	Respondent's level of education: Illiterate	Literate, < primary school complete	Primary school complete	Middle school complete	High school complete	Higher secondary complete and above	Missing	Total percent	Number of women
Age									
15–19	59.0	6.1	16.8	11.1	5.2	1.8	0.0	100.0	8,182
20–24	52.1	5.3	14.0	11.6	9.3	7.7	0.0	100.0	16,389
25–29	55.2	5.3	13.0	8.8	8.4	9.3	0.0	100.0	17,745
30–34	58.1	5.7	13.3	7.5	7.3	8.1	0.0	100.0	15,094
35–39	60.9	6.3	13.1	6.3	6.8	6.6	0.0	100.0	13,089
40–44	62.8	6.8	12.6	5.6	6.5	5.7	0.0	100.0	10,521
45–49	65.4	7.1	11.7	5.1	6.2	4.5	0.0	100.0	8,179
Religion									
Hindu	59.3	5.4	13.0	8.3	7.2	6.8	0.0	100.0	72,903
Muslim	60.5	9.5	14.8	6.1	5.6	3.5	0.1	100.0	11,190
Christian	32.9	7.3	15.4	13.1	14.6	16.7	0.0	100.0	2,263
Sikh	38.9	3.0	18.1	9.8	16.4	13.8	0.0	100.0	1,427
Jain	6.8	2.5	22.6	14.3	23.4	30.4	0.0	100.0	331
Buddhist/Neo-Buddhist	44.7	10.8	14.6	13.2	8.7	7.9	0.0	100.0	676
Other	70.3	6.2	8.5	8.8	4.0	2.1	0.0	100.0	285
No religion	51.2	17.7	5.3	12.3	5.5	8.0	0.0	100.0	44
Caste/tribe									
Scheduled caste	73.0	5.1	9.8	6.2	3.6	2.4	0.0	100.0	16,301
Scheduled tribe	79.0	5.3	7.1	4.7	2.2	1.6	0.0	100.0	7,750
Other backward class	60.9	5.3	13.8	8.3	6.9	4.8	0.0	100.0	29,383
Other	43.8	7.0	16.3	10.0	10.9	11.9	0.0	100.0	34,904
Husband's education									
Illiterate	90.0	3.4	4.8	1.3	0.4	0.1	0.0	100.0	27,449
Literate, < primary school complete	70.0	14.0	10.6	3.5	1.6	0.3	0.1	100.0	7,991
Primary school complete	60.7	8.5	20.2	6.4	3.5	0.8	0.0	100.0	14,614
Middle school complete	48.1	8.0	21.2	14.7	6.2	1.9	0.0	100.0	11,907
High school complete	34.9	4.9	19.8	16.1	17.9	6.3	0.0	100.0	12,936
Higher secondary complete and above	16.2	2.7	12.6	13.7	20.0	34.7	0.0	100.0	14,037
Total	58.2	5.9	13.4	8.2	7.4	6.8	0.0	100.0	89,199

Note: Total includes 79, 862, and 266 women with missing information on religion, caste/tribe, and husband's education, respectively, who are not shown separately.

women age 40–49 (11–12 percent). The proportions of respondents who have completed primary school or middle school also tend to increase with decreasing age.

A similar proportion of Hindu (59 percent) and Muslim (61 percent) women are illiterate but illiteracy is very low among Jain women (only 7 percent). Jain women are also much more likely to have completed at least high school (54 percent) than other women. Christian and Sikh women also have substantially higher literacy and educational attainment than Hindu and Muslim women. Women's educational attainment varies widely by their caste/tribe. While 44 percent of women not belonging to any scheduled caste, scheduled tribe, or other backward class are illiterate, much larger proportions are illiterate among women belonging to scheduled tribes (79 percent), scheduled castes (73 percent), and other backward classes (61 percent). Scheduled-

tribe women, followed by scheduled-caste women, are less likely than other women to have completed primary school, middle school, or high school.

Ninety percent of women with illiterate husbands are themselves illiterate. Notably, 35 percent of women whose husbands have completed high school (but not higher secondary school) and 16 percent of women whose husbands have completed higher secondary school are illiterate. These results show that husbands at each level of education are more likely to have wives with a lower level of education than an equal or a higher level of education. Specifically, the proportion of women who have lower education than their husbands is 70 percent for women whose husbands are literate but have not completed primary school, 69 percent for women whose husbands have completed primary school, 77 percent for women whose husbands have completed middle school, 76 percent for women whose husbands have completed high school, and 65 percent for women whose husbands have completed higher secondary school. Among women with literate husbands, women whose husbands have completed higher secondary school are most likely to have equal or higher education than their husbands (35 percent).

Table 3.3 shows state differentials in literacy and educational attainment for ever-married women age 15–49. The literacy rate for ever-married women is highest in Mizoram (90 percent), closely followed by Kerala (87 percent), and is lowest in Bihar (23 percent), Rajasthan (25 percent), and Uttar Pradesh (30 percent). The percentage of respondents who have completed high school ranges from only 7 percent in Rajasthan to 44 percent in Delhi. Other states where the percentage of respondents who have completed high school is relatively high (30 percent or higher) are Kerala, Goa, and Punjab. States other than Rajasthan where less than 10 percent of women have completed high school are Orissa, Bihar, Meghalaya, Madhya Pradesh, Arunachal Pradesh, and Assam. A comparison between NFHS-1 and NFHS-2 by state shows that literacy rates of ever-married women have increased in 22 out of 23 states where comparable data are available from both surveys. The literacy rate increased most rapidly in the northeastern states of Arunachal Pradesh and Meghalaya and in the northern states of Himachal Pradesh and Punjab. Bihar and Rajasthan continue to have very low literacy among ever-married women; these states were the last-ranked states in India in female literacy in both NFHS-1 and NFHS-2.

3.3 Age at First Marriage

Table 3.4 gives information on age at first marriage. The table shows the percentage of all women (ever-married and never-married) who first married by specified exact ages, and the median age at first marriage and first cohabitation by current age and residence. The median age at first marriage and median age at first cohabitation with husband for a cohort of women is the age by which 50 percent of the cohort marries and cohabits, respectively. The table provides evidence of a steady rise in the age at first marriage in India. The proportion married by exact age 15 falls steadily from the oldest to the youngest age group, but even more remarkable is the fact that the proportion falls from 24 percent for women age 20–24 to 14 percent for women age 15–19 who are only five years younger, on average. In rural areas, the proportion of women married by age 15 declines from 29 percent among women age 20–24 to 18 percent among women age 15–19; the corresponding decline in urban areas is from 9 percent to 5 percent. The practice of very early marriage (before age 13) has virtually disappeared in urban areas and has become quite rare in rural areas as well.

Table 3.3 Respondent's level of education by state

Percent distribution of ever-married women age 15–49 by highest level of education attained, according to state, India, 1998–99

State	Respondent's level of education							Total percent
	Illiterate	Literate, < primary school complete	Primary school complete	Middle school complete	High school complete	Higher secondary complete and above	Missing	
India	58.2	5.9	13.4	8.2	7.4	6.8	0.0	100.0
North								
Delhi	29.1	2.7	12.5	11.5	15.4	28.7	0.0	100.0
Haryana	55.2	2.4	14.3	8.1	10.8	9.2	0.0	100.0
Himachal Pradesh	36.3	4.3	23.6	12.6	15.6	7.6	0.0	100.0
Jammu & Kashmir	69.8	1.5	7.9	8.9	6.5	5.4	0.0	100.0
Punjab	38.8	2.9	18.3	10.5	16.8	12.7	0.0	100.0
Rajasthan	75.5	2.8	8.6	5.9	3.7	3.5	0.0	100.0
Central								
Madhya Pradesh	68.5	5.3	11.0	5.7	3.5	5.9	0.0	100.0
Uttar Pradesh	70.2	2.7	9.1	6.8	4.3	6.9	0.0	100.0
East								
Bihar	76.6	3.0	8.1	3.8	5.7	2.7	0.0	100.0
Orissa	59.5	9.6	16.5	6.9	4.4	3.1	0.0	100.0
West Bengal	50.0	14.4	14.9	10.1	5.1	5.5	0.1	100.0
Northeast								
Arunachal Pradesh	52.7	9.4	14.5	13.8	5.5	4.1	0.0	100.0
Assam	53.9	11.9	10.5	14.1	5.4	4.2	0.0	100.0
Manipur	42.9	7.6	9.3	17.1	8.6	14.5	0.0	100.0
Meghalaya	38.1	28.4	12.6	11.6	4.6	4.6	0.0	100.0
Mizoram	10.0	25.7	25.4	22.8	10.3	5.8	0.0	100.0
Nagaland	39.8	11.3	22.2	15.1	6.8	4.7	0.1	100.0
Sikkim	49.4	11.8	15.8	11.2	6.5	5.2	0.1	100.0
West								
Goa	28.6	10.9	16.3	12.5	15.4	16.3	0.0	100.0
Gujarat	50.3	6.1	14.7	8.7	9.2	11.0	0.0	100.0
Maharashtra	44.6	8.8	18.1	10.8	9.8	7.9	0.0	100.0
South								
Andhra Pradesh	63.8	5.2	15.4	4.8	6.8	4.0	0.0	100.0
Karnataka	55.2	4.4	14.3	6.6	11.0	8.5	0.0	100.0
Kerala	12.6	9.3	20.9	17.1	24.6	15.6	0.0	100.0
Tamil Nadu	47.5	4.5	18.7	13.4	8.2	7.6	0.0	100.0

The median age at first marriage has also risen over the past three decades. In rural areas, the median age at first marriage is more than one and one-half years higher for women age 20–24 than for women age 45–49, and in urban areas it is also more than one and one-half years higher for women age 25–29 than for women age 45–49. (The median age at first marriage could not be calculated for women age 15–19 and 20–24 in urban areas and for women age 15–19 in rural areas as more than half of the women in these age groups were not married at the time of the survey).

Despite this evidence of a rising age at marriage, the table shows that the majority of women age 20–49 in India married before they reached the legal minimum age at marriage of 18 years, as set by the Child Marriage Restraint Act of 1978. Specifically, 61 percent of all women, 69 percent of rural women, and 41 percent of urban women age 20–49 married before age 18. The median age at first marriage for women age 20–49 in rural areas is only 16 years, well below

Table 3.4 Age at first marriage

Percentage of women married by specific exact ages, median age at first marriage, and median age at first cohabitation with husband, according to current age and residence, India, 1998–99

Current age[1]	Percentage ever married by exact age						Median age at first marriage	Median age at first cohabitation with husband
	13	15	18	20	22	25		
URBAN								
15–19	1.1	4.8	NA	NA	NA	NA	NC	NC
20–24	2.8	9.0	27.9	47.0	NA	NA	NC	NC
25–29	4.4	13.9	36.6	57.2	71.0	83.9	19.1	19.3
30–34	6.2	16.9	43.3	63.4	76.6	88.3	18.5	18.7
35–39	8.3	21.4	49.4	67.2	79.3	89.5	18.1	18.3
40–44	7.9	20.2	51.2	69.9	82.0	91.0	17.9	18.2
45–49	9.4	23.3	54.4	71.1	83.2	92.8	17.5	18.0
20–49	5.9	16.2	41.3	60.4	NA	NA	18.7	18.9
25–49	6.8	18.4	45.5	64.6	77.4	88.4	18.4	18.6
RURAL								
15–19	6.0	17.8	NA	NA	NA	NA	NC	NC
20–24	11.4	29.1	58.6	74.8	NA	NA	16.9	17.6
25–29	15.0	35.0	67.4	81.8	89.2	93.9	16.1	16.9
30–34	17.5	38.0	73.0	85.6	92.6	96.2	15.8	16.6
35–39	19.2	39.7	73.9	87.1	93.3	96.7	15.7	16.5
40–44	22.8	44.1	76.0	88.4	94.7	97.6	15.4	16.4
45–49	25.6	45.9	77.3	88.0	94.3	97.2	15.3	16.3
20–49	17.1	36.9	69.2	82.9	NA	NA	16.0	16.8
25–49	19.0	39.4	72.5	85.5	92.3	96.0	15.8	16.6
TOTAL								
15–19	4.7	14.3	NA	NA	NA	NA	NC	NC
20–24	8.9	23.5	50.0	67.1	NA	NA	18.0	18.3
25–29	12.1	29.2	58.9	74.9	84.1	91.0	16.9	17.5
30–34	14.2	31.9	64.3	79.1	87.8	93.8	16.4	17.1
35–39	15.9	34.1	66.5	81.0	89.0	94.4	16.2	16.9
40–44	18.4	37.0	68.7	83.0	91.1	95.8	16.0	16.8
45–49	20.7	39.0	70.4	82.9	91.0	95.9	15.8	16.7
20–49	13.9	30.9	61.1	76.4	NA	NA	16.7	17.4
25–49	15.4	33.3	64.6	79.4	87.9	93.7	16.4	17.0

NA: Not applicable
NC: Not calculated because less than 50 percent of women in the age group have married or started living with their husband by the start of the five-year age group
[1]The current age group includes both never-married and ever-married women.

the legal minimum. The median age at first marriage is 2–3 years higher for urban women than for rural women in all age groups for which a comparison is possible. The difference between the median age at first marriage and the median age at first cohabitation is no more than one year among women in any age group, even in rural areas. In addition, the difference between these two medians has been decreasing over time. This suggests that *gauna* or similar cultural practices that introduce a lag between marriage and cohabitation are no longer widely observed in India.

Table 3.5 presents information on age at first marriage for women age 25–49 by state. There are considerable differences across states in the age at first marriage of women. About half of women age 25–49 married before age 15 in Madhya Pradesh, Bihar, Uttar Pradesh, Andhra Pradesh, and Rajasthan, and about four-fifths of women in these states married before reaching the legal minimum age at marriage of 18 years. By contrast, the median age at first marriage is

Table 3.5 Age at first marriage by state

Percentage of women age 25–49 married by specific exact ages, median age at first marriage, and median age at first cohabitation with husband, according to state, India, 1998–99

State	Percentage ever married by exact age						Median age at first marriage	Median age at first cohabitation with husband
	13	15	18	20	22	25		
India	15.4	33.3	64.6	79.4	87.9	93.7	16.4	17.0
North								
Delhi	4.7	13.3	37.6	57.7	75.5	90.3	19.0	19.3
Haryana	10.1	18.3	59.9	78.3	89.8	96.2	16.9	17.9
Himachal Pradesh	2.1	6.7	38.2	67.1	83.3	93.3	18.6	18.8
Jammu & Kashmir	6.0	17.3	47.5	64.9	78.0	88.2	18.2	18.4
Punjab	1.2	2.5	22.7	49.4	74.6	90.5	20.0	20.1
Rajasthan	30.1	47.8	81.5	91.0	96.3	98.5	15.1	16.4
Central								
Madhya Pradesh	30.8	52.6	78.5	87.4	92.3	95.5	14.7	16.0
Uttar Pradesh	27.7	49.7	79.6	89.9	94.7	97.3	15.0	16.3
East								
Bihar	23.0	51.0	83.9	93.6	96.7	97.9	14.9	16.6
Orissa	2.8	15.2	58.2	78.5	88.8	93.8	17.5	17.6
West Bengal	9.0	24.9	62.1	78.2	86.3	92.2	16.8	16.9
Northeast								
Arunachal Pradesh	3.7	11.1	39.7	64.0	77.7	86.4	18.7	18.8
Assam	3.4	14.1	49.1	66.4	77.4	85.9	18.1	18.2
Manipur	0.3	3.1	20.6	37.8	51.6	67.2	21.7	21.8
Meghalaya	1.1	7.0	34.8	58.0	72.5	81.7	19.1	19.3
Mizoram	0.1	0.8	13.0	32.5	50.0	68.7	22.0	22.0
Nagaland	0.6	4.2	24.4	48.2	64.1	77.9	20.1	20.2
Sikkim	2.4	9.5	35.5	51.7	65.1	78.4	19.8	19.8
West								
Goa	1.7	4.2	15.3	28.2	42.3	61.7	23.2	23.2
Gujarat	8.4	21.0	54.1	73.2	86.4	94.2	17.6	18.2
Maharashtra	11.3	33.5	65.1	80.4	88.2	93.9	16.4	16.7
South								
Andhra Pradesh	22.1	48.9	79.8	89.8	94.5	96.8	15.1	15.4
Karnataka	9.1	27.5	60.6	76.3	84.6	91.7	16.8	17.0
Kerala	0.9	5.1	27.1	48.4	64.5	82.0	20.2	20.3
Tamil Nadu	2.6	11.6	41.6	64.7	79.6	90.3	18.7	18.8

22–23 years in Goa, Mizoram, and Manipur, and 20 years in Kerala, Nagaland, Punjab, and Sikkim. Notably, however, in Kerala, Nagaland, Punjab, and Manipur at least one out of five women were already married by age 18. The difference between the median age at marriage and the median age at cohabitation with the husband is at least one year in Bihar, Rajasthan, Madhya Pradesh, Uttar Pradesh, and Haryana, indicating that in these states *gauna* is still followed, albeit on a limited scale. In other states, however, this practice is followed to only a negligible extent, if at all.

3.4 Exposure to Mass Media

In a country like India where a large majority of women are illiterate or have little formal education, informal channels such as the mass media can play an important role in bringing about modernization. In NFHS-2, women were asked questions about whether they read a newspaper or magazine, watch television, or listen to the radio at least once a week, and whether

Table 3.6 Exposure to mass media

Percentage of ever-married women age 15–49 who usually read a newspaper or magazine, watch television, or listen to the radio at least once a week, who usually visit a cinema/theatre at least once a month, or who are not regularly exposed to any of these media by selected background characteristics, India, 1998–99

Background characteristic	Exposure to mass media					Number of women
	Reads a newspaper or magazine at least once a week	Watches television at least once a week	Listens to the radio at least once a week	Visits the cinema/theatre at least once a month	Not regularly exposed to any media	
Age						
15–19	14.6	38.0	33.3	14.3	45.0	8,182
20–24	21.7	45.2	37.0	14.5	39.1	16,389
25–29	22.5	46.7	37.3	12.1	39.3	17,745
30–34	21.9	46.5	36.4	10.0	40.0	15,094
35–39	21.1	46.7	36.2	8.2	40.7	13,089
40–44	20.5	47.5	37.6	6.6	39.7	10,521
45–49	19.5	47.0	36.3	6.0	41.2	8,179
Residence						
Urban	43.4	80.6	46.3	18.1	12.9	23,370
Rural	12.8	33.4	33.0	7.9	50.1	65,829
Education						
Illiterate	0.0	27.2	23.5	6.5	59.8	51,871
Literate, < middle school complete	29.9	59.2	47.8	11.8	21.5	17,270
Middle school complete	49.2	71.9	54.7	15.1	11.0	7,328
High school complete and above	77.0	88.1	63.7	23.0	3.5	12,719
Religion						
Hindu	20.2	45.4	36.4	11.2	40.9	72,903
Muslim	17.2	39.6	32.8	6.2	44.8	11,190
Christian	43.7	57.6	54.0	14.2	20.4	2,263
Sikh	30.9	75.5	34.9	5.7	19.4	1,427
Jain	69.5	88.4	48.6	15.0	7.3	331
Buddhist/Neo-Buddhist	32.7	67.8	42.6	14.1	23.0	676
Other	10.2	23.5	32.4	5.3	57.9	285
No religion	26.5	37.1	30.3	13.6	48.9	44
Caste/tribe						
Scheduled caste	11.0	36.9	31.1	10.3	48.3	16,301
Scheduled tribe	8.5	22.7	25.1	5.4	61.8	7,750
Other backward class	18.8	45.1	36.3	12.5	40.7	29,383
Other	30.2	56.1	42.0	10.5	31.0	34,904
Standard of living index						
Low	4.1	18.5	20.3	8.2	66.9	29,033
Medium	17.4	46.5	38.9	9.5	36.2	41,289
High	55.5	88.2	57.2	17.0	6.8	17,845
Total	20.8	45.7	36.5	10.6	40.3	89,199

Note: Total includes 11, 79, 862, and 1,032 women with missing information on education, religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.

they visit the cinema or theatre at least once a month. Table 3.6 gives information on women's exposure to these forms of mass media by selected background characteristics.

In India two-fifths of women are not regularly exposed to any mass media. As expected, regular exposure to any media is much more widespread among urban women (87 percent) than among rural women (50 percent). Media exposure varies even more widely by education and standard of living. A negligible proportion (4 percent) of women who have completed at least

high school are not regularly exposed to any media compared with 60 percent of illiterate women. Sixty-seven percent of women in households with a low standard of living are not exposed to any media compared with 36 percent of women in households with a medium standard of living and 7 percent of women in households with a high standard of living. Regular exposure to media is highest for Jain women (93 percent), followed by Sikh (81 percent) and Christian (80 percent) women, and it is slightly higher for Hindu women (59 percent) than for Muslim women (55 percent). Scheduled-tribe women are much less likely (38 percent) to be regularly exposed to media than scheduled-caste women (52 percent) or women belonging to other backward classes (59 percent). More than two-thirds (69 percent) of women who do not belong to any scheduled caste, scheduled tribe, or other backward class are regularly exposed to any form of mass media. Exposure to mass media varies little by age although the youngest women (age 15–19) are somewhat less likely than older women to be regularly exposed to any media.

Among the different types of mass media, television has the greatest reach across almost all categories of women. Overall, 46 percent of respondents watch television at least once a week, 37 percent listen to the radio at least once a week, 21 percent read a newspaper or magazine at least once a week, and 11 percent visit the cinema or theatre at least once a month. The proportion of women who watch television at least once a week has increased sharply since the time of NFHS-1, when it was 32 percent. There has, however, been a decline in exposure to the radio and cinema/theatre in the six and one-half years between the two surveys. The proportion of women listening to the radio at least once a week declined from 44 percent in NFHS-1 to 37 percent in NFHS-2 and the proportion who visit the cinema or theatre at least once a month declined from 15 percent to 11 percent over the same period.

Exposure to the cinema or theatre decreases with age, whereas the youngest women are less likely than older women to be exposed to the other forms of media. Exposure to each of the different forms of media increases sharply with urban residence, education, and standard of living. Jain women are more likely than women of any other religion or no religion to be exposed to each of the different forms of media. Urban women are much more likely to watch television (81 percent) than to listen to the radio at least once a week (46 percent), whereas rural women are equally likely to be regularly exposed to television and radio (both 33 percent). Notably, women who have completed at least high school are more likely to be regularly exposed to the print media than to the radio or cinema.

Interstate variations in media exposure are presented in Table 3.7. The proportion of ever-married women age 15–49 not regularly exposed to any form of media varies from a low of 7 percent in Delhi to a high of 73 percent in Bihar. More than three-quarters of women are regularly exposed to at least one form of media in Delhi, Himachal Pradesh, and Punjab in the north, Manipur, Mizoram, and Sikkim in the northeast, Goa in the west, and all four of the southern states. By contrast, less than half of women are regularly exposed to any form of mass media in Bihar, Rajasthan, Orissa, and Uttar Pradesh (Figure 3.2).

The pattern of exposure to each of the different forms of media also varies greatly by state. Regular exposure to television is highest in Delhi where 90 percent of women watch television at least once a week and lowest in Bihar where only 17 percent of women do so. The proportion listening to the radio at least once a week varies from a high of 71 percent in Kerala to 17 percent in Rajasthan. In 16 of the 25 states, women are more likely to be regularly exposed

Table 3.7 Exposure to mass media by state

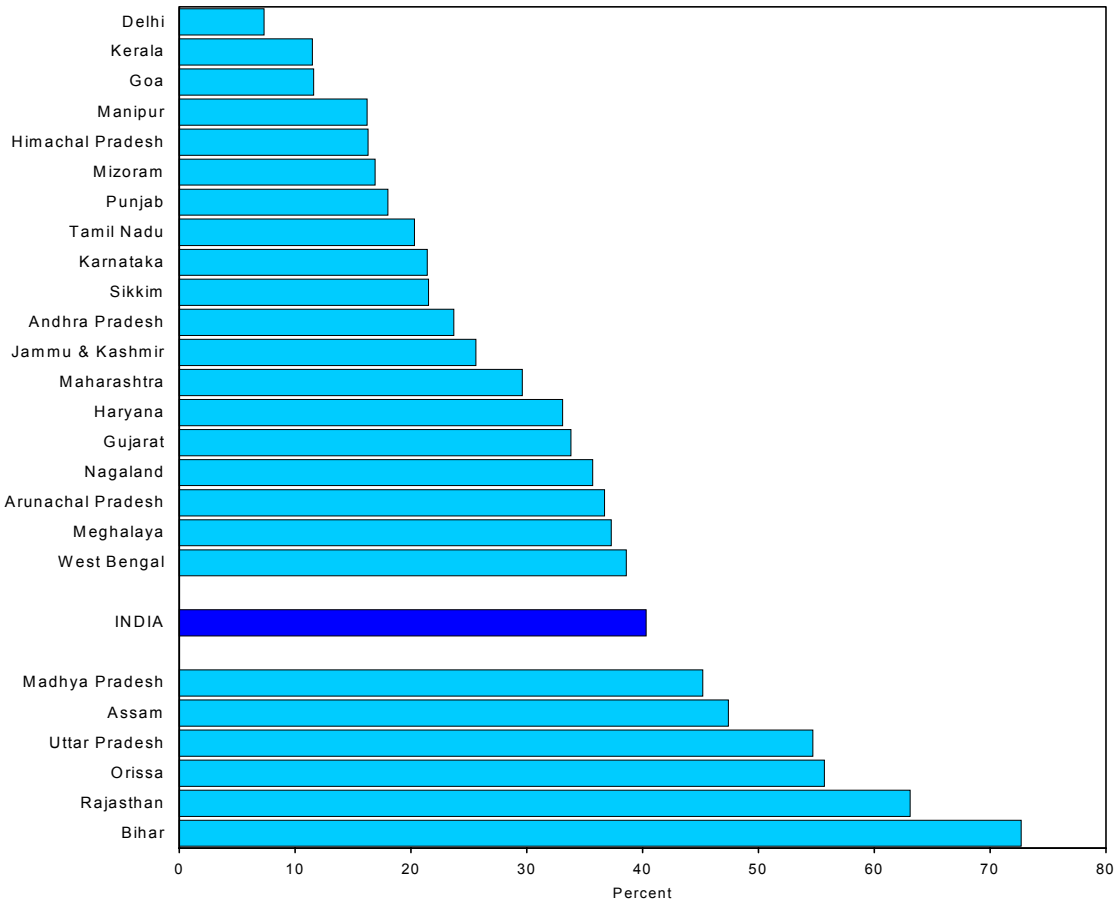
Percentage of ever-married women age 15–49 who usually read a newspaper or magazine, watch television, or listen to the radio at least once a week, who usually visit a cinema/theatre at least once a month, or who are not regularly exposed to any of these media according to state, India, 1998–99

State	Exposure to mass media				
	Reads a newspaper or magazine at least once a week	Watches television at least once a week	Listens to the radio at least once a week	Visits the cinema/theatre at least once a month	Not regularly exposed to any media
India	20.8	45.7	36.5	10.6	40.3
North					
Delhi	50.1	90.1	54.1	14.5	7.3
Haryana	21.7	60.9	31.4	4.0	33.1
Himachal Pradesh	27.5	73.9	56.5	2.0	16.3
Jammu & Kashmir	12.7	54.6	57.6	2.5	25.6
Punjab	31.4	77.3	35.4	5.7	18.0
Rajasthan	12.4	30.2	16.7	2.9	63.1
Central					
Madhya Pradesh	16.4	44.5	28.2	7.4	45.2
Uttar Pradesh	12.6	32.1	29.5	3.5	54.7
East					
Bihar	9.3	16.8	20.3	4.4	72.7
Orissa	10.7	27.7	33.1	4.6	55.7
West Bengal	15.0	40.8	41.6	9.7	38.6
Northeast					
Arunachal Pradesh	10.5	47.5	41.5	10.6	36.7
Assam	16.5	28.8	40.8	5.6	47.4
Manipur	39.3	61.2	72.6	13.0	16.2
Meghalaya	31.9	39.7	39.0	4.1	37.3
Mizoram	65.1	44.1	66.7	1.1	16.9
Nagaland	26.9	46.0	44.4	1.4	35.7
Sikkim	19.1	56.1	54.0	19.0	21.5
West					
Goa	48.4	80.8	52.0	4.3	11.6
Gujarat	29.7	55.9	30.5	7.5	33.8
Maharashtra	32.2	61.8	36.1	8.3	29.6
South					
Andhra Pradesh	19.5	58.2	39.2	35.1	23.7
Karnataka	27.9	58.4	60.9	19.7	21.4
Kerala	64.2	62.4	70.9	12.1	11.5
Tamil Nadu	23.1	63.0	51.7	21.9	20.3

to television than to any other form of media. The exposure to print media, which is dependent on literacy, varies from a high of 64–65 percent in Mizoram and Kerala (the two Indian states where literacy is highest) to a low of 9 percent in Bihar and 11 percent in Arunachal Pradesh and Orissa. Cinema or theatre is most popular in Andhra Pradesh where 35 percent of women visit a cinema or theatre at least once a month and least popular in Mizoram and Nagaland where only 1 percent of women do so. Cinema or theatre is also popular in Tamil Nadu, Karnataka, and Sikkim, where 19–22 percent of women visit the cinema/theatre regularly. The proportion of women regularly exposed to the cinema or theatre is less than the proportion exposed to each of the other forms of media in every state except Andhra Pradesh and Arunachal Pradesh.

During the six and one-half years between NFHS-1 and NFHS-2, every state registered an increase in the proportion of women who watch television, with increases of 20 percentage

Figure 3.2
Percentage of Women Not Regularly Exposed to Any Mass Media by State



NFHS-2, India, 1998–99

points or more in Himachal Pradesh, Nagaland, Manipur, Kerala, and Punjab . Regular exposure to radio increased in all of the northeastern states and slightly in Himachal Pradesh, but declined elsewhere. Regular visits to the cinema/theatre declined in 17 of the 23 states for which comparisons can be made and the decline was largest in the states where such visits were most common at the time of NFHS-1. The decrease was especially pronounced in Tamil Nadu where the percentage of women visiting the cinema/theatre at least once a month declined from 43 percent to 22 percent.

3.5 Women's Employment

Labor force participation not only gives women an opportunity to earn income, but also exposes them to the outside world and to authority structures and networks other than kin-based ones (Dixon-Mueller, 1993). In a developing country such as India, however, where women's workforce participation is often motivated by poverty, these benefits are likely to be mediated by the social context of women's work and their total work burden (Bardhan, 1985; Desai and Jain, 1994). In addition, the empowering effects of employment for women are likely to depend on their occupation, the continuity of their workforce participation, and whether they earn and

control income. It is generally expected that women who work at a regular job, who earn money, and who perceive that their contribution is a substantial part of total family earnings are more likely to be empowered than other employed and unemployed women (Youssef, 1982; Sen, 1990; Mahmud and Johnston, 1994). The National Population Policy adopted by the Government of India in 2000 (Ministry of Health and Family Welfare, 2000) explicitly recognizes the importance of women's paid employment in achieving the goal of population stabilization in India and also specifies measures that will encourage paid employment and self-employment of women.

Table 3.8 provides information on women's employment status for ever-married women age 15–49 by residence. For the country as a whole, 39 percent of ever-married women age 15–49 were either currently employed at the time of NFHS-2 or were employed during the 12 months preceding the survey. Current employment of ever-married women increased from 32 percent in NFHS-1 to 37 percent in NFHS-2. Forty-four percent of rural respondents but only 26 percent of urban respondents worked at any time during the year preceding the survey. The majority of women who worked during the 12 months before the survey worked throughout the year in both urban areas (77 percent) and rural areas (63 percent). A large majority of urban women (89 percent) and more than half of rural women (62 percent) who worked during the year before the survey earned money for their work. Three in 10 working women in rural areas and 1 in 10 working women in urban areas were unpaid workers. Two-thirds of women who work in India work on farms. Agricultural workers (including farmers, farm workers, and women in other agricultural occupations) account for more than three-quarters (76 percent) of women who work in rural areas. In urban areas, by contrast, there is greater occupational diversity. Twenty-seven percent of urban women who work are production workers, 17 percent are professionals, 15 percent are agricultural workers, and 13 percent are in sales and service occupations.

A significant feature of women's work participation in India is their substantial contribution to family earnings. Nearly one in five (17–18 percent) urban as well as rural women who worked for money at any time in the 12 months preceding the survey report that the family is entirely dependent on their earnings. Another 30 percent in urban areas and 24 percent in rural areas report that they contribute half or more (but not all) of the total family earnings. Only 12 percent of women in urban areas and 9 percent in rural areas report that they contribute almost nothing to total family earnings.

Women who worked away from home and had a child under age three living at home were asked who took care of the child while they worked. Overall, 40 percent of the women said that they took their youngest child with them to work; this proportion was higher in urban areas (53 percent) than in rural areas (39 percent). Fifty-nine percent of women who did not take their child with them to work left the child with relatives other than their husband or older children, and 23 percent left the child with an older girl. Rural working women were more likely than urban working women to leave their child with an older girl. Less than 10 percent left the child with their husband or an older boy.

Table 3.8 Employment

Percent distribution of ever-married women age 15–49 by employment characteristics, according to residence, India, 1998–99

Employment characteristic	Urban	Rural	Total
Employment status			
Currently working	24.2	42.1	37.4
Worked in past 12 months (not currently working)	1.4	1.9	1.7
Not worked in past 12 months	74.4	56.0	60.8
Continuity of employment[1]			
Throughout the year	76.8	63.4	65.7
Seasonally/part of the year	16.6	31.8	29.2
Once in a while	6.5	4.7	5.0
Missing	0.1	0.1	0.1
Type of earning[1]			
Cash only	85.9	50.9	56.9
Cash and kind	3.0	11.5	10.0
Kind only	1.2	7.4	6.3
Not paid	9.8	30.1	26.6
Missing	0.1	0.0	0.1
Occupation[1]			
Professional	17.0	2.5	5.0
Sales worker	9.2	2.4	3.6
Service worker	4.0	0.4	1.0
Production worker	27.2	8.6	11.8
Agricultural worker	15.0	76.1	65.6
Other worker	26.1	9.2	12.1
Missing	1.5	0.8	0.9
Earnings contribution to total family earnings[2]			
Almost none	12.0	9.3	9.9
Less than half	41.0	48.2	46.6
About half	20.6	17.5	18.2
More than half	9.5	6.7	7.3
All	16.8	18.2	17.9
Missing	0.1	0.1	0.1
Person caring for youngest child while woman works[3]			
Child usually taken to work	52.5	38.8	40.4
Husband	1.7	1.7	1.7
Older boys	2.4	4.2	4.0
Older girls	6.2	14.8	13.8
Other relatives	28.4	35.9	35.0
Neighbours/friends	1.9	2.0	2.0
Servants/hired help	2.5	0.2	0.5
Child is in school	0.6	0.1	0.2
Institutional child care	1.5	0.4	0.5
Other	1.9	1.7	1.7
Missing	0.4	0.3	0.3
Total percent	100.0	100.0	100.0
Number of women	23,370	65,829	89,199
Number of employed women[1]	5,979	28,949	34,928
Number of women earning cash	5,316	18,075	23,391
Number of women with a child under age three[3]	935	7,025	7,960

[1]For currently working women and women who have worked in the past 12 months
[2]For women earning cash
[3] For women who work away from home and have a child under age three who is living at home

Table 3.9 shows interstate variations in the work status of ever-married women age 15–49. As noted above, the majority of women in India (61 percent) were not working at the time of the survey and had not worked in the 12 months preceding the survey. Twenty percent were employed by someone else, 14 percent worked on a family farm or in a family business, and 5 percent were self-employed. Significant statewise differences exist in the work patterns of ever-married women. The highest percentages of women who work are in the northeastern states of Manipur (70 percent), Nagaland (64 percent), and Arunachal Pradesh (60 percent), and lowest are in Punjab (9 percent) and Haryana (13 percent). Women's work participation is also relatively low (25 percent or less) in Assam, Himachal Pradesh, Delhi, Sikkim, Uttar Pradesh, and Kerala. Work participation of women is relatively high in all the southern states except Kerala, all the western states, some northeastern states, and Madhya Pradesh.

The most common form of employment in the majority of states is work that is done for someone else. More than one-third of ever-married women were employed by someone else in Tamil Nadu and Andhra Pradesh, and less than 10 percent were employed by someone else in Uttar Pradesh, Arunachal Pradesh, and all of the northern states except Delhi. Arunachal Pradesh and Manipur are the only states where working for someone else is the least important form of employment among ever-married women. Working on a family farm or in a family business is the most common type of employment in Arunachal Pradesh and Nagaland where it accounts for 37–38 percent of women, in Jammu and Kashmir and Rajasthan where it accounts for 30 percent of women, and in four other states. Self-employment is the most important form of employment in Manipur (28 percent) and more than 10 percent of women are also self-employed in Arunachal Pradesh and Nagaland.

3.6 Women's Autonomy

Education, work participation, and exposure to mass media are some of the means by which women gain status and autonomy, both important aspects of their empowerment. To measure women's autonomy and empowerment more directly, NFHS-2 asked about women's participation in household decisionmaking, their freedom of movement, and access to money that they can spend as they wish. Women's autonomy is likely to have a significant impact on the demographic and health-seeking behaviour of couples by altering women's relative control over fertility and contraceptive use, and by influencing their attitudes (for example, attitudes towards the sex composition of children) and abilities (for example, the ability to obtain health services for themselves and their children) (Sen and Batliwala, 1997).

In order to measure women's participation in household decisionmaking, NFHS-2 asked women to report who in their households makes decisions about the following: what items to cook, obtaining health care for herself, purchasing jewellery or other major household items, and her going and staying with parents or siblings. The survey also asked women who earn money who decides how the money they earn is spent. Table 3.10 gives the percent distribution of the person (or persons) who makes each of the specified household decisions, according to residence.

As expected, ever-married women in India are most likely to participate in decisions about what to cook: 71 percent make these decisions on their own and another 14 percent make them jointly with their husbands or someone else in the household. Fifteen percent of ever-married women, however, are not involved at all in decisions regarding what to cook. About half

Table 3.9 Work status of respondents by state

Percent distribution of ever-married women age 15–49 by work status, according to state, India, 1998–99

State	Working in family farm/business	Employed by someone else	Self-employed	Not worked in the past 12 months	Missing	Total percent
India	14.4	19.7	5.0	60.8	0.0	100.0
North						
Delhi	3.5	13.4	3.9	79.1	0.0	100.0
Haryana	3.3	8.5	0.8	87.4	0.0	100.0
Himachal Pradesh	11.8	8.6	0.4	79.2	0.0	100.0
Jammu & Kashmir	30.1	7.8	4.6	57.6	0.0	100.0
Punjab	0.4	8.0	1.0	90.6	0.0	100.0
Rajasthan	30.3	8.9	4.4	56.5	0.0	100.0
Central						
Madhya Pradesh	26.2	27.4	3.6	42.8	0.0	100.0
Uttar Pradesh	12.5	7.2	3.5	76.6	0.1	100.0
East						
Bihar	9.1	11.6	5.7	73.6	0.0	100.0
Orissa	7.2	15.9	7.5	69.4	0.0	100.0
West Bengal	5.5	14.9	8.1	71.5	0.0	100.0
Northeast						
Arunachal Pradesh	37.7	7.9	13.9	40.4	0.1	100.0
Assam	4.8	10.8	4.5	79.8	0.0	100.0
Manipur	22.9	18.6	28.4	30.1	0.0	100.0
Meghalaya	18.6	20.1	8.8	52.4	0.1	100.0
Mizoram	23.5	19.2	7.2	50.1	0.0	100.0
Nagaland	37.3	14.8	11.7	36.1	0.1	100.0
Sikkim	4.2	14.0	3.9	77.9	0.0	100.0
West						
Goa	12.0	28.1	7.3	52.6	0.1	100.0
Gujarat	23.4	22.8	4.6	49.2	0.0	100.0
Maharashtra	20.7	28.7	6.3	44.3	0.0	100.0
South						
Andhra Pradesh	17.9	35.6	5.2	41.3	0.0	100.0
Karnataka	16.6	29.6	5.8	47.9	0.0	100.0
Kerala	2.4	16.9	5.7	75.0	0.0	100.0
Tamil Nadu	10.4	39.2	4.2	46.2	0.0	100.0

of women are not involved at all in decisions about seeking health care for themselves (49 percent), purchasing jewellery or other major household items (47 percent), and going and staying with parents or siblings (52 percent). Among these three types of decisions, the decision that women are most likely to take on their own is the one about their own health care (28 percent), and the decision that they are least likely to take on their own is about the purchase of jewellery or other major household items (11 percent). Urban women are more likely than rural women to make all these four types of decisions on their own.

Thirty percent of women who earn money report that only their husbands or only others in the household make the decision on how the money they earn will be used, 41 percent report that they make the decision on their own, and 28 percent report that they make the decision together with their husbands or someone else in their household. The proportion of women who do not participate in the decision about how the money they earn should be used is higher in rural areas (35 percent) than in urban areas (16 percent), and the proportion who make this decision alone is higher in urban areas (57 percent) than in rural areas (37 percent).

Table 3.10 Household decisionmaking

Percent distribution of ever-married women by person who makes specific household decisions, according to residence, India, 1998–99

Household decision	Respondent only	Husband only	Respondent with husband	Others in household only	Respondent with others in household	Missing	Total percent
URBAN							
What items to cook	71.2	3.5	4.7	10.2	10.5	0.0	100.0
Obtaining health care for herself	35.0	34.2	17.7	7.0	6.2	0.0	100.0
Purchasing jewellery or other major household items	13.3	28.5	35.7	11.1	11.4	0.0	100.0
Going and staying with her parents or siblings	18.0	36.3	28.4	9.0	8.2	0.0	100.0
How the money she earns will be used[1]	57.0	14.2	24.0	1.9	2.8	0.1	100.0
RURAL							
What items to cook	71.1	3.7	4.3	11.6	9.3	0.0	100.0
Obtaining health care for herself	25.7	41.1	16.7	10.0	6.6	0.0	100.0
Purchasing jewellery or other major household items	9.7	35.7	29.2	14.4	11.0	0.0	100.0
Going and staying with her parents or siblings	12.4	41.2	23.9	13.0	9.4	0.1	100.0
How the money she earns will be used[1]	36.5	31.0	25.3	3.5	3.6	0.2	100.0
TOTAL							
What items to cook	71.2	3.6	4.4	11.2	9.6	0.0	100.0
Obtaining health care for herself	28.1	39.3	16.9	9.2	6.5	0.0	100.0
Purchasing jewellery or other major household items	10.7	33.8	30.9	13.5	11.1	0.0	100.0
Going and staying with her parents or siblings	13.9	39.9	25.1	12.0	9.1	0.1	100.0
How the money she earns will be used[1]	41.1	27.2	25.0	3.1	3.4	0.1	100.0

[1]For women earning cash

Women's participation in household decisionmaking, alone or jointly with others in the household, increases with age, suggesting that autonomy also increases with age (Table 3.11). Specifically, among women age 30 and over, only 4–6 percent in each five-year age group do not participate in any decisionmaking compared with 24 percent of women age 15–19 and 15 percent of women age 20–24. Participation in each of the four specified decisions increases more or less steadily with age.

Table 3.11 Women's autonomy

Percentage of ever-married women involved in household decisionmaking, percentage with freedom of movement, and percentage with access to money by selected background characteristics, India, 1998–99

Background characteristic	Percentage not involved in any decision-making	Percentage involved in decisionmaking on: What to cook	Own health care	Purchasing jewellery, etc.	Staying with her parents/ siblings	Percentage who do not need permission to: Go to the market	Visit friends/ relatives	Per-centage with access to money	Number of women
Age									
15–19	24.4	66.6	38.6	39.8	37.4	13.8	10.2	45.5	8,182
20–24	15.4	77.3	45.0	46.1	43.1	22.0	16.6	54.1	16,389
25–29	9.4	84.9	49.7	51.5	46.2	28.8	21.1	58.8	17,745
30–34	6.1	89.4	53.6	54.8	49.3	34.0	25.1	61.1	15,094
35–39	4.8	91.9	56.5	57.7	52.7	37.9	29.8	64.3	13,089
40–44	3.7	92.6	59.3	59.3	53.6	43.0	35.1	65.9	10,521
45–49	3.8	91.6	60.1	60.3	56.1	45.4	37.5	67.6	8,179
Residence									
Urban	7.1	86.3	58.9	60.4	54.6	46.9	35.0	73.6	23,370
Rural	10.3	84.7	49.0	49.9	45.7	26.1	20.6	54.6	65,829
Education									
Illiterate	9.6	86.1	48.6	49.6	45.1	27.0	21.6	52.8	51,871
Literate, < middle school complete	9.1	85.2	52.5	54.0	49.2	32.6	24.3	61.3	17,270
Middle school complete	11.3	81.6	53.5	54.3	49.7	35.9	25.6	66.6	7,328
High school complete and above	8.1	83.3	61.2	62.0	57.6	46.2	35.0	81.0	12,719
Religion									
Hindu	9.6	85.2	50.8	52.4	48.0	31.8	24.6	59.4	72,903
Muslim	10.7	82.8	50.5	48.1	43.4	23.4	19.0	56.0	11,190
Christian	5.8	88.0	63.0	65.6	61.7	44.6	35.6	68.5	2,263
Sikh	2.4	93.6	74.6	72.5	64.6	46.2	25.6	74.0	1,427
Jain	9.8	84.3	54.7	55.9	47.0	50.9	39.8	74.0	331
Buddhist/Neo-Buddhist	4.6	89.7	57.0	58.7	52.7	56.3	38.7	72.2	676
Other	4.9	89.1	52.8	61.7	58.4	33.3	31.0	60.6	285
No religion	4.2	91.2	64.6	65.4	71.9	41.5	33.8	72.3	44
Caste/tribe									
Scheduled caste	9.1	86.2	49.7	51.8	47.4	31.3	23.7	56.0	16,301
Scheduled tribe	7.6	87.6	49.8	52.9	48.8	30.7	26.2	50.7	7,750
Other backward class	10.2	84.4	51.3	52.5	48.4	34.7	26.6	62.4	29,383
Other	9.3	84.7	53.3	53.3	48.2	29.6	22.7	61.0	34,904
Cash employment									
Working for cash	5.7	89.8	57.0	59.6	54.6	41.4	33.2	64.7	23,391
Working but not for cash	10.2	85.1	46.5	47.1	43.1	26.4	21.4	50.6	11,519
Not worked in past 12 months	10.9	83.1	50.3	50.8	46.3	28.5	21.2	59.3	54,271
Standard of living index									
Low	8.5	87.7	48.5	49.9	45.5	28.5	23.0	52.1	29,033
Medium	10.2	84.3	50.8	51.6	47.2	30.0	22.8	58.1	41,289
High	9.3	82.9	58.4	59.6	54.5	40.1	30.2	75.1	17,845
Total	9.4	85.1	51.6	52.6	48.1	31.6	24.4	59.6	89,199

Note: Total includes 11, 79, 862, 18, and 1,032 women with missing information on education, religion, caste/tribe, cash employment, and the standard of living index, respectively, who are not shown separately.

The proportion of women not involved in any decisionmaking varies little by education, caste/tribe, or standard of living. Participation in decisions about women's own health care, about purchasing jewellery and other major household items, and about staying with parents or siblings, increases with education and with the household standard of living, but participation in decisions about what to cook is somewhat higher among less educated women than among more educated women, and this participation declines with the standard of living. Muslim women, closely followed by Hindu women, are less likely than women belonging to other religions to be involved in decisions about purchasing jewellery or other major household items and about staying with parents or siblings. About half of both Hindu and Muslim women do not participate in decisions about their own health care. Women working for money are more likely than women in other employment categories to participate in each of the four types of decisions and women who work without earning money are least likely to participate in all the decisions with the exception of the decision about what to cook. These results suggest that decisionmaking autonomy is not greater for all employed women; greater decisionmaking autonomy is associated with employment for women only if they are working for money.

Table 3.11 also gives information on two other dimensions of women's autonomy measured in NFHS-2, namely, women's freedom of movement and their access to money that they can spend as they wish. With regard to freedom of movement, respondents were asked whether they need permission to go to the market or to visit friends or relatives. Women's access to spending money was measured by asking respondents, 'Are you allowed to have some money set aside that you can use as you wish?'

Freedom of movement is limited for the majority of ever-married women in India. Only 32 percent of women say that they do not need permission to go to the market, and only 24 percent say that they do not need permission to visit friends or relatives. Freedom of movement increases rapidly with age. For example, only 14 percent of women age 15–19 do not need permission to go to the market compared with 45 percent of women age 45–49. Urban women have much more freedom of movement than rural women and freedom of movement increases with education. Muslim women have much less freedom of movement than women of other religions, especially Buddhists/Neo-Buddhists and Jain women. As expected, women who earn money have much more freedom of movement than other women. What is most remarkable, however, is how limited the freedom of movement is for all categories of women. The proportion of women who do not need permission to go to the market is never greater than 56 percent for any category, and the proportion who do not need permission to go to visit friends and relatives is never greater than 40 percent.

There is substantial variation in women's access to money by background characteristics. Overall, 60 percent of women say that they are allowed to have some money set aside that they can spend as they wish, but this proportion varies widely by age, residence, education, religion, caste/tribe, employment status, and household standard of living. Specifically, access to money increases with age, education, and the standard of living, and it is much greater for urban women than for rural women. Muslim and Hindu women are less likely to have access to money than women belonging to other religions. Women from scheduled castes and scheduled tribes are less likely than other women to have access to money. As expected, women who worked during the year and earned money are more likely than women in other employment categories to have access to money; however, women who did not work at all are more likely to have access to money (59 percent) than women who worked but did not earn money (51 percent).

Table 3.12 shows the interstate variation in all three indicators of women's autonomy—women's decisionmaking, freedom of movement, and access to money. In all states except Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh, Jammu and Kashmir, and Orissa, more than 90 percent of women are involved in at least one household decision. In each state women are most likely to be involved in decisions about what to cook (78–97 percent). There are only seven states in which more than 70 percent of women participate in decisions about their own health care (Himachal Pradesh, Meghalaya, Punjab, Mizoram, Kerala, Gujarat, and Arunachal Pradesh). By contrast, in Madhya Pradesh and Orissa only 37–39 percent of women participate in such decisions (Figure 3.3). More than 9 out of 10 women in Himachal Pradesh (93 percent) are involved in decisions about purchasing jewellery or other major household items compared with only 4 out of 10 women in Uttar Pradesh, Rajasthan, Bihar, and Madhya Pradesh. Participation in decisions about the purchase of jewellery or other major items is also high in Haryana, Punjab, Gujarat, and most of the northeastern states. In about half of the states, women are least likely to be involved in decisions about going to stay with their parents or siblings.

A much higher proportion of women reported that they do not need permission to go to the market in Tamil Nadu (79 percent), Goa (67 percent), and Mizoram (64 percent) than in the rest of the states. Only 8 percent of women do not need permission to visit friends or relatives in Jammu and Kashmir compared with 59–60 percent of women in Mizoram and Goa. Overall, women's freedom of movement is most restricted in Jammu and Kashmir, Uttar Pradesh, and Assam. and At least 80 percent of women have access to money that they can spend as they wish in Goa, Delhi, Meghalaya, and Himachal Pradesh, but only 28 percent have access to money in Nagaland and 35 percent in Assam. A few states perform relatively well on all of the autonomy indicators: Arunachal Pradesh, Goa, Gujarat, Himachal Pradesh, Meghalaya, Punjab, Sikkim, and Tamil Nadu. Most other states have a mixed record on women's autonomy except for Madhya Pradesh, Rajasthan, and Uttar Pradesh, which have a consistently poor record on all of the indicators.

3.7 Women's Educational Aspirations for Their Children

The desire to invest in improving the quality of children, including investing in their education, is important for bringing about transition from uncontrolled to controlled fertility. In order to obtain information on this subject, NFHS-2 asked ever-married women for their opinion about how much education should be given to a girl or a boy. Women's responses to these questions also provide an indication of the degree of son preference prevailing at the time of the survey.

As shown in Table 3.13, 43 percent of women believe that a boy should be given as much education as he desires compared with only 31 percent who believe that a girl should be given as much education as she desires. Twenty-eight percent of women believe that an education above high school (higher secondary school, graduate and above, or professional degree) is appropriate for boys whereas 20 percent feel that it is appropriate for girls. Notably, only 1 percent of women feel that girls should not be given any education, and 16 percent feel that girls should be given an education but not beyond middle school. The corresponding proportions for boys are negligible.

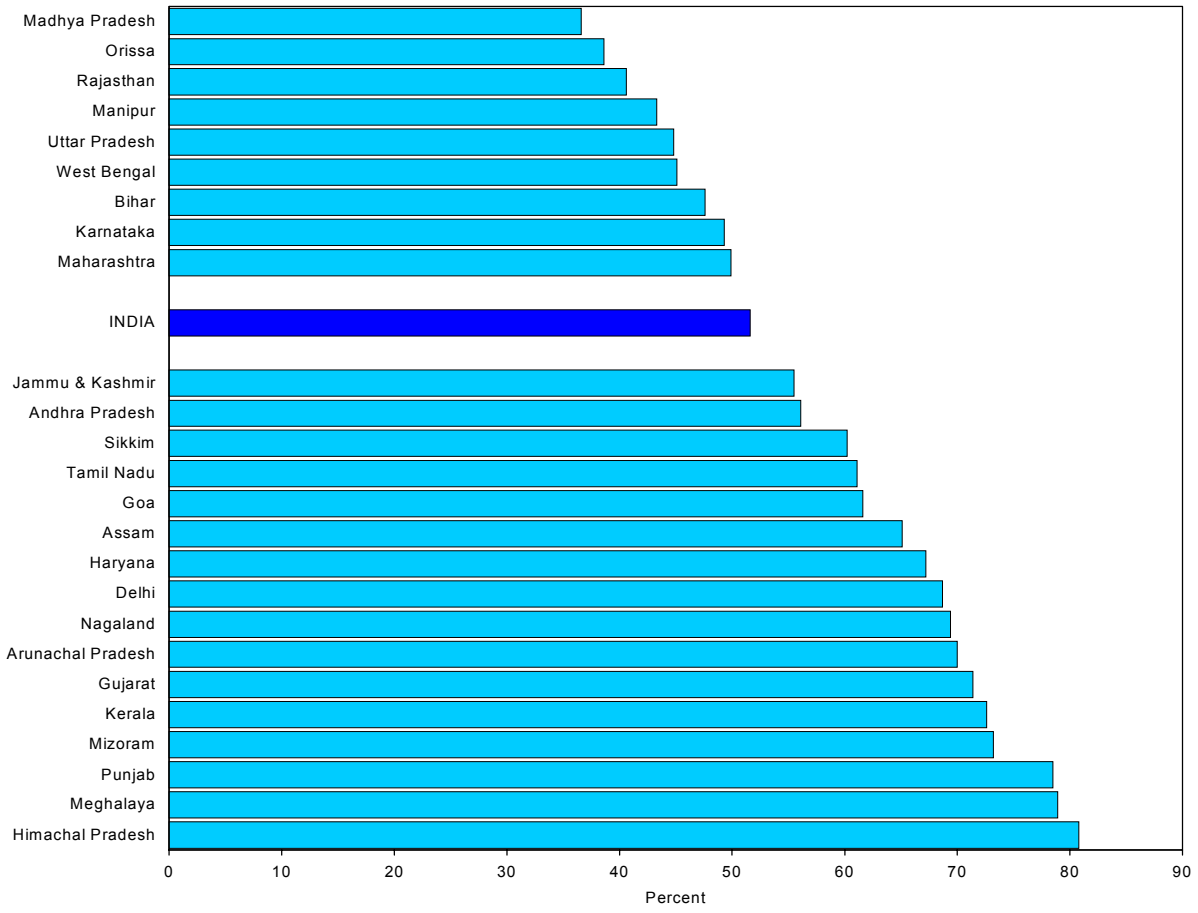
Table 3.12 Women's autonomy by state

Percentage of ever-married women involved in household decisionmaking, percentage with freedom of movement, and percentage with access to money by state, India, 1998–99

State	Percentage not involved in any decision-making	Percentage involved in decisionmaking on: What to cook	Own health care	Purchasing jewellery, etc.	Staying with her parents/ siblings	Percentage who do not need permission to: Go to the market	Visit friends/ relatives	Percentage with access to money
India	9.4	85.1	51.6	52.6	48.1	31.6	24.4	59.6
North								
Delhi	5.3	83.0	68.7	58.5	46.5	51.7	33.9	82.3
Haryana	3.4	93.5	67.2	77.8	64.5	36.7	20.8	70.8
Himachal Pradesh	0.8	95.1	80.8	93.4	91.4	32.5	31.1	80.1
Jammu & Kashmir	12.4	80.0	55.5	58.2	48.9	12.0	7.8	58.1
Punjab	1.0	96.7	78.5	75.3	67.6	50.1	28.0	78.3
Rajasthan	13.3	82.3	40.6	42.7	39.3	19.0	17.0	40.5
Central								
Madhya Pradesh	12.5	81.7	36.6	44.3	38.1	21.0	19.5	49.3
Uttar Pradesh	16.4	77.8	44.8	41.4	36.1	17.4	12.4	52.3
East								
Bihar	13.5	82.4	47.6	42.9	44.0	21.7	20.5	66.7
Orissa	10.6	86.3	38.6	54.8	48.3	18.2	15.4	46.3
West Bengal	8.0	87.4	45.1	48.4	46.7	17.8	14.1	51.4
Northeast								
Arunachal Pradesh	1.4	93.6	70.0	76.5	74.8	46.8	53.7	78.6
Assam	4.6	88.4	65.1	54.3	45.4	13.2	13.9	35.0
Manipur	3.3	87.4	43.3	66.3	63.2	28.6	28.3	76.8
Meghalaya	2.6	91.7	78.9	70.6	78.4	46.5	48.5	81.5
Mizoram	5.8	88.2	73.2	77.8	77.0	64.2	59.5	55.0
Nagaland	0.4	97.4	69.4	77.3	80.0	17.3	20.1	27.9
Sikkim	2.7	92.1	60.2	57.9	56.7	38.2	41.6	78.9
West								
Goa	3.6	89.9	61.6	62.5	72.4	66.7	58.7	82.4
Gujarat	4.1	90.4	71.4	73.6	65.1	55.1	50.6	73.6
Maharashtra	7.2	87.5	49.9	50.3	44.4	48.5	32.1	64.2
South								
Andhra Pradesh	7.4	86.2	56.1	61.4	57.7	20.1	14.6	57.7
Karnataka	8.1	88.4	49.3	47.3	44.5	43.0	34.3	67.0
Kerala	7.2	80.9	72.6	63.4	59.7	47.7	37.9	66.2
Tamil Nadu	2.4	92.1	61.1	67.4	62.4	78.5	55.9	79.0

Table 3.13 indicates that there are sharp urban-rural differences in women's educational aspirations for girls and boys. Rural respondents have lower educational aspirations than urban respondents, particularly for girls. Rural respondents are also much less likely than urban respondents to say that girls and boys should be given as much education as they desire. It is notable, however, that even in rural areas more than two-thirds of women say that girls should be given at least a high school education or as much education as they desire.

Figure 3.3
Percentage of Women Participating in Decisions About Their Own Health Care by State



NFHS-2, India, 1998–99

3.8 Domestic Violence: Attitudes and Experience

In recent years, there has been increasing concern about violence against women in general, and domestic violence in particular, in both developed and developing countries (United Nations General Assembly, 1991). Not only has domestic violence against women been acknowledged worldwide as a violation of the basic human rights of women, but an increasing amount of research highlights the health burdens, intergenerational effects, and demographic consequences of such violence (Heise et al., 1998; 1994; Jejeebhoy, 1998; Ramasubban and Singh, 1998; Rao and Bloch, 1993). In patriarchal societies such as India, women are not only socialized into being silent about their experience of violence but traditional norms teach them to accept, tolerate, and even rationalize domestic violence (Jaisingh, 1995; Hegde, 1996; Prasad, 1999). Both tolerance of and experience of domestic violence are significant barriers to the empowerment of women, with consequences for women's health, their health-seeking behaviour, their adoption of a small family norm, and the health of their children. In NFHS-2 an attempt was made to assess whether women view wife-beating as justified and to measure the prevalence of violence against women including, but not limited to, violence committed by a woman's husband.

Table 3.13 Perceived educational needs of girls and boys

Percent distribution of ever-married women by their opinion on how much education should be given to girls and boys, according to residence, India, 1998–99

Educational level	Urban	Rural	Total
Education for girls			
No education	0.2	1.3	1.0
Less than primary school	0.2	1.1	0.9
Primary school	1.7	7.0	5.6
Middle school	3.9	11.2	9.2
High school	13.7	24.1	21.4
Higher secondary school	7.9	9.6	9.2
Graduate and above	11.8	5.6	7.2
Professional degree	7.0	2.5	3.7
As much as she desires	44.1	26.0	30.8
Depends	8.7	9.2	9.0
Don't know	0.8	2.4	2.0
Total percent	100.0	100.0	100.0
Education for boys			
No education	0.1	0.3	0.2
Less than primary school	0.0	0.2	0.2
Primary school	0.3	1.3	1.1
Middle school	1.1	3.5	2.9
High school	5.8	13.0	11.1
Higher secondary school	6.3	11.5	10.1
Graduate and above	11.6	10.6	10.9
Professional degree	10.6	5.4	6.8
As much as he desires	53.1	39.5	43.0
Depends	10.4	12.6	12.0
Don't know	0.7	2.0	1.7
Total percent	100.0	100.0	100.0

In order to assess women's attitudes towards wife-beating, the survey asked whether respondents thought that a husband is justified in beating his wife for each of the following reasons: if he suspects her of being unfaithful; if her natal family does not give expected money, jewellery, or other items; if she shows disrespect for her in-laws; if she goes out without telling him; if she neglects the house or children; or if she does not cook food properly. These reasons, which range from reasons that involve suspicions about a wife's moral character to those that may be considered more trivial, such as not cooking properly, were chosen to provide variation in the perceived seriousness of violations of behavioural norms. Table 3.14 gives the percentages of ever-married women who agree with various reasons for wife-beating by background characteristics.

Almost three out of five women (56 percent) in India accept at least one reason as a justification for wife-beating. Women are most likely to agree that neglecting the house or children (40 percent) justifies wife-beating and least likely to agree that wife-beating is justified if the woman's natal family does not give expected money, jewellery, or other items (7 percent). Each of the remaining reasons is given as a justification of wife-beating by 25–37 percent of women.

Table 3.14 indicates that there are no sharp differences by age or marital duration in women's attitudes towards wife-beating, but it is notable that the youngest women (age 15–19) are consistently most likely to agree with each of the different reasons justifying wife-beating. There are large urban-rural differences in these attitudes. Not only do a higher proportion of rural

Table 3.14 Reasons given for justifying a husband beating his wife

Percentage of ever-married women who agree with specific reasons for justifying a husband beating his wife by selected background characteristics, India, 1998–99

Background characteristic	Percentage who agree with at least one reason	Percentage who agree with specific reasons: Husband suspects wife is unfaithful	Natal family does not give money or other items	Wife shows disrespect for in-laws	Wife goes out without telling husband	Wife neglects house or children	Wife does not cook food properly	Number of women
Age								
15–19	61.1	37.2	8.6	38.7	41.7	43.1	28.8	8,182
20–29	56.3	32.6	6.8	34.0	36.6	40.4	24.9	34,134
30–39	56.3	32.8	6.5	33.6	36.1	40.0	24.1	28,183
40–49	54.1	31.1	6.5	32.1	35.0	38.0	22.9	18,701
Marital duration (in years)								
< 5	54.2	31.0	6.2	33.1	35.3	38.0	23.0	20,268
5–9	56.1	32.9	6.6	33.2	35.6	40.1	24.9	13,002
10 or more	57.2	33.7	6.8	34.2	37.1	40.6	25.1	50,377
Not currently married	55.3	30.9	8.6	35.1	38.1	42.0	24.9	5,550
Residence								
Urban	47.1	24.7	3.9	28.2	29.0	34.1	17.7	23,370
Rural	59.5	35.6	7.8	35.9	39.2	42.1	27.0	65,829
Education								
Illiterate	61.6	38.6	9.0	37.3	41.3	43.7	29.1	51,871
Literate, < middle school complete	56.4	29.8	5.0	34.4	36.6	41.8	23.6	17,270
Middle school complete	51.2	25.3	3.3	30.9	32.0	36.3	18.6	7,328
High school complete and above	37.1	17.3	2.1	21.1	19.6	24.9	11.1	12,719
Religion								
Hindu	56.5	32.8	7.0	34.1	36.7	40.3	25.2	72,903
Muslim	56.5	34.8	5.9	33.6	38.1	38.7	23.2	11,190
Christian	65.2	34.0	9.4	41.9	42.8	52.4	20.7	2,263
Sikh	27.0	18.8	0.2	8.2	6.9	8.2	3.9	1,427
Jain	38.8	14.0	0.7	24.3	20.5	27.8	16.9	331
Buddhist/Neo-Buddhist	73.7	36.3	7.7	54.0	48.8	63.0	47.9	676
Other	44.0	16.6	5.8	26.3	31.8	34.0	18.5	285
No religion	75.4	36.0	13.1	35.4	51.6	66.7	27.2	44
Caste/tribe								
Scheduled caste	57.9	34.6	7.3	34.6	38.4	41.1	26.0	16,301
Scheduled tribe	62.8	40.2	11.2	40.1	41.4	45.9	28.7	7,750
Other backward class	61.7	34.0	7.6	36.8	40.3	44.8	26.7	29,383
Other	49.1	28.8	4.9	29.3	31.1	33.9	20.8	34,904
Household composition								
Nuclear household	57.1	32.8	6.8	33.9	37.2	41.1	24.7	41,114
Non-nuclear household	55.5	32.8	6.8	33.8	36.0	39.1	24.5	48,069
Cash employment								
Working for cash	62.2	34.5	9.7	39.2	42.3	48.1	28.9	23,391
Working but not for cash	67.5	41.2	10.3	42.9	46.9	50.9	35.4	11,519
Not worked in past 12 months	51.3	30.3	4.7	29.7	31.9	34.3	20.5	54,271
Standard of living index								
Low	62.0	36.9	9.1	38.1	42.3	45.1	29.1	29,033
Medium	58.8	34.4	6.8	35.5	38.3	42.0	26.0	41,289
High	40.9	22.3	3.0	23.3	23.1	27.3	14.2	17,845
Total	56.3	32.8	6.8	33.9	36.6	40.0	24.6	89,199

Note: Total includes 16 women from households with no usual residents, and 2, 11, 79, 862, 18, and 1,032 women with missing information on marital duration, education, religion, caste/tribe, cash employment, and the standard of living index, respectively, who are not shown separately.

women (60 percent) than urban women (47 percent) agree with at least one reason justifying wife-beating, but rural women are also more likely than urban women to agree with each specific reason. Agreement with at least one reason and with each of the different reasons for wife-beating declines sharply with education. Sixty-two percent of illiterate women agree with at least one reason justifying wife-beating compared with 51–56 percent of literate women who have not completed high school and 37 percent of women who have completed at least high school (Figure 3.4).

Sikh and Jain women (27–39 percent) are less likely to agree with any reason justifying wife-beating than Hindu or Muslim women (both 57 percent), Christian women (65 percent), or Buddhist/Neo-Buddhist women (74 percent). Sikh and Jain women are also least likely to agree with each specific reason justifying wife-beating. One possible explanation for this difference may be that Sikh and Jain women in India are more likely than other women to be educated. Jain women are also more likely to be living in urban areas than are women in any other religious group (Tables 3.1 and 3.2). Table 3.14 also shows that women belonging to scheduled tribes, scheduled castes, or other backward classes (58–63 percent) are more tolerant of wife-beating than are women not belonging to a scheduled caste, scheduled tribe, or other backward class (49 percent).

As expected, the proportion of women who agree that wife-beating is justified declines as the standard of living rises. The difference is greatest between women with a low or medium standard of living (59–62 percent) and women with a high standard of living (41 percent). However, the expectation that women who work, especially those who work for money, would be less likely than other women to justify wife-beating is not borne out for India (Figure 3.4). Women who have not worked in the past 12 months are less likely than women who have worked to justify wife-beating for each reason given in Table 3.14. This finding can be partly explained by the fact that the majority of working women in India are agricultural workers, who are likely to have relatively low educational attainment. Overall, with a few notable exceptions, the majority of women in almost all groups agree with at least one reason for wife-beating. This finding attests to the widespread socialization of women in norms that give husbands the right to use force to discipline wives who are perceived to be violating traditional gender norms.

In order to assess the prevalence of domestic violence, NFHS-2 asked women if they had been beaten or mistreated physically since age 15[1]. Women who reported being beaten or physically mistreated were asked who beat or physically mistreated them. Interviewers recorded all the persons mentioned by the respondent. As mentioned earlier, there is a culture of silence around the topic of domestic violence that makes the collection of data on this sensitive topic particularly difficult. Even women who want to speak about their experience with domestic violence may find it difficult because of feelings of shame or fear. This may be more true if violence occurred recently (for example, in the preceding 12 months) than in the more distant past. In addition, depending on the varied cultural meanings ascribed to different acts, there may be women who do not report their experience of domestic violence because they do not view it as violence or physical mistreatment. For these reasons, NFHS-2 results on the prevalence of domestic violence need to be interpreted with caution.

[1]The question does not limit women to reporting only domestic violence. Nonetheless, almost all women who report any violence report beatings or physical mistreatment only by husbands or relatives.

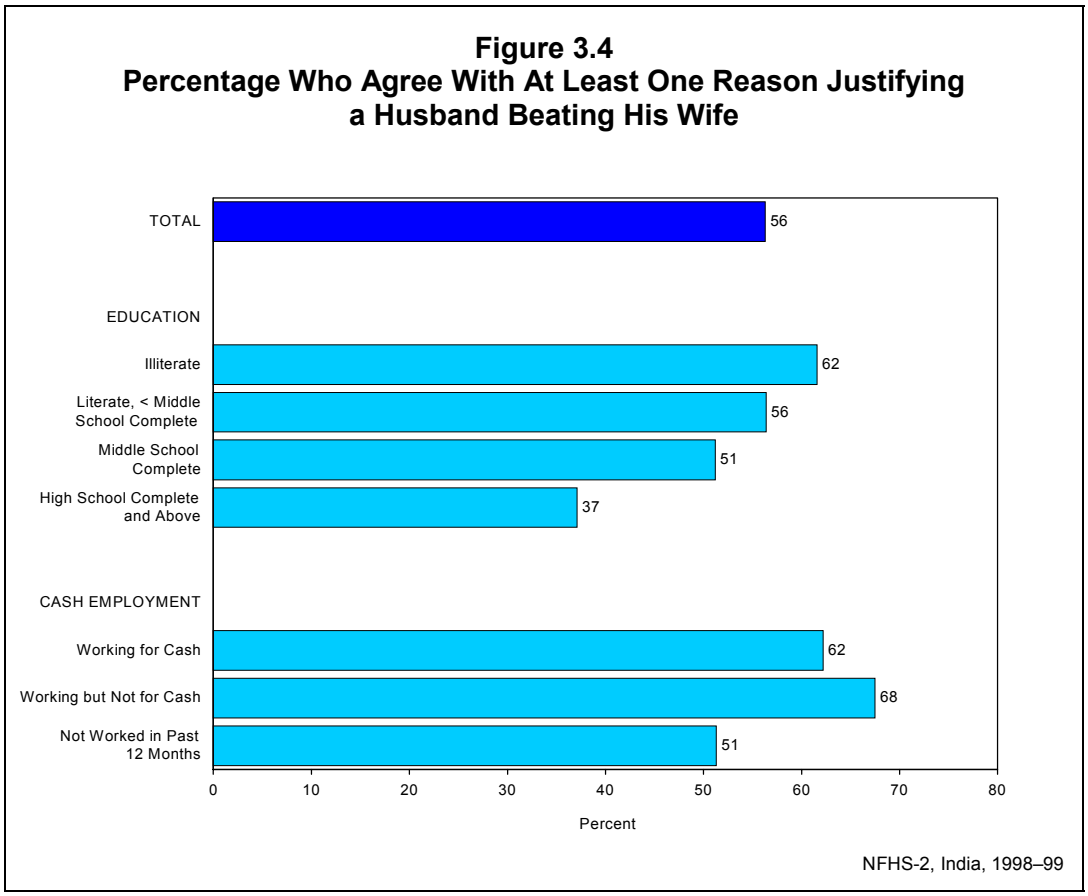


Table 3.15 presents results on the prevalence of beatings or physical mistreatment since age 15 by women's background characteristics. Prevalence is also shown according to the person(s) who beat or physically mistreated them—their husbands, their in-laws, or other persons. According to the reports of respondents, 21 percent of women in India have experienced violence since age 15, and 19 percent have been beaten or physically mistreated by their husbands. Two percent have been beaten or physically mistreated by in-laws and 3 percent by other persons. This implies that among women who report beatings, 9 out of 10 have been beaten by their husbands, 1 out of 7 have been beaten by other persons, and 1 out of 12 have been beaten by their in-laws.

Women age 15–19 are less likely than older women to have been beaten, but because of their young age they have also had less time to be exposed to the risk of being beaten since age 15. Similarly, women who have been married for less than five years are less likely to have been beaten (14 percent) than women who have been married longer (21–23 percent) or who are currently not married (27 percent). Urban women (17 percent) are less likely than rural women (23 percent) to experience violence and illiterate women (26 percent) are three times as likely to experience violence as women who have at least completed high school (9 percent).

Table 3.15 Women's experience with beatings or physical mistreatment

Percentage of ever-married women who have been beaten or physically mistreated by their husband, in-laws, or other persons since age 15 and percentage beaten or physically mistreated in the past 12 months, according to selected background characteristics, India, 1998–99

Background characteristic	Percentage beaten or physically mistreated since age 15	Percentage beaten or physically mistreated since age 15 by:			Percentage beaten or physically mistreated in the past 12 months	Number of women
		Husband	In-laws	Other person		
Age						
15–19	15.4	12.8	1.3	3.1	11.5	8,182
20–29	21.1	18.8	1.8	3.2	12.4	34,134
30–39	23.0	20.9	1.9	3.0	11.3	28,183
40–49	20.3	18.3	1.7	2.9	7.6	18,701
Marital duration (in years)						
< 5	14.4	11.5	1.0	3.9	9.6	20,268
5–9	21.2	19.0	1.5	3.1	12.8	13,002
10 or more	22.9	21.1	1.9	2.6	11.5	50,377
Not currently married	27.4	24.2	4.2	4.1	6.8	5,550
Residence						
Urban	16.8	14.3	1.5	3.6	7.7	23,370
Rural	22.5	20.4	1.9	2.9	12.2	65,829
Education						
Illiterate	25.5	23.6	2.1	2.8	14.1	51,871
Literate, < middle school complete	19.2	16.7	1.7	3.5	8.8	17,270
Middle school complete	15.2	12.1	1.4	4.0	7.0	7,328
High school complete and above	8.6	5.9	0.7	3.2	3.6	12,719
Religion						
Hindu	21.2	19.1	1.7	3.0	11.1	72,903
Muslim	21.2	19.1	2.1	2.8	11.4	11,190
Christian	21.8	16.1	2.0	6.8	10.3	2,263
Sikh	13.9	11.6	1.1	4.3	7.1	1,427
Jain	6.8	5.5	0.0	1.4	2.8	331
Buddhist/Neo-Buddhist	20.8	20.0	2.5	3.0	10.0	676
Other	16.8	13.5	0.7	4.5	11.4	285
No religion	26.1	15.1	1.2	10.4	11.2	44
Caste/tribe						
Scheduled caste	27.4	25.2	2.2	3.3	15.4	16,301
Scheduled tribe	23.0	20.8	1.8	3.0	13.0	7,750
Other backward class	23.0	20.7	1.7	3.6	11.7	29,383
Other	15.7	13.6	1.6	2.6	7.8	34,904
Household composition						
Nuclear household	24.5	22.2	1.9	3.4	12.7	41,114
Non-nuclear household	18.1	15.9	1.7	2.8	9.5	48,069

Contd...

The prevalence of domestic violence decreases substantially as the standard of living increases. Specifically, 29 percent of women with a low standard of living have experienced violence compared with 20 percent of women with a medium standard of living and 10 percent of women with a high standard of living. Christian, Hindu, Muslim, and Buddhist/Neo-Buddhist women are more likely to experience violence (all 21–22 percent) than are Sikh women (14 percent) or Jain women (7 percent). Women from nuclear households are more likely than women from non-nuclear households to experience domestic violence. This result is consistent with the findings of Visaria (1999) among women in rural Gujarat. The prevalence of violence also varies by the caste or tribe status of women. Sixteen percent of women not belonging to a

Table 3.15 Women's experience with beatings or physical mistreatment (contd.)

Percentage of ever-married women who have been beaten or physically mistreated by their husband, in-laws, or other persons since age 15 and percentage beaten or physically mistreated in the past 12 months, according to selected background characteristics, India, 1998–99

Background characteristic	Percentage beaten or physically mistreated since age 15	Percentage beaten or physically mistreated since age 15 by:			Percentage beaten or physically mistreated in the past 12 months	Number of women
		Husband	In-laws	Other person		
Cash employment						
Working for cash	29.0	26.5	2.3	3.8	14.5	23,391
Working but not for cash	24.0	22.2	2.3	2.5	12.1	11,519
Not worked in past 12 months	16.9	14.8	1.4	2.9	9.3	54,271
Standard of living index						
Low	29.2	27.0	2.2	3.3	16.6	29,033
Medium	20.1	18.0	1.8	3.1	10.1	41,289
High	10.1	7.8	1.0	2.7	4.0	17,845
Living children						
No living children	16.3	12.9	1.8	4.1	9.6	10,754
Only daughters	20.3	17.9	1.6	3.5	11.1	12,447
Only sons	20.6	18.2	1.6	3.3	11.4	17,706
Both daughters and sons	22.4	20.6	1.8	2.6	11.2	48,293
Total	21.0	18.8	1.8	3.1	11.0	89,199

Note: Total includes 16 women from households with no usual residents, and 2, 11, 79, 862, 18, and 1,032 women with missing information on marital duration, education, religion, caste/tribe, cash employment, and the standard of living index, respectively, who are not shown separately.

scheduled caste, scheduled tribe, or other backward class have been beaten compared with 23 percent of women belonging to scheduled tribes and other backward classes and 27 percent of women belonging to scheduled castes. Working women, most of whom are agricultural workers, are more likely than non-working women to experience violence. Women who worked for money in the 12 months preceding the survey are much more likely than women who did not work to have been beaten (29 percent compared with 17 percent).

It is generally believed that not bearing children and not bearing a son are important reasons for wife-beating. However, in India women with no living children are somewhat less likely than women with living children to have experienced violence since they were 15 years old (16 percent compared with 20–22 percent). This may be due in part to the fact that childless women tend to be younger women, and younger women have a lower prevalence of domestic violence than do older women. There does not appear to be variation in the prevalence of domestic violence by whether or not women have a son.

The proportions of women who have been beaten or physically mistreated by their husbands according to various background characteristics are similar to the proportions of all women who have experienced domestic violence. This is not surprising since, as already noted, 90 percent of women who report beatings are beaten by their husbands. The proportion of women who have been beaten or physically mistreated by their in-laws or by other persons is too small to allow a meaningful discussion of differentials by women's background characteristics. Nonetheless, it is notable that women who are not currently married (divorced, separated, deserted, or widowed women) are more likely than currently married women to have been beaten

by their in-laws. Christian women and women with no religion are more likely than women in any other religious group to have been beaten by persons other than their husbands and in-laws.

Table 3.15 also shows the percentage of women who experienced beatings or physical mistreatment in the 12 months preceding the survey. More than half of the women (52 percent) who experienced violence were beaten at least once during the 12 months preceding the survey. As mentioned earlier, largely due to the inherent tendency for underreporting of domestic violence, these results need to be interpreted with caution. Nevertheless, the NFHS-2 estimates set a lower bound on the proportion of women experiencing domestic violence in India: *at least* 1 in 5 ever-married women in India have experienced domestic violence since age 15, and *at least* 1 in 9 experienced domestic violence in the 12 months preceding the survey. These estimates of the prevalence of physical violence are almost identical to estimates provided by the IndiaSAFE study of family violence in India conducted at about the same time as NFHS-2. According to the IndiaSAFE study, one in five women report ever being hit, kicked, or beaten by husbands and 1 in 10 women report violent physical behaviours by husbands in the past 12 months (International Clinical Epidemiology Network, 2000).

There is relatively little variation in the proportion of women beaten in the 12 months preceding the survey by background characteristics. Nonetheless, illiterate women (14 percent), scheduled-caste women (15 percent), women working for money (15 percent), and women who live in households with a low standard of living (17 percent) are more likely than other women to have been beaten in the past 12 months. By contrast women age 40–49, women who are not currently married, women who live in urban areas, women who have completed at least middle school, Sikh and Jain women, and women who live in households with a high standard of living are least likely to have been beaten in the 12 months preceding the survey.

There are substantial statewise differences in the proportion of ever-married women who have been beaten or physically mistreated since age 15 (Table 3.16). Caution should be exercised in making cross-state comparisons, however, since there are likely to be differences across states in cultural norms about revealing the experience of violence to strangers and the extent to which women perceive the violence they may be experiencing as 'beatings or physical mistreatment' (the words used to describe violence in NFHS-2). Even if one of these factors varies across states, the prevalence of violence may be underestimated in some states more than in others. Forty percent of ever-married women in Tamil Nadu and at least one-quarter of ever-married women in Meghalaya, Orissa, Bihar, and Arunachal Pradesh have been physically mistreated since age 15. Himachal Pradesh is the only state where the proportion of ever-married women who have been physically mistreated since age 15 is less than 10 percent. In almost every state except the small northeastern states, at least three-quarters of women who have experienced physical violence were beaten by their husbands. In Meghalaya, by contrast, only 9 percent of women who experienced violence were physically mistreated by their husbands and about 90 percent were physically mistreated by other persons. Beatings by persons other than the husband or in-laws constitute a substantial proportion of beatings in most of the remaining northeastern states, as well as in the northern states of Delhi, Jammu and Kashmir, and Punjab.

Table 3.16 also shows the percentage of women who reported beatings or physical mistreatment in the 12 months preceding the survey by state. The percentage of women beaten in the 12 months preceding the survey varies from less than 5 percent in Himachal Pradesh and Kerala to more than 15 percent in Bihar, Arunachal Pradesh, Tamil Nadu, and Nagaland. In

Table 3.16 Women's experience with beatings or physical mistreatment by state

Percentage of ever-married women who have been beaten or physically mistreated by their husband, in-laws, or other persons since age 15 and percentage beaten or physically mistreated in the past 12 months, according to state, India, 1998–99

State	Percentage beaten or physically mistreated since age 15	Percentage beaten or physically mistreated since age 15 by:			Percentage beaten or physically mistreated in the past 12 months
		Husband	In-laws	Other person	
India	21.0	18.8	1.8	3.1	11.0
North					
Delhi	14.1	9.8	1.1	5.1	7.6
Haryana	13.2	10.8	2.3	3.4	5.1
Himachal Pradesh	5.8	3.9	1.2	1.5	2.1
Jammu & Kashmir	22.0	15.4	4.8	7.1	9.3
Punjab	13.7	11.7	1.3	4.4	6.4
Rajasthan	10.9	9.8	1.5	0.9	5.4
Central					
Madhya Pradesh	21.2	19.7	1.9	1.6	11.8
Uttar Pradesh	22.4	20.8	1.9	2.2	13.5
East					
Bihar	26.6	24.9	2.4	3.1	18.5
Orissa	28.9	22.9	3.0	7.9	13.6
West Bengal	17.6	15.7	1.7	2.4	8.7
Northeast					
Arunachal Pradesh	26.4	18.8	1.6	10.1	16.2
Assam	15.5	14.1	0.8	2.3	8.6
Manipur	19.7	8.3	3.7	9.3	5.6
Meghalaya	31.1	2.8	0.9	28.8	9.6
Mizoram	20.1	11.5	0.0	9.5	9.5
Nagaland	19.0	12.8	0.7	7.8	15.2
Sikkim	11.4	6.9	0.5	4.6	7.6
West					
Goa	17.9	13.9	2.4	4.0	6.4
Gujarat	10.1	8.6	0.9	1.6	5.8
Maharashtra	18.1	16.7	2.0	2.1	7.3
South					
Andhra Pradesh	23.2	21.2	2.8	2.0	12.8
Karnataka	21.5	19.7	1.1	2.2	9.9
Kerala	10.2	7.5	0.2	3.2	3.5
Tamil Nadu	40.4	36.0	0.5	9.0	16.1

Nagaland, Bihar, and Sikkim, more than two-thirds of women who experienced violence since age 15 were beaten at least once during the 12 months preceding the survey.

These results underscore the widespread prevalence of domestic violence in India, especially violence perpetrated by husbands against wives. The high level of acceptance of wife-beating also revealed by these data suggests that women may feel powerless against such violence and will tend to accept it without question. The experience of violence and the silent acceptance of violence by women undermines attempts to empower women and will continue to be a barrier to the achievement of demographic, health, and socioeconomic development goals.

CHAPTER 4

FERTILITY AND FERTILITY PREFERENCES

A major objective of NFHS-2 is to provide detailed information on fertility levels, differentials, and trends. This chapter presents a description of current and past fertility, cumulative fertility and family size, birth intervals, age at first cohabitation with husband, age at first and last birth, age at menopause, and durations of postpartum amenorrhoea, abstinence, and insusceptibility. Also discussed are fertility preferences, ideal and actual number of children, preference for sons or daughters, planning status of pregnancies, and wanted and actual total fertility rates.

Most of the fertility measures presented in this chapter are based on the complete birth histories collected from ever-married women age 15–49 years. Several measures and procedures were used to obtain complete and accurate reporting of births, deaths, and the timing of these events. First, women were asked a series of questions aimed at recording all the live births that had occurred in their lifetime. Second, for each live birth, information was collected on the age, sex, and survival status of the child. For dead children, age at death was recorded. Interviewers were given extensive training in probing techniques designed to help respondents report this information accurately. For example, interviewers were instructed to check any documents (such as horoscopes, school certificates, or vaccination cards) that might provide additional information on dates of birth, and to probe for the reason for any birth interval of four or more years in order to prevent omission of births, especially of children who died soon after birth. Stillbirths, miscarriages, and induced abortions that occurred between live births were also recorded.

Despite these measures to improve data quality, NFHS-2 is subject to the same types of errors that are inherent in all retrospective sample surveys—namely, the omission of some births (especially births of children who died at a very young age) and the difficulty of determining the date of birth of each child accurately. These difficulties can bias estimates of fertility levels and trends.

4.1 Age at First Cohabitation

The number of children that a woman will have in her lifetime is strongly influenced by the age at which she marries. In many parts of India, however, formal marriage is not always immediately followed by cohabitation. Rather, the husband and the wife begin to cohabit only after the *gauna* ceremony. Even in states where *gauna* is not practised, a marriage may not be consummated immediately if it occurs at a very young age. In such instances, there is a difference between age at marriage and age at consummation of marriage. Age at consummation of marriage is, of course, what is relevant for fertility. NFHS-2 measured age at first cohabitation as a proxy for age at consummation of marriage. Accordingly, Table 4.1 presents information on the median age at first cohabitation to supplement the information on the median age at first marriage presented in Chapter 3. In Table 4.1, the median age at first cohabitation for a group of women is defined as the age by which half of the entire group began to cohabit, rather than the age by which half of all ever-cohabiting women in the group began to cohabit.

Table 4.1 Age at first cohabitation with husband

Median age at first cohabitation with husband among women age 20–49 years by current age and selected background characteristics, India, 1998–99

Background characteristic	Current age						
	20–24	25–29	30–34	35–39	40–49	20–49	25–49
Residence							
Urban	NC	19.3	18.7	18.3	18.1	18.9	18.6
Rural	17.6	16.9	16.6	16.5	16.3	16.8	16.6
Education							
Illiterate	16.3	16.1	16.1	16.1	16.0	16.1	16.0
Literate, < middle school complete	18.1	17.6	17.3	17.2	17.3	17.5	17.4
Middle school complete	19.3	18.9	18.7	18.9	18.6	18.9	18.8
High school complete and above	NC	21.8	21.4	21.3	21.1	NC	21.5
Religion							
Hindu	18.2	17.4	17.0	16.8	16.7	17.2	16.9
Muslim	18.2	17.3	16.8	16.7	16.6	17.1	16.9
Christian	NC	21.2	20.2	20.4	20.2	NC	20.5
Sikh	NC	20.2	20.2	19.9	20.2	NC	20.1
Jain	NC	20.6	19.1	18.9	18.3	19.6	18.9
Buddhist/Neo-Buddhist	19.8	17.5	17.0	16.8	16.7	17.6	16.9
Other	19.1	17.2	17.1	17.2	17.5	18.0	17.2
No religion	(19.2)	(18.7)	(18.1)	(19.9)	(18.3)	18.8	18.7
Caste/tribe							
Scheduled caste	17.8	16.7	16.4	16.3	16.0	16.6	16.3
Scheduled tribe	17.1	16.8	16.5	16.7	16.5	16.7	16.6
Other backward class	18.2	17.4	16.9	16.8	16.7	17.2	16.9
Other	18.9	18.3	17.8	17.5	17.3	18.1	17.7
Standard of living index							
Low	16.5	16.2	16.1	16.1	15.9	16.2	16.1
Medium	18.3	17.5	17.0	16.7	16.6	17.2	16.9
High	NC	20.1	19.4	18.9	18.4	19.6	19.1
Total	18.3	17.5	17.1	16.9	16.8	17.4	17.0

Note: Total includes women with missing information on education, religion, caste/tribe, and the standard of living index, who are not shown separately.
NC: Not calculated because less than 50 percent of women have started living with their husband by age 20
( ) Based on 25–49 unweighted cases

Table 4.1 shows that, in India, the median age at first cohabitation with husband is 17.4 years for women age 20–49. For age groups, the lowest median age at first cohabitation is 16.8 for women age 40–49, and the highest is 18.3 for women age 20–24, suggesting a modest increase of 1.5 years in the median age at first cohabitation over a period of approximately 23 years. The value of 18.3 for the youngest age group is still rather low, however, suggesting that the considerable decline in fertility that has occurred in India has resulted mostly from family limitation within marriage rather than from an increase in age at first cohabitation.

Table 4.1 also shows that the median age at first cohabitation is two years higher for urban women than for rural women. Over time, the median age at first cohabitation has risen in both urban and rural areas, but the rise has been greater in urban areas. Differentials in the median age at first cohabitation by education are larger than differentials by residence. For women age 25–49, the median age at first cohabitation ranges from 16.0 for illiterate women to

21.5 for women with at least a high school education. Increases over time in the median age have been small in all educational groups, but the increase among illiterate women has been almost negligible. By religion, the median age at first cohabitation for women age 25–49 ranges from 16.9 for Hindus, Muslims, and Buddhists to 20.1 for Sikhs and 20.5 for Christians. By caste/tribe, for women age 20–49, the median age ranges from 16.6–16.7 for scheduled-caste and scheduled-tribe women to 18.1 for women who belong neither to a scheduled caste or tribe nor to an other backward class. The median age of first cohabitation increases steadily with the standard of living, from 16.2 for women living in households with a low standard of living to 19.6 for women living in households with a high standard of living.

4.2 Fertility Levels

NFHS-2 provides estimates of age-specific fertility rates (ASFR), total fertility rates (TFR), and crude birth rates (CBR) for the three-year period preceding the survey, which in NFHS-2 corresponds roughly to the period 1996–98. This three-year period was chosen as a compromise between the need to obtain recent information (suggesting the use of a short period closer to the survey date) and the need to reduce sampling variation and minimize problems related to displacement of births from recent years to earlier years (suggesting the use of a longer period). The ASFR for any specific age group is calculated by dividing the number of births to women in the age group during the period 1–36 months preceding the survey by the number of woman-years lived by women in the age group during the same three-year time period. The TFR is a summary measure, based on the ASFRs, that gives the number of children a woman would bear during her reproductive years if she were to experience the ASFRs prevailing at the time of the survey. Mathematically, the TFR is five times the sum of all the ASFRs for the five-year age groups. The CBR is defined as the annual number of births per 1,000 population.

Based on estimates for the three-year period before NFHS-2, the CBR was 24.8 births per 1,000 population, and the TFR was 2.9 births per woman, as shown in Table 4.2. Fertility is higher in rural areas than in urban areas. The CBR is 20.9 in urban areas and 26.2 in rural areas, and the TFR is 2.27 in urban areas and 3.07 in rural areas.

Table 4.2 and Figure 4.1 show that the TFR is lower in urban areas than in rural areas because ASFRs are lower at all ages in urban areas than in rural areas. Sixty-seven percent of urban total fertility and 61 percent of rural total fertility are concentrated in the prime childbearing ages 20–29. There is also a moderate amount of early childbearing. Fertility at age 15–19 accounts for 15 percent of total fertility in urban areas, 20 percent in rural areas, and 19 percent overall. Fertility at ages 35 and older accounts for only 5 percent of total fertility in urban areas, 8 percent in rural areas, and 7 percent overall.

Based on estimates for the three-year period preceding NFHS-1 and NFHS-2, the CBR fell from 28.7 to 24.8 between the two surveys, a decline of 14 percent in approximately six and one-half years. Over the same period, the TFR fell by 0.54 child from 3.39 to 2.85, a decline of 16 percent. Fertility fell mainly at ages 20 and above and very little at age 15–19 (Figure 4.2). Although fertility fell at ages 40–44 and 45–49, fertility at these ages was already very low in NFHS-1, so that fertility declines above age 40 had a negligible impact on the changes in the CBR and TFR that occurred between the two surveys.

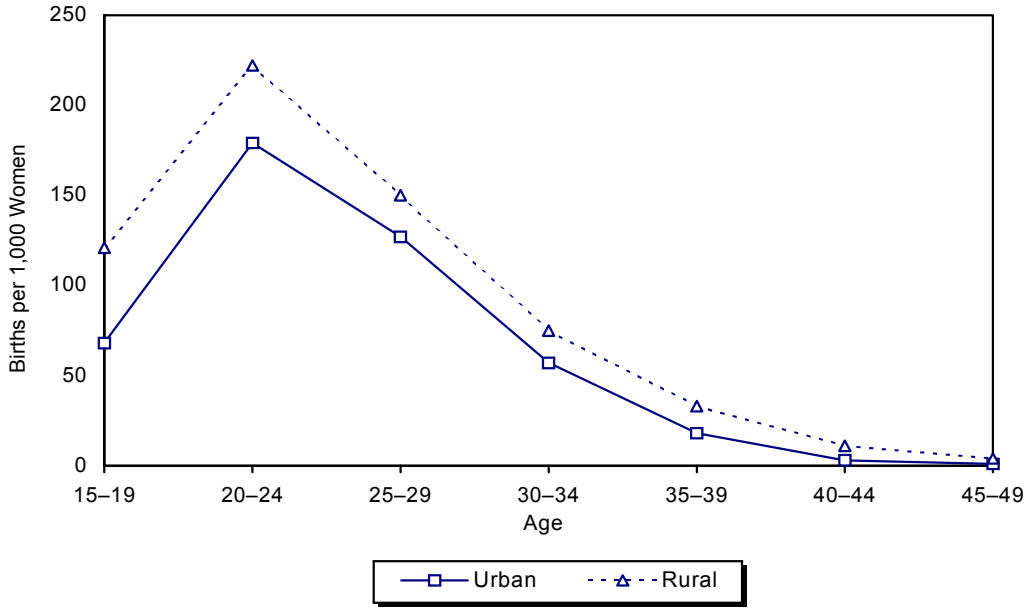
Table 4.2 Current fertility

Age-specific and total fertility rates and crude birth rates from NFHS-1, NFHS-2, and the SRS by residence, India

	NFHS-1 (1990–92)	NFHS-2 (1996–98)			SRS (1997)		
Age	Total	Urban	Rural	Total	Urban	Rural	Total
15–19	0.116	0.068	0.121	0.107	0.032	0.061	0.054
20–24	0.231	0.179	0.222	0.210	0.178	0.242	0.226
25–29	0.170	0.127	0.150	0.143	0.152	0.200	0.188
30–34	0.097	0.057	0.075	0.069	0.071	0.122	0.109
35–39	0.044	0.018	0.033	0.028	0.029	0.063	0.055
40–44	0.015	0.003	0.011	0.008	0.012	0.030	0.026
45–49	0.005	0.001	0.004	0.003	0.003	0.009	0.008
TFR 15–44	3.36	2.27	3.06	2.84	2.36	3.59	3.29
TFR 15–49	3.39	2.27	3.07	2.85	2.38	3.63	3.32
CBR	28.7	20.9	26.2	24.8	21.5	28.9	27.2

Note: Rates from NFHS-1 and NFHS-2 are for the period 1–36 months preceding the survey. Rates for the age group 45–49 might be slightly biased due to truncation. Rates from the SRS are for one calendar year. Age-specific and total fertility rates are expressed per woman.
TFR: Total fertility rate ; CBR: Crude birth rate, expressed per 1,000 population
Source for SRS data: Office of the Registrar General, 1999a

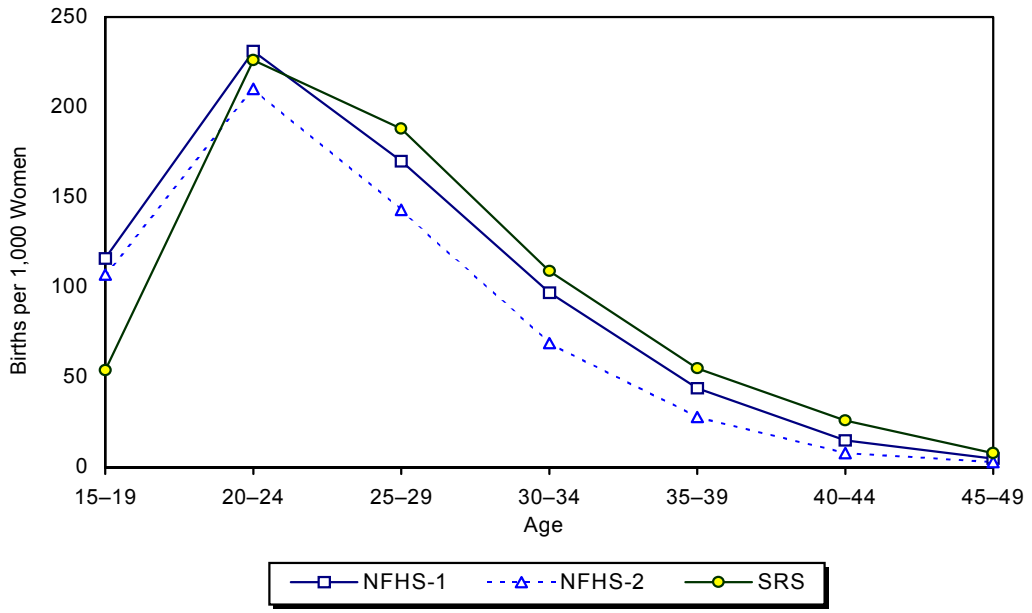
Figure 4.1
Age-Specific Fertility Rates by Residence



Note: Rates are for the three years preceding the survey (1996–98)

NFHS-2, India, 1998–99

Figure 4.2
Age-Specific Fertility Rates
NFHS-1, NFHS-2, and SRS



Note: NFHS rates are for the three years preceding the NFHS-1 (1990–92) and NFHS-2 (1996–98) surveys. Rates from the SRS are for 1997.

India

The pattern of fertility change by age is consistent with the findings that there has been only a small increase in the age at cohabitation, only a weak effort to promote spacing between children, and the predominant use of permanent methods of contraception (discussed elsewhere in this report).

The NFHS-2 fertility estimates can be compared with estimates from the Sample Registration System (SRS), which is maintained by the Office of the Registrar General, India. Since the NFHS-2 rates refer to 1996–98, it is appropriate to compare them with the SRS estimates for 1997, which are also shown in Table 4.2. The NFHS-2 estimate of the CBR, at 24.8, is lower than the SRS estimate of the CBR, at 27.2. Similarly, the NFHS-2 estimate of the TFR, at 2.85, is lower than the SRS estimate of the TFR, at 3.32. Differences between the fertility estimates from NFHS-2 and the SRS are considerably smaller in urban areas than in rural areas. The larger discrepancy in rural areas may be caused by more age misreporting in rural areas, which tends to result in the displacement of births further into the past in the birth histories. Retrospective surveys such as NFHS-1 and NFHS-2 are subject to such displacement, whereas the SRS, in which births are recorded during the year in which they occur, is not. In the analysis of the earlier NFHS-1 survey, Narasimhan et al. (1997) compared NFHS-1 and SRS estimates of fertility and concluded that both are probably underestimates. Nonetheless, since the SRS estimates are not subject to displacement, they are likely to be closer to the true level of fertility than the NFHS-1 estimates. This argument is probably equally valid for NFHS-2 estimates of fertility as compared with the corresponding SRS estimates.

Table 4.3 and Figure 4.3 compare fertility levels and trends in each state. There is a wide diversity of fertility levels among the states. Total fertility rates range from 1.8 in Goa to 4.6 in Meghalaya. Almost two-thirds of the states (16 out of 25) have TFRs below the all-India mean of 2.85 children per woman. This skewed pattern occurs because the mean is strongly affected by the relatively high fertility of a handful of populous states in the northern half the country—Uttar Pradesh (with a TFR of 4.0), Rajasthan (3.8), Bihar (3.5), and Madhya Pradesh (3.3). Fertility is uniformly low in the West and South Regions (where most states are close to the replacement level of about 2.1 children per woman). Fertility is higher than average in the two states in the Central Region, but the picture is mixed in the other regions. In the North Region, the TFR is close to the replacement level in Himachal Pradesh (2.1) and Punjab (2.2), and it is also low in Delhi (2.4), but it is quite high in Rajasthan (3.8). In the East Region, the TFR ranges from 2.3 in West Bengal to 3.5 in Bihar. Two of the states in the Northeastern Region (Meghalaya and Nagaland) have high levels of fertility, but the remaining states in the region have much lower fertility. As already mentioned, these estimates for states must be viewed with some caution, because they are affected by displacement of births from the first three years before the survey to earlier years and tend to be lower than comparable estimates from the Sample Registration System, which does not suffer from displacement.

Table 4.3 also shows the estimated change in the TFR between NFHS-1 and NFHS-2 for each state. As already noted, the TFR for the whole country is estimated from the two surveys to have declined by about half a child per woman between the two surveys (slightly higher than the SRS decline of 0.4 child during the same period). The estimated change varies greatly by state, however, ranging from a decline of 1.7 children per woman in Arunachal Pradesh to an increase of 0.8 child per woman in Meghalaya. Excluding the northeastern states, the change in the TFR ranges from a decline of 1.1 children per woman in Haryana to an increase of 0.2 child per woman in Rajasthan. The TFR declined by more than the all-India average in every state in the North Region except Rajasthan, in both states in the Central Region, and in West Bengal, Arunachal Pradesh, Assam, and Karnataka. States in which the TFR declined by less than the all-India average are Bihar, Orissa, and all the states in the West and South Regions except Karnataka. The TFR increased between the two surveys in Rajasthan, Manipur, Meghalaya, Mizoram, and Nagaland.

These estimates of change in the TFR between the two surveys must be interpreted with great caution, mainly because of possible differences in the extent of age misreporting between the two surveys. These differences in age misreporting, to the extent that they exist, translate into differences in the degree of displacement of births from the three years immediately preceding the survey (the period to which the TFR estimates pertain) to earlier years. If this differential displacement is large, it can seriously bias the estimated trend in the TFR. Because the two surveys are only six and one-half years apart, the estimation errors due to differential displacement can be as large or larger than the actual change in the TFR. Differential displacement of births (and in some cases differential omission of births) is probably the principal explanation of the estimated fertility increases (which in all likelihood are not real) in Rajasthan, Manipur, Meghalaya, Mizoram, and Nagaland. An initial study of the accuracy of the NFHS-2 fertility estimates suggests that in Uttar Pradesh differential displacement largely accounts for the more rapid TFR decline estimated from the two surveys than from the Sample Registration System (Retherford et al., 2000). Further research addressing the question of accuracy of the NFHS fertility estimates is currently underway for other states.

Table 4.3 Fertility by state

NFHS-2 age-specific and total fertility rates (TFR) and crude birth rate for the three-year period preceding the survey, and NFHS-1 TFR, according to residence and state, India

State	NFHS-2 age-specific fertility rates							NFHS-2 TFR	NFHS-1 TFR	NFHS-2 crude birth rate
	15–19	20–24	25–29	30–34	35–39	40–44	45–49	15–49	15–49	
URBAN										
India	0.068	0.179	0.127	0.057	0.018	0.003	0.001	2.27	2.70	20.9
North										
Delhi	0.035	0.185	0.176	0.058	0.018	0.003	0.000	2.37	3.00	20.9
Haryana	0.031	0.186	0.151	0.063	0.011	0.000	(0.006)	2.24	3.14	18.1
Himachal Pradesh	0.025	0.132	0.116	0.052	0.019	0.003	(0.000)	1.74	2.03	15.7
Jammu & Kashmir	0.028	0.082	0.145	0.063	0.010	0.003	(0.000)	1.66	U	16.4
Punjab	0.015	0.145	0.143	0.047	0.007	0.000	(0.000)	1.79	2.48	15.4
Rajasthan	0.092	0.219	0.157	0.076	0.036	0.013	0.004	2.98	2.77	25.3
Central										
Madhya Pradesh	0.087	0.195	0.131	0.075	0.030	0.004	0.000	2.61	3.27	22.9
Uttar Pradesh	0.057	0.195	0.173	0.095	0.040	0.012	0.004	2.88	3.58	23.5
East										
Bihar	0.072	0.200	0.160	0.088	0.030	0.000	(0.000)	2.75	3.25	22.3
Orissa	0.057	0.166	0.123	0.059	0.023	0.009	(0.000)	2.19	2.53	20.1
West Bengal	0.049	0.133	0.102	0.047	0.007	0.000	0.000	1.69	2.14	15.1
Northeast										
Arunachal Pradesh	(0.045)	(0.158)	*	*	*	*	*	NC	NC	NC
Assam	0.040	0.110	0.084	0.052	0.014	0.000	(0.000)	1.50	2.53	15.8
Manipur	0.033	0.114	0.154	0.099	0.049	(0.014)	(0.008)	2.36	NC	21.4
Meghalaya	(0.030)	(0.182)	(0.138)	*	(0.063)	*	*	NC	NC	NC
Mizoram	0.038	0.143	0.144	0.091	0.046	(0.013)	*	2.37	NC	22.4
Nagaland	(0.034)	(0.187)	*	*	*	*	*	NC	NC	NC
Sikkim	(0.053)	(0.158)	*	*	*	*	*	NC	U	NC
West										
Goa	0.022	0.103	0.093	0.078	0.033	(0.008)	(0.000)	1.69	1.80	16.2
Gujarat	0.062	0.205	0.139	0.048	0.011	0.001	0.000	2.33	2.65	21.4
Maharashtra	0.094	0.185	0.111	0.045	0.014	0.000	0.000	2.24	2.54	21.6
South										
Andhra Pradesh	0.099	0.189	0.093	0.026	0.007	0.000	0.000	2.07	2.35	21.4
Karnataka	0.069	0.160	0.091	0.042	0.010	0.005	0.000	1.89	2.38	18.5
Kerala	0.013	0.128	0.097	0.042	0.022	0.000	0.000	1.51	1.78	14.8
Tamil Nadu	0.071	0.172	0.122	0.042	0.011	0.004	0.000	2.11	2.36	21.3

Table 4.3 Fertility by state (contd.)

NFHS-2 age-specific and total fertility rates (TFR) and crude birth rate for the three-year period preceding the survey, and NFHS-1 TFR, according to residence and state, India

State	NFHS-2 age-specific fertility rates							NFHS-2 TFR	NFHS-1 TFR	NFHS-2 crude birth rate
	15–19	20–24	25–29	30–34	35–39	40–44	45–49	15–49	15–49	
RURAL										
India	0.121	0.222	0.150	0.075	0.033	0.011	0.004	3.07	3.67	26.2
North										
Delhi	(0.046)	(0.251)	*	*	*	*	*	NC	NC	NC
Haryana	0.116	0.260	0.150	0.062	0.018	0.013	0.008	3.13	4.32	25.0
Himachal Pradesh	0.030	0.210	0.132	0.044	0.014	0.006	0.000	2.18	3.07	20.4
Jammu & Kashmir	0.048	0.192	0.192	0.112	0.039	0.013	0.004	3.00	U	24.6
Punjab	0.050	0.197	0.165	0.053	0.015	0.005	0.000	2.42	3.09	20.9
Rajasthan	0.139	0.280	0.190	0.113	0.053	0.027	0.011	4.06	3.87	31.4
Central										
Madhya Pradesh	0.162	0.240	0.170	0.083	0.034	0.015	0.009	3.56	4.11	27.9
Uttar Pradesh	0.137	0.272	0.217	0.137	0.071	0.020	0.006	4.31	5.19	33.0
East										
Bihar	0.119	0.226	0.182	0.115	0.053	0.020	0.003	3.59	4.14	28.8
Orissa	0.081	0.175	0.140	0.073	0.023	0.006	0.001	2.50	3.00	22.4
West Bengal	0.125	0.185	0.112	0.047	0.019	0.004	0.006	2.49	3.25	22.7
Northeast										
Arunachal Pradesh	0.075	0.160	0.138	0.072	0.045	(0.016)	*	2.68	4.38	23.2
Assam	0.094	0.152	0.119	0.072	0.033	0.008	0.000	2.39	3.68	22.3
Manipur	0.044	0.139	0.181	0.189	0.080	0.032	(0.017)	3.41	3.03	27.8
Meghalaya	0.103	0.222	0.261	0.208	0.123	(0.094)	*	5.16	3.80	38.4
Mizoram	0.064	0.248	0.198	0.139	0.040	(0.005)	*	3.47	(2.30)	28.4
Nagaland	0.060	0.237	0.212	0.172	0.091	(0.025)	(0.014)	4.06	3.60	31.7
Sikkim	0.069	0.166	0.145	0.083	0.064	0.036	(0.012)	2.87	U	24.7
West										
Goa	0.017	0.083	0.141	0.099	0.021	0.005	0.000	1.83	1.99	16.9
Gujarat	0.105	0.250	0.156	0.056	0.023	0.009	0.006	3.03	3.17	26.4
Maharashtra	0.156	0.254	0.101	0.026	0.010	0.000	0.000	2.74	3.12	23.8
South										
Andhra Pradesh	0.144	0.186	0.085	0.031	0.014	0.003	0.000	2.32	2.67	21.4
Karnataka	0.135	0.180	0.089	0.033	0.009	0.002	0.002	2.25	3.08	21.4
Kerala	0.041	0.179	0.137	0.039	0.014	0.004	0.000	2.07	2.09	19.7
Tamil Nadu	0.090	0.199	0.120	0.026	0.009	0.002	0.000	2.23	2.54	21.5

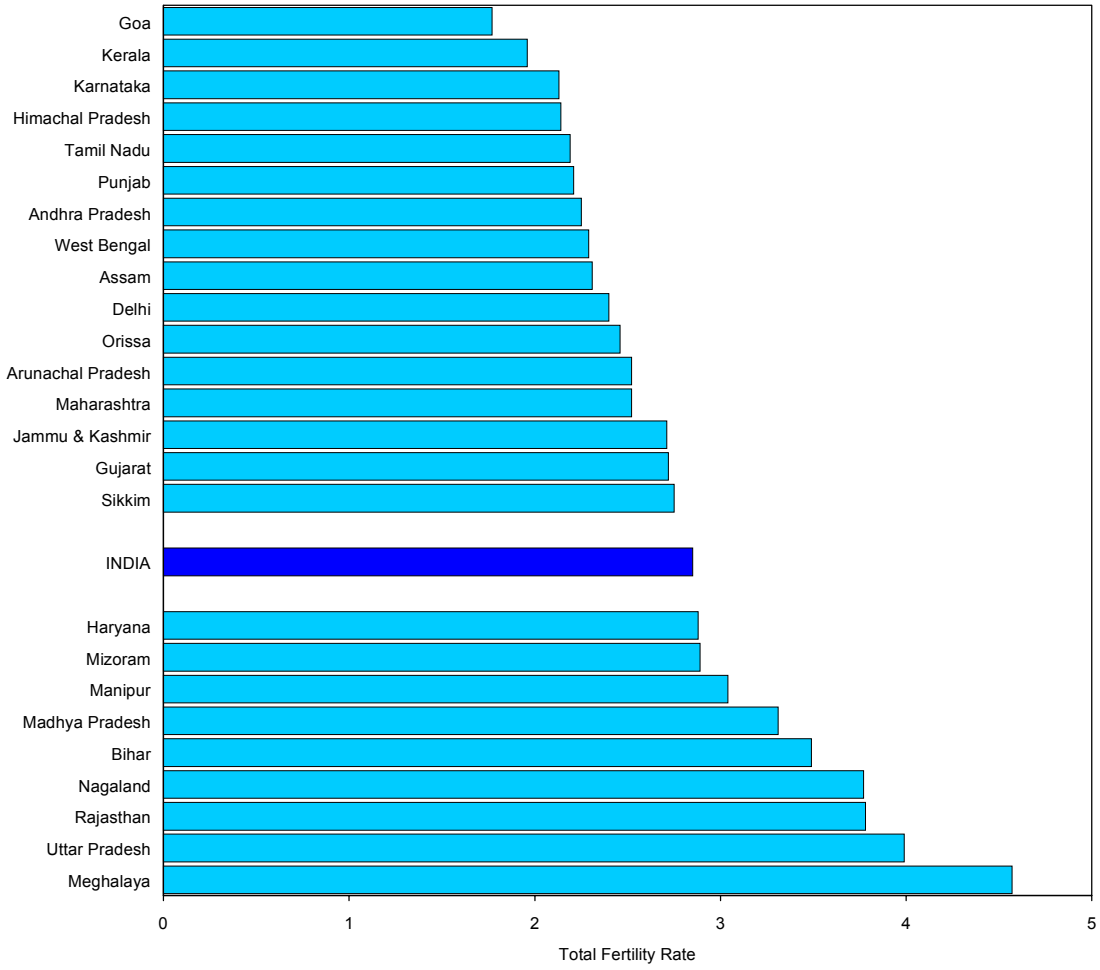
Table 4.3 Fertility by state (contd.)

NFHS-2 age-specific and total fertility rates (TFR) and crude birth rate for the three-year period preceding the survey, and NFHS-1 TFR, according to residence and state, India

State	NFHS-2 age-specific fertility rates							NFHS-2 TFR	NFHS-1 TFR	NFHS-2 crude birth rate
	15–19	20–24	25–29	30–34	35–39	40–44	45–49	15–49	15–49	
					TOTAL					
India	0.107	0.210	0.143	0.069	0.028	0.008	0.003	2.85	3.39	24.8
North										
Delhi	0.036	0.191	0.174	0.059	0.017	0.003	0.000	2.40	3.02	21.3
Haryana	0.092	0.240	0.150	0.062	0.015	0.009	0.007	2.88	3.99	23.1
Himachal Pradesh	0.029	0.203	0.130	0.045	0.015	0.006	0.000	2.14	2.97	19.9
Jammu & Kashmir	0.044	0.171	0.181	0.100	0.033	0.010	0.003	2.71	U	23.1
Punjab	0.040	0.178	0.158	0.051	0.012	0.003	0.000	2.21	2.92	19.1
Rajasthan	0.126	0.264	0.181	0.103	0.048	0.023	0.009	3.78	3.63	29.9
Central										
Madhya Pradesh	0.142	0.228	0.159	0.081	0.033	0.012	0.006	3.31	3.90	26.7
Uttar Pradesh	0.120	0.256	0.208	0.127	0.064	0.018	0.006	3.99	4.82	31.1
East										
Bihar	0.113	0.223	0.180	0.112	0.050	0.018	0.002	3.49	4.00	28.1
Orissa	0.079	0.174	0.138	0.071	0.023	0.006	0.001	2.46	2.92	22.1
West Bengal	0.107	0.173	0.110	0.047	0.015	0.003	0.004	2.29	2.92	20.8
Northeast										
Arunachal Pradesh	0.066	0.160	0.129	0.068	0.043	(0.013)	*	2.52	4.25	22.6
Assam	0.089	0.149	0.116	0.070	0.031	0.007	0.000	2.31	3.53	21.8
Manipur	0.042	0.132	0.173	0.153	0.068	0.026	0.014	3.04	2.76	25.8
Meghalaya	0.086	0.211	0.232	0.184	0.105	0.080	(0.014)	4.57	3.73	35.7
Mizoram	0.054	0.188	0.167	0.110	0.048	0.009	(0.000)	2.89	2.30	25.7
Nagaland	0.056	0.224	0.203	0.162	0.076	0.023	(0.012)	3.77	3.26	30.4
Sikkim	0.065	0.171	0.141	0.078	0.053	0.032	(0.011)	2.75	U	24.5
West										
Goa	0.021	0.089	0.122	0.090	0.026	0.007	0.000	1.77	1.90	16.6
Gujarat	0.087	0.230	0.148	0.052	0.018	0.005	0.003	2.72	2.99	24.3
Maharashtra	0.129	0.223	0.106	0.034	0.012	0.000	0.000	2.52	2.86	23.0
South										
Andhra Pradesh	0.132	0.186	0.087	0.029	0.012	0.003	0.000	2.25	2.59	21.4
Karnataka	0.112	0.172	0.090	0.037	0.009	0.003	0.001	2.13	2.85	20.4
Kerala	0.039	0.166	0.128	0.040	0.016	0.003	0.000	1.96	2.00	18.8
Tamil Nadu	0.083	0.189	0.121	0.032	0.010	0.003	0.000	2.19	2.48	21.4

NC: Not calculated because there are too few women
U: Not available
( ) Rate based on 125–249 woman-years of exposure
*Rate not shown; based on fewer than 125 woman-years of exposure

Figure 4.3
Total Fertility Rate by State



Note: Rates are for the three years preceding the survey (1996–98)

NFHS-2, India, 1998–99

4.3 Fertility Differentials and Trends

Table 4.4 and Figure 4.4 show how the TFR, the percentage currently pregnant, and the mean number of children ever born to women age 40–49 vary by selected background characteristics. In NFHS-2, the TFR for India is 1.5 children higher for illiterate women than for women with at least a high school education. The TFR is 0.8 child higher for Muslims than for Hindus, and both of these groups have much higher fertility than any other religious group. By caste/tribe, the TFR is 0.5 child higher for scheduled-caste women, 0.4 child higher for scheduled-tribe women, and 0.2 child higher for OBC women than for women who do not belong to any of these groups. The TFR is 1.3 children higher for women living in households with a low standard of living and 0.8 child higher for women living in households with a medium standard of living than for women living in households with a high standard of living. Fertility transitions in other countries have shown that fertility differentials typically diverge early in the transition and reconverge (though rarely completely) towards the end of the transition as fertility approaches the replacement level. India as a whole still has fairly large fertility differentials.

Table 4.4 Fertility by background characteristics

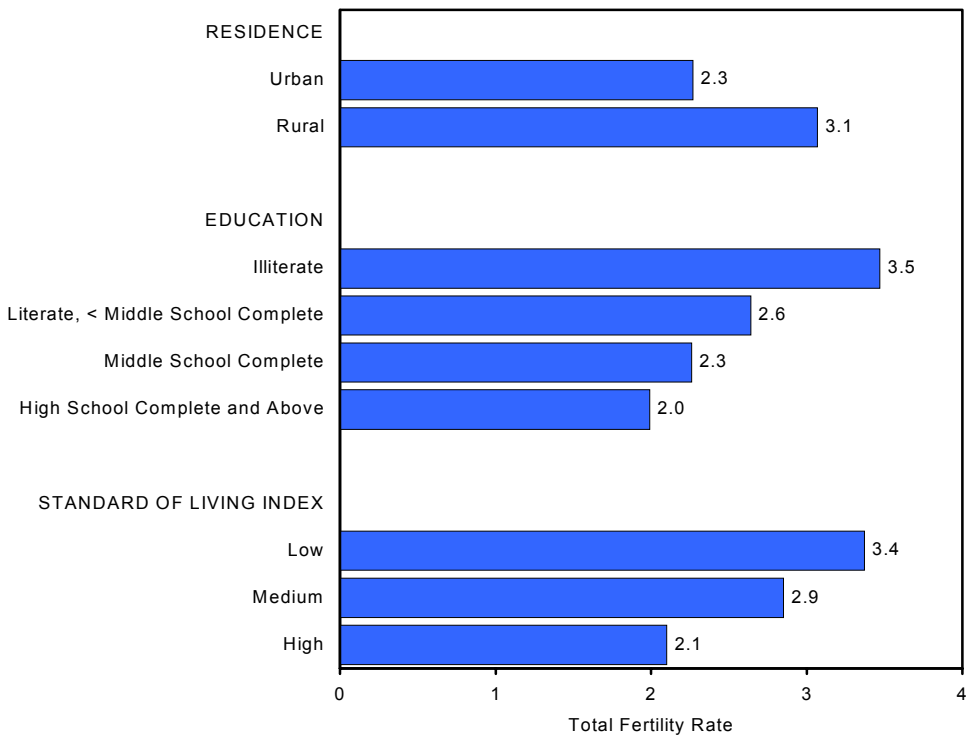
Total fertility rate for the three years preceding the survey, percentage of all women age 15–49 currently pregnant, and mean number of children ever born to ever-married women age 40–49 by selected background characteristics, India, 1998–99

Background characteristic	Total fertility rate[1]	Percentage currently pregnant[2]	Mean number of children ever born to ever-married women age 40–49 years
Residence			
Urban	2.27	4.4	3.78
Rural	3.07	6.1	4.73
Education			
Illiterate	3.47	6.2	4.98
Literate, < middle school complete	2.64	5.4	4.06
Middle school complete	2.26	5.1	3.41
High school complete and above	1.99	4.7	2.66
Religion			
Hindu	2.78	5.5	4.34
Muslim	3.59	6.9	5.72
Christian	2.44	4.3	3.47
Sikh	2.26	4.8	3.59
Jain	1.90	*	3.32
Buddhist/Neo-Buddhist	2.13	3.7	4.05
Other	2.33	5.0	4.33
No religion	3.91	*	(5.62)
Caste/tribe			
Scheduled caste	3.15	6.1	4.85
Scheduled tribe	3.06	6.8	4.74
Other backward class	2.83	5.6	4.43
Other	2.66	5.1	4.20
Standard of living index			
Low	3.37	6.4	4.81
Medium	2.85	5.8	4.67
High	2.10	4.1	3.61
Total	2.85	5.6	4.45

Note: Total includes women with missing information on education, religion, caste/tribe, and the standard of living index, who are not shown separately.
( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases
[1]Rate for women age 15–49 years
[2]For this calculation, it is assumed that women who are never married, widowed, divorced, separated, or deserted are not currently pregnant.

Overall, 6 percent of women age 15–49 report that they are currently pregnant. Differentials in the percentage of women who are currently pregnant do not always parallel differentials in the TFR. In Table 4.4, for example, Sikhs have a slightly lower TFR than Christians but a higher percentage currently pregnant. Such apparent inconsistencies can occur because the TFR is not affected by age structure, whereas the percentage currently pregnant is affected by age structure, which can vary from one group to the next. In most cases in the table, however, the direction of differentials in the percentage currently pregnant parallels the direction of differentials in the TFR.

Figure 4.4
Total Fertility Rate by Selected Background Characteristics



Note: Rates are for the three years preceding the survey (1996–98)

NFHS-2, India, 1998–99

The last column of Table 4.4 shows the mean number of children ever born to ever-married women age 40–49 at the time of the survey. The average number of children ever born for these women, who are at the end of their childbearing years, is 4.5. The substantial decline in fertility in India over time is evident from the difference of 1.6 children between the average number of children for women who are currently in their forties and the number of children women would have in their lifetime if they were subject to the current age-specific fertility rates (the last column and first column of Table 4.4). In almost every case, the pattern of differentials in the mean number of children ever born parallels the pattern of differentials in the TFR. The differentials by religion are again a partial exception. Exceptions can occur because the mean number of children ever born at age 40–49 reflects fertility in the past, whereas the TFR only reflects fertility in the three years preceding the survey.

The preceding section already discussed fertility trends based on estimates from NFHS-1 and NFHS-2 for the three-year period preceding each survey. Table 4.5 shows fertility trends for five-year time periods preceding NFHS-2, estimated solely from NFHS-2 birth histories. It is not possible to show TFRs because of progressively greater age truncation as one goes back in time. In NFHS-2, birth histories were collected only for women age 15–49. This means, for example, that for the period 5–9 years preceding the survey it is not possible to compute an ASFR for age 45–49. Similarly, for the period 10–14 years preceding the survey, it is not possible to compute ASFRs for the oldest two age groups, and for the period 15–19 years preceding the survey, it is

Table 4.5 Fertility trends

Age-specific fertility rates for five-year periods preceding the survey by residence, India, 1998–99

Age	Years preceding survey			
	0–4	5–9	10–14	15–19
		URBAN		
15–19	0.072	0.101	0.125	0.138
20–24	0.186	0.221	0.253	0.268
25–29	0.132	0.162	0.183	0.210
30–34	0.059	0.071	0.101	[0.132]
35–39	0.019	0.031	[0.047]	U
40–44	0.004	[0.008]	U	U
45–49	[0.001]	U	U	U
		RURAL		
15–19	0.132	0.182	0.198	0.190
20–24	0.231	0.282	0.295	0.298
25–29	0.157	0.197	0.222	0.242
30–34	0.079	0.111	0.136	[0.175]
35–39	0.036	0.057	[0.075]	U
40–44	0.012	[0.025]	U	U
45–49	[0.004]	U	U	U
		TOTAL		
15–19	0.116	0.160	0.177	0.174
20–24	0.218	0.264	0.282	0.289
25–29	0.150	0.186	0.210	0.232
30–34	0.073	0.099	0.125	[0.162]
35–39	0.031	0.049	[0.066]	U
40–44	0.010	[0.020]	U	U
45–49	[0.003]	U	U	U

Note: Age-specific fertility rates are expressed per woman.
U: Not available
[ ] Truncated, censored

not possible to compute ASFRs for the oldest three age groups. Thus Table 4.5 shows only the truncated trends in ASFRs. Results are shown separately for urban and rural areas as well as for the entire country. These results show very substantial fertility declines in every age group over a 15-year period in both urban and rural areas. In many cases, age-specific fertility declined by half or more. The proportionate decline tends to be somewhat greater at the older reproductive ages.

For the periods 0–4 years and 5–9 years before the survey, it is possible to calculate truncated TFRs (more appropriately called cumulative fertility rates, or CFRs) for the age range 15–39, based on the ASFRs shown in Table 4.5. This is done by summing ASFRs for the age groups 15–19 through 35–39 and multiplying the sum by five. For India as a whole, CFR(15–39) declined from 3.8 to 2.9 over the five-year period, a decline of 0.9 child. The decline was 0.6 for urban areas and 1.0 for rural areas, indicating that fertility fell slightly more rapidly in rural areas than in urban areas during the 10 years before the survey. This is to be expected because the practice of family limitation tends to start in urban areas and spread to rural areas. It should be noted that these estimated fertility declines may exaggerate to some degree the magnitude of the decline between these two five-year periods, because there is considerable age misreporting in India which could result in displacement of births from the first five-year period into the second five-year period before the survey (Narasimhan et al., 1997).

Table 4.6 Fertility by marital duration

Fertility rates for ever-married women by duration since first cohabitation with husband (in years) and residence for five-year periods preceding the survey, India, 1998–99

Duration since first cohabitation (in years)	Years preceding survey			
	0–4	5–9	10–14	15–19
URBAN				
< 5	0.307	0.324	0.340	0.335
5–9	0.161	0.202	0.233	0.271
10–14	0.073	0.100	0.135	0.183
15–19	0.031	0.047	0.082	0.123
20–24	0.010	0.026	0.057	*
25–29	0.004	0.007	*	U
RURAL				
< 5	0.302	0.331	0.332	0.310
5–9	0.220	0.275	0.285	0.298
10–14	0.126	0.166	0.197	0.227
15–19	0.065	0.097	0.127	0.172
20–24	0.030	0.053	0.081	(0.118)
25–29	0.010	0.029	(0.086)	U
TOTAL				
< 5	0.303	0.329	0.335	0.317
5–9	0.205	0.256	0.271	0.290
10–14	0.112	0.148	0.180	0.216
15–19	0.056	0.083	0.115	0.162
20–24	0.025	0.046	0.076	0.115
25–29	0.009	0.025	0.078	U

Note: Duration-specific fertility rates are per woman. The duration since first cohabitation with husband is defined as the difference between the woman's age at the specific time period and her age when she began living with her husband.
U: Not available
( ) Based on 125–249 woman-years of exposure
*Rate not shown; based on fewer than 125 woman-years of exposure

Another way of looking at fertility is to calculate fertility rates by the number of years since the first cohabitation with the husband. These rates are measures of marital fertility, i.e., fertility within marriage. Table 4.6 shows fertility rates by duration since first cohabitation for ever-married women for four five-year periods preceding the survey[1]. Fertility has declined at all durations, but more so at the longer durations. The limited decline of fertility at duration 0–4 years since first cohabitation is typical of populations in which contraception is initiated only after the first birth or later, as is the case in India (see Table 5.8). The large overall declines in fertility rates by duration since first cohabitation confirm the earlier observation that fertility within marriage has declined substantially in India. It is also evident from Table 4.6 that marital fertility is lower in urban areas than in rural areas at most durations for most time periods.

[1]Because NFHS-2 collected information only on a woman's age at the time of first cohabitation and not the year and month when she first began cohabiting with her husband, the exact number of months since first cohabitation cannot be calculated. For this reason, the first year since cohabitation contains only six months, on average, and the first five years since cohabitation contain only 4.5 years, on average.

Table 4.7 Outcome of pregnancy by state

Percent distribution of all pregnancies of ever-married women by their outcome, according to state, India, 1998–99

State	Spontaneous abortion	Induced abortion	Stillbirth	Live birth	Total percent
India–Urban	5.2	3.4	1.5	89.9	100.0
India–Rural	4.2	1.1	2.1	92.6	100.0
India–Total	4.4	1.7	2.0	91.9	100.0
North					
Delhi	5.8	4.7	1.3	88.2	100.0
Haryana	5.7	1.4	3.0	90.0	100.0
Himachal Pradesh	4.5	1.6	2.6	91.3	100.0
Jammu & Kashmir	5.1	2.6	1.8	90.5	100.0
Punjab	4.1	3.0	2.9	90.0	100.0
Rajasthan	5.0	0.9	2.1	91.9	100.0
Central					
Madhya Pradesh	3.8	1.0	1.8	93.4	100.0
Uttar Pradesh	4.5	1.4	1.8	92.4	100.0
East					
Bihar	3.2	0.3	2.1	94.4	100.0
Orissa	5.4	1.6	2.1	90.9	100.0
West Bengal	4.0	2.2	1.8	91.9	100.0
Northeast					
Arunachal Pradesh	2.6	0.7	3.1	93.5	100.0
Assam	6.1	3.3	3.2	87.4	100.0
Manipur	6.6	6.3	1.2	85.8	100.0
Meghalaya	5.2	0.7	3.3	90.9	100.0
Mizoram	5.3	0.6	2.3	91.8	100.0
Nagaland	5.8	2.3	2.3	89.5	100.0
Sikkim	2.1	0.9	2.9	94.0	100.0
West					
Goa	7.1	3.9	1.1	87.9	100.0
Gujarat	4.9	2.1	1.4	91.6	100.0
Maharashtra	3.8	1.9	1.5	92.8	100.0
South					
Andhra Pradesh	4.0	0.8	2.3	92.9	100.0
Karnataka	4.0	0.9	2.3	92.8	100.0
Kerala	5.7	1.9	1.2	91.2	100.0
Tamil Nadu	6.2	5.2	2.5	86.2	100.0

4.4 Pregnancy Outcomes

Table 4.7 shows the percent distribution of all pregnancies of ever-married women age 15–49 by their outcome, for all India and states. The possible outcomes considered are spontaneous abortion, induced abortion, stillbirth, and live birth. Information on pregnancies that did not result in a live birth is collected on the birth history. For each interval between births, as well as the interval before the first birth and after the last birth, the respondent was asked whether she had any stillbirths, spontaneous abortions, or induced abortions (and, if yes, how many she had). This information is summed to obtain the total number of non-live births of each type she has had in her lifetime. In most countries, the reporting of non-live births (particularly induced

abortions) is inadequate, so it is likely that there is some underreporting of these events in NFHS-2.

In India, 92 percent of pregnancies resulted in a live birth, 4 percent in a spontaneous abortion, 2 percent in an induced abortion, and 2 percent in a stillbirth. The proportion resulting in a spontaneous abortion is one percentage point higher in urban areas than in rural areas, the proportion resulting in an induced abortion is two percentage points higher in urban areas than in rural areas, and the proportion resulting in a stillbirth is one percentage point lower in urban areas than in rural areas. The reported rate of induced abortion in urban areas, though higher than in rural areas, is quite low.

By state, the proportion of pregnancies resulting in a spontaneous abortion ranges from 2 percent in Sikkim to 7 percent in Goa and Manipur, and the proportion of pregnancies resulting in an induced abortion ranges from 0.3 percent in Bihar to 6 percent in Manipur. In addition to Manipur, Delhi and Tamil Nadu stand out as having a relatively high proportion (5 percent) of pregnancies resulting in an induced abortion. The proportion of pregnancies resulting in a stillbirth ranges from 1.1 percent in Goa to 3.3 percent in Meghalaya.

4.5 Children Ever Born and Living

The number of children a woman has ever borne is a cohort measure of fertility. Because it reflects fertility in the past, it provides a somewhat different picture of fertility levels, trends, and differentials than do period measures of fertility such as the CBR and the TFR. Table 4.8 shows the percent distribution of all women and currently married women by the number of children ever born (CEB). The table shows these distributions by the age of the woman at the time of the survey and also shows the mean number of children ever born and living children.

Among women age 15–49 in India, the mean number of children ever born is 2.4 for all women irrespective of marital status, and 3.0 for currently married women. The mean number of children ever born increases steadily with age, reaching a high of 4.6 children for all women age 45–49 and 4.8 children for currently married women age 45–49. The table also shows that early childbearing is fairly common in India. Sixteen percent of all women age 15–19 and nearly half of currently married women age 15–19 have already had a child.

For women age 45–49, the number of children ever born is of particular interest because these women have virtually completed their childbearing. For all women in this age group, the modal number of children is four. Eighteen percent of these women have reached the end of childbearing with four children ever born. Among currently married women age 45–49, the modal number of children is also four; 18 percent of these women have also reached the end of childbearing with four children ever born. More than one-third of currently married women in this age group (35 percent) have had six or more live births, and half have had five or more live births. Only two percent of currently married women age 45–49 have never given birth. This suggests that primary infertility (which is the proportion of couples who are unable to have any children) is very low in India.

Table 4.8 Children ever born and living

Percent distribution of all women and of currently married women by number of children ever born (CEB) and mean number of children ever born and living, according to age, India, 1998–99

Age	Children ever born											Total percent	Number of women	Mean number of CEB	Mean number of living children
	0	1	2	3	4	5	6	7	8	9	10+				
ALL WOMEN															
15–19	83.6	11.9	3.8	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	100.0	23,735	0.21	0.19
20–24	35.8	23.4	23.7	12.0	3.8	0.9	0.2	0.0	0.0	0.0	0.0	100.0	21,006	1.28	1.16
25–29	12.2	12.4	26.6	23.9	14.5	6.6	2.7	0.7	0.2	0.0	0.0	100.0	18,954	2.52	2.27
30–34	6.1	7.3	20.9	23.4	17.6	11.4	7.1	3.7	1.5	0.7	0.3	100.0	15,481	3.36	2.96
35–39	4.5	5.3	16.9	22.4	18.3	12.6	8.8	5.5	2.9	1.6	1.3	100.0	13,287	3.84	3.33
40–44	3.8	4.4	13.4	18.6	18.1	14.9	10.2	6.9	4.4	2.6	2.7	100.0	10,625	4.31	3.62
45–49	3.8	4.0	10.7	16.7	17.7	14.0	12.3	8.1	5.4	3.6	3.7	100.0	8,249	4.62	3.79
Total	28.7	11.5	16.8	15.4	10.9	6.9	4.4	2.6	1.4	0.8	0.7	100.0	111,336	2.40	2.08
CURRENTLY MARRIED WOMEN															
15–19	52.2	34.8	11.1	1.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	100.0	8,014	0.63	0.57
20–24	17.3	29.9	30.5	15.7	5.0	1.2	0.3	0.0	0.0	0.0	0.0	100.0	15,930	1.66	1.50
25–29	5.8	12.7	28.5	25.9	15.8	7.2	3.0	0.8	0.3	0.1	0.0	100.0	17,055	2.73	2.45
30–34	3.0	6.8	21.4	24.4	18.3	12.1	7.4	4.0	1.6	0.7	0.3	100.0	14,286	3.51	3.10
35–39	2.2	4.5	17.1	22.9	19.2	13.0	9.2	5.8	3.2	1.7	1.3	100.0	12,052	3.99	3.47
40–44	2.1	3.9	12.9	18.7	18.8	15.4	10.6	7.3	4.6	2.8	2.9	100.0	9,363	4.46	3.75
45–49	2.3	3.2	10.3	16.6	18.2	14.6	13.0	8.5	5.6	3.9	4.0	100.0	6,948	4.79	3.94
Total	10.7	14.1	21.1	19.4	13.7	8.6	5.5	3.2	1.8	1.0	0.9	100.0	83,649	3.00	2.62

For all women age 15–49, the average number of dead children per woman is 0.32. For currently married women it is 0.38, implying that 13 percent of children ever born to currently married women have died. The proportion of children ever born who have died increases with women's age. For currently married women, the proportion of children ever born who have died increases from 10 percent for women age 20–24 to 18 percent for women age 45–49.

4.6 Birth Order

The distribution of births by birth order is yet another way to view fertility. Table 4.9 shows the distribution of births during the three-year period before the survey by birth order for selected background characteristics. Overall, as expected, the proportion of births at each order is larger than the proportion at the next higher order. Twenty-nine percent of all births are first-order births, 26 percent are second-order births, 18 percent are third-order births, and 28 percent are births of order four or higher.

Over 70 percent of births to mothers age 15–19 are of order one; by contrast, over 70 percent of births to mothers age 30–39 are of order four or higher. The proportion of births that are of order four or higher is 19 percent in urban areas and 30 percent in rural areas. The proportion of births of order four or higher is relatively large for births to illiterate women, Muslim women, and scheduled-tribe women. By work status, 34–36 percent of births to women who work are of order four or higher compared with 24 percent of births to women who did not work in the past 12 months. This finding may be partly explained by the fact that working women come disproportionately from rural areas, where fertility is relatively high. For women living in households with a low standard of living, the proportion of births of order four or higher is 37 percent, compared with only 12 percent for women living in households with a high standard of living.

Table 4.10 shows how the percent distribution of births by birth order varies among the various states of India. The proportion of births that are of order four or higher ranges from 7 percent in Kerala to 47 percent in Meghalaya. In all of the seven states with a total fertility rate of 3.0 or higher, at least 30 percent of recent births are of order four or higher. In the two states with the lowest level of fertility (Goa and Kerala), only 7–8 percent of births are of order four or higher.

4.7 Birth Intervals

A birth interval, defined as the length of time between two successive live births, indicates the pace of childbearing. Short birth intervals may adversely affect a mother's health and her children's chances of survival. Past research has shown that children born too close to a previous birth are at increased risk of dying, especially if the interval between the births is less than 24 months (Pandey et al., 1998; Govindasamy et al., 1993).

Table 4.11 shows the percent distribution of births during the five years preceding the survey by birth interval according to selected demographic and socioeconomic background characteristics. In India, 13 percent of births occur within 18 months of a previous birth and 28 percent occur within 24 months. Thirty-eight percent of births occur after an interval of three years or more.

Table 4.9 Birth order

Percent distribution of births during the three years preceding the survey by birth order, according to selected background characteristics, India, 1998–99

Background characteristic	Birth order 1	2	3	4+	Total percent	Number of births
Mother's current age						
15–19	73.3	22.9	3.5	0.4	100.0	4,209
20–29	27.5	30.8	21.8	20.0	100.0	22,147
30–39	4.5	10.3	13.3	71.9	100.0	5,658
40–49	0.3	2.2	4.6	92.9	100.0	483
Residence						
Urban	35.4	29.6	15.8	19.2	100.0	7,215
Rural	27.1	24.7	18.2	29.9	100.0	25,282
Mother's education						
Illiterate	21.5	21.4	18.9	38.2	100.0	19,132
Literate, < middle school complete	31.9	29.0	19.5	19.6	100.0	5,832
Middle school complete	41.7	33.7	15.3	9.3	100.0	2,948
High school complete and above	48.5	35.1	11.9	4.6	100.0	4,580
Religion						
Hindu	29.7	26.3	17.9	26.2	100.0	25,730
Muslim	24.2	22.3	16.3	37.3	100.0	5,140
Christian	35.2	29.9	16.1	18.8	100.0	755
Sikh	32.8	30.8	20.6	15.8	100.0	451
Jain	36.2	41.1	16.5	6.2	100.0	76
Buddhist/Neo-Buddhist	34.4	26.2	22.1	17.3	100.0	199
Other	22.9	24.4	25.0	27.7	100.0	87
No religion	17.4	19.7	15.9	47.0	100.0	24
Caste/tribe						
Scheduled caste	26.6	24.1	17.9	31.5	100.0	6,505
Scheduled tribe	24.1	23.5	18.5	34.0	100.0	3,091
Other backward class	29.7	26.4	17.7	26.2	100.0	10,431
Other	31.2	27.0	17.2	24.5	100.0	12,086
Mother's work status						
Working in family farm/business	22.0	22.5	19.9	35.6	100.0	4,203
Employed by someone else	23.4	23.4	19.4	33.8	100.0	4,808
Self-employed	25.3	23.1	16.1	35.5	100.0	1,102
Not worked in past 12 months	31.7	27.1	17.0	24.3	100.0	22,373
Standard of living index						
Low	22.9	21.9	18.4	36.7	100.0	11,844
Medium	30.0	26.5	17.8	25.7	100.0	15,131
High	39.7	33.1	15.5	11.7	100.0	5,125
Total	29.0	25.8	17.7	27.5	100.0	32,496

Note: Total includes 5, 33, 383, 9, and 397 births with missing information on mother's education, religion, caste/tribe, mother's work status, and the standard of living index, respectively, which are not shown separately.

Table 4.10 Birth order by state

Percent distribution of births during the three years preceding the survey by birth order, according to state, India, 1998–99

State	Birth order 1	2	3	4+	Total percent
India	29.0	25.8	17.7	27.5	100.0
North					
Delhi	31.5	29.1	17.8	21.6	100.0
Haryana	29.0	29.3	16.8	24.9	100.0
Himachal Pradesh	35.8	30.9	19.3	14.0	100.0
Jammu & Kashmir	25.8	23.9	18.1	32.2	100.0
Punjab	31.7	28.6	21.2	18.5	100.0
Rajasthan	24.7	22.5	18.0	34.8	100.0
Central					
Madhya Pradesh	25.1	22.2	17.7	35.0	100.0
Uttar Pradesh	21.7	20.3	18.1	39.9	100.0
East					
Bihar	23.2	22.1	17.4	37.3	100.0
Orissa	29.0	28.1	18.4	24.5	100.0
West Bengal	34.5	29.0	16.6	19.9	100.0
Northeast					
Arunachal Pradesh	27.2	26.6	16.5	29.7	100.0
Assam	31.0	25.2	16.3	27.5	100.0
Manipur	28.6	24.3	16.7	30.4	100.0
Meghalaya	19.8	20.2	13.5	46.5	100.0
Mizoram	29.1	25.0	23.2	22.7	100.0
Nagaland	20.8	19.6	16.4	43.2	100.0
Sikkim	37.2	20.9	14.7	27.3	100.0
West					
Goa	45.9	29.3	17.0	7.8	100.0
Gujarat	31.2	27.9	20.1	20.8	100.0
Maharashtra	33.0	27.9	21.1	18.0	100.0
South					
Andhra Pradesh	36.4	32.2	16.5	15.0	100.0
Karnataka	36.1	30.3	14.9	18.8	100.0
Kerala	40.0	39.0	14.3	6.7	100.0
Tamil Nadu	42.9	34.0	14.0	9.1	100.0

The median closed birth interval in India is 31 months. The median closed birth interval for women age 15–19 is 24 months, which is substantially less than the median interval of 36 months for women age 30–39. The relatively short birth interval for women age 15–19 at the time of the survey may result partly from a selection effect: Only women who have had two or more births are included in the table, and women age 15–19 with more than one birth are likely to be more fecund than average. Given the finding that the median birth interval increases with mother's age, it is surprising that it does not also increase substantially with the order of the previous birth. Perhaps this is due to the absence of the selection effect just noted in the case of age. There may also be another type of selection effect operating: Mothers of higher-order births may be more fecund, on average, than mothers of lower-order births.

Table 4.11 Birth interval

Percent distribution of births during the five years preceding the survey by interval since previous birth, according to selected demographic and background characteristics, India, 1998–99

Demographic/ background characteristic	Months since previous birth						Total percent	Median open birth interval[1]	Median closed birth interval[2]	Number of births
	< 12	12–17	18–23	24–35	36–47	48+				
Mother's current age										
15–19	4.0	21.2	23.5	36.7	12.2	2.5	100.0	10.0	24.3	1,193
20–29	2.6	11.0	17.2	36.2	19.5	13.5	100.0	20.3	29.3	26,305
30–39	2.0	7.1	11.9	30.2	20.8	28.0	100.0	29.5	35.5	11,183
40–49	3.3	7.1	11.9	24.8	17.5	35.5	100.0	38.4	37.3	1,215
Residence										
Urban	2.2	11.0	16.2	31.8	17.7	21.0	100.0	25.1	30.9	8,017
Rural	2.5	9.8	15.6	34.8	20.0	17.2	100.0	22.3	30.8	31,878
Mother's education										
Illiterate	2.6	9.9	15.0	34.7	20.2	17.6	100.0	22.4	31.0	26,674
Literate, < middle school complete	2.1	10.3	17.6	35.2	18.7	16.1	100.0	24.0	29.6	6,779
Middle school complete	2.2	10.1	19.0	33.8	17.3	17.6	100.0	22.6	29.6	2,728
High school complete and above	1.9	10.9	15.0	29.5	18.4	24.3	100.0	24.3	32.5	3,706
Religion										
Hindu	2.4	9.7	15.5	34.2	20.0	18.1	100.0	23.0	31.1	31,277
Muslim	2.8	11.3	16.3	34.3	17.6	17.6	100.0	21.9	29.7	6,777
Christian	1.7	9.5	18.0	33.3	18.8	18.8	100.0	22.6	30.9	824
Sikh	3.1	14.5	17.9	32.2	17.5	14.8	100.0	26.7	28.2	529
Jain	2.7	12.0	12.2	25.9	22.7	24.6	100.0	19.8	33.3	75
Buddhist/Neo-Buddhist	0.6	10.8	18.0	39.4	15.1	16.2	100.0	21.8	29.6	230
Other	1.7	11.9	11.7	41.7	19.4	13.6	100.0	23.9	30.1	115
No religion	6.8	6.3	17.1	35.1	12.7	22.0	100.0	24.6	27.6	31
Caste/tribe										
Scheduled caste	2.6	9.8	14.9	35.2	20.5	17.1	100.0	21.4	30.7	8,106
Scheduled tribe	2.8	10.5	16.0	35.7	19.4	15.6	100.0	22.5	29.9	4,133
Other backward class	2.2	9.6	15.9	34.3	19.8	18.2	100.0	23.2	31.1	12,686
Other	2.5	10.5	16.1	33.3	18.7	18.9	100.0	23.9	30.7	14,384
Standard of living index										
Low	2.6	9.5	15.1	35.0	20.0	17.8	100.0	22.4	31.0	16,073
Medium	2.4	10.2	16.3	34.7	19.6	16.7	100.0	22.8	30.4	18,212
High	2.2	11.3	15.8	29.7	18.4	22.6	100.0	24.9	31.7	5,149
Order of previous birth										
1	2.5	11.0	16.4	32.8	18.6	18.7	100.0	21.4	30.7	14,325
2	2.1	9.4	16.2	35.2	19.9	17.2	100.0	22.3	30.8	9,713
3	1.8	9.4	15.7	35.3	20.3	17.4	100.0	24.4	31.0	6,102
4+	3.2	9.8	14.3	34.6	20.2	17.9	100.0	25.1	30.8	9,756
Sex of previous birth										
Male	2.4	9.9	15.6	34.1	20.0	18.0	100.0	24.1	31.1	19,526
Female	2.5	10.3	15.8	34.4	19.2	17.9	100.0	21.8	30.6	20,369

Contd…

Table 4.11 Birth interval (contd.)

Percent distribution of births during the five years preceding the survey by interval since previous birth, according to selected demographic and background characteristics, India, 1998–99

Demographic/ background characteristic	Months since previous birth						Total percent	Median open birth interval[1]	Median closed birth interval[2]	Number of births
	< 12	12–17	18–23	24–35	36–47	48+				
Survival of previous birth										
Living	1.9	8.8	15.5	34.8	20.3	18.8	100.0	23.0	31.6	35,278
Dead	6.9	20.1	17.7	30.0	13.9	11.4	100.0	21.8	25.2	4,618
Total	2.5	10.1	15.7	34.2	19.6	17.9	100.0	22.9	30.8	39,896

Note: Table includes only second- and higher-order births except for the median open birth interval, which is based on all births. The interbirth interval for multiple births is the number of months since the preceding pregnancy that ended in a live birth. Total includes 10, 38, 587, and 461 births with missing information on mother's education, religion, caste/tribe, and the standard of living index, respectively, which are not shown separately.
[1]Median number of months between the date of interview and the most recent birth
[2]Median number of months between the most recent birth and the previous birth

The median birth interval is shorter if the previous child was a girl than if it was a boy, but the difference is only 0.5 months. This pattern may result from the shorter duration of breastfeeding for girls, which is indicative of son preference (see Table 7.12). Birth intervals are much shorter if the previous child died (25 months) than if the previous child survived (32 months). In part, this reflects the shortening of postpartum amenorrhoea that occurs when the preceding child dies in infancy and breastfeeding stops prematurely. Women are also less likely to use temporary methods of contraception to postpone fertility if the previous child died and they want to replace the dead child. Very few women in India use temporary methods of contraception, however, so that the main effect is probably through prematurely terminated breastfeeding.

Birth intervals are virtually the same in urban areas and rural areas. Birth intervals are somewhat longer for illiterate mothers and mothers with at least a high school education than for mothers with intermediate levels of education. The median interval between births is slightly shorter for Muslim and Sikh mothers than for Hindu and Christian mothers. Birth intervals show little variation by caste/tribe or the standard of living. The median open birth interval (the interval between the most recent birth and the time of the survey) is 23 months. The median open birth interval rises dramatically with age from only 10 months for teenage mothers to 38 months for mothers in their forties. For women in all other subgroups (except for Sikh women), the median open birth interval varies between only 20 months and 25 months.

Table 4.12 shows how birth intervals vary among the states of India. The median closed birth interval ranges from 27.5 months in Nagaland to 38.1 months in Kerala. States with a median closed birth interval of 33 months or longer are Kerala, Goa, Delhi, and West Bengal. In Kerala, 36 percent of births have an interval since the preceding birth of at least 48 months (compared with a national average of 18 percent of births).

Table 4.12 Birth interval by state

Percent distribution of births during the five years preceding the survey by interval since previous birth, according to state, India, 1998–99

State	Months since previous birth						Total percent	Median open birth interval[1]	Median closed birth interval[2]
	< 12	12–17	18–23	24–35	36–47	48+			
India	2.5	10.1	15.7	34.2	19.6	17.9	100.0	22.9	30.8
North									
Delhi	3.2	12.0	13.1	26.4	20.4	24.9	100.0	24.6	33.6
Haryana	2.1	11.0	16.3	34.4	20.1	16.1	100.0	22.6	30.0
Himachal Pradesh	1.3	13.4	17.3	36.0	16.6	15.3	100.0	24.4	29.4
Jammu & Kashmir	1.8	8.6	14.5	33.8	20.4	21.0	100.0	23.2	32.5
Punjab	3.6	14.7	17.4	32.0	16.6	15.5	100.0	26.1	28.0
Rajasthan	3.1	11.0	15.9	36.3	19.3	14.4	100.0	21.5	29.5
Central									
Madhya Pradesh	3.2	9.4	15.8	36.1	19.9	15.5	100.0	22.2	30.2
Uttar Pradesh	3.2	11.1	14.8	33.7	20.6	16.6	100.0	20.8	30.4
East									
Bihar	2.4	8.2	14.6	34.4	21.2	19.2	100.0	22.2	32.3
Orissa	1.9	9.1	13.8	31.6	21.6	21.9	100.0	24.0	32.9
West Bengal	1.6	8.0	13.4	31.9	20.5	24.5	100.0	25.1	33.6
Northeast									
Arunachal Pradesh	1.5	13.0	15.8	35.2	20.3	14.2	100.0	28.8	29.9
Assam	2.1	10.3	15.7	34.9	19.2	17.7	100.0	26.3	30.6
Manipur	0.1	11.0	15.7	35.5	18.7	18.8	100.0	22.2	31.8
Meghalaya	1.2	12.8	17.9	36.9	16.3	14.9	100.0	19.6	28.5
Mizoram	0.5	11.3	21.1	35.5	15.8	15.7	100.0	22.5	28.4
Nagaland	0.7	11.4	20.0	40.5	17.3	10.1	100.0	19.8	27.5
Sikkim	2.0	11.7	15.9	30.4	17.3	22.6	100.0	22.7	32.6
West									
Goa	0.6	8.7	13.7	30.8	16.5	29.6	100.0	25.8	34.8
Gujarat	1.8	12.3	17.8	35.9	16.6	15.6	100.0	20.7	29.0
Maharashtra	1.7	9.0	19.9	36.0	17.8	15.5	100.0	23.2	29.0
South									
Andhra Pradesh	2.4	10.1	14.8	35.0	19.1	18.5	100.0	24.2	31.1
Karnataka	1.1	9.9	19.3	35.5	18.4	15.8	100.0	24.8	29.7
Kerala	1.2	8.4	11.7	24.4	18.1	36.2	100.0	25.3	38.1
Tamil Nadu	1.7	11.3	17.3	33.0	16.5	20.3	100.0	25.4	30.5

Note: Table includes only second- and higher-order births except for the median open birth interval, which is based on all births. The interbirth interval for multiple births is the number of months since the preceding pregnancy that ended in a live birth.

[1]Median number of months between the date of interview and the most recent birth

[2]Median number of months between the most recent birth and the previous birth

4.8 Age at First and Last Birth

The ages at which women start and stop childbearing are important demographic determinants of fertility. A higher median age at first birth and a lower median age at last birth are indicators of lower fertility. Table 4.13 shows the median age at first birth for various age groups by selected background characteristics. The median age at first birth for any group of women is defined in this table as the age by which half of all women in the group have had a first birth, rather than the

Table 4.13 Median age at first birth

Median age at first birth among women age 20–49 years by current age and selected background characteristics, India, 1998–99

Background characteristic	Current age							
	20–24	25–29	30–34	35–39	40–44	45–49	20–49	25–49
Residence								
Urban	NC	21.3	20.6	20.3	20.3	20.3	NC	20.6
Rural	19.7	19.0	18.8	19.0	18.9	19.2	19.1	19.0
Education								
Illiterate	18.5	18.2	18.3	18.6	18.6	18.9	18.5	18.5
Literate, < middle school complete	19.8	19.4	19.2	19.4	19.4	19.7	19.5	19.4
Middle school complete	NC	20.8	20.7	20.8	20.5	20.5	NC	20.7
High school complete and above	NC	23.5	23.1	23.2	23.2	23.2	NC	23.3
Religion								
Hindu	NC	19.5	19.3	19.3	19.2	19.5	19.6	19.4
Muslim	19.8	19.2	18.8	18.9	18.8	18.8	19.1	18.9
Christian	NC	23.1	22.1	21.9	22.6	21.3	NC	22.2
Sikh	NC	21.3	21.4	21.5	21.7	22.5	NC	21.5
Jain	NC	22.5	20.7	21.0	(21.1)	20.9	NC	21.2
Buddhist/Neo-Buddhist	NC	19.4	18.4	18.7	19.6	18.5	19.5	19.1
Other	NC	19.5	18.6	19.9	19.3	20.0	19.9	19.5
No religion	NC	(19.6)	(19.2)	(20.7)	*	*	NC	19.7
Caste/tribe								
Scheduled caste	19.8	18.9	18.5	18.6	18.6	18.8	18.9	18.7
Scheduled tribe	19.4	18.8	18.6	18.9	18.9	19.1	18.9	18.8
Other backward class	NC	19.5	19.3	19.3	19.1	19.4	19.5	19.3
Other	NC	20.1	19.9	19.9	19.8	20.0	NC	20.0
Standard of living index								
Low	18.7	18.3	18.3	18.7	18.7	18.8	18.5	18.5
Medium	NC	19.6	19.2	19.1	19.0	19.4	19.5	19.3
High	NC	22.0	21.3	21.1	20.7	20.5	NC	21.2
Total	NC	19.6	19.3	19.4	19.3	19.5	19.6	19.4

Note: Total includes women with missing information on education, religion, caste/tribe, and the standard of living index, who are not shown separately.
NC: Not calculated because less than 50 percent of women had their first birth by age 20
( ) Based on 25–49 unweighted cases
*Median not shown; based on fewer than 25 unweighted cases

age by which half of all mothers in the group have had a first birth. If the median age at first birth calculated for an age group lies above the lower limit of that age group, it is not valid because some younger women in the age group who have not yet had a first birth will not have reached the median age by the time of the survey. In such cases, the estimate of the median is not shown.

As shown in the last row of the table, the median age at first birth in India as a whole appears to have increased slightly in recent years, from 19.3 years for women age 30–34 to 19.6 years for women age 25–29. Among all women age 25–49, the median age at first birth is 1.6 years higher in urban areas than in rural areas. The median increases especially sharply between the 30–34 and 25–29 age cohorts in urban areas and between the 25–29 and 20–24 age cohorts in rural areas. The median age at first birth is almost five years higher for women who have completed at least high school than for illiterate women. The median is 0.5 year higher for

Table 4.14 Age at last birth

Percent distribution of ever-married women age 40–49 years by age at last birth and median age at last birth, according to current age and residence, India, 1998–99

Current age	No birth	Age at last birth < 20	20–24	25–29	30–34	35–39	40–44	45–49	Total percent	Median age at last birth	Number of women
URBAN											
40–44	3.1	3.1	23.9	36.8	23.3	8.7	1.1	NA	100.0	28.0	3,135
45–49	3.1	2.7	18.1	36.6	25.3	12.1	2.0	0.2	100.0	28.8	2,473
40–49	3.1	2.9	21.3	36.7	24.2	10.2	1.5	0.1	100.0	28.4	5,608
RURAL											
40–44	2.7	3.8	19.1	33.6	24.2	13.9	2.7	NA	100.0	29.0	7,387
45–49	2.9	3.3	13.9	27.5	29.6	15.8	6.2	0.7	100.0	30.7	5,706
40–49	2.8	3.6	16.8	31.0	26.6	14.7	4.2	0.3	100.0	29.8	13,092
TOTAL											
40–44	2.8	3.6	20.5	34.6	23.9	12.4	2.2	NA	100.0	28.7	10,521
45–49	2.9	3.1	15.2	30.3	28.3	14.7	4.9	0.6	100.0	30.2	8,179
40–49	2.9	3.4	18.2	32.7	25.9	13.4	3.4	0.2	100.0	29.3	18,701

NA: Not applicable

Hindus than for Muslims. Christians, Sikhs, and Jains all have a median age at first birth that is considerably higher than that of either Hindus or Muslims. By caste/tribe, women from other backward classes have a median age at first birth that is about half a year higher than that of scheduled-caste women or scheduled-tribe women, and women belonging to none of these caste/tribe groups have a median that is more than one year higher than that of schedule-caste women or scheduled-tribe women. The median age at first birth increases steadily with standard of living and is almost three years higher for women living in households with a high standard of living than for women living in households with a low standard of living.

For older women the age at last childbirth is an indicator of cessation of childbearing. Table 4.14 presents the distribution of ever-married women age 40–49 by age at last birth, as well as the median age at last birth. Although a few of these women may have another birth later on, the very low fertility rates for women in this age group suggest that childbearing is virtually complete by these ages. More than half of women (54 percent) had their last birth by age 30, and 80 percent by age 35. The median age at last birth in India for women age 40–49 is 29.3 years (28.7 for women age 40–44 and 30.2 for women age 45–49).

Table 4.15 shows how median age at first and last birth (for women with at least one birth) varies among states. The median age at first birth ranges from 17.7 in Andhra Pradesh to 22.8 in Goa. States with a median age at first birth of 21 years or higher are Goa, Mizoram, Sikkim, Punjab, Delhi, Manipur, Nagaland, Arunachal Pradesh, and Kerala. The median age at last birth ranges from 27.0 in Andhra Pradesh to 35.7 in Meghalaya. States with a median age at last birth below 28 years are Andhra Pradesh, Maharashtra, Tamil Nadu, Karnataka, and Kerala.

Table 4.15 Median age at first and last birth by state

Median age at first birth and median age at last birth for women age 40–49 who have had at least one birth, by state, India, 1998–99

State	Median age at first birth for women with at least one birth	Median age at last birth for women with at least one birth	Difference
India	19.2	29.1	9.9
North			
Delhi	21.3	28.9	7.6
Haryana	20.4	29.4	9.0
Himachal Pradesh	20.0	28.2	8.3
Jammu & Kashmir	19.5	30.3	10.9
Punjab	21.5	29.2	7.6
Rajasthan	19.5	30.7	11.2
Central			
Madhya Pradesh	18.5	29.9	11.3
Uttar Pradesh	19.0	32.5	13.4
East			
Bihar	18.8	31.6	12.9
Orissa	19.1	29.0	9.9
West Bengal	19.0	28.6	9.6
Northeast			
Arunachal Pradesh	21.1	30.5	9.4
Assam	19.1	28.7	9.6
Manipur	21.3	33.0	11.6
Meghalaya	20.7	35.7	14.9
Mizoram	22.1	31.4	9.3
Nagaland	21.3	34.1	12.8
Sikkim	21.7	32.1	10.4
West			
Goa	22.8	30.2	7.5
Gujarat	20.1	28.1	8.1
Maharashtra	18.8	27.1	8.4
South			
Andhra Pradesh	17.7	27.0	9.3
Karnataka	18.5	27.7	9.1
Kerala	21.1	27.9	6.8
Tamil Nadu	19.6	27.6	8.1

The difference between the median age at first birth and the median age at last birth provides a rough estimate of the typical reproductive age span. Among women age 40–49 in India, this estimated reproductive age span is the difference between 19.2 and 29.1, or 9.9 years. Thus, reproduction in India begins at a fairly early age and is concentrated in a span of about 10 years. The difference between the median age at last birth and median age at first birth ranges from only 6.8 years in Kerala to 14.9 years in Meghalaya. In addition to Meghalaya, states with a span of 12 or more years are Uttar Pradesh, Bihar, and Nagaland.

4.9 Postpartum Amenorrhoea, Abstinence, Insusceptibility, and Menopause

Among the factors that influence the risk of pregnancy following a birth are breastfeeding and sexual abstinence. Breastfeeding prolongs postpartum protection from conception through its effect on the period of amenorrhoea (the period prior to the return of menses) following a birth. Delaying the resumption of sexual relations following a birth also prolongs the period of postpartum protection. Women are defined as insusceptible to pregnancy following a birth if they are not at risk of conception because they are amenorrhoeic, are abstaining from sexual relations, or both.

Table 4.16 shows the percentage of births occurring during the three years preceding the survey whose mothers are postpartum amenorrhoeic, abstaining, or insusceptible, by the number of months since childbirth. These distributions are based on current status information, i.e., on the proportion of births occurring within the 36 months before the survey whose mothers were amenorrhoeic, abstaining, or insusceptible at the time of the survey. In other words, the table is based on cross-sectional data and does not represent the experience of a real cohort of births over time. Median and mean durations of amenorrhoea, abstinence, and insusceptibility are also shown in the table. The prevalence/incidence mean is obtained by dividing the number of mothers who are amenorrhoeic, abstaining, or insusceptible by the average number of births per month over the 36-month period.

Ninety-four percent of mothers are still amenorrhoeic within the first month after a birth, and 82 percent are still amenorrhoeic two months after a birth. The proportion amenorrhoeic gradually decreases as the number of months since the last birth increases. Half of mothers are still amenorrhoeic eight months after a birth, but the proportion then drops off fairly rapidly and is only 9 percent 24 months after a birth. The proportion of mothers abstaining from sexual intercourse within the first month after a birth is almost the same as the proportion amenorrhoeic at this same duration, but at later durations the proportion abstaining is substantially lower than the proportion amenorrhoeic. Twenty percent of women still abstain from sexual intercourse 8 months after a birth, and 12 percent are still abstinent 12 months after a birth. Overall, when amenorrhoea and abstinence are considered together, half of mothers are still insusceptible to pregnancy nine months after a birth.

The median and mean durations of insusceptibility are 10 and 12 months, respectively. The median duration of amenorrhoea (almost 9 months) is almost three times as high as the median duration of abstinence (just over 3 months). The table indicates that women in India remain insusceptible to conception for almost one year after a birth, primarily due to the effect of postpartum amenorrhoea.

Menopause is a primary limiting factor of fertility. It is the culmination of a gradual decline in fecundity with increasing age. After age 30, the risk of pregnancy declines with age as an increasing proportion of women become infecund. In NFHS-2, menopause is defined as the absence of menstruation for six or more months preceding the survey among currently married women. Women who report that they are menopausal or that they have had a hysterectomy are also included in this category. Women who are pregnant or postpartum amenorrhoeic are assumed not to be menopausal.

Table 4.16 Postpartum amenorrhoea, abstinence, and insusceptibility

Percentage of births during the three years preceding the survey whose mothers are postpartum amenorrhoeic, abstaining, or insusceptible by number of months since birth, and median and mean durations, India, 1998–99

Months since birth	Percentage of births whose mothers are: Amenorrhoeic	Abstaining	Insusceptible	Number of births
< 1	94.3	95.5	99.1	469
1	92.8	82.5	97.5	1,010
2	82.3	60.2	90.4	1,139
3	73.6	44.1	80.5	1,087
4	70.7	36.2	77.4	1,040
5	64.6	30.8	70.2	1,049
6	56.0	22.1	62.2	1,024
7	56.4	20.7	62.3	968
8	49.0	19.6	55.9	863
9	44.9	13.1	50.5	841
10	40.8	13.9	47.2	755
11	38.4	15.5	43.4	724
12	35.9	11.8	42.2	827
13	33.0	9.0	37.3	1,016
14	25.0	9.7	30.2	1,075
15	22.8	6.8	25.2	1,029
16	18.6	6.3	21.9	1,072
17	15.4	5.9	19.7	1,002
18	11.6	5.3	15.8	959
19	11.2	5.3	15.3	795
20	8.8	4.6	11.9	747
21	8.7	3.6	10.8	756
22	11.4	4.5	14.0	726
23	9.9	5.8	14.2	701
24	8.5	4.8	12.0	750
25	4.5	4.2	7.8	947
26	3.4	2.9	5.9	966
27	3.0	3.0	5.6	988
28	3.4	2.3	5.0	939
29	2.5	2.8	5.1	1,015
30	3.5	2.9	5.9	1,019
31	2.4	3.3	5.2	891
32	1.3	2.0	3.0	796
33	3.1	2.6	5.0	744
34	2.0	3.6	5.4	793
35	2.5	2.5	4.8	762
Median[1]	8.6	3.3	9.8	NA
Mean	10.7	6.2	12.2	NA
Prevalence/incidence mean	10.3	5.6	11.8	NA

Note: Median and mean durations are based on current status. Insusceptible is defined as amenorrhoeic, abstaining, or both.
NA: Not applicable
[1]Based on a three-period moving average of percentages

Table 4.17 presents data on menopause for women age 30–49 in the whole country and individual states. In India, 19 percent of women age 40–41 have already reached menopause, and the incidence of menopause increases rapidly after age 41. By age 48–49, two-thirds of women are in menopause. The onset of menopause appears to occur somewhat later in urban areas than in rural areas.

Table 4.17 Menopause by state

Percentage of currently married women age 30–49 years who are in menopause by age and state, India, 1998–99

State	Age 30–34	35–39	40–41	42–43	44–45	46–47	48–49	Total
India–Urban	2.2	7.0	15.1	23.1	35.4	50.0	67.3	16.1
India–Rural	3.5	8.5	20.6	28.1	40.9	55.6	66.4	18.3
India–Total	3.1	8.0	19.0	26.5	39.3	53.9	66.6	17.7
North								
Delhi	1.5	3.4	11.4	20.9	31.9	35.4	73.4	11.8
Haryana	1.7	4.8	10.7	23.3	37.0	43.6	66.7	14.6
Himachal Pradesh	0.9	5.0	9.6	22.4	32.1	46.0	72.0	15.0
Jammu & Kashmir	2.1	6.6	16.7	31.9	33.9	52.4	62.9	15.6
Punjab	1.4	4.4	20.8	20.6	35.4	52.5	63.3	15.2
Rajasthan	2.3	4.6	13.5	19.9	35.1	39.3	61.2	13.1
Central								
Madhya Pradesh	2.9	7.3	15.1	23.5	32.6	44.8	51.9	14.2
Uttar Pradesh	2.1	7.3	20.2	31.3	42.3	58.5	68.8	17.8
East								
Bihar	2.9	9.2	23.6	35.2	51.1	60.7	75.8	21.7
Orissa	1.7	5.3	19.5	23.8	31.7	50.6	62.4	15.6
West Bengal	1.5	4.3	12.8	22.1	34.9	46.1	48.4	12.8
Northeast								
Arunachal Pradesh	1.0	3.8	6.9	*	(8.2)	*	*	6.1
Assam	1.6	6.2	22.5	30.4	43.6	55.7	73.4	17.0
Manipur	0.8	4.8	9.6	14.4	21.8	(31.8)	(48.9)	10.7
Meghalaya	1.4	2.9	(4.1)	(13.9)	(21.7)	*	*	10.8
Mizoram	1.1	2.3	7.6	10.1	(8.1)	(9.2)	*	5.4
Nagaland	2.9	1.5	(7.6)	(20.1)	(39.4)	*	*	11.6
Sikkim	2.1	5.8	12.2	7.8	28.8	*	(68.9)	11.6
West								
Goa	1.7	4.7	15.0	17.0	27.6	40.9	66.1	16.1
Gujarat	3.1	10.7	24.0	27.5	42.3	55.5	62.7	19.9
Maharashtra	4.3	7.8	16.6	21.5	40.5	62.9	64.8	16.9
South								
Andhra Pradesh	12.8	22.1	37.6	35.9	55.0	65.4	82.2	31.4
Karnataka	1.6	10.6	22.7	26.6	45.8	58.3	76.1	20.2
Kerala	1.2	3.7	8.2	12.5	21.1	37.4	53.0	11.6
Tamil Nadu	2.0	4.5	12.6	26.1	30.5	49.8	69.7	16.0

Note: Percentage menopausal is defined as the percentage of currently married women who are not pregnant, not amenorrhoeic, and reported that their last menstrual period occurred six or more months preceding the survey or that they are menopousal or have had a hysterectomy.
( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases

There is a surprising amount of variability among the states in the proportion of women who are menopausal at each age. At age 48–49, this proportion ranges from 48 percent in West Bengal to 82 percent in Andhra Pradesh. At age 35–39, it ranges from 2 percent in Nagaland to 22 percent in Andhra Pradesh. Since menopause is a heavily biologically-influenced characteristic, the wide variations by state are somewhat unexpected. However, it is interesting to note that in both NFHS-1 and NFHS-2, Andhra Pradesh had much higher reported levels of menopause than any other state.

Table 4.18 Fertility preferences

Percent distribution of currently married women by desire for children and preferred sex of additional child, according to number of living children and residence, India, 1998–99

Desire for children	Number of living children[1] 0	1	2	3	4+	Total
URBAN						
Desire for additional child						
Wants another soon[2]	68.8	21.0	4.7	1.9	1.2	11.6
Wants another later[3]	13.4	40.9	6.7	2.9	1.4	11.5
Wants another, undecided when	6.3	3.9	1.1	0.7	0.5	1.8
Undecided	0.4	2.0	0.9	0.7	0.6	0.9
Up to God	1.3	0.8	0.6	0.5	1.0	0.7
Wants no more	2.0	24.2	43.5	30.7	36.1	32.2
Sterilized	0.7	4.6	40.1	60.1	54.1	37.9
Declared infecund	6.8	2.7	2.4	2.2	5.0	3.3
Missing	0.3	0.1	0.1	0.1	0.1	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	1,811	3,972	6,465	4,711	4,929	21,888
Preferred sex of additional child[4]						
Boy	22.5	33.2	57.9	66.2	73.0	36.4
Girl	4.6	19.0	15.5	12.9	6.2	13.5
Doesn't matter	56.2	34.3	16.8	13.0	9.9	36.5
Up to God	16.7	13.5	9.8	7.9	10.8	13.6
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more[4]	1,632	2,615	817	261	153	5,478
RURAL						
Desire for additional child						
Wants another soon[2]	71.9	30.5	11.0	5.2	2.5	16.0
Wants another later[3]	12.1	45.1	14.5	6.9	2.9	13.9
Wants another, undecided when	5.7	5.2	2.2	1.1	0.7	2.3
Undecided	0.6	0.8	1.1	0.8	0.9	0.9
Up to God	2.0	2.0	1.5	1.4	2.3	1.8
Wants no more	0.9	8.8	27.0	27.3	40.9	25.9
Sterilized	0.9	4.8	40.2	54.6	44.5	35.4
Declared infecund	5.7	2.6	2.4	2.6	5.2	3.6
Missing	0.1	0.1	0.1	0.1	0.1	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	5,809	9,659	14,371	13,469	18,273	61,761
Preferred sex of additional child[4]						
Boy	38.6	42.6	60.6	75.7	71.9	49.8
Girl	1.9	14.9	14.2	8.4	6.8	10.3
Doesn't matter	39.1	27.7	13.7	6.7	9.4	25.0
Up to God	20.5	14.8	11.4	9.2	11.9	15.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more[4]	5,282	7,812	4,001	1,816	1,111	20,023

Table 4.18 Fertility preferences (contd.)

Percent distribution of currently married women by desire for children and preferred sex of additional child, according to number of living children and residence, India, 1998–99

Desire for children	Number of living children[1] 0	1	2	3	4+	Total
	TOTAL					
Desire for additional child						
Wants another soon[2]	71.1	27.7	9.0	4.4	2.2	14.8
Wants another later[3]	12.4	43.9	12.1	5.9	2.6	13.3
Wants another, undecided when	5.9	4.8	1.9	1.0	0.7	2.2
Undecided	0.6	1.2	1.0	0.8	0.8	0.9
Up to God	1.8	1.7	1.2	1.2	2.0	1.5
Wants no more	1.2	13.3	32.1	28.2	39.9	27.5
Sterilized	0.9	4.8	40.2	56.0	46.5	36.1
Declared infecund	6.0	2.6	2.4	2.5	5.2	3.5
Missing	0.1	0.1	0.1	0.1	0.1	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	7,620	13,631	20,836	18,359	23,202	83,649
Preferred sex of additional child[4]						
Boy	34.8	40.3	60.2	74.5	72.0	46.9
Girl	2.5	15.9	14.4	9.0	6.8	11.0
Doesn't matter	43.1	29.4	14.3	7.5	9.4	27.5
Up to God	19.6	14.5	11.1	9.0	11.8	14.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more[4]	6,914	10,427	4,818	2,077	1,264	25,501

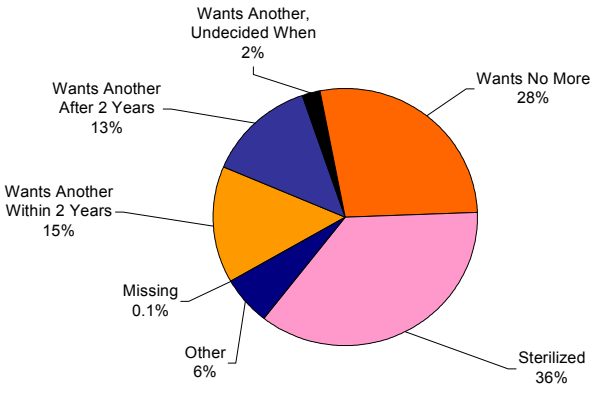
[1]Includes current pregnancy, if any
[2]Wants next birth within 2 years
[3]Wants to delay next birth for 2 or more years
[4]Excludes currently pregnant women

4.10 Desire for More Children

In order to obtain information on fertility preferences, NFHS-2 asked nonsterilized, currently married, nonpregnant women: 'Would you like to have (a/another) child or would you prefer not to have any (more) children?' Pregnant women were asked, 'After the child you are expecting, would you like to have another child or would you prefer not to have any more children?' Women who expressed a desire for additional children were asked how long they would like to wait before the birth of their next child. The survey also collected information on the preferred sex of the next child and the ideal number of children by sex.

Table 4.18 and Figure 4.5 show future fertility preferences of currently married women. Overall, 28 percent of currently married women say that they do not want any more children, an additional 36 percent cannot have another child because either the wife or the husband has been sterilized, and 4 percent of women say that they cannot get pregnant (that is, they are 'declared infecund'). Thirty percent of the women say they would like to have another child (15 percent within two years, 13 percent after waiting at least two years, and 2 percent undecided when). The desire to stop childbearing increases rapidly with the number of living children. Only 2 percent of women with no living children do not want any children (the woman or her husband is sterilized

Figure 4.5
Fertility Preferences Among Currently Married Women



Note: Percents add to more than 100 due to rounding

NFHS-2, India, 1998–99

or the woman says she wants no more children), compared with 72 percent of women with two living children and 86 percent or more of women with four or more living children. Two percent of the women say that the decision about having any (more) children is up to God. Overall, 77 percent of women want to either space their next birth or do not want any more children. This proportion is 82 percent in urban areas and 75 percent in rural areas.

The desire to have a child within two years drops rapidly with the number of living children, from 71 percent for women without any living children to 9 percent or less for women with two or more living children. Forty-four percent of women with one living child (41 percent in urban areas and 45 percent in rural areas) would like to wait at least two years before having the next child. And yet, as will be seen in the next chapter, very few women in India use any temporary method of contraception. These findings suggest that encouraging the use of temporary methods would lower overall fertility and population growth, as well as provide health benefits to mothers and their children through increased birth spacing.

Forty-seven percent of women who want another child say they want the next child to be a boy, only 11 percent say they want the child to be a girl, and the rest say that the sex of the child does not matter (28 percent) or that it is up to God (15 percent). Irrespective of their number of living children, women are much more likely to express a desire for a son than for a daughter, and the proportion of women expressing a desire specifically for a son generally increases with the number of living children. Among women who have no living children, only a few women express a specific desire for a daughter (3 percent), but 43 percent say it does not matter whether they have a son or a daughter. Even among this group, one in every three women say they would like their first child to be a boy.

Table 4.19 shows how fertility preferences vary by state. The proportion of currently married women who want to have another child at any time in the future ranges from 20 percent

Table 4.19 Fertility preferences by state

Percent distribution of currently married women by desire for children, according to state, India, 1998–99

State	Wants another soon[1]	Wants another later[2]	Wants another, undecided when	Unde-cided	Up To God	Wants no more	Steril-ized	Declared infecund	Miss-ing	Total percent
India	14.8	13.3	2.2	0.9	1.5	27.5	36.1	3.5	0.1	100.0
North										
Delhi	9.9	10.2	2.2	1.1	1.5	45.6	28.6	0.7	0.1	100.0
Haryana	15.4	9.6	0.5	0.3	0.2	32.8	40.8	0.4	0.1	100.0
Himachal Pradesh	10.9	8.9	0.1	0.6	0.0	26.2	52.4	0.8	0.0	100.0
Jammu & Kashmir	11.1	12.4	0.9	0.9	1.5	38.6	30.7	3.8	0.0	100.0
Punjab	11.8	9.1	0.3	0.2	0.3	46.6	30.9	0.7	0.1	100.0
Rajasthan	17.3	14.6	1.4	1.1	1.3	27.6	32.3	4.3	0.1	100.0
Central										
Madhya Pradesh	17.1	16.5	2.2	0.7	0.8	23.4	38.0	1.2	0.1	100.0
Uttar Pradesh	17.0	17.8	2.0	1.2	3.6	38.1	15.6	4.5	0.2	100.0
East										
Bihar	17.3	15.8	6.3	0.8	3.8	30.2	20.1	5.6	0.0	100.0
Orissa	17.3	15.3	0.6	0.6	0.8	27.7	35.6	2.0	0.0	100.0
West Bengal	10.5	13.4	0.6	0.8	0.5	39.2	33.8	1.0	0.1	100.0
Northeast										
Arunachal Pradesh	15.2	18.8	3.3	9.9	1.3	26.3	20.7	4.1	0.4	100.0
Assam	15.4	12.8	1.6	1.1	6.2	43.0	16.7	2.6	0.6	100.0
Manipur	13.8	21.9	1.2	8.2	0.6	36.5	15.5	2.2	0.0	100.0
Meghalaya	8.3	33.4	4.3	6.6	2.3	32.0	6.5	6.5	0.1	100.0
Mizoram	10.4	22.3	2.8	4.3	1.4	12.4	45.4	1.2	0.0	100.0
Nagaland	13.2	14.8	3.8	12.7	1.3	35.0	12.3	6.9	0.0	100.0
Sikkim	6.9	12.5	1.2	1.2	0.4	51.2	24.7	1.6	0.3	100.0
West										
Goa	17.4	12.0	1.3	0.8	0.6	32.8	28.2	6.9	0.0	100.0
Gujarat	15.1	11.2	1.4	1.1	0.6	20.1	45.3	5.2	0.0	100.0
Maharashtra	9.8	9.5	4.9	1.0	0.3	19.8	52.2	2.5	0.1	100.0
South										
Andhra Pradesh	17.0	7.5	1.6	0.5	0.7	10.5	57.0	5.1	0.1	100.0
Karnataka	12.8	11.7	1.2	1.0	0.3	15.3	52.2	5.4	0.0	100.0
Kerala	14.3	12.0	1.8	1.0	0.6	17.1	51.0	2.1	0.0	100.0
Tamil Nadu	13.5	11.8	0.2	0.3	0.4	23.0	45.9	4.7	0.1	100.0

[1]Wants next birth within 2 years
[2]Wants to delay next birth for 2 or more years

in Himachal Pradesh and Punjab to 46 percent in Meghalaya. A majority of women who want another child would like to wait at least two years before having that child in Jammu and Kashmir, West Bengal, and five states in the Northeast Region (Arunachal Pradesh, Manipur, Meghalaya, Mizoram, and Sikkim). The proportion who want no more children, including those who are sterilized or whose husbands are sterilized, ranges from 39 percent in Meghalaya to 79 percent in Himachal Pradesh. The proportion of women who believe that decisions pertaining to childbearing are 'up to God' is 6 percent in Assam, 4 percent in Bihar and Uttar Pradesh, and 2 percent or less in other states.

Table 4.20 Desire to have no more children by background characteristics

Percentage of currently married women who want no more children by number of living children and selected background characteristics, India, 1998–99

Background characteristic	Number of living children[1] 0	1	2	3	4+	Total
Age						
15–24	0.4	6.5	52.4	65.2	79.8	26.2
25–34	2.4	27.4	77.3	83.9	84.2	72.2
35–49	13.4	62.5	88.2	91.6	88.2	85.6
Residence						
Urban	2.7	28.8	83.6	90.9	90.2	70.0
Rural	1.9	13.6	67.2	81.8	85.4	61.3
Education						
Illiterate	2.6	13.4	59.8	79.7	84.7	62.7
Literate, < middle school complete	2.5	17.0	78.2	88.9	91.7	68.3
Middle school complete	0.6	15.5	80.7	90.7	91.9	60.1
High school complete and above	1.3	28.4	87.1	93.9	93.1	62.9
Religion						
Hindu	2.1	19.1	73.8	85.2	87.9	64.4
Muslim	2.3	10.0	51.3	72.8	80.0	56.5
Christian	3.2	14.2	80.3	83.2	80.2	62.5
Sikh	0.8	24.4	88.7	93.6	96.1	75.4
Jain	(0.0)	(26.5)	85.9	92.5	100.0	73.5
Buddhist/Neo-Buddhist	(0.1)	23.2	79.1	96.2	95.5	78.0
Other	(0.0)	13.3	56.6	77.3	85.0	57.2
No religion	*	*	*	(63.7)	41.0	39.8
Caste/tribe						
Scheduled caste	2.1	14.7	63.4	83.6	87.6	62.1
Scheduled tribe	3.2	11.2	55.8	75.1	82.3	55.8
Other backward class	1.8	14.8	72.4	83.9	86.3	62.7
Other	2.1	23.8	78.5	87.1	87.3	67.0
Standard of living index						
Low	2.6	13.6	61.5	78.8	83.3	59.2
Medium	1.8	15.0	71.2	84.3	87.1	63.5
High	2.0	29.6	85.1	92.3	92.4	70.6
Number of living sons[2]						
0	2.1	17.1	46.8	50.1	57.0	19.5
1	NA	23.4	76.4	80.8	83.1	66.0
2	NA	NA	82.6	92.9	90.8	89.3
3+	NA	NA	NA	89.6	87.9	88.2
Number of living daughters[2]						
0	2.1	23.4	82.6	89.6	87.8	40.9
1	NA	17.1	76.4	92.9	90.0	71.5
2	NA	NA	46.8	80.8	91.1	78.8
3+	NA	NA	NA	50.1	83.1	79.6
Total	2.1	18.1	72.3	84.2	86.5	63.6

Note: Women who have been sterilized or whose husbands have been sterilized are considered to want no more children. Total includes women with missing information on education, religion, caste/tribe, and the standard of living index, who are not shown separately.
NA: Not applicable
( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases
[1]Includes current pregnancy, if any
[2]Excludes pregnant women

Table 4.20 provides information about differentials in the desire to limit family size by selected background characteristics. Women who are sterilized (or whose husbands are sterilized) are included among those who say they want no more children. As expected, older women are much more likely than younger women to want no more children. Already by age 25–34, 72 percent of women want no more children. The proportion who want no more children is somewhat higher among urban women (70 percent) than among rural women (61 percent). For mothers, the desire to stop childbearing tends to increase steadily with the level of education within each parity, although that progression does not show up clearly in the percentages for all women taken together. The proportion who want no more children is higher among Hindus (64 percent) and Christians (63 percent) than among Muslims (57 percent), but the desire to stop childbearing is particularly strong among Buddhists, Sikhs, and Jains. By caste/tribe, the proportion who want no more children is highest for women in the 'other' category (67 percent) and lowest for scheduled-tribe women (56 percent). The proportion who want no more increases with the standard of living, from 59 percent for women living in households with a low standard of living to 71 percent for women living in households with a high standard of living. The proportion who want no more children is highest for women with two living sons (89 percent) and is very low for women with no living sons (20 percent). Differences associated with the number of living daughters are also large but not as large as differences associated with the number of living sons, indicating a preference for sons. The proportion who want no more children is highest for women with three or more living daughters (80 percent) and lowest for women with no living daughters (41 percent). Despite the existence of son preference, it is interesting to note that 47 percent of women with two daughters and no sons do not want to have a third child. Overall, the table shows that, in every socioeconomic subgroup, a majority of women with two or more living children want no more children. It also shows that within each subgroup, the proportion who want no more children rises sharply with the number of living children.

4.11 Ideal Number of Children

To assess women's ideal number of children, NFHS-2 asked each woman the number of children she would like to have if she could start over again. Women with no children were asked, 'If you could choose exactly the number of children to have in your whole life, how many would that be?' Women who already had children were asked, 'If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?' Some women had difficulty in answering these hypothetical questions, and hence the question often had to be repeated to ensure that the meaning was understood.

Table 4.21 shows that almost half (47 percent) of ever-married women in India consider two to be the ideal number of children, and 72 percent consider two or three to be ideal. Only 21 percent have an ideal number that differs from two or three children. Seven percent were unable to give a numeric response to the question. Among all women who gave a numeric response, the average number of children considered ideal is 2.7, ranging from 2.4 for women who have no children to 3.3 for women who have four or more children.

Table 4.21 Ideal and actual number of children

Percent distribution of ever-married women by ideal number of children, and mean ideal number of children, by number of living children and residence, India, 1998–99

Ideal number of children	Number of living children[1] 0	1	2	3	4+	Total
URBAN						
0	0.1	0.1	0.0	0.1	0.2	0.1
1	17.0	21.6	6.7	3.7	1.4	8.5
2	63.5	64.6	76.9	52.7	35.0	58.8
3	10.2	8.6	10.1	32.1	25.9	18.1
4	2.8	1.7	2.7	5.4	20.3	7.1
5	0.5	0.3	0.3	0.8	3.1	1.1
6+	0.2	0.0	0.1	0.3	2.3	0.6
Non-numeric response	5.6	3.1	3.2	4.9	11.8	5.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	2,005	4,271	6,796	5,010	5,287	23,370
Mean ideal number[2]	2.0	1.9	2.1	2.4	3.0	2.3
Number of women giving numeric response	1,893	4,139	6,578	4,765	4,666	22,041
RURAL						
0	0.1	0.1	0.0	0.1	0.3	0.1
1	5.8	7.0	3.1	2.0	0.7	3.0
2	52.1	57.4	61.6	36.7	21.4	42.8
3	24.2	21.2	21.4	40.2	25.9	27.1
4	8.5	6.8	7.5	12.0	28.6	14.7
5	1.8	1.4	1.2	1.7	6.5	3.0
6+	0.7	1.0	0.6	1.0	4.7	2.0
Non-numeric response	6.8	5.0	4.6	6.4	11.9	7.4
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	6,576	10,456	15,212	14,341	19,243	65,829
Mean ideal number[2]	2.5	2.4	2.4	2.8	3.4	2.8
Number of women giving numeric response	6,130	9,933	14,515	13,422	16,956	60,956

Asking a question on ideal family size is sometimes criticized on the grounds that women tend to adjust their ideal family size upward as the number of their living children increases, in a process of rationalizing previously unwanted children as wanted. It is argued that the question on ideal family size prompts many women to state the actual number of children they already have as their ideal. It is evident from Table 4.21, however, that this is not so for many women in India. Among women with four or more living children, for example, 51 percent state that fewer than four children would be ideal. Similarly, among women with three living children, 43 percent state that their ideal family size is smaller than three children. It is evident that a large proportion of women already have more children than they now consider ideal. This proportion may be taken as another indicator of surplus or unwanted fertility.

Table 4.21 Ideal and actual number of children (contd.)

Percent distribution of ever-married women by ideal number of children, and mean ideal number of children, by number of living children and residence, India, 1998–99

	Number of living children[1]					
Ideal number of children	0	1	2	3	4+	Total
			TOTAL			
0	0.1	0.1	0.0	0.1	0.2	0.1
1	8.4	11.2	4.2	2.4	0.9	4.5
2	54.8	59.5	66.3	40.8	24.3	47.0
3	20.9	17.6	17.9	38.1	25.9	24.7
4	7.2	5.4	6.0	10.3	26.8	12.7
5	1.5	1.1	0.9	1.5	5.8	2.5
6+	0.6	0.8	0.5	0.8	4.2	1.6
Non-numeric response	6.5	4.4	4.2	6.0	11.9	7.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	8,581	14,727	22,009	19,352	24,531	89,199
Mean ideal number[2]	2.4	2.3	2.3	2.7	3.3	2.7
Number of women giving numeric response	8,023	14,072	21,093	18,187	21,622	82,996

[1]Includes current pregnancy, if any
[2]Means are calculated excluding women who gave non-numeric responses.

Table 4.22 shows the mean ideal number of children for ever-married women by age according to selected background characteristics. The mean ideal family size increases gradually from 2.5 children for women age 15–24 to 2.9 children for women age 45–49. Ideal family size is 2.3 children in urban areas and 2.8 children in rural areas. The average ideal number of children ranges from 2.1 for women with at least a high school education to 2.9 for illiterate women. Among religious groups, it ranges from 2.2 for Sikh and Jain women to 3.1 for Muslim women. By caste/tribe, the ideal ranges from 2.5 children for the 'other' category to 3.0 children for scheduled-tribe women. The ideal number of children does not vary much by the work status of the woman. The ideal family size ranges from 2.3 children for women living in households with a high standard of living to 2.9 children for women living in households with a low standard of living. Women whose husbands are illiterate have a much higher ideal number of children (3.0) than women whose husbands have at least completed higher secondary school (2.2).

Table 4.23 shows how ideal family size varies by state. The mean ideal number of children ranges from 2.0 in Tamil Nadu to 4.7 in Meghalaya. A majority of states have a mean ideal family size between 2.0 and 2.7 children. Meghalaya, Mizoram, and Nagaland all have a mean ideal number of children of 4.0 or higher. Other states with a mean ideal family size of more than 3.0 children are Manipur, Bihar, Arunachal Pradesh, and Uttar Pradesh.

Table 4.22 Ideal number of children by background characteristics

Mean ideal number of children reported by ever-married women, according to current age and selected background characteristics, India, 1998–99

Background characteristic	Current age							Total
	15–19	20–24	25–29	30–34	35–39	40–44	45–49	
Residence								
Urban	2.2	2.2	2.2	2.3	2.4	2.4	2.5	2.3
Rural	2.6	2.6	2.7	2.8	2.9	3.0	3.1	2.8
Education								
Illiterate	2.8	2.8	2.9	3.0	3.0	3.1	3.2	2.9
Literate, < middle school complete	2.3	2.3	2.4	2.5	2.5	2.6	2.7	2.5
Middle school complete	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.2
High school complete and above	2.1	2.0	2.0	2.0	2.1	2.1	2.2	2.1
Religion								
Hindu	2.5	2.4	2.5	2.6	2.7	2.8	2.9	2.6
Muslim	2.8	2.8	3.0	3.1	3.3	3.4	3.6	3.1
Christian	2.4	2.6	2.5	2.6	2.8	2.8	3.1	2.7
Sikh	2.2	2.1	2.1	2.2	2.3	2.4	2.5	2.2
Jain	*	(1.9)	2.1	2.0	2.1	(2.3)	2.6	2.2
Buddhist/Neo-Buddhist	(2.2)	2.2	2.2	2.3	2.5	2.6	2.6	2.3
Other	(2.8)	2.6	2.6	3.2	2.8	3.4	(3.3)	2.9
No religion	*	(3.8)	(3.4)	(4.3)	(5.5)	*	*	4.0
Caste/tribe								
Scheduled caste	2.6	2.5	2.7	2.7	2.9	2.9	3.1	2.7
Scheduled tribe	2.8	2.8	3.0	3.2	3.2	3.2	3.4	3.0
Other backward class	2.5	2.5	2.6	2.6	2.7	2.8	2.9	2.6
Other	2.5	2.4	2.4	2.5	2.6	2.7	2.8	2.5
Work status								
Working in family farm/business	2.5	2.6	2.7	2.9	2.9	3.0	3.2	2.8
Employed by someone else	2.5	2.5	2.6	2.6	2.7	2.7	2.7	2.6
Self-employed	2.6	2.5	2.5	2.6	2.7	2.6	2.9	2.6
Not worked in past 12 months	2.5	2.5	2.5	2.6	2.7	2.8	3.0	2.6
Standard of living index								
Low	2.7	2.7	2.8	3.0	3.0	3.0	3.2	2.9
Medium	2.5	2.5	2.6	2.7	2.8	2.9	3.0	2.7
High	2.2	2.1	2.1	2.2	2.3	2.4	2.6	2.3
Husband's education								
Illiterate	2.7	2.8	2.9	3.0	3.1	3.1	3.2	3.0
Literate, < primary school complete	2.6	2.6	2.7	2.8	2.9	2.9	3.1	2.8
Primary school complete	2.5	2.5	2.7	2.7	2.7	2.8	2.9	2.7
Middle school complete	2.5	2.5	2.5	2.6	2.7	2.7	2.9	2.6
High school complete	2.4	2.3	2.4	2.5	2.5	2.6	2.6	2.5
Higher secondary complete and above	2.3	2.2	2.2	2.2	2.3	2.4	2.5	2.2
Total	2.5	2.5	2.6	2.7	2.7	2.8	2.9	2.7

Note: Means are calculated excluding women who gave non-numeric responses. Total includes women with missing information on education, religion, caste/tribe, work status, the standard of living index, and husband's education, who are not shown separately.
( ) Based on 25–49 unweighted cases
*Mean not shown; based on fewer than 25 unweighted cases

Table 4.23 Ideal number of children by state

Mean ideal number of children reported by ever-married women, according to current age and state, India, 1998–99

State	Current age							Total
	15–19	20–24	25–29	30–34	35–39	40–44	45–49	
India	2.5	2.5	2.6	2.7	2.7	2.8	2.9	2.7
North								
Delhi	2.3	2.2	2.2	2.4	2.4	2.5	2.5	2.4
Haryana	2.1	2.3	2.4	2.5	2.6	2.8	3.1	2.5
Himachal Pradesh	2.0	2.1	2.1	2.1	2.2	2.3	2.4	2.2
Jammu & Kashmir	2.4	2.5	2.5	2.7	2.8	2.8	2.9	2.7
Punjab	2.1	2.1	2.2	2.2	2.3	2.4	2.5	2.3
Rajasthan	2.5	2.6	2.7	2.8	3.0	3.0	3.2	2.8
Central								
Madhya Pradesh	2.7	2.7	2.9	3.0	3.0	3.1	3.3	2.9
Uttar Pradesh	2.9	2.9	3.1	3.2	3.3	3.4	3.5	3.1
East								
Bihar	2.9	3.0	3.2	3.4	3.4	3.5	3.7	3.3
Orissa	2.5	2.5	2.6	2.7	2.8	2.8	3.0	2.7
West Bengal	2.2	2.1	2.3	2.4	2.5	2.5	2.9	2.4
Northeast								
Arunachal Pradesh	2.9	3.0	3.1	3.2	3.5	3.7	3.5	3.2
Assam	2.6	2.6	2.8	2.9	3.1	3.3	3.3	2.9
Manipur	(2.9)	3.2	3.4	3.6	3.8	3.9	4.1	3.6
Meghalaya	(4.6)	4.4	4.3	4.9	5.0	4.8	5.5	4.7
Mizoram	(3.2)	3.5	3.7	4.1	4.3	4.5	4.8	4.0
Nagaland	(3.7)	3.5	3.7	3.8	4.3	4.6	4.9	4.0
Sikkim	(2.0)	1.9	2.1	2.2	2.5	2.5	2.8	2.2
West								
Goa	*	2.3	2.1	2.1	2.3	2.6	2.6	2.3
Gujarat	2.4	2.4	2.4	2.4	2.6	2.6	2.6	2.5
Maharashtra	2.2	2.2	2.3	2.3	2.4	2.4	2.5	2.3
South								
Andhra Pradesh	2.2	2.1	2.3	2.4	2.6	2.8	3.0	2.4
Karnataka	2.2	2.2	2.1	2.2	2.2	2.3	2.3	2.2
Kerala	2.9	2.4	2.4	2.4	2.6	2.7	2.7	2.5
Tamil Nadu	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.0

Note: Means are calculated excluding women who gave non-numeric responses.
( ) Based on 25–49 unweighted cases
*Mean not shown; based on fewer than 25 unweighted cases

4.12 Sex Preference for Children

A strong preference for sons has been found to be pervasive in Indian society, affecting both attitudes and behaviour with respect to children (Arnold et al., 1998; Arnold, 1996; Basu, 1989; Das Gupta, 1987; Kishor, 1995; Koenig and Foo, 1992; Murthi et al., 1995; Nag, 1991; Parasuraman et al., 1994). In NFHS-2, women who gave a numerical response to the question on ideal number of children were also asked how many of these children they would like to be boys, how many they would like to be girls, and for how many the sex would not matter. Table 4.24 shows the mean ideal number of sons and daughters, the percentage who desire more sons than

Table 4.24 Indicators of sex preference

Mean ideal number of sons, daughters, and children of either sex for ever-married women, percentage who want more sons than daughters, percentage who want more daughters than sons, percentage who want at least one son, and percentage who want at least one daughter by selected background characteristics, India, 1998–99

Background characteristic	Mean ideal number of: Sons	Daughters	Either sex	Percentage who want more sons than daughters	Percentage who want more daughters than sons	Percentage who want at least one son	Percentage who want at least one daughter	Number of women
Residence								
Urban	1.1	0.8	0.4	22.6	2.5	76.9	72.7	22,027
Rural	1.5	1.0	0.3	37.0	2.1	88.1	82.8	60,911
Education								
Illiterate	1.6	1.1	0.3	41.7	2.0	90.2	84.8	47,104
Literate, < middle school complete	1.2	0.9	0.4	27.7	2.2	83.2	78.7	16,289
Middle school complete	1.0	0.8	0.4	21.5	2.1	80.0	75.6	7,135
High school complete and above	0.8	0.7	0.5	14.6	3.0	71.0	67.0	12,401
Religion								
Hindu	1.3	0.9	0.3	33.6	2.0	85.3	80.1	68,574
Muslim	1.6	1.1	0.4	34.4	2.8	85.3	82.2	9,582
Christian	1.2	1.0	0.5	20.0	5.2	77.6	74.1	2,036
Sikh	1.2	0.8	0.3	30.1	0.8	86.7	76.1	1,393
Jain	1.0	0.8	0.4	18.3	1.5	81.1	75.7	326
Buddhist/Neo-Buddhist	1.1	0.9	0.3	25.1	2.1	83.2	78.2	654
Other	1.6	1.2	0.2	32.5	3.9	93.5	89.0	259
No religion	2.0	1.9	0.1	22.1	15.6	87.1	89.3	42
Caste/tribe								
Scheduled caste	1.5	1.0	0.3	37.9	1.8	87.3	82.1	15,232
Scheduled tribe	1.6	1.2	0.2	38.0	3.6	91.5	86.6	7,313
Other backward class	1.3	0.9	0.4	32.5	1.9	83.7	79.4	27,169
Other	1.3	0.9	0.3	30.0	2.3	83.6	78.2	32,455
Work status								
Working in family farm/business	1.5	1.0	0.3	39.6	2.1	89.2	83.0	11,861
Employed by someone else	1.3	0.9	0.4	30.8	2.6	82.8	78.0	16,051
Self-employed	1.3	1.0	0.3	30.7	3.4	83.1	78.6	4,153
Not worked in past 12 months	1.4	1.0	0.3	32.6	2.0	85.0	80.3	50,855
Standard of living index								
Low	1.5	1.1	0.3	38.4	2.3	89.0	84.1	26,517
Medium	1.4	1.0	0.3	34.3	2.0	85.7	80.7	38,378
High	1.0	0.8	0.4	22.5	2.5	77.5	72.8	17,067

Contd…

Table 4.24 Indicators of sex preference (contd.)

Mean ideal number of sons, daughters, and children of either sex for ever-married women, percentage who want more sons than daughters, percentage who want more daughters than sons, percentage who want at least one son, and percentage who want at least one daughter by selected background characteristics, India, 1998–99

Background characteristic	Mean ideal number of: Sons	Daughters	Either sex	Percentage who want more sons than daughters	Percentage who want more daughters than sons	Percentage who want at least one son	Percentage who want at least one daughter	Number of women
Husband's education								
Illiterate	1.6	1.1	0.3	40.2	2.1	89.4	84.2	24,572
Literate, < primary school complete	1.4	1.0	0.3	34.9	2.7	87.5	82.7	7,395
Primary school complete	1.4	1.0	0.3	33.3	2.1	85.3	80.3	13,558
Middle school complete	1.3	0.9	0.3	33.7	2.0	86.1	80.9	11,348
High school complete	1.2	0.9	0.3	28.8	2.1	83.3	78.1	12,290
Higher secondary complete and above	1.0	0.8	0.4	23.0	2.5	76.6	72.4	13,545
Total	1.4	1.0	0.3	33.2	2.2	85.1	80.1	82,939

Note: Table excludes women who gave non-numeric responses to the questions on ideal number of children or ideal number of sons or daughters. Total includes 11, 73, 770, 18, 976, and 230 women with missing information on education, religion, caste/tribe, work status, the standard of living index, and husband's education, respectively, who are not shown separately.

daughters, the percentage who desire more daughters than sons, the percentage who desire at least one son, and the percentage who desire at least one daughter, according to selected background characteristics. The table shows a consistent preference for sons over daughters. Overall, the average ideal family size of 2.7 children consists of 1.4 sons, 1.0 daughters, and 0.3 children of either sex.

Thirty-three percent of women want more sons than daughters, but only 2 percent want more daughters than sons. The indicator on the percentage who want at least one son and at least one daughter exhibits the weakest son preference. Eighty-five percent want at least one son among their children, and nearly as many (80 percent) want at least one daughter. One reason that a substantial proportion of women want to have at least one daughter despite having a preference for sons is to fulfil the Hindu religious obligation of *kanyadan* (giving a daughter away at the time of her marriage), which is one of the acts that enable the parents to acquire the highest level of merit (*punya*).

Son preference is relatively weak in urban areas, among literate women, among women with more education and whose husbands have more education, and among women living in households with a high standard of living. Son preference is somewhat weaker among Christian and Jain women than among women of other religions. Son preference does not vary much by caste/tribe or woman's work status.

Table 4.25 shows how son preference varies by state. According to these measures, son preference is evident in every state. Son preference tends to be stronger in the northern part of the country than elsewhere, especially in Uttar Pradesh, Rajasthan, Bihar, Haryana, Madhya Pradesh, Orissa, and Arunachal Pradesh. The weakest son preference is found in Meghalaya, Mizoram, Tamil Nadu, Kerala, Karnataka, and Goa. The proportion who want more sons than daughters

Table 4.25 Indicators of sex preference by state

Mean ideal number of sons, daughters, and children of either sex for ever-married women, percentage who want more sons than daughters, percentage who want more daughters than sons, percentage who want at least one son, and percentage who want at least one daughter, according to state, India, 1998–99

State	Mean ideal number of:			Percentage who want more sons than daughters	Percentage who want more daughters than sons	Percentage who want at least one son	Percentage who want at least one daughter
	Sons	Daughters	Either sex				
India	1.4	1.0	0.3	33.2	2.2	85.1	80.1
North							
Delhi	1.2	0.9	0.3	23.1	2.6	85.5	82.0
Haryana	1.4	0.9	0.3	37.5	0.5	89.8	80.9
Himachal Pradesh	1.1	0.8	0.3	25.9	0.6	87.5	79.4
Jammu & Kashmir	1.4	1.0	0.3	38.0	2.7	87.6	82.5
Punjab	1.2	0.8	0.3	29.1	0.4	86.2	78.0
Rajasthan	1.6	1.1	0.1	47.5	1.3	95.7	89.4
Central							
Madhya Pradesh	1.5	1.0	0.3	42.5	2.9	87.8	82.4
Uttar Pradesh	1.8	1.1	0.2	53.3	1.4	94.1	89.3
East							
Bihar	1.9	1.3	0.1	47.9	2.1	97.2	93.6
Orissa	1.5	1.0	0.2	37.6	2.1	92.8	85.3
West Bengal	1.1	0.9	0.4	20.7	3.4	79.9	75.5
Northeast							
Arunachal Pradesh	1.8	1.3	0.1	41.9	2.5	93.5	90.5
Assam	1.6	1.2	0.1	38.2	2.9	94.5	91.0
Manipur	1.9	1.6	0.1	36.5	4.8	96.2	93.0
Meghalaya	2.3	2.2	0.2	20.9	16.9	94.7	93.6
Mizoram	2.0	1.9	0.1	26.0	19.0	97.6	97.1
Nagaland	2.0	1.7	0.3	32.7	6.3	91.6	88.7
Sikkim	1.1	0.9	0.3	22.4	3.1	83.4	77.6
West							
Goa	0.9	0.8	0.7	17.0	5.1	67.9	64.9
Gujarat	1.2	0.8	0.5	33.2	1.8	78.9	68.1
Maharashtra	1.2	0.9	0.3	27.1	1.9	84.5	79.3
South							
Andhra Pradesh	1.0	0.8	0.5	19.8	2.7	76.0	71.3
Karnataka	0.9	0.8	0.5	13.0	1.9	70.0	67.5
Kerala	1.0	0.8	0.7	14.6	5.2	72.6	70.7
Tamil Nadu	0.8	0.7	0.6	9.6	1.9	66.3	63.9

Note: Table excludes women who gave non-numeric responses to the questions on ideal number of children or ideal number of sons or daughters.

ranges from 10 percent in Tamil Nadu to 53 percent in Uttar Pradesh. In all states except Meghalaya and Mizoram, the proportion wanting more daughters than sons is 6 percent or lower. This proportion is 19 percent in Mizoram and 17 percent in Meghalaya.

4.13 Fertility Planning

For each child born in the three years before the survey and for each current pregnancy, NFHS-2 asked women whether the pregnancy was wanted at that time (planned), wanted at a later time

(mistimed), or not wanted at all. Because a woman may retrospectively describe an unplanned pregnancy as one that was wanted at that time, responses to these questions may lead to an underestimation of unplanned childbearing. Nevertheless, this information provides a potentially powerful indicator of the degree to which couples successfully control childbearing. It should be noted that the proportion unplanned is influenced not only by whether, and how effectively, couples use contraception, but also by the couple's ideal family size.

Table 4.26 shows the percent distribution of births during the three years preceding the survey and current pregnancies according to fertility planning status. Twenty-one percent of all pregnancies that resulted in live births in the three years preceding the survey (including current pregnancies) were unplanned (that is, unwanted at the time the woman became pregnant). Twelve percent were wanted later and 9 percent were not wanted at all. The proportion of births that were unplanned is highest for births to women age 45–49 (47 percent) and lowest for births to women below age 20 (15 percent). Within the unplanned category, the proportion of births that were wanted later goes down and the proportion that were not wanted at all goes up with the age of the mother. The proportion of births that were unplanned is almost the same in urban areas and rural areas. By education, the proportion unplanned is slightly lower for births to women with at least a high school education (19 percent) than for births to women in the other education groups (21–23 percent). Among the religions, the proportion unplanned ranges from 15 percent for Sikhs to 28 percent for Buddhists. For the two largest religions, it is 20 percent for Hindus and 27 percent for Muslims. Scheduled-tribe women have a slightly lower proportion of unplanned births than women do in other caste/tribe groups. The proportion of pregnancies that are unplanned ranges from 19 percent for births to women living in households with a high standard of living to 22 percent for births to women living in households with a medium or low standard of living. Large variations in the planning status of births are seen by the birth order of the child. Unplanned pregnancies range from 14 percent for first-order births to 33 percent for births of order four or higher.

The impact of unwanted fertility can be measured by comparing the total wanted fertility rate with the total fertility rate (TFR). The total wanted fertility rate represents the level of fertility that theoretically would result if all unwanted births were prevented. A comparison of the TFR with the total wanted fertility rate indicates the potential demographic impact of the elimination of all unwanted births. The total wanted fertility rates presented in Table 4.27 are calculated in the same way as the TFR except that unwanted births are excluded from the numerator. In this case, a birth is considered unwanted if the number of living children at the time of conception was greater than or equal to the ideal number of children reported by the respondent at the time of the survey. Women who did not give a numeric response to the question on ideal number of children are assumed to have wanted all the births they had.

Overall, the total wanted fertility rate of 2.13 is lower by 0.72 child (i.e., by 25 percent) than the total fertility rate of 2.85. This means that if unwanted births could be eliminated, the TFR would drop to the replacement level of fertility (approximately 2.1 children per woman). Women living in urban areas, literate women, Sikh, Jain, and Buddhist women, and women living in households with a high standard of living would have well under two children, on average, under these circumstances. The difference between the total fertility rate and the total wanted fertility rate is somewhat larger for rural women (0.79 children) than for urban women (0.54 children). The difference is also relatively large for illiterate women, Muslims, scheduled-caste women, and women living in households with a low standard of living.

Table 4.26 Fertility planning

Percent distribution of births during the three years preceding the survey and current pregnancies by fertility planning status, according to selected background characteristics, India, 1998–99

Background characteristic	Planning status of pregnancy				Total percent	Number of births and current pregnancies
	Wanted then	Wanted later	Not wanted at all	Missing		
Mother's age at birth[1]						
< 20	84.4	13.8	1.5	0.3	100.0	8,972
20–24	81.0	13.5	5.2	0.2	100.0	15,217
25–29	76.1	10.3	13.3	0.3	100.0	9,203
30–34	68.1	7.3	24.3	0.2	100.0	3,674
35–39	58.9	5.4	35.1	0.5	100.0	1,262
40–44	52.3	4.5	41.9	1.2	100.0	289
45–49	53.1	4.8	42.1	0.0	100.0	46
Residence						
Urban	77.6	13.1	9.1	0.2	100.0	8,590
Rural	78.6	11.5	9.5	0.3	100.0	30,072
Mother's education						
Illiterate	78.5	9.7	11.4	0.3	100.0	22,596
Literate, < middle school complete	76.8	14.8	8.2	0.2	100.0	7,003
Middle school complete	76.5	16.9	6.4	0.3	100.0	3,539
High school complete and above	81.3	13.8	4.8	0.1	100.0	5,518
Religion						
Hindu	79.6	11.3	8.8	0.3	100.0	30,604
Muslim	72.4	14.3	13.0	0.2	100.0	6,122
Christian	77.2	15.8	6.7	0.3	100.0	890
Sikh	85.1	7.5	7.1	0.3	100.0	541
Jain	78.2	19.3	2.4	0.0	100.0	100
Buddhist/Neo-Buddhist	72.0	17.4	10.6	0.0	100.0	233
Other	71.1	21.6	3.8	3.5	100.0	106
No religion	65.6	20.6	13.8	0.0	100.0	28
Caste/tribe						
Scheduled caste	77.2	11.5	11.0	0.4	100.0	7,687
Scheduled tribe	81.6	10.2	7.7	0.4	100.0	3,726
Other backward class	79.1	11.8	8.9	0.2	100.0	12,435
Other	77.8	12.5	9.5	0.2	100.0	14,345
Standard of living index						
Low	77.9	10.9	10.9	0.4	100.0	13,970
Medium	78.2	12.1	9.4	0.2	100.0	18,111
High	80.5	13.1	6.2	0.2	100.0	6,095
Birth order[2]						
1	86.2	10.9	2.6	0.2	100.0	13,565
2	80.7	16.0	3.0	0.3	100.0	9,199
3	76.6	13.1	10.0	0.3	100.0	6,234
4+	66.4	8.7	24.7	0.3	100.0	9,664
Total	78.4	11.9	9.4	0.3	100.0	38,662

Note: Table includes only the two most recent births in the three years preceding the survey. Total includes 6, 39, 469, and 487 births with missing information on mother's education, religion, caste/tribe, and the standard of living index, respectively, which are not shown separately.
[1]For current pregnancy, estimated maternal age at birth
[2]Includes current pregnancy, if any

Table 4.27 Wanted fertility rates

Total wanted fertility rate and total fertility rate for the three years preceding the survey by selected background characteristics, India, 1998–99

Background characteristic	Total wanted fertility rate	Total fertility rate
Residence		
Urban	1.73	2.27
Rural	2.28	3.07
Education		
Illiterate	2.54	3.47
Literate, < middle school complete	1.99	2.64
Middle school complete	1.81	2.26
High school complete and above	1.68	1.99
Religion		
Hindu	2.08	2.78
Muslim	2.54	3.59
Christian	2.07	2.44
Sikh	1.62	2.26
Jain	1.70	1.90
Buddhist/Neo-Buddhist	1.57	2.13
Other	1.70	2.33
No religion	3.21	3.91
Caste/tribe		
Scheduled caste	2.26	3.15
Scheduled tribe	2.30	3.06
Other backward class	2.15	2.83
Other	2.00	2.66
Standard of living index		
Low	2.42	3.37
Medium	2.13	2.85
High	1.70	2.10
Total	2.13	2.85

Note: Rates are based on births in the period 1–36 months preceding the survey to women age 15–49. The total fertility rates are the same as those presented in Table 4.4. Total includes women with missing information on education, religion, caste/tribe, and the standard of living index, who are not shown separately.

Table 4.28 shows how the total wanted fertility rate varies by state. Total wanted fertility ranges from a very low level of 1.47 children per woman in Goa to 3.83 in Meghalaya. Among the major states, total wanted fertility is highest in Uttar Pradesh, at 2.83 children per woman. The difference between the total fertility rate and the total wanted fertility rate ranges from 0.15 child in Kerala to 1.21 children in Rajasthan. Besides Rajasthan, the difference is more than one child in Uttar Pradesh and Sikkim. Both the TFR and the wanted TFR decreased between NFHS-1 and NFHS-2, but the difference between the two rates has remained virtually unchanged.

Table 4.28 Wanted fertility rates by state

Total wanted fertility rate and total fertility rate for the three years preceding the survey by state, India, 1998–99

State	Total wanted fertility rate	Total fertility rate
India	2.13	2.85
North		
Delhi	1.72	2.40
Haryana	2.10	2.88
Himachal Pradesh	1.50	2.14
Jammu & Kashmir	1.74	2.71
Punjab	1.55	2.21
Rajasthan	2.57	3.78
Central		
Madhya Pradesh	2.40	3.31
Uttar Pradesh	2.83	3.99
East		
Bihar	2.58	3.49
Orissa	1.90	2.46
West Bengal	1.78	2.29
Northeast		
Arunachal Pradesh	1.74	2.52
Assam	1.75	2.31
Manipur	2.50	3.04
Meghalaya	3.83	4.57
Mizoram	2.66	2.89
Nagaland	2.98	3.77
Sikkim	1.65	2.75
West		
Goa	1.47	1.77
Gujarat	2.08	2.72
Maharashtra	1.87	2.52
South		
Andhra Pradesh	1.88	2.25
Karnataka	1.56	2.13
Kerala	1.81	1.96
Tamil Nadu	1.71	2.19

Note: Rates are based on births in the period 1–36 months preceding the survey to women age 15–49. The total fertility rates are the same as those presented in Table 4.3.

CHAPTER 5

FAMILY PLANNING

The National Family Welfare Programme in India has traditionally sought 'to promote responsible and planned parenthood through voluntary and free choice of family planning methods best suited to individual acceptors' (Ministry of Health and Family Welfare, 1998a). In April 1996, the programme was renamed the Reproductive and Child Health Programme and given a new orientation to meet the health needs of women and children more completely. The programme now aims to cover all aspects of women's reproductive health throughout their lives. With regard to family planning, the new approach emphasizes the target-free promotion of contraceptive use among eligible couples, the provision to couples of a choice of contraceptive methods (including condoms, oral pills, IUDs, and male and female sterilization), and the assurance of high-quality care. An important component of the programme is the encouragement of adequate spacing of births, with at least three years between births (Ministry of Health and Family Welfare, n.d.).

The new National Population Policy, 2000, adopted by the Government of India has set as its immediate objective the task of addressing unmet need for contraception in order to achieve the medium-term objective of bringing the total fertility rate down to replacement level by the year 2010. One of the 14 national socio-demographic goals identified for this purpose is to achieve universal access to information/counselling and services for fertility regulation and contraception with a wide range of choices (Ministry of Health and Family Welfare, 2000).

Information about knowledge and use of contraceptive methods provided in this chapter is designed to be of practical relevance to programme administrators and policymakers responsible for monitoring existing programmes and formulating new strategies to meet the health and family planning needs of the population. The chapter begins with an appraisal of women's knowledge of contraceptive methods and then discusses women's past and present use of contraception and sources of supply of modern contraceptive methods. Special attention is focused on reasons for discontinuation and nonuse of contraception and on intentions to use family planning methods in the future. The chapter also contains information on exposure to family planning messages through the media and on discussions about family planning with relatives and friends.

5.1 Knowledge of Family Planning Methods

Lack of knowledge of contraceptive methods can be a major obstacle to their use. In NFHS-2, interviewers obtained information on knowledge and ever use of contraceptive methods by asking each respondent the following question: 'Now I would like to talk about family planning—the various ways or methods that a couple can use to delay or avoid a pregnancy. For each method I mention, please tell me if you have ever heard of the method and whether you have ever used the method at any time in your life?' If a respondent did not recognize the name of a method, a short description was read. In this way, the survey assesses women's knowledge and ever use of seven contraceptive methods, namely the pill, condom, IUD, female sterilization, male sterilization, rhythm or safe-period method, and withdrawal. In addition, the survey

Table 5.1 Knowledge of contraceptive methods

Percentage of currently married women who know any contraceptive method by specific method and residence, India, 1998–99

Method	Urban	Rural	Total
Any method	99.7	98.7	99.0
Any modern method	99.7	98.6	98.9
Pill	91.5	75.2	79.5
IUD	87.8	64.6	70.6
Condom	88.0	64.9	71.0
Female sterilization	99.3	97.8	98.2
Male sterilization	93.6	87.8	89.3
Any traditional method	60.3	44.9	48.9
Rhythm/safe period	56.7	41.0	45.1
Withdrawal	41.1	27.7	31.2
Other method[1]	3.1	2.6	2.7
Number of women	21,888	61,761	83,649

[1]Includes both modern and traditional methods that are not listed separately

collected information on respondents' knowledge and ever use of any other contraceptive methods (modern, traditional, or folkloric).

Table 5.1 shows the extent of knowledge of contraceptive methods among currently married women by specific method and urban-rural residence. Knowledge of contraceptive methods is nearly universal in India, with 99 percent of currently married women recognizing at least one method of contraception and at least one modern method of contraception.

Female sterilization is the most widely known method of contraception in India, followed by male sterilization. Overall, 98 percent of currently married women know about female sterilization and 89 percent know about male sterilization. There is little difference by residence in knowledge of female sterilization, but 94 percent of urban women know about male sterilization compared with 88 percent of rural women. Knowledge of the officially-sponsored spacing methods (pill, IUD, and condom) is much less widespread. The best-known spacing method is the pill, which is known by 80 percent of currently married women, followed by the condom and IUD (71 percent each). Although knowledge of these spacing methods is lower than knowledge of sterilization, the results indicate that knowledge of spacing methods has increased since NFHS-1. At the time of NFHS-1, only 66 percent of currently married women knew about the pill, 61 percent knew about IUDs, and 58 percent knew about condoms.

There are large differences in knowledge of spacing methods by residence. Seventy-five percent of rural women know about pills compared with 92 percent of urban women. For IUDs and condoms, the corresponding proportions are 65 and 88 percent.

Traditional methods of contraception are less well known than modern methods. Forty-nine percent of currently married women report knowledge of a traditional method, with the rhythm/safe period method being better known (45 percent) than withdrawal (31 percent). Knowledge of traditional methods is much higher in urban areas (60 percent) than in rural areas

(45 percent). Between NFHS-1 and NFHS-2, knowledge of traditional methods increased from 39 percent to 49 percent.

Interstate Variations in Knowledge

Interstate variations in knowledge of contraception are shown in Table 5.2. Knowledge of any method of contraception as well as any modern method is nearly universal in all states except Meghalaya and Nagaland, where the proportion of currently married women knowing any method or any modern method is 88 percent. Knowledge of female sterilization is also nearly universal, except in Meghalaya, where the proportion knowing the method is 79 percent, and Nagaland, where it is 83 percent. The proportion knowing about male sterilization ranges from 48 percent in Meghalaya to nearly 100 percent in Himachal Pradesh. States with less than 80 percent reporting knowledge of male sterilization are Meghalaya, Nagaland, Arunachal Pradesh, Karnataka, Goa, and Mizoram. There are wide variations among the states in the extent of knowledge of temporary modern methods. For pills the proportion with knowledge varies from 60 percent in Andhra Pradesh to 99 percent in Delhi. For IUDs it varies from 50 percent in Madhya Pradesh to 97 percent in Punjab. For condoms it varies from 48 percent in Andhra Pradesh to 97 percent in Delhi and Punjab. Knowledge of any traditional method exceeds 70 percent in Himachal Pradesh, Punjab, Kerala, Haryana, West Bengal, Delhi, and Sikkim.

5.2 Contraceptive Use

Ever Use of Family Planning Methods

NFHS-2 asked respondents if they had ever used each of the methods they knew about. Women who said they had not used any of the methods were asked further if they had 'ever used anything or tried in any way to delay or avoid getting pregnant'. Table 5.3 presents the pattern of ever use of family planning methods for currently married women by age and residence.

Although nearly all currently married women know at least one method of contraception, only 55 percent have ever used a method, up from 47 percent in NFHS-1. Forty-nine percent of currently married women have ever used a modern method, and 12 percent have ever used a traditional method. Ever use of any method is higher in urban areas (67 percent) than in rural areas (51 percent). Ever use of both modern methods and traditional methods is also higher in urban areas. The most commonly used method is female sterilization, which has been adopted by 34 percent of currently married women, compared with 2 percent who have adopted male sterilization. Six to 8 percent have ever used each modern spacing method (the pill, condom, or IUD). Ever use of each method of family planning is higher in urban than in rural areas, except for ever use of male sterilization, which shows almost no variation by place of residence. Ever use of IUDs and condoms is more than three times higher among urban women than among rural women.

Table 5.2 Knowledge of contraceptive methods by state

Percentage of currently married women who know any contraceptive method by specific method and state, India, 1998–99

State	Any method	Any modern method	Pill	IUD	Con-dom	Female ster-ilization	Male ster-ilization	Any traditional method	Rhythm/ safe period	With-drawal	Other method[1]
India	99.0	98.9	79.5	70.6	71.0	98.2	89.3	48.9	45.1	31.2	2.7
North											
Delhi	99.7	99.7	98.7	95.3	97.4	99.2	99.1	73.1	69.2	54.2	2.1
Haryana	99.9	99.8	93.9	90.3	92.1	99.5	97.1	77.5	70.6	65.5	2.8
Himachal Pradesh	100.0	100.0	93.9	92.3	93.6	100.0	99.8	90.9	87.9	68.3	1.4
Jammu & Kashmir	98.8	98.8	81.8	77.0	76.9	98.3	94.0	54.2	37.0	42.6	8.0
Punjab	100.0	100.0	96.5	96.9	97.1	99.9	98.8	78.3	72.7	63.1	2.1
Rajasthan	98.8	98.7	79.0	69.3	74.4	97.8	90.7	32.2	29.5	17.3	1.8
Central											
Madhya Pradesh	97.8	97.8	67.0	50.1	55.5	96.6	80.6	31.1	29.5	13.6	2.3
Uttar Pradesh	98.4	98.3	84.7	73.5	83.1	97.4	92.5	60.2	54.8	33.0	3.0
East											
Bihar	99.2	99.2	74.9	58.7	64.3	98.9	97.3	39.5	36.2	24.4	3.4
Orissa	98.6	98.3	75.4	55.3	53.1	97.7	90.2	52.0	46.3	43.0	3.5
West Bengal	99.6	99.4	92.5	72.7	78.9	98.3	83.7	74.7	67.5	61.6	3.0
Northeast											
Arunachal Pradesh	98.1	98.1	84.9	75.1	68.9	96.9	63.3	33.4	32.6	17.4	4.2
Assam	98.4	98.3	87.3	70.3	71.2	96.3	85.0	65.8	61.5	50.3	5.9
Manipur	95.1	94.9	82.3	85.3	74.6	93.4	90.1	67.2	55.2	56.9	7.7
Meghalaya	88.4	87.9	75.9	62.4	67.8	78.6	47.9	48.2	45.0	33.7	14.4
Mizoram	97.8	97.8	88.1	86.8	91.2	96.8	78.5	54.6	52.2	40.1	0.5
Nagaland	88.0	87.5	73.7	77.1	68.3	83.0	59.3	67.0	64.5	58.4	1.1
Sikkim	99.4	99.4	89.4	89.7	79.4	98.4	91.3	70.3	67.1	41.7	2.4
West											
Goa	99.7	99.7	89.7	79.6	86.7	98.8	76.7	56.8	51.4	37.7	5.7
Gujarat	98.5	98.3	72.0	76.2	68.2	97.8	81.9	56.8	54.2	35.3	5.9
Maharashtra	99.4	99.4	84.1	79.9	71.7	98.9	87.6	34.5	32.4	18.6	1.7
South											
Andhra Pradesh	98.9	98.9	60.1	50.7	48.3	98.5	90.9	15.3	14.4	7.4	1.2
Karnataka	99.4	99.3	69.0	74.4	51.1	99.0	76.5	41.9	41.5	8.4	1.1
Kerala	99.7	99.7	90.4	89.2	91.5	99.0	94.0	78.1	71.4	61.4	0.5
Tamil Nadu	99.9	99.9	82.8	86.5	79.4	99.8	93.7	51.3	48.1	35.3	3.6

[1]Includes both modern and traditional methods that are not listed separately

Ever use of any modern method increases with women's age up to age 35–39 (peaking at 67 percent) and declines at older ages. The increase in contraceptive use with age up to 35–39 reflects a life-cycle effect, with women increasingly adopting contraception as their fertility goals are met. Declining ever use of modern methods by older women reflects, at least in part, larger family size norms and lower levels of contraceptive prevalence in the past. The pattern of ever use by age is similar for urban and rural areas, although urban women are more likely to have used contraception than rural women at every age.

Table 5.3 Ever use of contraception

Percentage of currently married women who have ever used any contraceptive method by specific method, according to age and residence, India, 1998–99

Age	Any method	Any modern method	Pill	IUD	Condom	Female ster-ilization	Male ster-ilization	Any traditional method	Rhythm/ safe period	With-drawal	Other method[1]	Number of women
URBAN												
15–19	15.8	11.7	4.5	1.6	5.4	1.6	0.2	6.0	3.8	3.3	0.1	1,181
20–24	43.3	37.3	10.2	7.8	16.0	10.7	0.2	11.6	8.4	6.7	0.9	3,689
25–29	68.9	62.7	13.6	13.5	21.0	31.8	0.5	14.7	10.1	8.3	1.4	4,453
30–34	79.0	72.5	13.7	15.6	21.0	44.7	0.8	17.6	12.5	9.5	1.7	4,078
35–39	81.8	76.1	12.5	14.6	17.9	51.5	2.4	17.4	13.0	8.7	1.4	3,601
40–44	77.6	70.4	9.9	9.9	13.1	50.2	4.8	17.2	13.0	9.0	1.1	2,804
45–49	73.0	66.6	8.2	6.9	10.5	46.9	6.6	15.2	11.4	7.4	1.0	2,081
Total	67.2	61.0	11.4	11.4	16.8	36.0	1.9	15.1	10.9	8.0	1.2	21,888
RURAL												
15–19	13.0	7.6	3.4	0.6	2.9	1.5	0.0	6.8	4.7	3.7	0.1	6,833
20–24	32.9	26.2	7.8	2.8	5.2	14.1	0.2	10.5	7.5	5.3	0.4	12,241
25–29	53.5	47.5	9.2	4.8	6.4	34.2	0.7	11.6	8.6	5.9	1.0	12,602
30–34	64.8	59.4	9.7	5.5	6.1	46.7	1.3	12.1	9.4	5.5	1.4	10,208
35–39	68.3	63.4	7.7	4.4	4.7	51.6	3.1	11.3	8.7	5.1	1.4	8,451
40–44	66.8	61.8	5.6	2.4	2.8	51.1	5.3	10.5	8.3	4.8	1.3	6,559
45–49	61.2	56.1	4.2	1.7	2.1	43.0	9.0	9.1	7.0	3.9	1.6	4,867
Total	50.8	45.2	7.4	3.5	4.8	33.5	2.1	10.6	7.9	5.1	1.0	61,761
TOTAL												
15–19	13.4	8.2	3.6	0.7	3.3	1.5	0.0	6.7	4.6	3.6	0.1	8,014
20–24	35.3	28.8	8.3	3.9	7.7	13.3	0.2	10.8	7.7	5.6	0.5	15,930
25–29	57.5	51.5	10.4	7.1	10.2	33.5	0.7	12.4	9.0	6.5	1.1	17,055
30–34	68.9	63.1	10.8	8.4	10.4	46.1	1.1	13.7	10.3	6.7	1.4	14,286
35–39	72.3	67.2	9.1	7.5	8.6	51.6	2.9	13.1	9.9	6.2	1.4	12,052
40–44	70.0	64.4	6.9	4.6	5.9	50.8	5.1	12.5	9.7	6.0	1.2	9,363
45–49	64.7	59.2	5.4	3.2	4.6	44.2	8.3	10.9	8.3	5.0	1.4	6,948
Total	55.1	49.3	8.4	5.6	7.9	34.2	2.0	11.8	8.7	5.9	1.0	83,649

[1]Includes both modern and traditional methods that are not listed separately

Current Use of Family Planning Methods

Table 5.4 and Figure 5.1 provide information on current use of family planning methods for currently married women in India. Forty-eight percent of currently married women were currently using some method of contraception at the time of the survey. This level compares with 83 percent for China and 62 percent for Asia as a whole (Population Reference Bureau, 2000). The NFHS-2 estimates of current use, both overall use and use of specific methods, are close to those obtained by the national Reproductive and Child Health Household Survey, which was carried out at about the same time (International Institute for Population Sciences, 2000).

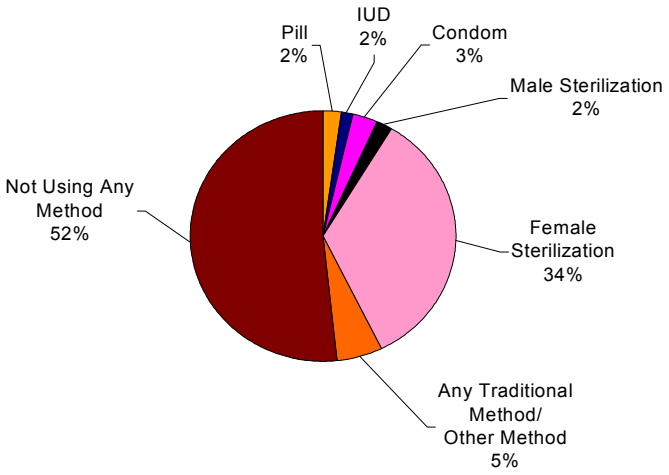
Table 5.4 Current use of contraception

Percent distribution of currently married women by contraceptive method currently used, according to age and residence, India, 1998–99

Age	Any method	Any modern method	Pill	IUD	Condom	Female ster-ilization	Male ster-ilization	Any traditional method	Rhythm/ safe period	With-drawal	Other method[1]	Not using any method	Total percent	Number of women
URBAN														
15–19	9.9	7.4	2.1	1.1	2.5	1.6	0.2	2.5	1.3	1.2	0.0	90.1	100.0	1,181
20–24	31.7	26.0	3.7	4.1	7.4	10.7	0.2	5.3	2.8	2.5	0.4	68.3	100.0	3,689
25–29	58.0	51.2	3.9	5.4	9.7	31.8	0.4	6.4	3.7	2.8	0.3	42.0	100.0	4,453
30–34	71.4	63.2	3.0	4.6	10.2	44.6	0.7	7.9	4.5	3.4	0.4	28.6	100.0	4,078
35–39	75.3	66.9	2.1	3.3	7.8	51.5	2.2	8.2	5.0	3.2	0.2	24.7	100.0	3,601
40–44	70.8	61.9	1.4	1.6	4.0	50.2	4.6	8.6	5.1	3.5	0.3	29.2	100.0	2,804
45–49	60.7	56.0	0.4	0.6	1.7	46.9	6.4	4.6	2.7	1.9	0.2	39.3	100.0	2,081
Total	58.2	51.2	2.7	3.5	7.2	36.0	1.8	6.7	3.9	2.8	0.3	41.8	100.0	21,888
RURAL														
15–19	7.7	4.2	1.2	0.4	1.2	1.5	0.0	3.5	1.7	1.7	0.0	92.3	100.0	6,833
20–24	24.3	19.8	2.5	1.1	1.9	14.1	0.2	4.4	2.7	1.8	0.1	75.7	100.0	12,241
25–29	46.2	41.2	2.5	1.5	2.4	34.1	0.6	4.6	3.0	1.7	0.4	53.8	100.0	12,602
30–34	59.2	53.5	2.3	1.4	2.0	46.7	1.1	5.2	3.2	2.0	0.6	40.8	100.0	10,208
35–39	64.0	58.2	1.7	0.9	1.2	51.6	2.8	5.1	3.2	1.9	0.6	36.0	100.0	8,451
40–44	62.4	57.8	0.7	0.4	0.7	51.1	4.9	4.1	2.7	1.4	0.4	37.6	100.0	6,559
45–49	55.7	52.5	0.3	0.3	0.3	42.9	8.7	2.7	1.8	0.9	0.5	44.3	100.0	4,867
Total	44.7	39.9	1.9	1.0	1.6	33.5	1.9	4.4	2.7	1.7	0.4	55.3	100.0	61,761
TOTAL														
15–19	8.0	4.7	1.3	0.5	1.4	1.5	0.0	3.3	1.7	1.7	0.0	92.0	100.0	8,014
20–24	26.0	21.2	2.8	1.8	3.2	13.3	0.2	4.6	2.7	1.9	0.2	74.0	100.0	15,930
25–29	49.3	43.8	2.9	2.5	4.3	33.5	0.6	5.1	3.2	1.9	0.4	50.7	100.0	17,055
30–34	62.7	56.2	2.5	2.3	4.4	46.1	1.0	6.0	3.6	2.4	0.5	37.3	100.0	14,286
35–39	67.4	60.8	1.9	1.6	3.2	51.6	2.6	6.1	3.7	2.3	0.5	32.6	100.0	12,052
40–44	64.9	59.1	1.0	0.8	1.7	50.8	4.8	5.4	3.4	2.0	0.4	35.1	100.0	9,363
45–49	57.2	53.5	0.3	0.4	0.7	44.1	8.0	3.3	2.1	1.2	0.4	42.8	100.0	6,948
Total	48.2	42.8	2.1	1.6	3.1	34.2	1.9	5.0	3.0	2.0	0.4	51.8	100.0	83,649

[1]Includes both modern and traditional methods that are not listed separately

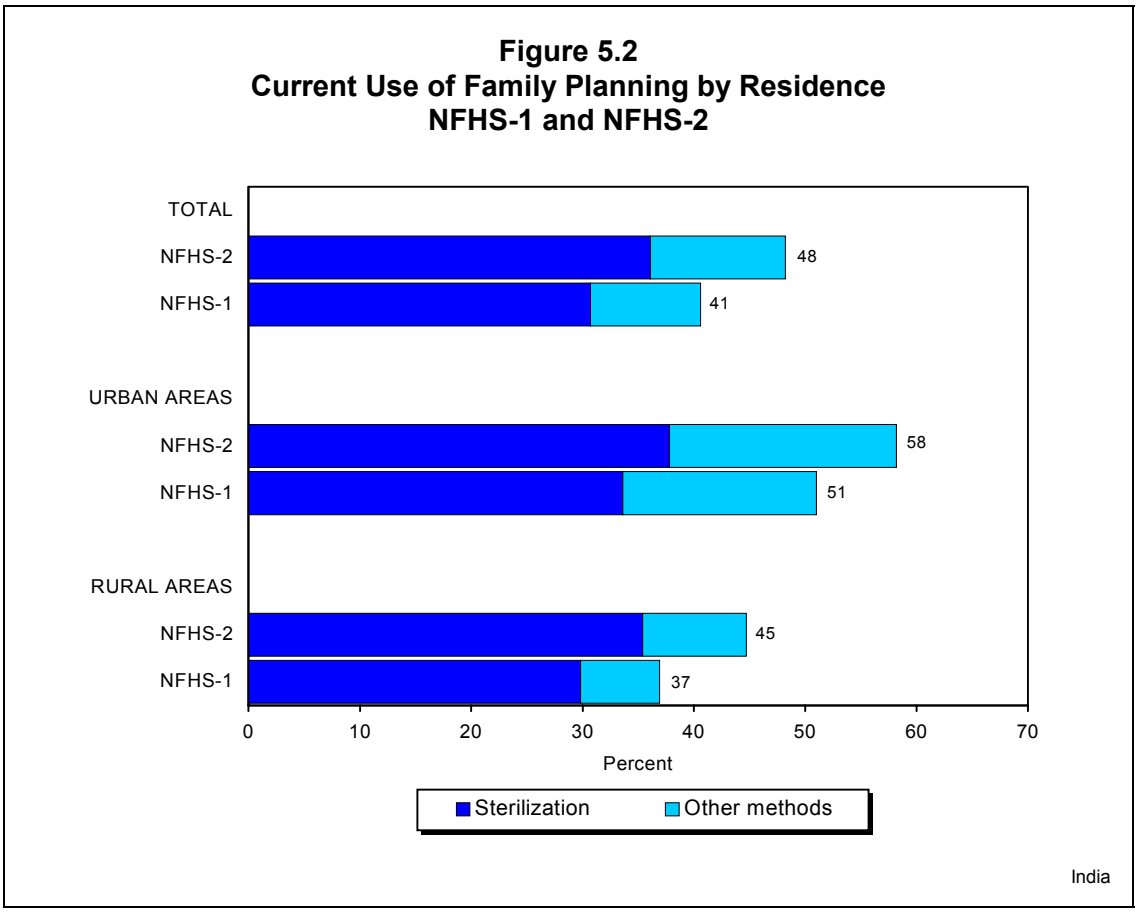
Figure 5.1
Current Use of Contraceptive Methods



NFHS-2, India, 1998–99

Table 5.4 also shows that current use of any method is considerably higher in urban areas (58 percent) than in rural areas (45 percent). Country-wide, 87 percent of ever users of contraception are current users, and 89 percent of current users are using a modern method. Thirty-four percent of currently married women are sterilized, accounting for 71 percent of total current contraceptive prevalence. Only 2 percent of currently married women reported that their husbands are sterilized. Female sterilization and male sterilization together account for 75 percent of current contraceptive prevalence. No other individual method of family planning is used by more than 4 percent of currently married women. Less than 7 percent of currently married women are currently using any of the three officially-sponsored spacing methods.

By residence, female and male sterilization together account for 65 percent of contraceptive prevalence in urban areas and 79 percent in rural areas. Current use of all modern methods except male sterilization is higher in urban areas than in rural areas, and the gap for condoms is especially wide (urban use is more than four times rural use). By age, current contraceptive use increases from 8 percent for women age 15–19 to a peak of 67 percent for women age 35–39 and then decreases for older women. The pattern of variation by age is similar in urban areas and rural areas.



Comparison of NFHS-2 results for current contraceptive use with NFHS-1 results reveals an 18 percent increase in contraceptive prevalence since NFHS-1, when prevalence was 41 percent (Figure 5.2). The share of female sterilization in contraceptive prevalence increased slightly from 67 to 71 percent over the period. Since the share of male sterilization declined from 9 to 4 percent, however, the share of female and male sterilization together remained almost the same in NFHS-1 and NFHS-2 at about 75 percent. In rural areas it remained about 80 percent, and in urban areas it remained at about 65 percent.

The proportion of currently married women using the officially-sponsored spacing methods—pill, IUD, and condom—was 6 percent in NFHS-1 and 7 percent in NFHS-2, indicating almost no change between the two surveys. Current use of traditional methods increased slightly between the two surveys, from 4 percent of currently married women in NFHS-1 to 5 percent in NFHS-2. These results indicate that, despite the increased emphasis on contraceptive choice and on spacing methods in the Reproductive and Child Health Programme, female sterilization continues to dominate the method mix in India, and, despite improvement in the knowledge of spacing methods, spacing methods still account for only a small fraction of contraceptive use.

Socioeconomic Differentials in Current Use of Family Planning Methods

Table 5.5 shows differences in contraceptive use by background characteristics. Current contraceptive use among currently married women generally increases with education, from 43

percent among illiterate women to 57 percent among women with at least a high school education. There is, however, little difference in contraceptive use between literate women who have and have not completed middle school. In the case of spacing methods, use also tends to increase with education. Modern spacing methods account for 6 percent of contraceptive use by illiterate women and 35 percent of contraceptive use by women with at least a high school education. On the other hand, use of female sterilization declines sharply with education among literate women. Illiterate women, however, have a somewhat lower prevalence of sterilization than literate women who have not completed middle school. Female and male sterilization account for 85 percent of contraceptive use by illiterate women but only 48 percent of contraceptive use by women with at least a high school education. Contraceptive use increased between NFHS-1 and NFHS-2 among women of every educational level. The increase, however, was much more rapid among illiterate women than among literate women. Various studies based on NFHS-1 data have shown that even after controlling the effects of other factors, education is a key factor influencing contraceptive use (Retherford and Ramesh, 1996; Ramesh et al., 1996).

By religion, contraceptive prevalence among Hindus (49 percent) is higher than among Muslims (37 percent) but lower than among women belonging to most other religions (52–65 percent). Use of the pill is highest among Muslims and Sikhs (4 percent), use of the IUD is highest among Sikhs (7 percent), and use of condoms is highest among Sikhs and Jains (10–12 percent). Male sterilization is rare for all religious groups except Buddhists/Neo-Buddhists. Use of female sterilization is lowest among Muslims (20 percent) and highest among Buddhists/Neo-Buddhists (53 percent). Since NFHS-1, contraceptive prevalence has increased for all religious groups, but the largest increases have been for Buddhists/Neo-Buddhists and Muslims. By caste/tribe, contraceptive prevalence is highest among women who do not belong to a scheduled caste, scheduled tribe, or other backward class (54 percent), followed by women belonging to other backward classes (47 percent), scheduled castes (45 percent), and scheduled tribes (39 percent). The use of male sterilization and each of the modern temporary methods is very low for all caste/tribe groups. By the standard of living index (SLI), contraceptive prevalence ranges from 40 percent among women living in households with a low SLI to 61 percent among women living in households with a high SLI. The use of officially-sponsored spacing methods is also much higher among women with a high SLI (16 percent) than among women with a medium (6 percent) or low SLI (3 percent).

Table 5.5 also shows differences in current use by number and sex of living children. Contraceptive use increases sharply from 5 percent for women with no living children to 68 percent for women with three living children and then falls to 57 percent for women with four or more living children. A similar pattern is evident for female and male sterilization. The results also indicate strong preference for sons over daughters. At each parity, current use of family planning is lower among women with no sons than among women with one or more sons, with a maximum differential at parity 3. Son preference is not, however, an insuperable barrier to contraceptive use. At parities 2, 3, and 4+, the percentage of women with no sons who are currently using sterilization (female or male) is 23, 27, and 30 percent, respectively. An earlier study based on NFHS-1 data has shown that son preference is an important factor influencing contraceptive use in India and that the national contraceptive prevalence rate would be 5 percentage points higher if there were no son preference (Arnold et al., 1998).

Table 5.5 Current use by background characteristics

Percent distribution of currently married women by contraceptive method currently used, according to selected background characteristics, India, 1998–99

Background characteristic	Any method	Any modern method	Pill	IUD	Con-dom	Female ster-ilization	Male ster-ilization	Any traditional method	Rhythm/ safe period	With-drawal	Other method[1]	Not using any method	Total percent	Number of women
Residence														
Urban	58.2	51.2	2.7	3.5	7.2	36.0	1.8	6.7	3.9	2.8	0.3	41.8	100.0	21,888
Rural	44.7	39.9	1.9	1.0	1.6	33.5	1.9	4.4	2.7	1.7	0.4	55.3	100.0	61,761
Education														
Illiterate	42.9	39.2	1.2	0.5	0.9	34.4	2.2	3.3	2.1	1.2	0.4	57.1	100.0	48,018
Literate, < middle school complete	55.5	49.7	3.3	1.5	2.3	40.8	1.8	5.4	3.1	2.4	0.3	44.5	100.0	16,257
Middle school complete	52.2	44.6	3.7	2.9	5.0	32.1	0.9	7.4	4.0	3.4	0.2	47.8	100.0	7,073
High school complete and above	57.0	47.1	3.0	5.7	11.2	25.8	1.4	9.6	5.9	3.7	0.3	43.0	100.0	12,291
Religion														
Hindu	49.2	44.3	1.8	1.5	2.7	36.2	2.1	4.7	2.9	1.8	0.3	50.8	100.0	68,443
Muslim	37.0	30.2	4.1	1.5	4.2	19.6	0.8	6.4	3.6	2.8	0.4	63.0	100.0	10,477
Christian	52.4	44.9	1.2	2.3	2.8	36.5	2.1	7.1	4.9	2.3	0.4	47.6	100.0	2,072
Sikh	65.2	54.7	3.7	7.4	11.8	30.2	1.6	10.1	4.6	5.5	0.4	34.8	100.0	1,365
Jain	65.1	58.1	0.2	4.3	10.0	42.3	1.4	6.4	4.6	1.8	0.6	34.9	100.0	316
Buddhist/Neo-Buddhist	64.7	63.9	2.5	1.4	2.5	52.5	5.0	0.8	0.4	0.4	0.0	35.3	100.0	601
Other	48.6	35.2	2.8	3.9	1.3	26.1	1.0	9.1	4.9	4.3	4.2	51.4	100.0	259
No religion	30.1	28.6	3.3	6.3	2.4	16.7	0.0	1.4	1.0	0.4	0.0	69.9	100.0	38
Caste/tribe														
Scheduled caste	44.6	40.1	1.5	0.7	1.6	34.4	1.9	4.2	2.7	1.6	0.3	55.4	100.0	15,178
Scheduled tribe	39.1	35.2	1.6	0.9	0.8	28.8	3.1	3.2	2.3	1.0	0.7	60.9	100.0	7,176
Other backward class	46.8	43.4	1.1	1.5	2.0	37.2	1.6	3.1	2.0	1.1	0.3	53.2	100.0	27,529
Other	53.5	45.8	3.3	2.4	5.1	33.1	1.9	7.3	4.2	3.1	0.4	46.5	100.0	32,957
Standard of living index														
Low	39.5	35.5	1.5	0.4	0.6	31.0	2.0	3.6	2.3	1.3	0.4	60.5	100.0	26,505
Medium	48.4	43.3	2.2	1.2	2.2	36.0	1.7	4.8	2.9	1.9	0.3	51.6	100.0	38,999
High	61.2	53.1	2.7	4.5	8.7	35.0	2.2	7.8	4.5	3.2	0.3	38.8	100.0	17,173

Contd…

Table 5.5 Current use by background characteristics (contd.)

Percent distribution of currently married women by contraceptive method currently used, according to selected background characteristics, India, 1998–99

Background characteristic	Any method	Any modern method	Pill	IUD	Con-dom	Female ster-ilization	Male ster-ilization	Any traditional method	Rhythm/ safe period	With-drawal	Other method[1]	Not using any method	Total percent	Number of women
Number and sex of living children														
No children	4.6	2.1	0.4	0.0	1.0	0.4	0.3	2.5	1.3	1.2	0.0	95.4	100.0	9,792
1 child	23.7	15.8	3.1	2.9	4.9	4.2	0.7	7.7	4.5	3.2	0.2	76.3	100.0	13,215
1 son	25.3	16.9	3.2	3.3	5.2	4.8	0.5	8.2	4.8	3.4	0.3	74.7	100.0	7,062
No sons	21.9	14.6	3.1	2.5	4.5	3.6	0.9	7.1	4.1	3.0	0.2	78.1	100.0	6,153
2 children	58.1	51.9	2.7	3.0	4.7	39.4	2.1	5.9	3.4	2.5	0.3	41.9	100.0	20,184
2 sons	66.8	61.6	2.4	2.9	3.5	50.5	2.3	4.8	2.7	2.1	0.3	33.2	100.0	6,185
1 son	58.9	52.2	3.0	3.2	5.4	38.5	2.2	6.4	3.8	2.6	0.2	41.1	100.0	10,621
No sons	39.7	33.1	2.4	2.6	5.0	21.9	1.3	6.3	3.4	3.0	0.2	60.3	100.0	3,378
3 children	67.5	63.1	1.7	1.2	2.5	54.8	2.8	4.1	2.5	1.6	0.4	32.5	100.0	17,840
3 sons	73.8	69.7	0.9	0.7	1.7	63.8	2.5	3.7	2.2	1.5	0.5	26.2	100.0	2,381
2 sons	74.9	71.0	1.6	1.0	2.0	63.3	3.2	3.5	2.2	1.3	0.4	25.1	100.0	8,131
1 son	61.6	56.5	2.0	1.8	3.6	46.4	2.8	4.8	3.0	1.8	0.3	38.4	100.0	5,975
No sons	37.9	32.8	2.8	1.1	2.4	25.5	1.0	4.8	3.0	1.9	0.2	62.1	100.0	1,354
4+ children	57.4	52.2	1.9	0.7	1.8	45.3	2.4	4.5	3.0	1.5	0.7	42.6	100.0	22,617
2+ sons	58.5	53.5	1.9	0.6	1.6	46.9	2.4	4.4	2.9	1.4	0.7	41.5	100.0	17,488
1 son	56.2	50.4	2.3	1.1	2.7	41.7	2.6	5.1	3.4	1.7	0.7	43.8	100.0	4,423
No sons	37.3	33.0	0.8	0.1	2.2	28.8	1.1	3.7	2.2	1.5	0.6	62.7	100.0	705
Total	48.2	42.8	2.1	1.6	3.1	34.2	1.9	5.0	3.0	2.0	0.4	51.8	100.0	83,649

Note: Total includes 11, 77, 809, and 971 women with missing information on education, religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.

[1]Includes both modern and traditional methods that are not listed separately

Table 5.6, which classifies contraceptive use rates by both religion and education, sheds further light on religious differentials in contraceptive use. When contraceptive prevalence by religion is examined among women at the same educational level, it is seen that prevalence differentials by religion are still large. In other words, religion has a substantial effect on contraceptive use even after education is controlled by holding it constant. It is noteworthy that among literate women, use varies little by level of education for Hindus, Muslims, Sikhs, and Jains. Among literate women belonging to these religions, religion has a bigger effect on use than education does. Earlier studies based on analysis of NFHS-1 data also suggest that religion has a substantial effect on contraceptive use, even after controlling for education, and that Muslims have lower use rates than Hindus (Ramesh et al., 1996; Moulasha and Rama Rao, 1999).

Interstate Variations in Current Use of Family Planning Methods

Table 5.7 and Figure 5.3 show variations in the current use of contraception by state. The current use of any method among states varies widely from 20 percent in Meghalaya to 68 percent in Himachal Pradesh.

Among the major states, Bihar and Uttar Pradesh have the lowest level of current use (25 and 28 percent, respectively), followed by Rajasthan (40 percent), Assam (43 percent), and Madhya Pradesh (44 percent). Low rates in these states have important implications for future population growth in India because these states together account for more than 40 percent of India's population. Orissa and all the northeastern states except Mizoram and Sikkim also have current contraceptive use rates below the national average. Interestingly, Goa, which is at an advanced stage of fertility transition, has a current use rate very close to the national average, as was also the case in NFHS-1, suggesting that later-than-average marriage accounts for a substantial amount of Goa's low fertility. The eight top-ranking states in current use are Himachal Pradesh, Punjab, West Bengal, Delhi, Kerala, Haryana, Maharashtra, and Andhra Pradesh (60–68 percent). When the rankings of states in NFHS-2 are compared with those in NFHS-1, it is seen that Andhra Pradesh, Haryana, Himachal Pradesh, Karnataka, and Nagaland have risen in relative rank, while Mizoram, Tamil Nadu, and Kerala have fallen.

Sterilization continues to be the mainstay of the family planning programme in all except a few small northeastern states. The method mix in Andhra Pradesh continues to be highly skewed, with 96 percent of users sterilized, compared with 95 percent in NFHS-1. In all other southern states, as well as in Maharashtra, Madhya Pradesh, Bihar, and Rajasthan, 80–90 percent of users have adopted sterilization. At the other extreme are Delhi, Punjab, and the northeastern states (except Arunachal Pradesh and Mizoram), where sterilization accounts for 32–46 percent of current use.

Table 5.6 Current use by religion and education

Percentage of currently married women currently using any method, any modern method, and any modern temporary method of contraception, by religion and education, India 1998–99

	Any method				Any modern method[1]				Any modern temporary method[2]			
Religion	Illit-erate	Literate, < middle school complete	Middle school complete	High school complete and above	Illit-erate	Literate, < middle school complete	Middle school complete	High school complete and above	Illit-erate	Literate, < middle school complete	Middle school complete	High school complete and above
Hindu	44.2	57.2	52.2	57.5	41.0	51.8	44.7	47.7	1.9	6.0	10.7	19.5
Muslim	31.3	45.1	46.4	46.1	25.1	37.4	38.5	38.8	6.6	11.7	16.6	21.0
Christian	45.7	50.0	57.4	58.7	43.1	44.5	49.9	44.8	1.4	3.8	9.5	11.5
Sikh	66.5	66.5	61.7	63.9	57.0	57.8	50.4	51.2	10.0	20.0	29.0	39.2
Jain	*	68.0	(64.2)	63.8	*	67.0	(61.7)	52.1	*	5.0	(10.3)	21.5
Buddhist/Neo-Buddhist	65.3	74.4	53.2	58.3	64.9	74.3	52.6	55.3	2.5	6.6	7.5	15.7
Other	43.0	51.7	72.1	65.0	29.6	40.1	50.4	59.8	3.3	9.5	24.2	30.0
No religion	15.6	(17.3)	*	*	14.8	(13.3)	*	*	1.2	(8.1)	*	*

( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases
[1]Includes female sterilization, male sterilization, pill, IUD, and condom
[2]Includes the pill, IUD, and condom

Table 5.7 Current use by state

Percent distribution of currently married women by contraceptive method currently used, according to state and residence, India, 1998–99

State	Any method	Any modern method	Pill	IUD	Condom	Female ster-ilization	Male ster-ilization	Any traditional method	Rhythm/ safe period	With-drawal	Other method[1]	Not using any method	Total percent
						URBAN							
India	58.2	51.2	2.7	3.5	7.2	36.0	1.8	6.7	3.9	2.8	0.3	41.8	100.0
North													
Delhi	64.0	56.4	4.0	6.2	18.2	25.7	2.3	7.3	4.8	2.5	0.3	36.0	100.0
Haryana	67.2	53.4	2.3	5.9	14.8	28.0	2.5	13.5	5.9	7.5	0.2	32.8	100.0
Himachal Pradesh	74.3	63.9	1.5	6.3	17.8	34.1	4.1	10.4	5.6	4.8	0.0	25.7	100.0
Jammu & Kashmir	68.0	59.7	3.2	4.1	9.6	37.5	5.4	7.9	2.0	5.9	0.5	32.0	100.0
Punjab	71.8	54.0	3.1	8.8	23.2	17.9	0.9	17.6	8.1	9.5	0.2	28.2	100.0
Rajasthan	50.4	46.9	2.4	2.1	7.6	33.0	1.9	2.9	1.9	1.0	0.5	49.6	100.0
Central													
Madhya Pradesh	55.2	52.5	2.0	2.1	8.1	37.9	2.3	2.5	1.4	1.1	0.2	44.8	100.0
Uttar Pradesh	44.8	36.6	2.3	2.6	12.6	18.0	1.0	7.3	4.3	2.9	0.9	55.2	100.0
East													
Bihar	38.9	35.4	2.9	1.2	3.0	26.6	1.7	3.2	1.5	1.7	0.3	61.1	100.0
Orissa	54.0	45.2	6.4	3.0	3.0	30.9	1.8	7.6	5.0	2.6	1.2	46.0	100.0
West Bengal	73.4	46.4	9.1	2.0	7.1	27.0	1.2	26.6	11.6	15.1	0.4	26.6	100.0
Northeast													
Arunachal Pradesh	47.3	42.7	9.2	4.6	1.5	27.5	0.0	4.6	3.8	0.8	0.0	52.7	100.0
Assam	53.4	30.6	6.0	1.9	4.5	17.9	0.3	22.2	13.0	9.3	0.6	46.6	100.0
Manipur	44.9	31.4	2.6	8.0	2.1	17.5	1.1	13.5	8.1	5.4	0.0	55.1	100.0
Meghalaya	45.3	38.9	5.9	8.9	3.5	20.6	0.0	6.4	6.4	0.0	0.0	54.7	100.0
Mizoram	65.1	64.7	6.4	6.4	1.3	50.6	0.0	0.4	0.4	0.0	0.0	34.9	100.0
Nagaland	46.7	37.8	3.8	10.0	4.4	19.6	0.0	9.0	7.7	1.2	0.0	53.3	100.0
Sikkim	56.8	47.2	7.2	5.6	3.2	31.2	0.0	9.6	8.0	1.6	0.0	43.2	100.0
West													
Goa	52.7	39.4	0.8	2.2	7.0	28.7	0.7	12.2	7.2	5.0	1.1	47.3	100.0
Gujarat	61.8	53.3	2.2	5.1	6.4	37.6	2.0	8.3	6.8	1.4	0.2	38.2	100.0
Maharashtra	58.5	56.7	2.5	3.5	5.6	43.6	1.5	1.7	1.4	0.3	0.1	41.5	100.0
South													
Andhra Pradesh	63.4	62.3	1.4	1.6	1.8	52.4	5.0	1.0	1.0	0.0	0.1	36.6	100.0
Karnataka	59.9	56.4	1.0	5.0	2.4	47.1	0.9	3.4	3.1	0.3	0.1	40.1	100.0
Kerala	65.5	57.4	0.2	1.6	4.4	48.5	2.7	8.1	3.8	4.3	0.0	34.5	100.0
Tamil Nadu	58.2	55.1	0.4	5.0	3.1	46.0	0.6	3.0	2.2	0.9	0.0	41.8	100.0

Table 5.7 Current use by state (contd.)

Percent distribution of currently married women by contraceptive method currently used, according to state and residence, India, 1998–99

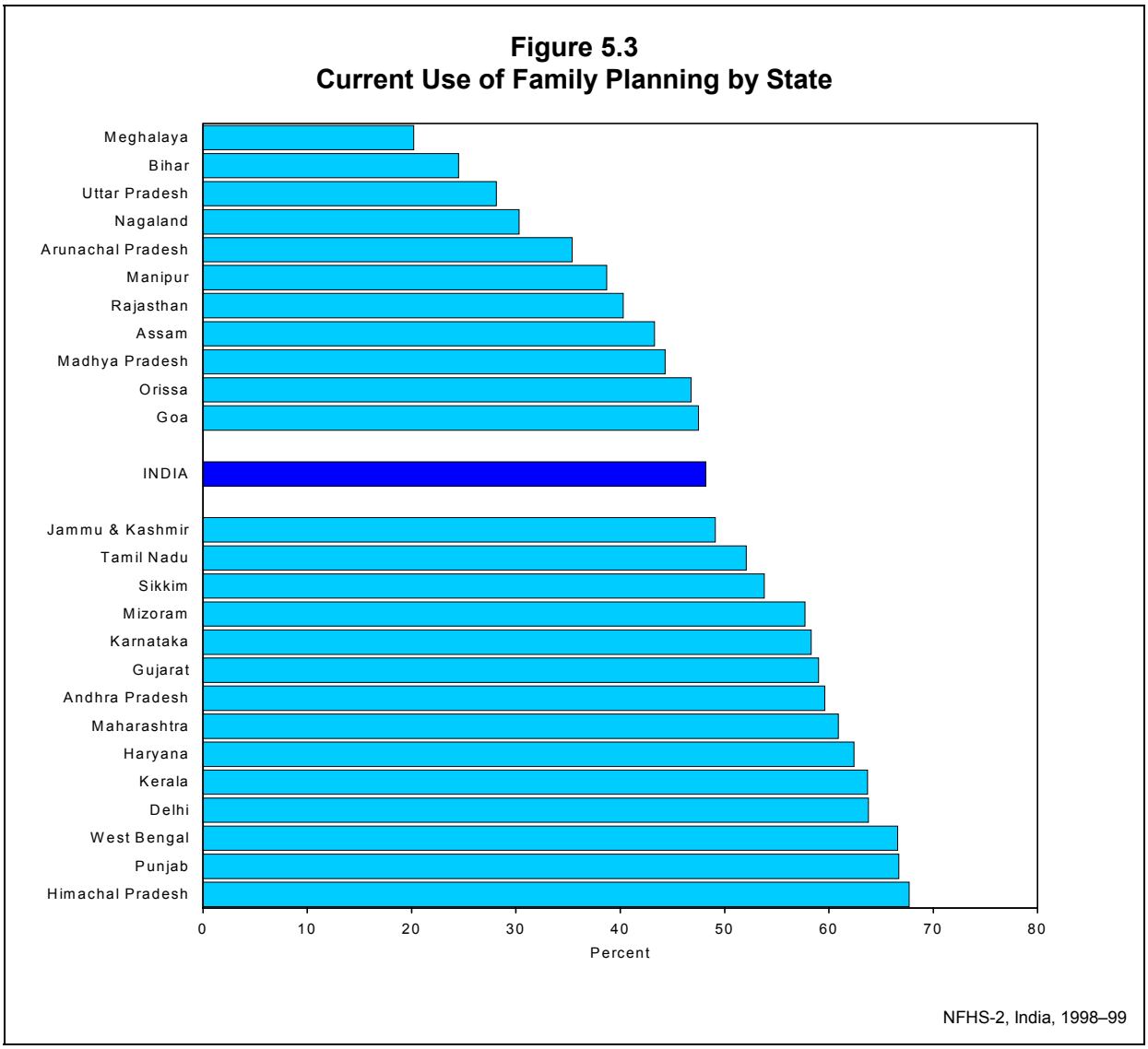
State	Any method	Any modern method	Pill	IUD	Condom	Female ster-ilization	Male ster-ilization	Any traditional method	Rhythm/ safe period	With-drawal	Other method[1]	Not using any method	Total percent
						RURAL							
India	44.7	39.9	1.9	1.0	1.6	33.5	1.9	4.4	2.7	1.7	0.4	55.3	100.0
North													
Delhi	60.8	55.5	4.8	5.8	9.6	32.7	2.6	5.2	1.6	3.7	0.0	39.2	100.0
Haryana	60.4	53.1	2.0	2.6	3.4	43.0	2.0	7.0	3.9	3.1	0.4	39.6	100.0
Himachal Pradesh	67.0	60.5	1.3	1.6	3.7	46.1	7.6	6.4	4.2	2.2	0.2	33.0	100.0
Jammu & Kashmir	43.9	36.8	3.3	2.7	3.5	25.3	2.0	6.5	1.8	4.7	0.6	56.1	100.0
Punjab	64.4	53.8	3.1	4.9	9.5	34.3	1.9	10.1	5.3	4.8	0.5	35.6	100.0
Rajasthan	37.1	35.3	1.2	0.9	1.7	30.1	1.3	1.6	1.2	0.4	0.2	62.9	100.0
Central													
Madhya Pradesh	40.7	39.3	0.6	0.4	1.1	35.0	2.2	1.0	0.8	0.2	0.3	59.3	100.0
Uttar Pradesh	23.9	18.3	1.0	0.6	2.1	14.1	0.6	5.3	4.0	1.3	0.3	76.1	100.0
East													
Bihar	22.9	20.9	0.8	0.4	0.4	18.3	0.9	1.4	0.8	0.6	0.6	77.1	100.0
Orissa	45.9	39.7	2.6	0.5	0.7	34.2	1.7	5.4	3.7	1.7	0.8	54.1	100.0
West Bengal	64.5	47.5	9.2	1.2	1.6	33.5	2.0	15.9	7.8	8.1	1.0	35.5	100.0
Northeast													
Arunachal Pradesh	33.3	31.0	6.9	4.1	0.5	19.3	0.1	2.0	1.0	0.9	0.3	66.7	100.0
Assam	42.3	26.3	6.3	1.9	1.5	15.5	1.1	15.2	10.9	4.3	0.9	57.7	100.0
Manipur	35.6	23.1	2.0	6.2	0.9	12.8	1.1	12.2	5.7	6.5	0.2	64.4	100.0
Meghalaya	13.8	9.5	4.1	1.9	0.7	2.9	0.0	3.6	2.2	1.4	0.6	86.2	100.0
Mizoram	49.7	48.7	4.3	4.3	0.5	39.4	0.2	1.0	1.0	0.0	0.0	50.3	100.0
Nagaland	26.1	20.9	2.2	7.1	1.1	10.5	0.0	5.1	3.6	1.5	0.2	73.9	100.0
Sikkim	53.3	40.4	9.9	5.6	1.2	20.9	2.8	12.7	10.5	2.2	0.2	46.7	100.0
West													
Goa	43.9	33.4	1.0	1.7	3.4	27.2	0.1	8.9	4.8	4.2	1.6	56.1	100.0
Gujarat	57.0	53.3	1.0	1.6	1.3	47.0	2.4	3.6	3.2	0.4	0.0	43.0	100.0
Maharashtra	62.7	62.1	1.2	0.8	2.9	51.9	5.3	0.4	0.2	0.2	0.1	37.3	100.0
South													
Andhra Pradesh	58.3	57.8	0.3	0.3	0.3	52.8	4.1	0.3	0.2	0.1	0.3	41.7	100.0
Karnataka	57.4	56.6	0.4	1.5	0.3	53.9	0.5	0.7	0.6	0.1	0.1	42.6	100.0
Kerala	63.2	55.7	0.5	1.6	2.6	48.6	2.4	7.5	3.8	3.6	0.0	36.8	100.0
Tamil Nadu	48.8	47.6	0.3	1.1	0.7	44.7	0.9	1.1	0.8	0.3	0.1	51.2	100.0

Table 5.7 Current use by state (contd.)

Percent distribution of currently married women by contraceptive method currently used, according to state and residence, India, 1998–99

State	Any method	Any modern method	Pill	IUD	Condom	Female ster-ilization	Male ster-ilization	Any traditional method	Rhythm/ safe period	With-drawal	Other method[1]	Not using any method	Total percent
						TOTAL							
India	48.2	42.8	2.1	1.6	3.1	34.2	1.9	5.0	3.0	2.0	0.4	51.8	100.0
North													
Delhi	63.8	56.3	4.0	6.2	17.5	26.3	2.3	7.1	4.5	2.6	0.3	36.2	100.0
Haryana	62.4	53.2	2.1	3.6	6.8	38.7	2.1	8.9	4.5	4.4	0.3	37.6	100.0
Himachal Pradesh	67.7	60.8	1.3	2.1	5.0	45.1	7.3	6.8	4.4	2.4	0.2	32.3	100.0
Jammu & Kashmir	49.1	41.7	3.3	3.0	4.8	28.0	2.7	6.8	1.8	4.9	0.6	50.9	100.0
Punjab	66.7	53.8	3.1	6.1	13.8	29.3	1.6	12.4	6.2	6.3	0.4	33.3	100.0
Rajasthan	40.3	38.1	1.5	1.2	3.1	30.8	1.5	1.9	1.3	0.6	0.3	59.7	100.0
Central													
Madhya Pradesh	44.3	42.6	1.0	0.8	2.9	35.7	2.2	1.4	1.0	0.4	0.3	55.7	100.0
Uttar Pradesh	28.1	22.0	1.2	1.0	4.2	14.9	0.7	5.7	4.1	1.6	0.4	71.9	100.0
East													
Bihar	24.5	22.4	1.0	0.5	0.7	19.2	1.0	1.6	0.9	0.7	0.5	75.5	100.0
Orissa	46.8	40.3	3.0	0.8	0.9	33.9	1.7	5.6	3.8	1.8	0.9	53.2	100.0
West Bengal	66.6	47.3	9.2	1.4	2.9	32.0	1.8	18.5	8.7	9.8	0.9	33.4	100.0
Northeast													
Arunachal Pradesh	35.4	32.8	7.3	4.2	0.7	20.6	0.1	2.4	1.5	0.9	0.3	64.6	100.0
Assam	43.3	26.6	6.3	1.9	1.8	15.7	1.0	15.8	11.1	4.7	0.8	56.7	100.0
Manipur	38.7	25.9	2.2	6.8	1.3	14.4	1.1	12.7	6.5	6.1	0.2	61.3	100.0
Meghalaya	20.2	15.5	4.5	3.3	1.3	6.5	0.0	4.2	3.1	1.1	0.5	79.8	100.0
Mizoram	57.7	57.1	5.4	5.4	0.9	45.2	0.1	0.7	0.7	0.0	0.0	42.3	100.0
Nagaland	30.3	24.2	2.5	7.7	1.8	12.3	0.0	5.9	4.5	1.4	0.1	69.7	100.0
Sikkim	53.8	41.4	9.5	5.6	1.5	22.4	2.4	12.3	10.1	2.1	0.2	46.2	100.0
West													
Goa	47.5	35.9	0.9	1.9	4.9	27.8	0.4	10.3	5.8	4.5	1.4	52.5	100.0
Gujarat	59.0	53.3	1.5	3.1	3.5	43.0	2.3	5.6	4.8	0.8	0.1	41.0	100.0
Maharashtra	60.9	59.9	1.7	1.9	4.0	48.5	3.7	1.0	0.7	0.3	0.1	39.1	100.0
South													
Andhra Pradesh	59.6	58.9	0.5	0.6	0.7	52.7	4.3	0.5	0.4	0.1	0.2	40.4	100.0
Karnataka	58.3	56.5	0.6	2.8	1.0	51.5	0.7	1.7	1.5	0.2	0.1	41.7	100.0
Kerala	63.7	56.1	0.4	1.6	3.1	48.5	2.5	7.6	3.8	3.8	0.0	36.3	100.0
Tamil Nadu	52.1	50.3	0.3	2.5	1.5	45.2	0.8	1.8	1.3	0.5	0.1	47.9	100.0

[1]Includes both modern and traditional methods that are not listed separately



Modern temporary methods of contraception are most prevalent in Delhi, Punjab, West Bengal, Haryana, Jammu and Kashmir, and the northeastern states. Their use among currently married women in these states ranges from 9 to 28 percent. About one-quarter of currently married women in Punjab and Delhi use modern temporary methods, accounting for 34 and 43 percent of current use in these states, respectively. Although the level of use of modern temporary methods is about the same (2–6 percent of currently married women) in the four better-performing southern states (Kerala, Andhra Pradesh, Karnataka, and Tamil Nadu) and the five large poor-performing states (Bihar, Uttar Pradesh, Rajasthan, Madhya Pradesh, and Orissa), use of these methods constitutes only 3–8 percent of current use in the southern states while in the other group it accounts for 9–23 percent of current use. In Uttar Pradesh, about one out of every four users uses a modern temporary method.

Traditional methods are used most in West Bengal, Assam, Manipur, Punjab, Sikkim, and Goa, where 10–19 percent of currently married women use a traditional method. Traditional methods account for 19–36 percent of current use in these states. About one-third of users in Assam and Manipur use traditional methods. Since NFHS-1, use of traditional methods has

increased most (by 5–6 percentage points) in Nagaland and Punjab, but declined substantially in Assam (from 22 to 16 percent). The rhythm method is most prevalent in Assam and Sikkim, where it is used by 10–11 percent of currently married women, and withdrawal is most prevalent in West Bengal, where it is used by 10 percent of currently married women.

There are considerable urban-rural differentials in current use in almost all states. Maharashtra is the only state where prevalence is higher in rural areas (63 percent) than in urban areas (59 percent), and the gap has widened slightly since NFHS-1. Urban-rural differentials are small in Sikkim and all the southern and western states except Goa and Tamil Nadu. They are large in Meghalaya, Jammu and Kashmir, Uttar Pradesh, and Nagaland.

Number of Living Children at First Use of Contraception

In order to examine the timing of initial family planning use, NFHS-2 included a question on how many living children women had when they first used a method. Table 5.8 shows the distribution of ever-married women by the number of living children at the time of first contraceptive use, according to current age and residence. Only 4 percent of ever-married women (7 percent of ever-married women who have ever used contraception) began using contraception when they did not have any children, and another 10 percent (19 percent of ever users) began using when they had one living child. Although early use of contraception is rare, 39 percent of ever-married women (73 percent of ever users) began when they had three or fewer living children. This pattern of first acceptance at low parities means that family planning has a larger demographic impact than it would if contraceptive use were initiated later. A similar age pattern is observed among women in urban and rural areas, but urban users are more likely than rural users to begin using when they have two or fewer living children. Fifty-nine percent of urban users and 44 percent of rural users start using contraception when they have two or fewer children. Because of the dominance of sterilization in the contraceptive mix, women usually begin contraceptive use only after achieving their desired family size. Clearly, spacing methods need to be promoted if reductions are sought in the parity at which women first accept contraception.

Problems with Current Method

Women who were using a contraceptive method were asked if they had experienced any problem with their current method. Table 5.9 presents the percentage of current contraceptive users who report specific problems. Overall, four out of every five current users report having no problem with their method. This may be an underestimate of the extent of problems, however, because women who have experienced problems with spacing methods may have stopped using contraception altogether, and these women are not represented in the table.

Table 5.8 Number of living children at first use

Percent distribution of ever-married women by number of living children at the time of first use of contraception, according to current age and residence, India, 1998–99

Current age	Never used	Number of living children at the time of first use					Missing	Total percent	Number of women
		0	1	2	3	4+			
URBAN									
15–19	84.5	6.3	6.8	2.0	0.1	0.2	0.1	100.0	1,201
20–24	57.4	8.9	17.6	11.1	3.9	1.2	0.0	100.0	3,779
25–29	32.4	7.3	22.4	19.2	12.8	5.7	0.0	100.0	4,620
30–34	23.0	4.9	21.4	19.8	17.4	13.5	0.0	100.0	4,274
35–39	21.1	3.5	16.7	18.9	18.2	21.6	0.0	100.0	3,888
40–44	25.7	2.9	13.1	16.2	16.9	25.2	0.0	100.0	3,135
45–49	30.6	2.5	12.0	12.4	15.0	27.4	0.1	100.0	2,473
Total	34.4	5.3	17.3	16.0	13.3	13.7	0.0	100.0	23,370
RURAL									
15–19	87.2	6.4	4.4	1.7	0.3	0.0	0.0	100.0	6,981
20–24	67.6	4.5	10.7	10.5	5.2	1.4	0.0	100.0	12,610
25–29	47.6	3.1	10.4	15.9	14.2	8.7	0.0	100.0	13,124
30–34	36.7	2.1	8.7	15.1	18.4	19.0	0.1	100.0	10,820
35–39	34.4	1.5	6.9	13.1	18.4	25.6	0.0	100.0	9,201
40–44	35.8	1.1	4.8	9.3	16.6	32.3	0.1	100.0	7,387
45–49	42.3	1.0	3.8	7.3	12.9	32.6	0.0	100.0	5,706
Total	50.2	2.9	7.8	11.4	12.4	15.2	0.0	100.0	65,829
TOTAL									
15–19	86.8	6.4	4.7	1.8	0.2	0.0	0.0	100.0	8,182
20–24	65.2	5.5	12.3	10.7	4.9	1.4	0.0	100.0	16,389
25–29	43.7	4.2	13.5	16.8	13.9	7.9	0.0	100.0	17,745
30–34	32.8	2.9	12.3	16.4	18.1	17.5	0.0	100.0	15,094
35–39	30.5	2.1	9.8	14.9	18.4	24.4	0.0	100.0	13,089
40–44	32.8	1.6	7.3	11.4	16.7	30.2	0.1	100.0	10,521
45–49	38.8	1.5	6.3	8.9	13.6	31.0	0.0	100.0	8,179
Total	46.1	3.6	10.3	12.6	12.7	14.8	0.0	100.0	89,199

The analysis of method-specific problems reveals that 75 percent of sterilized women and 87 percent of women whose husbands are sterilized report having no problem with their method. The most common problems experienced by sterilized women are headache, bodyache, or backache (13 percent), abdominal pain (8 percent), weakness or tiredness (7 percent), and white discharge (4 percent). Among women whose husbands are sterilized and who report problems with this method, the two most common complaints are headache, bodyache, or backache and weakness or tiredness. These results point to a continuing need to strengthen post-operative care and counselling for sterilization acceptors. The two most common problems reported by pill users are weakness/tiredness and headache/bodyache/backache. Too much bleeding, abdominal pain, and headache/bodyache/backache are reported as problems by 5–6 percent of IUD users.

Table 5.9 Problems with current method

Percentage of current users of specific contraceptive methods who have had problems in using the method, India, 1998–99

Problem	Contraceptive method								Total
	Pill	IUD	Condom	Female steri-lization	Male steri-lization	Rhythm/ safe period	With-drawal	Other methods[1]	
No problem	82.8	81.5	97.1	75.4	87.2	99.4	98.5	91.7	80.3
Weight gain	0.8	1.3	0.2	1.1	0.3	0.1	0.0	0.0	0.9
Weight loss	1.0	1.0	0.0	1.2	1.1	0.0	0.0	0.0	0.9
Too much bleeding	1.5	5.8	0.1	2.4	0.5	0.0	0.0	1.0	2.0
Hypertension	0.7	0.1	0.0	0.3	0.1	0.0	0.2	0.8	0.3
Headache/bodyache/ backache	5.5	4.7	0.3	12.7	6.3	0.1	0.2	2.4	9.7
Nausea/vomiting	1.6	0.2	0.0	0.7	0.3	0.0	0.1	0.7	0.6
No menstruation	0.4	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.2
Weakness/tiredness	6.2	3.1	0.3	7.0	4.6	0.1	0.6	3.6	5.6
Dizziness	2.1	1.0	0.0	1.3	0.4	0.0	0.1	1.0	1.1
Fever	1.2	0.2	0.0	1.7	0.6	0.0	0.0	1.8	1.3
Cramps	0.8	0.5	0.1	0.9	0.2	0.0	0.0	0.6	0.7
Spotting	0.1	0.4	0.0	0.2	0.0	0.0	0.0	0.0	0.1
Inconvenient to use	0.0	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.1
Abdominal pain	1.5	4.9	0.2	7.6	1.9	0.1	0.3	1.7	5.7
White discharge	0.6	2.7	0.5	4.0	0.3	0.1	0.2	2.7	3.0
Irregular periods	1.7	2.4	0.2	2.0	0.1	0.2	0.0	0.8	1.6
Breast tenderness	0.1	0.2	0.0	0.3	0.1	0.0	0.0	0.0	0.2
Allergy	0.5	0.4	0.8	0.4	0.3	0.0	0.0	0.0	0.4
Reduced sexual satisfaction	0.0	0.1	0.3	0.1	0.1	0.1	0.5	0.0	0.1
Other	1.2	0.4	0.3	2.2	1.6	0.0	0.3	0.5	1.7
Number of users	1,735	1,371	2,568	28,580	1,587	2,526	1,664	296	40,327

Note: Percentages add to more than 100.0 because multiple problems could be recorded.
[1]Includes both modern and traditional methods that are not listed separately

5.3 Sterilization

Timing of Sterilization

Table 5.10 shows how many years before the survey women or their husbands were sterilized and how old the women were when the sterilization took place. Of 30,167 sterilizations reported, 95 percent are female sterilizations. Thirty-eight percent of female sterilizations took place less than 6 years before the survey, another 22 percent took place 6–9 years before the survey, and the remaining 40 percent took place 10 or more years before the survey. By contrast, 75 percent of male sterilizations took place 10 or more years before the survey. The median age of the wife at the time of sterilization was 25.7 years, with 44 percent of sterilized couples undergoing sterilization before the wife was age 25. Seventy-nine percent of sterilizations took place before the wife was age 30, and less than 1 percent took place when the wife was in her forties.

Table 5.10 Timing of sterilization

Percent distribution of currently married, sterilized women and wives of sterilized men by age at the time of sterilization, and median age of the woman at the time of sterilization, according to the number of years since sterilization, India, 1998–99

Years since sterilization	Woman's age at the time of sterilization							Total percent	Number sterilized	Median age[1]
	< 20	20–24	25–29	30–34	35–39	40–44	45–49			
STERILIZED WOMEN										
< 2	6.3	37.2	34.4	14.9	5.4	1.5	0.4	100.0	3,615	25.7
2–3	6.4	37.1	34.5	16.2	4.4	1.2	0.1	100.0	3,430	25.7
4–5	7.3	37.2	32.8	16.2	5.1	1.4	0.0	100.0	3,894	25.6
6–7	8.3	36.0	32.2	16.8	5.6	1.0	U	100.0	3,277	25.7
8–9	7.8	34.9	35.0	16.2	5.6	0.4	U	100.0	3,050	26.0
10+	7.4	36.0	38.1	16.0	2.5	U	U	100.0	11,315	NC
Total	7.3	36.3	35.5	16.0	4.1	0.7	0.1	100.0	28,580	25.7
WIVES OF STERILIZED MEN										
< 10	4.9	25.9	27.9	20.4	16.2	3.8	U	100.0	394	27.8
10+	10.0	35.6	39.4	13.1	2.0	U	U	100.0	1,193	NC
Total	8.7	33.2	36.5	14.9	5.5	0.9	0.2	100.0	1,587	25.8
STERILIZED WOMEN AND WIVES OF STERILIZED MEN										
< 2	6.3	36.8	34.4	14.8	5.6	1.5	0.5	100.0	3,687	25.7
2–3	6.3	37.0	34.4	16.2	4.7	1.3	0.1	100.0	3,484	25.7
4–5	7.2	37.2	32.6	16.3	5.2	1.5	0.0	100.0	3,958	25.6
6–7	8.3	35.6	32.1	17.1	5.9	1.1	U	100.0	3,362	25.8
8–9	7.8	34.6	34.7	16.4	6.0	0.4	U	100.0	3,168	26.1
10+	7.6	36.0	38.2	15.8	2.4	U	U	100.0	12,508	NC
Total	7.3	36.2	35.5	16.0	4.2	0.7	0.1	100.0	30,167	25.7

NC: Not calculated due to censoring
U: Not available
[1]To avoid censoring, median age is calculated only for sterilizations that took place when the woman was less than 40 years old.

Male sterilization is not as common as it was 10 or more years ago. Only 2 percent of sterilizations during the 10 years preceding the survey were male sterilizations, compared with 10 percent of sterilizations 10 or more years before the survey.

The median age of women at the time of sterilization has declined marginally, from age 26.1 during the period 8–9 years before the survey to age 25.7 in more recent years. From NFHS-2 data it is not possible to assess the trend in the median age at sterilization for more than 10 years before the survey because only women age 15–49 years were interviewed. Women in their forties 10 or more years before the survey would have been 50–59 years at the time of the survey and would therefore not have been interviewed. A comparison with NFHS-1 data, however, suggests that the decline in women's age at sterilization began more than 10 years ago. Women's median age at sterilization declined by one and one-half years between about 1983–84 (8–9 years before NFHS-1) and the mid-to-late 1990s.

Table 5.11 Timing of sterilization by state

Median age of currently married, sterilized women and wives of sterilized men at the time of sterilization by number of years since sterilization, according to state, India, 1998–99

State	Years since sterilization					Total
	<2	2–3	4–5	6–7	8–9	
India	25.7	25.7	25.6	25.8	26.1	25.7
North						
Delhi	29.0	28.9	29.1	27.7	27.7	27.8
Haryana	26.4	25.6	26.4	26.3	26.6	26.5
Himachal Pradesh	26.2	25.4	25.9	26.0	25.8	26.2
Jammu & Kashmir	29.8	29.2	28.4	27.9	28.2	28.2
Punjab	26.6	27.3	27.0	27.2	26.8	27.1
Rajasthan	26.6	27.1	26.6	27.2	27.1	27.0
Central						
Madhya Pradesh	26.6	26.2	26.7	26.4	26.9	26.4
Uttar Pradesh	27.9	28.0	27.9	28.9	29.6	28.3
East						
Bihar	27.5	27.8	27.0	28.1	28.3	27.7
Orissa	27.2	26.4	26.3	26.0	26.3	26.3
West Bengal	24.7	25.0	25.4	25.4	25.5	25.1
Northeast						
Arunachal Pradesh	*	(26.8)	(26.2)	(26.8)	*	26.2
Assam	(28.4)	27.0	25.7	27.4	26.7	26.7
Manipur	*	*	*	*	*	30.5
Meghalaya	*	*	*	*	*	28.6
Mizoram	29.7	29.6	30.4	29.7	(28.2)	29.3
Nagaland	*	*	*	*	*	29.0
Sikkim	(25.9)	(26.1)	*	(27.8)	(26.1)	26.7
West						
Goa	(29.8)	(27.8)	(29.5)	(29.0)	*	28.5
Gujarat	26.3	26.6	26.5	27.1	27.0	26.5
Maharashtra	25.3	25.1	24.8	24.7	24.6	25.0
South						
Andhra Pradesh	23.5	22.9	23.2	23.3	24.2	23.6
Karnataka	23.9	23.9	24.0	23.8	23.9	24.2
Kerala	27.4	27.1	26.6	26.4	26.1	26.4
Tamil Nadu	25.3	25.8	24.8	25.3	24.9	25.3

Note: Medians are not shown for persons sterilized 10 or more years before the survey, and median ages are calculated only for persons sterilized at less than age 40 to avoid problems of censoring.
( ) Based on 25–49 unweighted cases
*Median not shown; based on fewer than 25 unweighted cases

Interstate Variations in Timing of Sterilization

Table 5.11 shows state differentials in the median age of currently married, sterilized women and wives of sterilized men at the time of sterilization by the number of years since the operation. The median age varies from a low of 23.6 years in Andhra Pradesh to a high of 30.5 in Manipur. Among major states, the highest median age is 28.3 in Uttar Pradesh. The median age is relatively low in the southern states, except Kerala, and in West Bengal and Maharashtra. According to Table 5.11, in recent years the largest declines in the median age at sterilization

(calculated as the difference between columns 1 and 5) occurred in Uttar Pradesh, Bihar, and West Bengal. During the same period, the median age increased in almost half the states.

Methods Used before Sterilization

Because sterilization is a terminal method, it is essential for policymakers to know whether couples use any temporary methods before they finally adopt sterilization. Table 5.12 shows that, in India as a whole, 82 percent of sterilization users never used any other method before sterilization, the same percentage as in NFHS-1. Six percent each used the pill or rhythm method before sterilization, while 5 percent each used the IUD or condom. The extent of prior use of temporary methods before sterilization is substantial in Sikkim (53 percent), Manipur and Kerala (42–43 percent), and West Bengal (40 percent). It is lowest in Andhra Pradesh and Bihar (6–8 percent). Prior use of the pill by 10 percent or more of sterilized couples is found in Sikkim, West Bengal, Manipur, and Jammu and Kashmir. Prior use of the IUD by 10 percent or more of sterilized couples is found in Manipur, Sikkim, Delhi, Mizoram, Kerala, and Goa. Condoms were previously used by 10 percent or more of sterilized couples in Delhi, Punjab, Kerala, and Jammu and Kashmir.

5.4 Sources of Contraceptive Methods

Family planning methods and services in India are provided primarily through a network of government hospitals and urban family welfare centres in urban areas and Primary Health Centres (PHC) and sub-centres in rural areas. Family planning services are also provided by private hospitals and clinics, as well as nongovernmental organizations (NGOs). Sterilizations and IUD insertions are carried out mostly in government hospitals and PHCs. Sterilization camps, organized from time to time, also provide sterilization services. Modern spacing methods such as the IUD, pill, and condom are available through both the government and private sectors. It is expected that since levels of urbanization and education in India are rapidly increasing, reliance on private sector family planning services is likely to expand in the future (Nair et al., 1999).

To assess the relative importance of various sources of contraceptive methods, NFHS-2 included a question on where current contraceptive users obtained their methods. Table 5.13 and Figure 5.4 show the percent distribution of current modern contraceptive users by the most recent source, according to specific method and residence. The public medical sector, consisting of government/municipal hospitals, government dispensaries, Primary Health Centres, and other governmental health infrastructure, is the source of contraception for 76 percent of current users of modern methods, down from 79 percent in NFHS-1. The role of the private medical sector, including private hospitals or clinics, private doctors, private mobile clinics, private paramedics, *vaidyas*, *hakims*, homeopaths, traditional birth attendants, and pharmacies or drugstores, as the source for current users has increased marginally from 15 percent in NFHS-1 to 17 percent in NFHS-2. Five percent of current users obtain their methods from other sources such as shops, friends, and relatives, and 1 percent from NGOs. Government/municipal hospitals are the main source (53 percent) for female sterilization, followed by community health centres, rural hospitals, or Primary Health Centres (22 percent), and private hospitals or clinics (12 percent). Government hospitals, community health centres, and Primary Health Centres are the source for 75 percent of male sterilizations. In contrast, private shops and pharmacies/drugstores are the main source for condoms (68 percent) and pills (62 percent).

Table 5.12 Methods used before sterilization by state

Percentage of sterilized persons who used specific contraceptive methods before sterilization by state, India, 1998–99

State	Method used before sterilization						
	None	Pill	IUD	Condom	Rhythm/ safe period	With-drawal	Other method[1]
India	81.9	5.8	5.1	4.7	5.5	3.1	0.6
North							
Delhi	62.0	8.4	13.2	20.0	8.0	5.8	0.3
Haryana	81.2	5.1	4.0	5.3	6.7	4.2	0.2
Himachal Pradesh	70.7	4.2	5.4	7.4	14.8	4.4	0.2
Jammu & Kashmir	69.6	10.1	8.6	11.0	5.5	9.0	1.3
Punjab	66.8	6.6	8.6	14.0	8.1	4.7	0.1
Rajasthan	84.9	4.5	4.9	5.9	4.3	2.7	0.1
Central							
Madhya Pradesh	85.5	5.8	4.0	4.7	4.0	1.2	0.6
Uttar Pradesh	82.3	5.4	5.0	6.9	5.0	2.1	0.2
East							
Bihar	92.5	2.7	0.8	1.9	2.5	1.3	0.2
Orissa	85.7	5.8	3.4	1.8	4.3	3.4	0.4
West Bengal	59.6	16.5	4.5	5.0	18.3	11.1	0.7
Northeast							
Arunachal Pradesh	83.7	9.8	5.8	1.4	0.8	1.2	0.0
Assam	74.9	7.7	1.9	2.7	11.5	9.5	0.5
Manipur	56.6	12.3	24.2	9.9	14.9	11.4	0.5
Meghalaya	85.5	7.0	3.8	0.0	3.7	0.0	0.0
Mizoram	79.7	9.9	12.4	1.7	0.5	0.0	0.2
Nagaland	82.7	3.1	9.1	0.0	5.1	3.1	0.0
Sikkim	47.2	21.6	18.2	4.4	23.0	8.6	0.0
West							
Goa	72.8	8.3	10.0	7.1	5.9	3.7	0.3
Gujarat	75.9	5.9	7.5	4.1	12.7	4.5	2.0
Maharashtra	82.8	6.7	5.9	7.0	1.9	0.7	0.1
South							
Andhra Pradesh	94.4	2.9	2.0	1.5	0.5	0.2	0.3
Karnataka	90.0	2.9	5.6	1.4	1.9	0.3	0.3
Kerala	57.9	5.0	11.9	11.8	17.8	14.5	0.2
Tamil Nadu	87.8	4.2	7.1	1.2	0.8	0.7	2.9

Note: Percentages may add to more than 100.0 because all prior methods are included.
[1]Includes both modern and traditional methods that are not listed separately

Table 5.13 Source of modern contraceptive methods

Percent distribution of current users of modern contraceptive methods by most recent source, according to specific method and residence, India, 1998–99

Source	Contraceptive method					All modern methods
	Pill	IUD	Condom	Female sterilization	Male sterilization	
			URBAN			
Public medical sector	13.1	44.8	8.7	74.5	78.2	60.1
Government/municipal hospital	7.8	31.8	5.3	58.6	54.5	46.5
Government dispensary	1.5	2.4	0.9	0.0	0.0	0.4
UHC/UHP/UFWC	1.0	2.7	0.4	1.4	2.2	1.3
CHC/rural hospital/PHC	0.8	5.9	1.0	8.2	10.2	6.7
Sub-centre	1.1	0.5	0.3	0.0	0.0	0.1
Government mobile clinic	0.0	0.2	0.0	0.1	0.8	0.1
Government paramedic	0.0	0.0	0.4	0.0	0.0	0.1
Camp	0.0	0.3	0.2	4.1	5.9	3.1
Other public medical sector	0.9	1.1	0.3	2.2	4.6	1.9
NGO or trust	0.3	2.4	0.2	1.9	0.8	1.5
Hospital/clinic	0.1	2.4	0.1	1.9	0.8	1.5
NGO worker	0.3	0.0	0.1	0.0	0.0	0.0
Private medical sector	45.0	52.2	43.0	23.2	19.9	29.0
Private hospital/clinic	4.7	39.4	4.1	21.9	18.4	19.5
Private doctor	3.2	12.5	2.0	1.0	0.7	2.0
Private mobile clinic	0.0	0.0	0.2	0.0	0.0	0.0
Private paramedic	2.5	0.0	2.8	0.0	0.0	0.5
Vaidya/hakim/homeopath	0.1	0.0	0.0	0.0	0.0	0.0
Pharmacy/drugstore	33.6	0.0	33.2	0.0	0.0	6.4
Dai (TBA)	0.0	0.0	0.2	0.0	0.0	0.0
Other private medical sector	0.9	0.3	0.3	0.3	0.8	0.3
Other source	38.3	0.6	40.3	0.3	0.9	7.9
Shop	37.8	0.0	39.8	0.0	0.0	7.6
Other	0.5	0.6	0.5	0.3	0.9	0.4
Don't know[1]	3.0	0.0	7.3	0.0	0.0	1.2
Missing	0.3	0.0	0.4	0.2	0.2	0.3
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of users	584	765	1,580	7,887	398	11,213

Table 5.13 Source of modern contraceptive methods (contd.)

Percent distribution of current users of modern contraceptive methods by most recent source, according to specific method and residence, India, 1998–99

Source	Contraceptive method					All modern methods
	Pill	IUD	Condom	Female sterilization	Male sterilization	
			RURAL			
Public medical sector	24.4	65.9	22.2	89.4	92.1	83.2
Government/municipal hospital	5.3	30.5	4.9	50.8	47.9	46.2
Government dispensary	2.6	4.1	3.3	0.0	0.0	0.4
UHC/UHP/UFWC	0.4	1.1	0.3	0.8	1.0	0.8
CHC/rural hospital/PHC	8.0	22.9	7.6	26.6	31.0	25.1
Sub-centre	6.6	5.9	4.3	0.0	0.0	0.6
Government mobile clinic	0.0	0.0	0.1	0.4	1.0	0.4
Government paramedic	0.6	0.0	0.4	0.0	0.0	0.0
Camp	0.2	1.1	0.0	10.4	10.5	9.3
Other public medical sector	0.7	0.3	1.2	0.4	0.8	0.5
NGO or trust	0.5	0.5	0.3	0.8	0.6	0.8
Hospital/clinic	0.2	0.5	0.3	0.8	0.6	0.8
NGO worker	0.3	0.0	0.1	0.0	0.0	0.0
Private medical sector	38.4	31.5	33.3	9.3	5.3	12.0
Private hospital/clinic	4.8	23.5	2.6	8.8	4.7	8.6
Private doctor	5.0	7.7	1.9	0.4	0.4	0.8
Private mobile clinic	0.1	0.1	0.0	0.0	0.0	0.0
Private paramedic	1.3	0.0	2.2	0.0	0.0	0.1
Vaidya/hakim/homeopath	1.9	0.0	0.0	0.0	0.0	0.1
Pharmacy/drugstore	25.0	0.0	26.4	0.0	0.0	2.2
Dai (TBA)	0.1	0.0	0.1	0.0	0.0	0.0
Other private medical sector	0.3	0.2	0.1	0.1	0.1	0.1
Other source	33.4	1.5	33.5	0.1	1.4	3.1
Shop	32.6	0.0	32.7	0.0	0.0	2.8
Other	0.9	1.5	0.9	0.1	1.4	0.3
Don't know[1]	2.9	0.0	10.6	0.0	0.0	0.6
Missing	0.4	0.6	0.2	0.3	0.6	0.4
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of users	1,151	606	988	20,693	1,189	24,628

Table 5.13 Source of modern contraceptive methods (contd.)

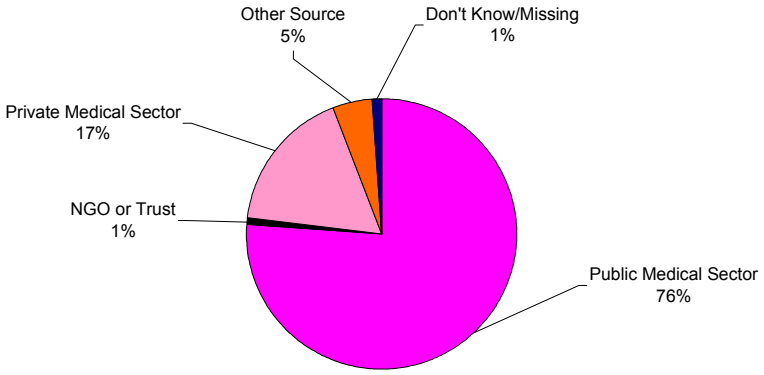
Percent distribution of current users of modern contraceptive methods by most recent source, according to specific method and residence, India, 1998–99

Source	Contraceptive method					All modern methods
	Pill	IUD	Condom	Female sterilization	Male sterilization	
			TOTAL			
Public medical sector	20.6	54.1	13.9	85.3	88.6	76.0
Government/municipal hospital	6.1	31.2	5.1	53.0	49.5	46.3
Government dispensary	2.2	3.1	1.8	0.0	0.0	0.4
UHC/UHP/UFWC	0.6	2.0	0.3	1.0	1.3	1.0
CHC/rural hospital/PHC	5.5	13.4	3.6	21.5	25.7	19.3
Sub-centre	4.8	2.8	1.9	0.0	0.0	0.5
Government mobile clinic	0.0	0.1	0.0	0.3	0.9	0.3
Government paramedic	0.4	0.0	0.4	0.0	0.0	0.0
Camp	0.1	0.7	0.1	8.7	9.3	7.4
Other public medical sector	0.8	0.8	0.6	0.9	1.8	0.9
NGO or trust	0.4	1.5	0.2	1.1	0.7	1.0
Hospital/clinic	0.1	1.5	0.2	1.1	0.7	1.0
NGO worker	0.3	0.0	0.1	0.0	0.0	0.0
Private medical sector	40.6	43.1	39.3	13.1	8.9	17.3
Private hospital/clinic	4.7	32.4	3.5	12.4	8.2	12.0
Private doctor	4.4	10.4	2.0	0.5	0.5	1.2
Private mobile clinic	0.1	0.0	0.1	0.0	0.0	0.0
Private paramedic	1.7	0.0	2.6	0.0	0.0	0.3
Vaidya/hakim/homeopath	1.3	0.0	0.0	0.0	0.0	0.1
Pharmacy/drugstore	27.9	0.0	30.6	0.0	0.0	3.5
Dai (TBA)	0.0	0.0	0.2	0.0	0.0	0.0
Other private medical sector	0.5	0.3	0.2	0.2	0.3	0.2
Other source	35.1	1.0	37.7	0.1	1.3	4.6
Shop	34.3	0.0	37.0	0.0	0.0	4.3
Other	0.7	1.0	0.7	0.1	1.3	0.3
Don't know[1]	2.9	0.0	8.6	0.0	0.0	0.8
Missing	0.4	0.3	0.3	0.3	0.5	0.3
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of users	1,735	1,371	2,568	28,580	1,587	35,841

UHC: Urban health centre; UHP: Urban health post; UFWC: Urban family welfare centre; CHC: Community health centre; PHC: Primary Health Centre; NGO: Nongovernmental organization; TBA: Traditional birth attendant

[1]For the pill and condom, this category includes women who say their husband or a friend or other relative obtained the method, but they do not know the original source of supply.

Figure 5.4
Sources of Family Planning Among Current Users of Modern Contraceptive Methods



NFHS-2, India, 1998–99

Eighty-three percent of rural users obtain their contraceptives from the public medical sector compared with 60 percent of urban users. The role of the private medical sector in providing sterilization services in urban areas and services for IUD insertion in both rural and urban areas is especially notable. About one-quarter of female sterilizations and one-fifth of male sterilizations in urban areas as well as nearly one-third of IUD insertions in rural areas and more than half of IUD insertions in urban areas are performed in the private sector.

Interstate Variations in the Role of the Public Sector

Table 5.14 provides information on the extent to which urban, rural, and all current users of modern contraceptive methods used a public-sector source as their most recent source of contraception, by specific method and by state. In Himachal Pradesh, Orissa, Madhya Pradesh, Rajasthan, and Karnataka, 85–92 percent of users used a public-sector source. On the other hand, in Meghalaya, Delhi, Nagaland, Assam, Punjab, and Kerala, less than two-thirds of users used a public-sector source. The proportion who used a public-sector source is lower in urban areas than in rural areas. In 14 out of 24 states, 90 percent or more of sterilizations of rural women were performed in the public medical sector. In 13 out of 25 states, 80 percent or more of sterilizations of urban women were performed in the public medical sector.

Table 5.14 Public sector as source of modern contraceptives by state

Percentage of current users of modern contraceptive methods for whom the most recent source of contraceptives was the public sector, according to specific method, residence, and state, India, 1998–99

State	Contraceptive method					All modern methods
	Pill	IUD	Condom	Female sterilization	Male sterilization	
			URBAN			
India	13.1	44.8	8.7	74.5	78.2	60.1
North						
Delhi	15.9	56.3	11.4	80.2	79.2	50.8
Haryana	*	(45.7)	7.5	90.7	*	59.2
Himachal Pradesh	*	56.0	14.8	97.8	(100.0)	68.4
Jammu & Kashmir	*	(38.7)	2.7	79.8	(83.0)	60.7
Punjab	(16.7)	35.5	5.9	88.2	*	40.3
Rajasthan	(23.4)	(62.5)	15.1	89.7	(96.0)	73.3
Central						
Madhya Pradesh	(28.9)	(59.4)	8.9	84.7	(83.2)	69.8
Uttar Pradesh	(13.4)	(65.8)	4.4	81.9	*	49.8
East						
Bihar	*	*	*	65.6	*	56.0
Orissa	19.3	*	*	91.2	*	74.2
West Bengal	6.0	(56.8)	3.6	79.9	*	52.6
Northeast						
Arunachal Pradesh	*	*	*	(77.8)	*	64.3
Assam	(6.3)	*	(8.3)	68.1	*	46.8
Manipur	*	(51.1)	*	90.9	*	69.7
Meghalaya	*	*	*	(43.2)	*	33.5
Mizoram	(55.4)	(64.1)	*	76.8	*	72.8
Nagaland	*	*	*	(90.5)	*	59.5
Sikkim	*	*	*	(89.7)	*	76.3
West						
Goa	*	*	(12.4)	79.3	*	62.8
Gujarat	(11.7)	30.3	8.0	64.1	(68.7)	52.2
Maharashtra	10.6	28.1	14.4	69.4	(77.0)	59.1
South						
Andhra Pradesh	*	*	*	68.7	(69.5)	64.9
Karnataka	*	50.2	(9.3)	77.1	*	70.7
Kerala	*	*	(8.5)	68.1	*	63.4
Tamil Nadu	*	43.7	15.6	70.8	*	65.0

Table 5.14 Public sector as source of modern contraceptives by state (contd.)

Percentage of current users of modern contraceptive methods for whom the most recent source of contraceptives was the public sector, according to specific method, residence, and state, India, 1998–99

State	Contraceptive method					All modern methods
	Pill	IUD	Condom	Female sterilization	Male sterilization	
			RURAL			
India	24.4	65.9	22.2	89.4	92.1	83.2
North						
Delhi	*	*	*	88.6	*	63.7
Haryana	(35.1)	63.5	21.6	96.6	(100.0)	87.9
Himachal Pradesh	(59.3)	(85.3)	36.1	99.2	100.0	94.2
Jammu & Kashmir	19.3	(59.3)	9.0	87.5	(89.1)	72.0
Punjab	28.1	53.0	14.6	98.0	(100.0)	75.2
Rajasthan	56.4	(74.5)	40.9	96.9	86.4	91.8
Central						
Madhya Pradesh	(33.9)	*	28.5	97.2	98.9	94.2
Uttar Pradesh	22.9	(73.3)	21.0	94.2	98.0	81.7
East						
Bihar	(15.9)	(55.6)	(11.6)	86.0	79.2	80.9
Orissa	26.3	*	*	97.8	96.5	91.6
West Bengal	15.7	(96.3)	(21.5)	92.3	(78.7)	74.6
Northeast						
Arunachal Pradesh	33.1	(72.0)	*	90.6	*	74.2
Assam	31.9	(85.8)	(16.4)	79.7	(92.2)	65.5
Manipur	*	72.2	*	94.7	*	81.7
Meghalaya	(44.2)	*	*	*	*	61.8
Mizoram	*	*	*	94.2	*	92.8
Nagaland	*	(43.2)	*	80.7	*	56.8
Sikkim	52.9	67.0	*	93.8	(87.9)	78.2
West						
Goa	*	*	*	82.9	*	72.9
Gujarat	*	(56.1)	(37.2)	89.3	98.0	86.7
Maharashtra	(28.6)	*	27.3	89.9	96.4	85.5
South						
Andhra Pradesh	*	*	*	83.5	89.5	83.4
Karnataka	*	(60.0)	*	94.9	*	93.3
Kerala	*	(83.6)	12.0	69.5	(84.7)	67.4
Tamil Nadu	*	(32.0)	*	81.0	*	78.9

Table 5.14 Public sector as source of modern contraceptives by state (contd.)

Percentage of current users of modern contraceptive methods for whom the most recent source of contraceptives was the public sector, according to specific method, residence, and state, India, 1998–99

State	Contraceptive method					All modern methods
	Pill	IUD	Condom	Female sterilization	Male sterilization	
			TOTAL			
India	20.6	54.1	13.9	85.3	88.6	76.0
North						
Delhi	14.4	57.0	11.2	81.0	79.3	51.9
Haryana	27.4	54.9	12.6	95.4	96.8	79.5
Himachal Pradesh	(53.1)	77.2	29.2	99.1	100.0	91.7
Jammu & Kashmir	15.3	53.2	6.3	85.3	86.5	68.5
Punjab	24.5	45.3	10.0	96.1	(100.0)	64.3
Rajasthan	43.7	69.4	25.8	95.1	89.3	86.3
Central						
Madhya Pradesh	31.3	(66.5)	14.7	93.9	94.8	86.6
Uttar Pradesh	19.4	69.3	11.0	91.2	94.5	71.1
East						
Bihar	16.2	(48.5)	(11.1)	83.1	78.3	76.9
Orissa	24.6	(73.3)	(21.7)	97.2	96.1	89.5
West Bengal	13.4	82.7	11.1	89.8	78.7	69.5
Northeast						
Arunachal Pradesh	28.3	(76.7)	*	88.0	*	72.2
Assam	29.8	83.5	14.7	78.6	(92.3)	63.7
Manipur	(24.2)	63.9	*	93.1	*	76.8
Meghalaya	(32.3)	(67.0)	*	52.4	*	47.3
Mizoram	72.3	73.6	*	84.1	*	81.0
Nagaland	*	44.3	*	83.8	*	57.7
Sikkim	49.6	69.7	*	93.0	(87.9)	77.9
West						
Goa	*	*	12.5	81.3	*	68.3
Gujarat	27.2	37.8	14.4	79.9	86.8	72.0
Maharashtra	18.1	29.8	19.9	82.3	93.1	75.2
South						
Andhra Pradesh	*	*	(15.3)	79.8	83.8	78.5
Karnataka	*	53.7	(12.4)	89.1	(80.7)	85.3
Kerala	*	(76.3)	10.8	69.2	83.8	66.4
Tamil Nadu	*	40.3	14.7	77.3	(95.5)	73.5

( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases

5.5 Reasons for Discontinuation/Non-Use of Contraception

Currently married, nonpregnant women who were not using a contraceptive method at the time of the survey fall into two categories with respect to their contraceptive experience: those who used contraception in the past and those who never used contraception. NFHS-2 asked women who had discontinued contraceptive use their main reason for discontinuing. The survey also asked women who had never used contraception the main reason they were not currently using a method. Table 5.15 shows that only 4,588 nonpregnant women who ever used family planning methods—10 percent of ever users—have discontinued use. Because 66 percent of ever users are sterilized, only 34 percent of ever users even have the option of discontinuing use. Among the small group who discontinued contraception, the most commonly mentioned reasons for discontinuing are that they wanted to have a child (29 percent) or that the method created a health problem or a menstrual problem (21 percent). There are no sharp urban-rural differentials in the reasons given for discontinuation, except that the percentage of those who discontinued because the husband was away is somewhat higher in rural areas (13 percent) than in urban areas (8 percent).

Among the 32,464 currently married nonpregnant women who never used contraception, the most commonly mentioned reason for not currently using a method is the desire for more children (45 percent). Another 12 percent of women say they are not currently using contraception because they are menopausal, have had a hysterectomy, or are infecund or subfecund. Only 7 percent mention a health-related problem (health concerns or worry about side effects). Another 7 percent mention opposition to family planning. Although knowledge of family planning methods is found to be almost universal, only 4 percent of women mention lack of knowledge as their main reason for not currently using contraception. Three percent say they are not currently using contraception because they are afraid of sterilization (thereby implicitly equating family planning with sterilization). There are no substantial urban-rural differences in reasons for not currently using contraception among women who never used contraception.

5.6 Future Intentions Regarding Contraceptive Use

Currently married women who were not using any contraceptive method at the time of the survey (including those who were pregnant at that time) were asked about their intentions to use a method in the future. If they intended to use a method, they were asked about their preferred method. This type of information can help managers of family planning programmes to identify potential groups of users and to provide the types of contraception that are likely to be in demand. Table 5.16 gives women's responses to the questions on future use according to residence and number of living children.

Sixty percent of currently married women who are not currently using any contraceptive method express an intention to use a method in the future, which is double the corresponding percentage in NFHS-1. Among women who intend to use contraception, only one-third intend to use a method within the next 12 months. The proportion of women who intend to use contraception any time in the future increases from 60 percent of women with no living children to 71 percent of women with one living child, and then declines to 68 percent of women with two living children and 60 percent of women with three living children. Fifty-three percent of women with four or more living children say they have no intention of using contraception at any time in the future.

Table 5.15 Reasons for discontinuation/non-use

Percent distribution of nonpregnant, currently married women who stopped using contraception by main reason for stopping use, and percent distribution of nonpregnant, currently married women who never used contraception by main reason for not currently using, according to residence, India, 1998–99

Reason	Urban	Rural	Total
REASON FOR STOPPING USE			
Method failed/got pregnant	3.6	4.7	4.3
Lack of sexual satisfaction	1.7	1.8	1.8
Created menstrual problem	9.2	6.9	7.7
Created health problem	14.4	12.7	13.3
Inconvenient to use	2.2	1.5	1.7
Hard to get method	0.5	1.9	1.4
Gained weight	0.3	0.1	0.2
Did not like the method	4.2	5.1	4.8
Wanted to have a child	29.8	29.2	29.4
Wanted to replace dead child	0.6	0.5	0.5
Lack of privacy for use	0.8	0.7	0.7
Husband away	8.2	13.4	11.6
Costs too much	0.9	2.3	1.8
Others	23.2	18.3	20.0
Missing	0.4	0.9	0.8
Total percent	100.0	100.0	100.0
Number of women	1,578	3,010	4,588
REASON FOR NOT CURRENTLY USING			
Husband away	3.1	2.8	2.9
Fertility-related reasons	68.8	66.4	66.8
Not having sex	2.0	1.1	1.3
Infrequent sex	1.6	1.0	1.1
Menopausal/had hysterectomy	9.4	7.9	8.2
Subfecund/infecund	5.4	3.8	4.1
Postpartum/breastfeeding	6.6	7.8	7.6
Wants more children	43.8	44.8	44.6
Opposition to use	7.9	7.3	7.4
Opposed to family planning	0.8	0.9	0.9
Husband opposed	4.0	3.7	3.8
Other people opposed	0.8	0.7	0.7
Against religion	2.3	2.0	2.0
Lack of knowledge	1.6	4.5	4.0
Knows no method	0.6	1.5	1.3
Knows no source	1.0	3.0	2.6
Method-related reasons	13.7	14.4	14.3
Health concerns	3.9	3.2	3.4
Worry about side effects	4.1	3.3	3.4
Hard to get method	0.2	0.5	0.4
Costs too much	0.3	1.1	1.0
Inconvenient to use	0.3	0.3	0.3
Afraid of sterilization	1.4	3.0	2.7
Doesn't like existing methods	3.5	3.0	3.1
Other	3.5	2.6	2.7
Don't know/missing	1.4	2.0	1.9
Total percent	100.0	100.0	100.0
Number of women	6,172	26,292	32,464

Table 5.16 Future use of contraception

Percent distribution of currently married women who are not currently using any contraceptive method by intention to use in the future, according to number of living children and residence, India, 1998–99

Intention to use in the future	Number of living children[1] 0	1	2	3	4+	Total
URBAN						
Intends to use in next 12 months	5.3	22.6	34.0	31.2	25.5	23.8
Intends to use later	57.1	48.7	30.2	24.9	13.4	36.5
Intends to use, unsure when	1.5	2.3	1.7	1.0	0.4	1.5
Unsure as to intention	11.2	4.7	2.9	2.4	2.2	4.7
Does not intend to use	24.6	21.7	31.0	40.1	58.4	33.4
Missing	0.2	0.0	0.1	0.3	0.1	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	1,655	2,525	2,154	1,176	1,639	9,149
RURAL						
Intends to use in next 12 months	4.3	14.7	24.5	28.9	26.2	20.1
Intends to use later	53.8	53.2	41.8	29.9	16.6	38.3
Intends to use, unsure when	1.0	1.9	1.5	1.6	1.1	1.4
Unsure as to intention	10.6	6.1	4.0	3.6	3.6	5.4
Does not intend to use	30.0	23.9	28.0	35.7	52.0	34.6
Missing	0.2	0.2	0.2	0.3	0.3	0.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	5,519	7,972	6,954	5,139	8,588	34,173
TOTAL						
Intends to use in next 12 months	4.6	16.6	26.8	29.3	26.1	20.9
Intends to use later	54.6	52.1	39.1	28.9	16.1	37.9
Intends to use, unsure when	1.1	2.0	1.6	1.5	1.0	1.5
Unsure as to intention	10.8	5.8	3.7	3.3	3.4	5.3
Does not intend to use	28.8	23.4	28.7	36.5	53.0	34.3
Missing	0.2	0.2	0.2	0.3	0.3	0.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	7,174	10,497	9,109	6,314	10,227	43,322

[1]Includes current pregnancy, if any

The expressed timing of future use also varies by number of living children. The proportion of women who say that they intend to use contraception after 12 or more months falls steadily with the number of living children from 55 percent among women with no living children to 16 percent among those with four or more children. The proportion expressing an intention to use contraception within the next 12 months increases from 5 percent among those with no children to 29 percent among those with three living children and then falls slightly to 26 percent among those with four or more children. The overall proportion of women who intend to use contraception at some time in the future does not differ greatly by residence, but the timing of intended future use is somewhat different for women in rural and urban areas. Twenty percent of women in rural areas intend to use contraception in the next 12 months compared with 24 percent in urban areas. Among women with one or more children, the proportion intending to use contraception after 12 months is higher in rural areas than in urban areas at each number of living children. One-third of rural as well as urban women who are currently non-users have no intention of using contraception any time in the future.

Table 5.17 Future use of contraception by state

Percentage of currently married women not currently using contraception who intend to use any time in the future by number of living children, according to state, India, 1998–99

State	Number of living children[1]					Total
	0	1	2	3	4+	
India	60.2	70.7	67.4	59.8	43.3	60.2
North						
Delhi	59.6	74.5	61.7	60.2	48.1	62.1
Haryana	85.1	90.2	86.0	77.4	56.8	80.2
Himachal Pradesh	89.7	94.5	88.1	82.8	59.9	85.6
Jammu & Kashmir	63.9	74.9	74.5	62.9	49.5	63.6
Punjab	86.2	87.3	76.3	65.2	48.2	75.1
Rajasthan	59.2	67.2	67.0	62.2	43.2	58.5
Central						
Madhya Pradesh	78.8	85.8	80.7	70.6	53.7	73.5
Uttar Pradesh	55.0	65.4	61.5	57.9	45.1	55.1
East						
Bihar	63.1	68.3	65.5	58.0	42.7	57.0
Orissa	47.4	67.6	63.2	57.8	42.4	57.5
West Bengal	42.0	63.3	66.0	63.5	42.9	56.5
Northeast						
Arunachal Pradesh	53.2	60.2	56.3	46.1	47.6	52.9
Assam	25.7	45.7	45.5	42.3	32.6	38.6
Manipur	40.5	61.9	62.6	59.7	35.8	50.8
Meghalaya	(13.5)	40.2	34.7	38.0	32.1	34.1
Mizoram	(37.0)	64.0	66.7	59.4	50.8	58.6
Nagaland	(23.8)	57.7	54.8	51.2	47.4	49.0
Sikkim	(73.9)	81.4	79.2	61.0	55.5	70.3
West						
Goa	56.5	58.3	51.1	34.0	31.1	50.2
Gujarat	76.9	83.6	68.9	72.1	50.4	72.1
Maharashtra	70.9	81.6	78.6	73.1	56.8	74.5
South						
Andhra Pradesh	62.3	72.1	70.5	57.8	28.9	62.9
Karnataka	64.0	73.5	69.7	52.9	23.9	60.8
Kerala	37.8	50.4	54.0	38.2	17.8	44.5
Tamil Nadu	47.5	68.0	63.3	38.2	18.5	54.7

( ) Based on 25–49 unweighted cases
[1]Includes current pregnancy, if any

Interstate Variations in Intentions to Use Contraception in the Future

Table 5.17 shows considerable interstate variation in intentions to use contraception in the future among women who were not using contraception at the time of the survey. The proportion of currently married women not using contraception but intending to use it in the future ranges from 34 percent in Meghalaya to 86 percent in Himachal Pradesh. The proportion is 75 percent or higher in Himachal Pradesh, Haryana, Punjab, and Maharashtra.

Table 5.18 Reasons for not intending to use contraception

Percent distribution of currently married women who are not using any contraceptive method and who do not intend to use any method in the future by main reason for not intending to use contraception, according to current age, India, 1998–99

Reason	Current age 15–29	Current age 30–49	Total
Fertility-related reasons	43.5	59.1	54.0
Not having sex	0.6	4.6	3.2
Infrequent sex	0.4	2.3	1.7
Menopausal/had hysterectomy	2.1	32.9	22.8
Subfecund/infecund	3.0	12.0	9.0
Wants as many children as possible	37.4	7.5	17.3
Opposition to use	21.4	11.0	14.4
Opposed to family planning	1.9	1.6	1.7
Husband opposed	6.4	3.7	4.6
Other people opposed	1.1	0.4	0.6
Against religion	12.1	5.2	7.5
Lack of knowledge	7.0	2.2	3.8
Knows no method	5.2	1.4	2.6
Knows no source	1.8	0.8	1.1
Method-related reasons	22.0	21.8	21.9
Health concerns	3.2	4.9	4.3
Worry about side effects	6.6	5.1	5.6
Hard to get method	0.1	0.3	0.2
Costs too much	1.2	0.7	0.9
Inconvenient	0.1	0.3	0.2
Afraid of sterilization	5.0	5.5	5.3
Doesn't like existing methods	5.9	5.1	5.3
Other	1.8	4.2	3.4
Don't know/missing	4.3	1.7	2.5
Total percent	100.0	100.0	100.0
Number of women	4,876	9,993	14,868

From these results it is evident that the proportion intending to use is not highly correlated with the level of fertility. This is possible because a high proportion currently using contraception and a low fertility rate are compatible with a residual group of non-users who are highly resistant to the idea of using contraception or who do not feel the need to use contraception. In most states the proportion intending to use in the future is highest among women with one or two living children.

Reasons for Not Intending to Use Contraception

The survey asked currently married women who were not using any method of contraception and who said that they did not intend to use a method at any time in the future why they did not intend to use contraception. This type of information is crucial for understanding the obstacles to further increases in contraceptive use and for designing effective information programmes. Table 5.18 shows that 54 percent of women mention a fertility-related reason for not intending to use contraception in the future, 22 percent mention a method-related reason, and 18 percent mention a reason related to opposition to use or lack of knowledge.

The most frequently mentioned single reason given for not intending to use contraception is that the woman is menopausal or has undergone a hysterectomy (23 percent). Other reasons given by sizeable proportions of women are that the woman wants as many children as possible (17 percent) or that the couple is subfecund or infecund (9 percent). Thirty-seven percent of women below age 30 mention the desire to have as many children as possible as the main reason for not intending to use contraception, compared with 8 percent of women age 30–49. By contrast, 45 percent of older women mention reasons related to menopause, hysterectomy, infecundity, or subfecundity, compared with only 5 percent of younger women.

Since women below age 30 account for more than 80 percent of total current fertility in India, the reasons they give for not intending to use contraception are extremely important from a policy perspective. Among the 52 percent of younger women who give reasons not related to fertility, 19 percent mention health concerns or concerns about side effects, 24 percent give other method-related reasons, and another 13 percent mention lack of knowledge. This suggests that improved information and improved quality of services could enhance the acceptance of the government's family welfare programme. Nevertheless, among younger women who are not using contraception, the desire to have as many children as possible remains the major reason for not intending to use contraception in the future.

Preferred Future Method of Contraception

NFHS-2 asked currently married women who were not using contraception but intended to use a method in the future which method of family planning they would prefer to use. Table 5.19 shows the results according to the timing of intended use. A large majority (65 percent) of women who intend to use contraception say they intend to use female sterilization, up from 59 percent in NFHS-1. The next most preferred method is the pill, which was the preference of 16 percent of women, down from 19 percent in NFHS-1. Less than 1 percent of the women prefer that their husbands get sterilized, and 3 percent each prefer to use the condom or IUD. There are important differences in the choice of preferred methods by timing of intended use. Women who intend to use within the next 12 months show a much greater preference for modern spacing methods (38 percent) than women who intend to use later (14 percent). Among women who intend to use in the next 12 months, the pill is the spacing method mentioned most often (25 percent), followed by the IUD and the condom (6 percent each). A negligible percentage of women from either group mention male sterilization as the preferred method. Results are similar for urban and rural areas with some exceptions. Among women who intend to use a method within the next 12 months, a higher proportion of rural women than urban women prefer the pill (28 percent compared with 18 percent), whereas a higher proportion of urban women than rural women prefer the condom (11 percent vs. 5 percent) and IUD (9 percent vs. 5 percent).

Overall, the mix of contraceptive methods that intended future users say they would prefer to use is not very different from the methods currently being used, with heavy reliance on female sterilization. However, the fact that 38 percent of the women intending to use contraception within the next year plan to use a spacing method suggests that there is a significant potential demand for spacing methods that will need to be met.

Table 5.19 Preferred method

Percent distribution of currently married women who are not currently using a contraceptive method but who intend to use a method in the future by preferred method, according to timing of intended use and residence, India, 1998–99

Preferred method	Timing of intended use: Next 12 months	Later	Unsure about timing	Total
URBAN				
Pill	18.4	7.4	2.7	11.5
IUD	9.2	3.1	0.9	5.4
Condom	11.0	4.0	2.3	6.6
Female sterilization	48.2	74.1	75.2	64.1
Male sterilization	0.6	0.4	1.3	0.5
Rhythm/safe period	2.7	1.2	0.6	1.8
Withdrawal	0.9	0.4	0.4	0.6
Other	1.0	0.7	1.1	0.8
Unsure	8.1	8.8	15.5	8.7
Total percent	100.0	100.0	100.0	100.0
Number	2,179	3,339	138	5,655
RURAL				
Pill	27.5	11.7	13.3	17.0
IUD	5.0	1.4	0.8	2.6
Condom	4.7	1.2	2.2	2.4
Female sterilization	48.4	74.4	67.4	65.5
Male sterilization	1.0	0.7	0.9	0.8
Rhythm/safe period	3.6	1.2	3.5	2.1
Withdrawal	1.1	0.3	0.7	0.5
Other	2.0	1.1	0.1	1.4
Unsure	6.7	8.0	11.1	7.6
Total percent	100.0	100.0	100.0	100.0
Number	6,857	13,080	492	20,429
TOTAL				
Pill	25.3	10.8	11.0	15.9
IUD	6.0	1.7	0.8	3.2
Condom	6.2	1.8	2.2	3.3
Female sterilization	48.4	74.3	69.1	65.2
Male sterilization	0.9	0.6	1.0	0.7
Rhythm/safe period	3.4	1.2	2.9	2.0
Withdrawal	1.0	0.3	0.6	0.5
Other	1.8	1.0	0.3	1.3
Unsure	7.0	8.2	12.1	7.9
Total percent	100.0	100.0	100.0	100.0
Number	9,035	16,419	630	26,084

5.7 Exposure to Family Planning Messages

For many years, the family planning programme has been using electronic and other mass media to promote family planning. Studies have confirmed that even after controlling the effect of residence and education the exposure to electronic mass media has a substantial effect on contraceptive use (Ramesh et al., 1996). It is also found to strengthen women's motivation to prevent unwanted fertility (Kulkarni and Choe, 1998). In order to explore the reach of family planning messages through various mass media, NFHS-2 asked women whether they had heard or seen any message about family planning in the past few months. Table 5.20 shows the proportion of ever-married women who report having heard or seen a family planning message in the past few months, according to various background characteristics. Results indicate that messages disseminated through the mass media reach 60 percent of ever-married women in India. The most common source of exposure to family planning messages is television. Forty-four percent of ever-married women report having seen a family planning message on television, followed by radio (38 percent), wall paintings or hoardings (31 percent), newspapers or magazines (18 percent), and cinema/film shows (13 percent). Only 4 percent were exposed to a message through a drama, folk dance, or street play.

Overall exposure to mass media messages on family planning does not vary much by age, but exposure is much higher in urban areas than in rural areas. Eighty-three percent of urban ever-married women report seeing or hearing a family planning message from at least one media source, compared with 52 percent of women in rural areas. Urban women are more likely than rural women to have been exposed to a message through each form of mass media.

Exposure to family planning messages varies greatly by education. More than 75 percent of women who are literate have heard or seen a family planning message from at least one media source in the past few months, compared with only 42 percent of women who are illiterate. This proportion reaches 94 percent among women with at least a high school education. Exposure to family planning messages through some specific media sources is even more closely linked to education than is exposure in general. For example, 86 percent of women with at least a high school education have heard or seen a family planning message on television, compared with only 26 percent of illiterate women.

Exposure to family planning messages also differs by religion. Fifty-nine percent of Hindu women and 57 percent of Muslim women say they have heard or seen a family planning message through the media, compared with 70–90 percent of Buddhist, Christian, Sikh, or Jain women. Muslim women report less exposure through television, newspapers or magazines, and wall paintings or hoardings than do women from any of the other five religions.

Sixty-eight percent of ever-married women not belonging to scheduled castes/tribes or other backward classes have seen or heard a family planning message, followed by 60 percent of women from other backward classes, 53 percent of women from scheduled castes, and 39 percent of women from scheduled tribes. This pattern of differential exposure by caste/tribe is also observed for all specific media sources except cinema/film shows. Exposure to family planning messages rises steadily as the standard of living increases, both for media in general and for each specific media source. Only 38 percent of women living in households with a low standard of living are exposed to family planning messages, compared with 89 percent of women living in households with a high standard of living.

Table 5.20 Exposure to family planning messages

Percentage of ever-married women who have heard or seen any message about family planning in the past few months, by specific media source and selected background characteristics, India, 1998–99

Background characteristic	Source of family planning message							
	Radio	Television	Cinema/ film show	News-paper/ magazine	Wall painting/ hoarding	Drama/ folk dance/ street play	Any source	Number of women
Age								
15–24	37.9	42.2	13.9	16.9	30.1	4.4	59.4	24,571
25–34	39.4	45.4	13.8	19.5	32.8	4.7	61.5	32,839
35–49	37.1	43.6	11.5	17.6	29.4	4.1	58.6	31,789
Residence								
Urban	49.0	75.9	24.5	38.1	47.3	5.6	83.4	23,370
Rural	34.3	32.5	8.9	11.0	25.0	4.0	51.6	65,829
Education								
Illiterate	25.9	25.8	5.8	1.2	14.7	2.5	42.4	51,871
Literate, < middle school complete	48.2	56.0	14.7	21.6	42.6	5.1	76.4	17,270
Middle school complete	55.8	70.5	21.8	41.0	54.1	7.1	85.9	7,328
High school complete and above	64.4	86.0	34.8	69.0	67.4	9.8	94.0	12,719
Religion								
Hindu	38.2	43.6	13.5	17.8	30.7	4.7	59.2	72,903
Muslim	35.1	38.8	8.8	13.8	25.9	2.5	57.1	11,190
Christian	51.9	50.8	19.3	37.3	48.0	5.1	75.4	2,263
Sikh	34.4	75.6	6.1	28.3	39.3	1.1	82.7	1,427
Jain	48.3	82.2	28.9	55.4	59.1	7.4	89.6	331
Buddhist/Neo-Buddhist	38.2	55.9	14.9	24.8	43.3	8.8	69.5	676
Other	32.1	20.4	6.1	8.5	23.5	4.1	49.8	285
No religion	31.6	33.2	7.0	24.5	32.4	1.7	51.6	44
Caste/tribe								
Scheduled caste	33.4	35.7	10.0	9.6	24.6	3.9	53.2	16,301
Scheduled tribe	25.2	20.6	4.9	7.0	18.2	3.3	38.8	7,750
Other backward class	38.6	43.4	15.3	17.2	33.1	4.5	60.2	29,383
Other	43.0	53.7	14.4	25.7	35.1	4.9	67.9	34,904
Standard of living index								
Low	24.1	18.6	6.4	3.4	17.8	2.8	38.0	29,033
Medium	40.2	44.5	12.1	15.1	30.4	4.2	62.6	41,289
High	55.9	83.2	25.8	48.8	53.2	7.4	89.1	17,845
Use of contraception								
Ever used	43.4	52.7	15.7	23.3	37.2	5.2	68.8	48,092
Never used	32.0	33.6	9.9	12.1	23.5	3.4	49.5	41,107
Total	38.1	43.9	13.0	18.1	30.9	4.4	59.9	89,199

Note: Total includes 11, 79, 862, and 1,032 women with missing information on education, religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.

Finally, as expected, women who have ever used contraception are more likely (69 percent) to report hearing or seeing a media message on family planning than are women who have never used contraception (50 percent). These differentials are likely to reflect some combination of greater access to broadcast signals in urban areas, the greater ability of higher-income households to own radios and televisions, and variations in attentiveness to media messages associated with differing levels of education, leisure, and interest.

5.8 Discussion of Family Planning

Irrespective of whether they had ever used contraception, all currently married women were asked whether they had discussed family planning with their husband, friends, neighbours, or other relatives in the past few months. Information on whether women talk about family planning at all, and with whom they discuss it, sheds light on their level of interest in family planning, their familial and other sources of family planning information, and the possibility of communication with others on such a personal topic. Table 5.21 shows that only 25 percent of women discussed family planning with their husband, friends, neighbours, or other relatives in the past few months. Only 18 percent of currently married women discussed family planning with their husbands and 11 percent discussed family planning with friends or neighbours. Discussions with other relatives were rare.

Women age 15–34 years are more likely to have discussed family planning with someone (27–29 percent) than women age 35–49 (17 percent). In general, the proportion of women who have discussed family planning varies predictably by most other background characteristics. Urban women are somewhat more likely (29 percent) than rural women (23 percent) to have discussed family planning. The proportion of women reporting such discussions rises with women's education (from 20 among illiterate women to 36 percent among women with at least a high school education), husband's education (from 19 to 31 percent), and the standard of living index (from 19 percent among women living in households with a low standard of living to 33 percent among women living in households with a high standard of living). By religion, about one-quarter of women from each religion have discussed family planning with others, except the percentage is almost double (49 percent) among Sikh women. Discussions about family planning are slightly lower for scheduled-tribe women than for other caste/tribe groups, but the differences are small. Women who have ever used contraception are more likely to have discussed family planning (28 percent) than women who have never used contraception (20 percent).

Interstate Variations in Exposure to Family Planning Messages and Discussions about Family Planning

The three indicators shown in Table 5.22 summarize state differentials in the situation of women regarding their exposure to family planning messages through media and their discussions with their husbands and others about family planning. Women's media exposure to family planning messages varies from 36 percent in Rajasthan to 92 percent in Delhi. Exposure also exceeds 80 percent in Himachal Pradesh, Sikkim, Goa, Punjab, Karnataka, Manipur, and Kerala. At the other extreme are four large states with low levels of contraception—Rajasthan, Bihar, Uttar Pradesh, and Madhya Pradesh—with exposure ranging from 36 percent in Rajasthan to 49 percent in Madhya Pradesh.

Table 5.21 Discussion of family planning

Percentage of currently married women who discussed family planning with their husbands, friends, neighbours, or other relatives in the past few months by selected background characteristics, India, 1998–99

Background characteristic	Person with whom discussed family planning								Any of these persons	Number of women
	Husband	Mother	Sister	Daughter	Mother-in-law	Sister-in-law	Friend/ neighbour	Other relative		
Age										
15–24	21.7	2.5	1.2	0.1	3.1	2.2	9.8	0.3	27.4	23,944
25–34	21.8	1.9	1.7	0.2	2.0	2.6	12.3	0.4	29.3	31,342
35–49	10.1	0.5	0.9	1.1	0.5	1.5	9.1	0.2	17.2	28,363
Residence										
Urban	21.8	2.0	1.8	0.5	1.9	2.2	11.5	0.4	29.3	21,888
Rural	16.4	1.4	1.1	0.4	1.8	2.1	10.1	0.3	23.0	61,761
Education										
Illiterate	13.8	1.1	0.8	0.5	1.4	1.6	8.7	0.2	19.7	48,018
Literate, < middle school complete	19.1	2.0	1.7	0.6	2.2	2.4	11.8	0.4	27.1	16,257
Middle school complete	24.0	2.4	1.8	0.3	2.7	2.9	13.7	0.4	32.3	7,073
High school complete and above	27.9	2.5	2.3	0.2	2.4	3.4	14.1	0.5	36.3	12,291
Religion										
Hindu	17.1	1.6	1.2	0.5	1.9	2.1	10.5	0.3	24.1	68,443
Muslim	19.3	1.3	1.3	0.2	1.3	1.9	9.4	0.4	24.9	10,477
Christian	17.2	1.5	1.7	0.5	1.0	1.5	10.6	0.2	24.9	2,072
Sikh	40.7	2.7	3.4	0.1	4.0	7.3	21.3	0.0	48.9	1,365
Jain	18.7	1.8	1.5	0.4	2.0	1.9	10.0	0.5	24.8	316
Buddhist/Neo-Buddhist	21.4	1.8	0.8	0.0	2.4	0.5	8.0	1.2	25.2	601
Other	18.9	1.4	1.1	0.0	1.8	1.9	7.6	1.0	24.9	259
No religion	19.4	1.4	0.4	0.0	4.5	0.2	11.0	0.2	24.8	38
Caste/tribe										
Scheduled caste	17.4	1.5	1.0	0.6	1.9	1.7	10.7	0.2	24.1	15,178
Scheduled tribe	15.1	0.9	0.7	0.2	1.3	1.2	8.5	0.3	20.8	7,176
Other backward class	16.4	1.9	1.4	0.6	2.0	2.2	11.0	0.3	23.9	27,529
Other	19.8	1.6	1.4	0.4	1.7	2.5	10.5	0.4	26.4	32,957
Standard of living index										
Low	13.6	1.4	0.8	0.3	1.2	1.3	8.9	0.3	19.3	26,505
Medium	17.8	1.6	1.3	0.5	2.0	2.0	10.3	0.3	24.7	38,999
High	24.2	1.9	2.1	0.6	2.5	3.7	13.4	0.4	32.7	17,173
Use of contraception										
Ever used	20.0	1.6	1.7	0.7	1.8	2.7	12.7	0.3	28.4	46,115
Never used	15.1	1.5	0.8	0.2	1.9	1.5	7.8	0.3	19.9	37,534
Husband's education										
Illiterate	12.7	1.2	0.8	0.6	1.2	1.4	8.5	0.2	18.6	24,965
Literate, < middle school complete	15.8	1.5	1.3	0.5	1.6	1.9	10.0	0.3	22.7	21,298
Middle school complete	19.7	1.7	1.3	0.3	2.1	2.2	10.8	0.3	26.3	11,330
High school complete and above	23.5	2.0	1.7	0.4	2.5	3.0	12.7	0.4	31.3	25,847
Total	17.8	1.6	1.3	0.5	1.8	2.1	10.5	0.3	24.6	83,649

Note: Total includes 11, 77, 809, 971, and 209 women with missing information on education, religion, caste/tribe, the standard of living index, and husband's education, respectively, who are not shown separately.

Table 5.22 Exposure to messages and discussion of family planning by state

Percentage of ever-married women who have been exposed to a family planning message in the past few months, and percentage of currently married women who know a contraceptive method who have discussed family planning with their husbands, friends, neighbours, or other relatives by state, India, 1998–99

State	Exposed to family planning message[1]	Discussed family planning with husband	Discussed family planning with anyone[2]
India	59.9	17.8	24.6
North			
Delhi	91.7	23.6	27.5
Haryana	76.6	47.4	57.0
Himachal Pradesh	88.4	44.4	54.5
Jammu & Kashmir	60.6	22.0	28.9
Punjab	84.8	49.7	58.8
Rajasthan	35.9	17.7	22.6
Central			
Madhya Pradesh	48.9	16.4	23.7
Uttar Pradesh	47.1	18.5	22.7
East			
Bihar	39.7	13.9	19.8
Orissa	58.9	24.4	31.1
West Bengal	56.5	17.8	25.2
Northeast			
Arunachal Pradesh	67.9	19.3	27.7
Assam	60.8	20.5	25.4
Manipur	80.8	18.5	23.5
Meghalaya	62.8	27.4	30.6
Mizoram	77.7	32.6	40.0
Nagaland	64.4	29.8	35.4
Sikkim	88.0	12.4	20.3
West			
Goa	85.7	25.1	33.4
Gujarat	62.5	11.4	20.6
Maharashtra	62.2	17.5	20.5
South			
Andhra Pradesh	75.9	10.0	22.7
Karnataka	84.4	14.8	21.8
Kerala	80.6	17.8	23.8
Tamil Nadu	75.7	13.1	23.8

[1]Women who have heard or seen any message about family planning on the radio or television, in a cinema, film show, newspaper, or magazine, on a wall painting or hoarding, or in a drama, folk dance, or street play in the past few months
[2]Husband, friends, neighbours, or other relatives

Women in Andhra Pradesh, Gujarat, Sikkim, and Tamil Nadu (10–13 percent) are less likely than women in other states to have discussed family planning with their husbands. Comparable estimates for Punjab and Haryana are 50 percent and 47 percent, respectively. Discussions of family planning with anyone range from 20 percent in Bihar and Sikkim to 59 percent in Punjab. Surprisingly, women in the southern states, despite high levels of media exposure to family planning messages, are about as likely to have discussed family planning with their husbands or with anyone as women in the states with low media exposure to family planning messages.

5.9 Need for Family Planning

Currently married women who are not using any method of contraception but who do not want any more children or want to wait two or more years before having another child are defined as having an unmet need for family planning. Current contraceptive users are said to have a met need for family planning. The total demand for family planning is the sum of the met need and the unmet need. Table 5.23 shows the unmet need, met need, and total demand for family planning, according to whether the need is for spacing or limiting births, by background characteristics of women. The footnotes in the table provide detailed definitions of these concepts.

According to these definitions, 16 percent of currently married women in India have an unmet need for family planning. The unmet need for spacing births is the same as the unmet need for limiting births (8 percent). If all of the women who say they want to space or limit their births were to use family planning, the contraceptive prevalence rate would increase from 48 percent to 64 percent of currently married women, implying that 25 percent of total family planning need is not being met. Comparison with NFHS-1 indicates that the proportion of women with unmet need for family planning declined from 20 to 16 percent during the six and one-half years between the two surveys. The proportion of total demand for family planning that is met increased from 68 percent to 75 percent.

Unmet need is highest (27 percent) among women below age 20; the unmet need in this age group is almost entirely for spacing rather than for limiting. Unmet need is also relatively high for women age 20–24 (24 percent), with 75 percent of the need being for spacing. Among women age 25–29, 19 percent have an unmet need, and more than half of this need is for limiting. Only 23 percent of the total demand for family planning is being met for married women age 15–19. This proportion rises sharply to 52 percent for women age 20–24, to 73 percent for women age 25–29, and to 82–95 percent for women age 30–49. Both met need and unmet need for contraception among women age 30 years and above are mostly for limiting.

Unmet need for family planning is higher in rural areas than in urban areas, and the proportion of total demand for family planning that is satisfied is lower in rural areas than in urban areas. Unmet need for family planning varies by women's education, but only within a narrow range of 14 to 17 percent. The percentage of demand satisfied rises with education from 73 percent among illiterate women to 79 percent among women with at least a high school education.

Table 5.23 Need for family planning services

Percentage of currently married women with unmet need, met need, and total demand for family planning (FP) services and percentage of total demand satisfied by selected background characteristics, India, 1998–99

Background characteristic	Unmet need for FP[1]			Met need (currently using)[2]			Total demand for FP			Percentage of demand satisfied
	For spacing	For limiting	Total	For spacing	For limiting	Total	For spacing	For limiting	Total	
Age										
15–19	25.6	1.6	27.1	5.6	2.4	8.0	31.2	4.0	35.2	22.8
20–24	18.4	5.9	24.4	7.7	18.3	26.0	26.1	24.3	50.4	51.6
25–29	8.1	10.5	18.6	4.9	44.4	49.3	13.0	54.8	67.9	72.7
30–34	3.1	11.1	14.1	2.1	60.6	62.7	5.2	71.7	76.8	81.6
35–39	1.1	9.1	10.2	0.7	66.7	67.4	1.7	75.8	77.5	86.9
40–44	0.2	5.5	5.7	0.2	64.7	64.9	0.5	70.1	70.6	91.9
45–49	0.1	3.0	3.1	0.0	57.2	57.2	0.1	60.2	60.3	94.8
Residence										
Urban	6.7	6.7	13.4	5.2	53.0	58.2	11.9	59.7	71.6	81.3
Rural	8.9	7.8	16.7	2.9	41.8	44.7	11.8	49.6	61.3	72.8
Education										
Illiterate	7.8	8.5	16.2	1.6	41.3	42.9	9.4	49.8	59.2	72.6
Literate, < middle school complete	8.4	6.1	14.4	3.5	52.0	55.5	11.8	58.1	69.9	79.3
Middle school complete	11.1	6.1	17.1	6.8	45.4	52.2	17.9	51.5	69.3	75.3
High school complete and above	8.8	6.3	15.1	9.1	47.9	57.0	17.9	54.2	72.1	79.0
Religion										
Hindu	8.0	7.1	15.1	3.1	46.1	49.2	11.1	53.2	64.3	76.5
Muslim	11.0	11.0	22.0	5.2	31.8	37.0	16.1	42.8	59.0	62.7
Christian	8.7	6.1	14.8	5.2	47.2	52.4	13.9	53.3	67.2	78.0
Sikh	3.6	5.1	8.6	5.6	59.6	65.2	9.2	64.7	73.9	88.3
Jain	5.9	3.6	9.5	6.0	59.1	65.1	12.0	62.6	74.6	87.2
Buddhist/Neo-Buddhist	7.4	5.3	12.7	2.7	62.0	64.7	10.1	67.3	77.4	83.6
Other	6.9	5.4	12.3	8.7	39.9	48.6	15.6	45.3	60.9	79.8
No religion	14.2	11.4	25.6	5.1	24.9	30.1	19.4	36.3	55.7	54.0
Caste/tribe										
Scheduled caste	8.6	8.2	16.8	2.7	42.0	44.6	11.2	50.2	61.4	72.7
Scheduled tribe	8.8	7.0	15.9	2.5	36.7	39.1	11.3	43.7	55.0	71.1
Other backward class	8.6	7.1	15.7	2.5	44.3	46.8	11.2	51.3	62.5	74.8
Other	7.7	7.5	15.2	5.0	48.5	53.5	12.7	56.0	68.7	77.8
Standard of living index										
Low	9.0	8.8	17.9	1.9	37.5	39.5	11.0	46.4	57.4	68.8
Medium	8.5	7.2	15.6	3.3	45.2	48.4	11.7	52.3	64.0	75.6
High	6.7	6.1	12.8	6.3	54.9	61.2	13.0	61.0	74.0	82.7

Contd…

Table 5.23 Need for family planning services (contd.)

Percentage of currently married women with unmet need, met need, and total demand for family planning (FP) services and percentage of total demand satisfied by selected background characteristics, India, 1998–99

Background characteristic	Unmet need for FP[1]			Met need (currently using)[2]			Total demand for FP			Percentage of demand satisfied
	For spacing	For limiting	Total	For spacing	For limiting	Total	For spacing	For limiting	Total	
Number of living children										
0	13.8	0.2	14.1	3.8	0.7	4.6	17.7	1.0	18.6	24.4
1	20.6	2.6	23.2	12.4	11.4	23.7	32.9	14.0	46.9	50.6
2	7.9	7.1	15.0	3.0	55.1	58.1	10.8	62.2	73.1	79.5
3	4.1	7.8	11.9	1.1	66.4	67.5	5.2	74.2	79.4	85.0
4	2.9	9.7	12.5	0.7	65.1	65.8	3.5	74.8	78.3	84.0
5	2.4	14.2	16.6	0.3	56.4	56.7	2.8	70.5	73.3	77.3
6+	2.0	20.5	22.5	0.3	41.1	41.4	2.4	61.6	63.9	64.8
Total	8.3	7.5	15.8	3.5	44.7	48.2	11.8	52.2	64.0	75.3

[1]Unmet need for *spacing* includes pregnant women whose pregnancy was mistimed, amenorrhoeic women whose last birth was mistimed, and women who are neither pregnant nor amenorrhoeic and who are not using any method of family planning and who say they want to wait two or more years for their next birth. Also included in unmet need for spacing are women who are unsure whether they want another child or who want another child but are unsure when to have the birth. Unmet need for *limiting* refers to pregnant women whose pregnancy was unwanted, amenorrhoeic women whose last child was unwanted, and women who are neither pregnant nor amenorrhoeic who are not using any method of family planning and who want no more children.
[2]Met need for *spacing* refers to women who are using some method of family planning and say they want to have another child or are undecided whether to have another. Met need for *limiting* refers to women who are using some method and who want no more children. Note that *spacing* and *limiting* refer to the reason for using contraception rather than to the particular method used.

Hindu and Christian women have a lower unmet need for family planning (15 percent) than Muslim women (22 percent) but a higher unmet need than women from other religious groups (8–13 percent). The percentage of total demand satisfied is higher for Hindu and Christian women (77–78 percent) than for Muslims (63 percent), but less than that of other religious groups (80–88 percent). There are no notable differentials in the extent of unmet need by caste/tribe, but the percentage of demand satisfied is somewhat higher for women who do not belong to a scheduled caste or tribe or other backward class. Unmet need declines steadily from 18 to 13 percent, and the percentage of demand satisfied increases from 69 to 83 percent as the standard of living index rises from low to high.

Unmet need is much higher for women with one living child and for women with 6 or more living children (23 percent) than for women with either no children (14 percent) or two to five children (12–17 percent). Among women with no children or one child, unmet need is almost exclusively for spacing. The proportion of unmet need that is for limiting then rises from 47 percent among women with two living children to 91 percent among women with six or more living children.

Among women with no living children, only 24 percent of total demand for family planning is satisfied. Half of total demand is satisfied among women with one living child. The proportion of demand satisfied rises sharply to 80–85 percent for women with two to four living children and then declines to 65 percent for women with six or more children. These results indicate that the family planning programme's strong emphasis on sterilization results in failure to meet the spacing needs of young women who are still in the process of forming their families.

These findings on unmet need from NFHS-2 corroborate similar findings from NFHS-1 (Radha Devi et al., 1996).

Interstate Variations in Unmet Need

Table 5.24 and Figure 5.5 show that unmet need for family planning services ranges from 7 percent in Punjab to 25 percent in Uttar Pradesh and Bihar (among major states) to 36 percent in the small northeastern state of Meghalaya. In Uttar Pradesh unmet need declined from 30 to 25 percent between NFHS-1 and NFHS-2. In Bihar it remained unchanged at 25 percent. In Rajasthan, Madhya Pradesh, and Orissa, unmet need declined from 20–22 percent in NFHS-1 to 16–18 percent in NFHS-2. Haryana, Karnataka, Himachal Pradesh, Punjab, West Bengal, Assam, and Gujarat are the other states that have achieved a considerable decline in unmet need since NFHS-1. Unmet need increased in all the northeastern states except Assam. The percentage of demand satisfied increased in all states except Meghalaya, Mizoram, Goa, and Kerala. The percentage of unmet need that is for spacing ranges from 37 percent in Jammu and Kashmir to 75 percent in Mizoram.

In summary, NFHS-2 results show that although current use of contraception has increased and the extent of unmet need has declined in most of the states in India, there is a need for considerable improvement in the coverage and quality of family planning services, especially in the four large states of Uttar Pradesh, Bihar, Madhya Pradesh, and Rajasthan, as well as in Orissa. The findings underscore the need for appropriate state-specific strategies with emphasis on universal education, imaginative use of electronic mass media for IEC programmes, intensified promotion of temporary methods, and improvement in the quality of services.

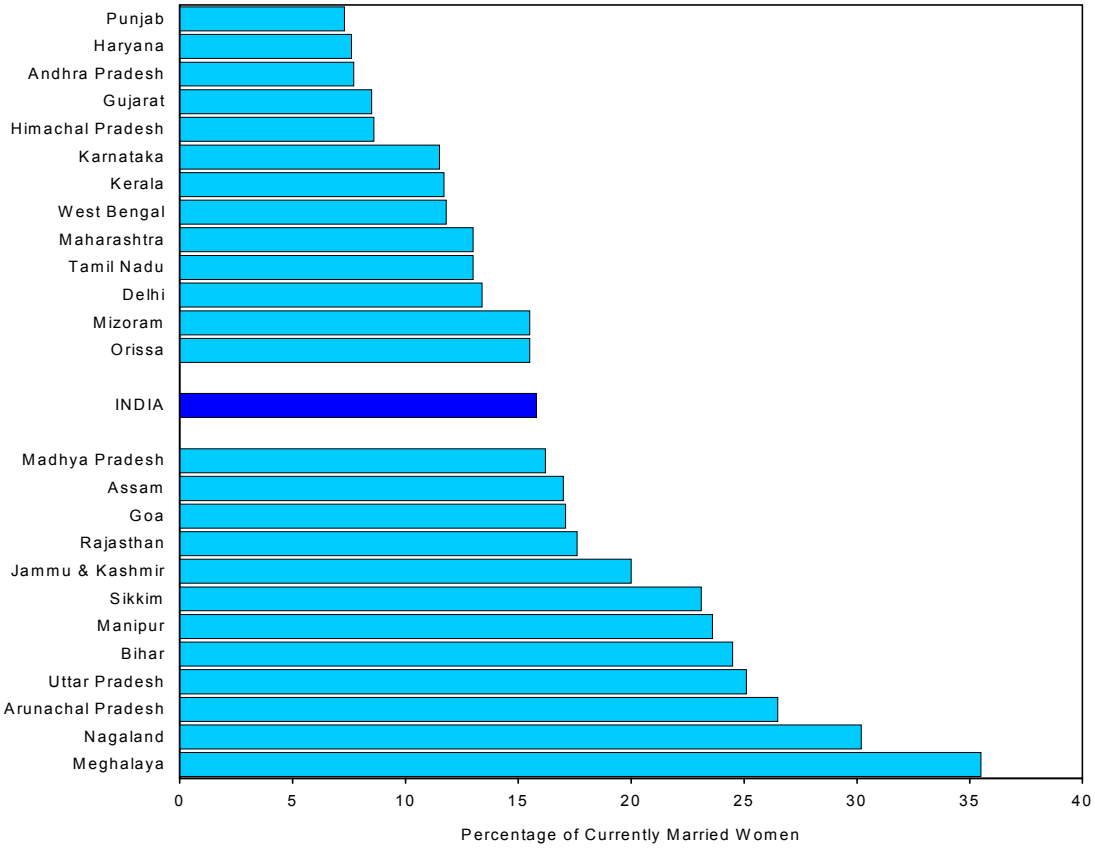
Table 5.24 Need for family planning services by state

Percentage of currently married women with unmet need, met need, and total demand for family planning (FP) services, and percentage of total demand satisfied, according to state, India, 1998–99

State	Unmet need for FP[1]			Met need (currently using)[2]			Total demand for FP			Percentage of demand satisfied
	For spacing	For limiting	Total	For spacing	For limiting	Total	For spacing	For limiting	Total	
India	8.3	7.5	15.8	3.5	44.7	48.2	11.8	52.2	64.0	75.3
North										
Delhi	5.9	7.5	13.4	7.8	56.0	63.8	13.7	63.5	77.1	82.7
Haryana	2.9	4.7	7.6	4.1	58.3	62.4	7.0	62.9	69.9	89.2
Himachal Pradesh	3.6	4.9	8.6	3.5	64.2	67.7	7.1	69.2	76.3	88.8
Jammu & Kashmir	7.4	12.6	20.0	4.5	44.6	49.1	11.9	57.1	69.0	71.1
Punjab	2.8	4.5	7.3	5.2	61.5	66.7	8.0	66.0	74.0	90.1
Rajasthan	8.7	8.9	17.6	2.4	37.9	40.3	11.1	46.8	57.9	69.6
Central										
Madhya Pradesh	8.9	7.3	16.2	2.2	42.1	44.3	11.1	49.4	60.5	73.2
Uttar Pradesh	11.8	13.4	25.1	3.0	25.1	28.1	14.7	38.5	53.2	52.8
East										
Bihar	12.6	11.9	24.5	1.4	23.1	24.5	14.0	35.0	49.1	50.0
Orissa	8.7	6.8	15.5	2.4	44.4	46.8	11.1	51.2	62.3	75.1
West Bengal	6.3	5.5	11.8	9.8	56.9	66.6	16.0	62.4	78.4	85.0
Northeast										
Arunachal Pradesh	17.2	9.3	26.5	6.4	29.1	35.4	23.6	38.4	61.9	57.2
Assam	7.0	10.0	17.0	7.9	35.3	43.3	14.9	45.3	60.2	71.8
Manipur	13.6	10.0	23.6	8.9	29.8	38.7	22.5	39.8	62.3	62.1
Meghalaya	23.4	12.1	35.5	4.5	15.6	20.2	27.9	27.8	55.7	36.3
Mizoram	11.7	3.7	15.5	8.2	49.5	57.7	20.0	53.3	73.2	78.9
Nagaland	18.3	11.9	30.2	2.5	27.7	30.3	20.8	39.6	60.5	50.0
Sikkim	9.9	13.2	23.1	6.4	47.4	53.8	16.3	60.6	76.9	70.0
West										
Goa	7.3	9.8	17.1	7.1	40.4	47.5	14.4	50.2	64.6	73.5
Gujarat	4.8	3.7	8.5	4.9	54.2	59.0	9.7	57.8	67.5	87.4
Maharashtra	8.1	4.9	13.0	3.1	57.8	60.9	11.2	62.7	74.0	82.4
South										
Andhra Pradesh	5.2	2.5	7.7	0.7	58.9	59.6	5.9	61.4	67.3	88.5
Karnataka	8.3	3.2	11.5	2.1	56.2	58.3	10.4	59.4	69.8	83.5
Kerala	6.9	4.9	11.7	6.2	57.5	63.7	13.1	62.4	75.5	84.4
Tamil Nadu	6.6	6.4	13.0	2.2	49.9	52.1	8.8	56.3	65.1	80.1

[1]Unmet need for *spacing* includes pregnant women whose pregnancy was mistimed, amenorrhoeic women whose last birth was mistimed, and women who are neither pregnant nor amenorrhoeic and who are not using any method of family planning and who say they want to wait two or more years for their next birth. Also included in unmet need for spacing are women who are unsure whether they want another child or who want another child but are unsure when to have the birth. Unmet need for *limiting* refers to pregnant women whose pregnancy was unwanted, amenorrhoeic women whose last child was unwanted, and women who are neither pregnant nor amenorrhoeic who are not using any method of family planning and who want no more children.
[2]Met need for *spacing* refers to women who are using some method of family planning and say they want to have another child or are undecided whether to have another. Met need for *limiting* refers to women who are using some method and who want no more children. Note that *spacing* and *limiting* refer to the reason for using contraception rather than to the particular method used.

Figure 5.5
Unmet Need for Family Planning by State



NFHS-2, India, 1998–99

CHAPTER 6

MORTALITY, MORBIDITY, AND IMMUNIZATION

This chapter presents mortality rates, particularly for infants and young children, and data on the prevalence of certain diseases (morbidity). It also presents information on the prevention and treatment of diseases, especially those that are life-threatening to young children. The chapter ends with data on women's knowledge of AIDS. This type of information is relevant both to an assessment of the demographic situation and to the design of appropriate health policies and programmes. Mortality estimates are also useful for projecting the future size of the population. Detailed information on mortality and morbidity (by demographic and socioeconomic characteristics) can be used to identify population groups that are at high risk and in need of health services. This chapter primarily presents information on child health, while other chapters of this report, particularly Chapter 8, present information on maternal and reproductive health.

The Government of India has repeatedly taken steps to strengthen maternal and child health services in India, starting during the First and Second Five-Year Plans (1951–56 and 1956–61) under the Ministry of Health, and continuing with the Minimum Needs Programme initiated during the Fifth Five-Year Plan (1974–79). More recently, efforts to improve maternal and child health have been enhanced by activities of the Family Welfare Programme and by the introduction of the Child Survival and Safe Motherhood Programme (Ministry of Health and Family Welfare, 1992). The Ministry of Health and Family Welfare has also sponsored special projects under the Maternal and Child Health Programme, including the Oral Rehydration Therapy (ORT) programme, the establishment of Regional Institutes of Maternal and Child Health in states where infant mortality rates are high, the Universal Immunization Programme, and the Maternal and Child Health Supplemental Programme within the Postpartum Programme (Ministry of Health and Family Welfare, 1992). These programmes are now integrated into the Reproductive and Child Health Programme launched in 1996.

Maternal and child health services in rural areas of India are delivered mainly by government-run Primary Health Centres and sub-centres. In urban areas, such services are available mainly through government or municipal hospitals, urban health posts, hospitals and nursing homes operated by nongovernmental organizations (NGOs), and private nursing homes and maternity homes.

The second National Family Health Survey (NFHS-2) includes questions on mortality and morbidity on both the Household Questionnaire and the Woman's Questionnaire. The Household Questionnaire has questions on individuals in the household suffering from asthma, tuberculosis, jaundice, and malaria, plus questions on deaths occurring to usual residents of the household during the two years preceding the survey. The Woman's Questionnaire collects information on the survival status of all births and the age at death of children who died. The Woman's Questionnaire also contains questions on child immunization coverage and sources; vitamin A supplementation for children; prevalence of acute respiratory infections, fever, and diarrhoea among children and the treatment of these illnesses; and mothers' knowledge of oral rehydration therapy.

The information on child health and health-care practices was collected from mothers for children born since 1 January 1995 (in states where the fieldwork started in 1998) or 1 January 1996 (in states where the fieldwork started in 1999). If a woman had more than two live births during the three years preceding the survey, the information was collected for only the two most recent births. The information on child health presented in this chapter pertains to children born during the three years preceding the survey.

6.1 Crude Death Rates and Age-Specific Death Rates

Table 6.1 shows crude death rates (CDR) and age-specific death rates by sex and by residence for the usual resident (*de jure*) population of India from NFHS-2 and the Sample Registration System (SRS). The SRS death rates are based on deaths to the usual resident population in 1997. The NFHS-2 death rates are based on the average annual number of deaths occurring to usual residents of the household during the two-year period preceding the survey (approximately 1997–98). The denominators for the NFHS-2 death rates are obtained by projecting the number of usual residents at the time of the survey backwards to the midpoint of the time period on the basis of the intercensal population growth rate in the country. The intercensal growth rate is assumed to be the same for all age and sex groups. Similarly, the rural intercensal growth rate is applied to all rural age and sex groups and the urban intercensal growth rate is applied to all urban age and sex groups.

Questions on the number of deaths occurring to usual residents in each household during a particular time period have been included in demographic surveys in many countries and have often resulted in a substantial underreporting of deaths. The Sample Registration System (SRS), maintained by the Office of the Registrar General of India, provides a useful comparison. The most recent report on mortality estimates by age for India is for 1997 (Office of the Registrar General, 1999a).

Table 6.1 shows an estimated average annual CDR for India of 9.7 deaths per 1,000 population based on NFHS-2 data (covering roughly 1997–98) compared with 8.9 from the 1997 SRS. Thus, contrary to expectations, the CDR estimated from NFHS-2 is slightly higher than the corresponding SRS estimate. NFHS-2 estimates of the CDR are also higher than the SRS estimates in both urban and rural areas. This suggests that reporting of deaths in NFHS-2 may be better than that in the SRS. The urban CDR estimated by NFHS-2 is 25 percent lower than the rural CDR. NFHS-2 age-specific death rates are higher than the SRS rates for most of the age groups. The most notable exception is the age group 0–4, where the NFHS-2 estimate is considerably lower than the SRS estimate.

In most countries, male death rates are higher than female death rates at nearly all ages. South Asia generally has been an exception in this respect, with higher death rates for females over much of the age span (Tabutin and Willems, 1995; Preston, 1989; Ghosh, 1987). According to both NFHS-2 and the SRS, the male CDR in India is higher than the female CDR, but the age-specific death rates are slightly higher for females than for males through age 30, after which males generally have higher rates.

Table 6.1 Age-specific death rates and crude death rates

Age-specific death rates and crude death rates (CDR) from NFHS-2 and the SRS by sex and residence, India

	NFHS-2 (1997–98)			SRS (1997)		
Age	Male	Female	Total	Male	Female	Total
			URBAN			
0–4	13.1	11.3	12.2	12.5	13.8	13.1
5–9	0.9	1.4	1.2	1.0	1.2	1.1
10–14	1.2	0.9	1.1	0.9	0.7	0.8
15–19	1.7	1.9	1.8	1.0	1.5	1.2
20–24	1.4	1.5	1.4	1.8	2.0	1.9
25–29	3.0	2.3	2.6	2.1	2.1	2.1
30–34	4.0	2.1	3.1	2.9	1.9	2.4
35–39	2.9	2.7	2.8	3.5	2.0	2.8
40–44	5.5	2.3	4.0	4.4	3.6	4.0
45–49	8.8	4.4	6.7	7.5	5.5	6.6
50–54	13.1	9.3	11.4	12.5	7.3	10.1
55–59	16.1	8.7	12.3	18.2	11.2	14.8
60–64	24.5	20.9	22.8	28.2	18.2	23.2
65–69	34.1	30.2	32.1	46.2	30.8	38.2
70+	103.2	103.4	103.3	88.4	73.7	80.7
CDR	8.3	7.3	7.8	7.0	6.0	6.5
			RURAL			
0–4	19.5	20.6	20.0	24.2	27.2	25.6
5–9	2.1	2.4	2.2	2.0	2.7	2.3
10–14	1.0	1.5	1.2	1.2	1.3	1.3
15–19	1.8	2.7	2.2	1.4	2.4	1.9
20–24	3.2	4.7	4.0	2.3	3.1	2.7
25–29	2.9	3.5	3.2	2.8	2.9	2.9
30–34	4.3	2.8	3.5	3.5	3.2	3.3
35–39	4.2	3.8	4.0	4.0	3.2	3.6
40–44	6.3	4.0	5.2	6.6	4.2	5.4
45–49	9.0	7.1	8.1	9.6	5.8	7.8
50–54	15.1	11.8	13.6	14.7	11.0	12.9
55–59	16.3	11.9	13.9	20.1	14.9	17.5
60–64	29.8	27.3	28.6	33.4	23.1	28.1
65–69	40.9	27.8	34.6	46.4	35.3	40.7
70+	99.5	111.3	104.5	90.0	78.6	84.2
CDR	10.7	10.0	10.4	9.8	9.4	9.6
			TOTAL			
0–4	18.1	18.5	18.3	21.8	24.5	23.1
5–9	1.8	2.2	2.0	1.8	2.4	2.1
10–14	1.0	1.4	1.2	1.1	1.2	1.2
15–19	1.8	2.5	2.1	1.4	2.1	1.7
20–24	2.7	3.8	3.2	2.2	2.8	2.5
25–29	2.9	3.2	3.1	2.6	2.7	2.7
30–34	4.2	2.6	3.4	3.4	2.8	3.1
35–39	3.8	3.5	3.7	3.9	2.9	3.4
40–44	6.1	3.5	4.9	6.0	4.0	5.0
45–49	8.9	6.3	7.7	9.0	5.8	7.5
50–54	14.6	11.1	13.0	14.2	10.2	12.2
55–59	16.3	11.1	13.5	19.7	14.1	16.9
60–64	28.5	25.9	27.2	32.3	22.1	27.1
65–69	39.2	28.4	34.0	46.3	34.4	40.2
70+	100.3	109.1	104.2	89.7	77.6	83.5
CDR	10.1	9.3	9.7	9.2	8.6	8.9

Note: Age-specific death rates and crude death rates (CDR) from NFHS-2 are based on the annual number of deaths reported for the *de jure* population during the two years preceding the survey. The SRS rates are also *de jure*, based on deaths during 1997. Rates are specified on a per-thousand basis.
Source for SRS: Office of the Registrar General, 1999b

Table 6.2 Crude death rates by state

Crude death rates (CDR) from NFHS-1, NFHS-2, and the SRS by residence and state, India

	NFHS-1 (1991–92)			NFHS-2 (1997–98)			SRS (1997)		
State	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
India	7.6	10.4	9.7	7.8	10.4	9.7	6.5	9.6	8.9
North									
Delhi	8.0	4.1	7.8	7.9	6.8	7.8	5.4	5.4	5.4
Haryana	8.1	9.3	9.0	7.4	8.4	8.1	6.9	8.3	8.0
Himachal Pradesh	6.5	8.6	8.4	7.4	8.3	8.3	5.9	8.3	8.1
Jammu & Kashmir	U	U	U	9.1	8.0	8.3	U	U	U
Punjab	7.2	7.0	7.1	7.1	9.0	8.4	6.1	7.8	7.4
Rajasthan	7.2	7.9	7.8	8.8	10.6	10.2	9.4	9.3	8.9
Central									
Madhya Pradesh	9.1	10.7	10.3	8.7	10.7	10.2	7.7	11.7	11.0
Uttar Pradesh	7.7	13.0	11.9	7.9	10.8	10.2	8.2	10.7	10.3
East									
Bihar	9.0	12.0	11.5	8.3	11.6	11.2	6.8	10.4	10.0
Orissa	7.4	11.6	11.0	9.2	13.4	12.9	7.5	11.3	10.9
West Bengal	8.6	10.2	9.7	7.3	8.7	8.3	7.2	7.9	7.7
Northeast									
Arunachal Pradesh	0.8	9.1	8.2	12.1	12.5	12.4	2.0	6.1	5.8
Assam	7.0	11.9	11.3	6.1	9.7	9.4	5.9	10.3	9.9
Manipur	5.3	6.1	5.8	9.8	8.7	9.0	6.2	5.8	5.9
Meghalaya	6.6	6.1	6.2	7.6	10.4	9.9	4.4	9.7	8.8
Mizoram	4.2	2.7	3.4	6.0	8.7	7.3	3.7	5.7	4.8
Nagaland	1.7	2.0	1.9	4.3	7.6	6.9	2.7	U	U
Sikkim	U	U	U	3.3	6.8	6.3	3.5	6.6	6.5
West									
Goa	5.9	7.1	6.5	8.7	11.1	10.1	7.2	8.0	7.7
Gujarat	7.2	10.2	9.1	7.6	8.3	8.0	6.2	8.3	7.6
Maharashtra	7.3	8.1	7.7	7.8	9.9	9.0	5.4	8.6	7.3
South									
Andhra Pradesh	7.4	9.2	8.7	7.7	11.7	10.7	5.9	9.1	8.3
Karnataka	6.2	8.1	7.5	6.9	8.4	7.9	5.4	8.5	7.6
Kerala	6.1	6.3	6.2	5.7	6.1	6.0	6.1	6.3	6.2
Tamil Nadu	7.3	11.0	9.7	8.1	12.2	10.8	6.7	8.7	8.0

Note: Crude death rates (CDR) from NFHS-1 and NFHS-2 are based on the annual number of deaths reported for the *de jure* population during the two years preceding the survey. The SRS rates are also *de jure*, based on deaths during 1997. Rates are specified on a per-thousand basis.
U: Not available
Source for SRS: Office of the Registrar General, 1999a

Table 6.2 provides comparisons among NFHS-1, NFHS-2, and SRS estimates of the CDR by state. For India as a whole, the CDR has remained at 9.7 per 1,000 since NFHS-1. The CDR from NFHS-2 ranges from 6.0 per 1,000 in Kerala to 12.9 per 1,000 in Orissa. Estimates for urban Nagaland and Sikkim seem low, perhaps mainly due to the small size of the samples. The CDR is higher in rural areas than in urban areas for all states except Delhi, Jammu and Kashmir, and Manipur. A comparison of NFHS-1 and NFHS-2 estimates by state shows that the CDR has declined in only 9 of the 23 states where data are available from both surveys. The CDR appears to have increased most markedly in the smaller northeastern states between the two surveys. It should be pointed out that the sampling errors are relatively large in these states due to the small size of the samples in both surveys.

Table 6.2 also shows the CDRs for the year 1997 from the SRS for 23 states for which the SRS has published statewise estimates. The SRS estimates are lower than the NFHS-2 estimates in 18 of the 23 states. This may reflect greater underestimation of deaths in the SRS than in NFHS-2.

6.2 Infant and Child Mortality

Infant and child mortality rates reflect a country's level of socioeconomic development and quality of life and are used for monitoring and evaluating population and health programmes and policies. NFHS-2 asked all ever-married women age 15–49 to provide a complete history of their births including, for each live birth, the sex, month and year of birth, survival status, and age at the time of the survey or age at death. Age at death was recorded in days for children dying in the first month of life, in months for other children dying before their second birthday, and in years for children dying at later ages. This information was used to calculate the following direct estimates of infant and child mortality[1]:

Neonatal mortality:	The probability of dying in the first month of life
Postneonatal mortality:	The probability of dying after the first month of life but before the first birthday
Infant mortality ($_1q_0$):	The probability of dying before the first birthday
Child mortality ($_4q_1$):	The probability of dying between the first and fifth birthdays
Under-five mortality ($_5q_0$):	The probability of dying before the fifth birthday

Assessment of Data Quality

The reliability of mortality estimates calculated from retrospective birth histories depends upon the completeness with which deaths of children are reported and the extent to which birth dates and ages at death are accurately reported and recorded. Estimated rates of infant and child mortality are subject to both sampling and nonsampling errors. While sampling errors for various mortality estimates are provided in Appendix C, this section describes the results of various checks for nonsampling errors—in particular, underreporting of deaths in early childhood (which would result in an underestimate of mortality) and misreporting of the date of birth or age at death (which could distort the age pattern of under-five mortality). Both problems are likely to be more pronounced for children born further in the past than for children born recently. Underreporting of infant deaths is usually most serious for deaths that occur very early in infancy. If deaths in the early neonatal period are selectively underreported, there will be an abnormally low ratio of deaths under seven days to all neonatal deaths and an abnormally low ratio of neonatal to infant mortality. Changes in these ratios over time can be examined to test the

[1]A detailed description of the method for calculating the probabilities presented here is given in Rutstein (1984). The mortality estimates are not rates, but are true probabilities, calculated according to the conventional life-table approach. Deaths and exposure in any calendar period are first tabulated for the age intervals 0, 1–2, 3–5, 6–11, 12–23, 24–35, 36–47, and 48–59 months. Then age-interval-specific probabilities of survival are calculated. Finally, probabilities of mortality for larger age segments are produced by multiplying the relevant age-interval survival probabilities together and subtracting the product from one:

$$_nq_x = 1 - \prod_{i=x}^{i=x+n} (1 - q_i)$$

hypothesis that underreporting of early infant deaths is more common for births that occurred further in the past than for births that occurred more recently. Failure to report deaths will result in mortality figures that are too low and if underreporting is more severe for children born longer ago than children born recently, any decline in mortality will tend to be understated.

Results from Table D.5 (Appendix D) suggest that early neonatal deaths have not been seriously underreported in India as a whole in NFHS-2, since the ratios of deaths under seven days to all neonatal deaths are consistently high (between 70 and 74 percent) for the different time periods preceding the survey (a ratio of less than 25 percent is often used as a guideline to indicate underreporting of early neonatal deaths). The ratios decline slightly over time, from 74 in the five years preceding the survey to 70 in the period 10–14 years preceding the survey, indicating that some early infant deaths may not have been reported by older women. The ratios of infant deaths that occurred during the neonatal period (Appendix Table D.6) are also consistently high (between 64 and 67 percent) for the different time periods preceding the survey, and again they increase slightly over time.

Another problem inherent in most retrospective surveys is heaping of age at death on certain digits, e.g., 6, 12, and 18 months. If the net result of age misreporting is the transference of deaths between age segments for which the rates are calculated, misreporting of the age at death will bias estimates of the age pattern of mortality. For instance, an overestimate of child mortality relative to infant mortality may result if children dying during the first year of life are reported as having died at age one year or older. Thus, heaping at 12 months can bias the mortality estimates because a certain fraction of these deaths, which are reported to have occurred after infancy (i.e., at ages 12–23 months), may have actually occurred during infancy (i.e., at ages 0–11 months). In such cases, heaping would bias infant mortality (${}_1q_0$) downward and child mortality (${}_4q_1$) upward.

In NFHS-2, there appears to be some preference for reporting age at death at 3, 5, 8, 10, 12, 15, 20, and 25 days (Table D.5 in Appendix D). An examination of the distribution of deaths under age two years during the 15 years preceding the survey by month of death (Appendix Table D.6) indicates some heaping of deaths at 6, 12, and 18 months of age. Heaping at 12 months and reporting of the age at death as 'one year' are substantial despite the strong emphasis on this problem during the training of interviewers for the NFHS-2 fieldwork[2]. Nevertheless, even if one-third of the deaths reported at age 12 months or age one year actually occurred at less than 12 months of age, the infant mortality rate for the five years before the survey would be underestimated by only 2 percent.

An examination of the distribution of births and deaths since 1988 (Table D.4 in Appendix D) suggests that there may be some underreporting of deaths in the most recent five-year period. The proportion of deaths to births decreases from 11 percent in 1988 to 6 percent in 1998. Some of this decrease undoubtedly reflects a real reduction in mortality during that period and some reflects the fact that younger children have had less exposure to the risk of mortality. However, the sharp disjuncture in the proportion of deaths between 1994 and 1995 may be due partly to underreporting of deaths relative to births during the most recent period.

[2]Interviewers were trained to probe for the exact number of months lived by the child if the age at death was reported as 'one year'.

It is seldom possible to establish mortality levels with confidence for a period of more than 15 years before a survey. Even within the recent 15-year period considered here, apparent trends in mortality rates should be interpreted with caution for several reasons. First, there may be differences in the completeness of death reporting related to the length of time before the survey. Second, the accuracy of reports of age at death and of date of birth may deteriorate with time. Third, sampling variability of mortality rates tends to be high, especially for groups with relatively few births. Fourth, mortality rates are truncated as they go back in time because women currently age 50 or above who were bearing children during earlier periods were not included in the survey. This truncation affects mortality trends, in particular. For example, for the period 10–14 years before the survey, the rates do not include any births for women age 40–49 since these women were over age 50 at the time of the survey and were not eligible to be interviewed. Since these excluded births to older women were likely to be at a somewhat greater risk of dying than births to younger women, the mortality rates for the period may be slightly underestimated. Estimates for more recent periods are less affected by truncation bias since fewer older women are excluded. The extent of this bias depends on the proportion of births omitted. Table 4.26 (Chapter 4) shows that less than 5 percent of the children born in the three years before the survey were born to women age 35 and above. Given the small proportion of births excluded, selection bias for infant and child mortality statistics as far back as 15 years before the survey should be negligible.

Levels, Trends, and Differentials in Infant and Child Mortality

Table 6.3 and Figure 6.1 present various measures of infant and child mortality by residence for the three five-year periods preceding the survey. Infant mortality in India declined from 86 deaths per 1,000 live births during 1984–88 (10–14 years before the survey) to 68 deaths per 1,000 live births during 1994–98 (0–4 years before the survey), an average rate of decline of nearly 2 infant deaths per 1,000 live births per year. A comparison of the infant mortality rate for the period 0–4 years before NFHS-2 (68 deaths per 1,000 live births) with the infant mortality rate 0–4 years before NFHS-1 (79 deaths per 1,000 live births) suggests a similar rate of decline of 11 deaths per 1,000 live births over the six and one-half years between the two surveys. The NFHS-2 infant mortality rate for the period 5–9 years before the survey (78) is slightly lower than the NFHS-1 infant mortality rate for the period 0–4 years before the survey, so the results from the two surveys are quite compatible for these years.

All other measures of infant and child mortality presented in Table 6.3 have also declined during the past 15 years. Despite the overall decline in infant and child mortality, however, 1 in every 15 children born during the five years before NFHS-2 died within the first year of life, and 1 in every 11 children died before reaching age five. Clearly, child survival programmes in India need to be intensified to achieve further reductions in infant and child mortality.

Rural mortality rates are considerably higher than urban mortality rates. Child mortality is almost twice as high in rural areas as in urban areas, neonatal mortality is 47 percent higher in rural areas, postneonatal mortality is 73 percent higher in rural areas, and infant mortality is 56 percent higher in rural areas. Under-five mortality is 64 percent higher in rural areas than in urban areas.

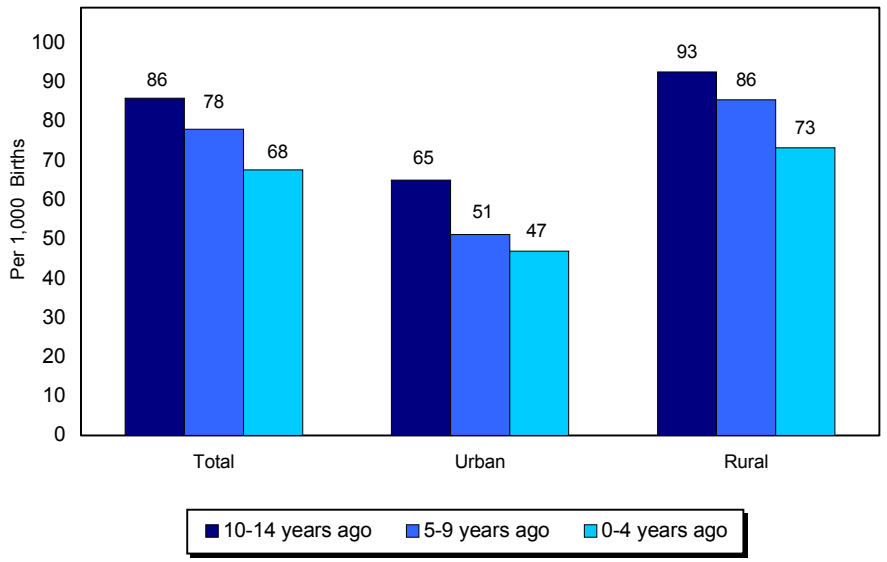
Table 6.3 Infant and child mortality

Neonatal, postneonatal, infant, child, and under-five mortality rates for five-year periods preceding the survey by residence, India, 1998–99

Years preceding the survey	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
URBAN					
0–4	31.7	15.4	47.0	16.9	63.1
5–9	35.1	16.1	51.2	17.2	67.5
10–14	42.1	22.9	65.1	23.1	86.7
RURAL					
0–4	46.7	26.6	73.3	32.8	103.7
5–9	56.3	29.2	85.5	36.4	118.8
10–14	58.4	34.2	92.6	45.0	133.4
TOTAL					
0–4	43.4	24.2	67.6	29.3	94.9
5–9	51.7	26.4	78.0	31.9	107.4
10–14	54.5	31.4	85.9	39.3	121.9

Note: The first five-year period preceding the survey does not include the month in which the interview took place. Rates are specified on a per-thousand basis. See text for definition of rates.
[1]Computed as the difference between the infant and neonatal mortality rates

Figure 6.1
Infant Mortality Rates for Five-Year Periods by Residence



Note: Rates are for five-year periods preceding the survey

NFHS-2, India, 1998–99

All infant and child mortality rates declined steadily in both urban and rural areas of India during the 15 years preceding NFHS-2. Infant mortality in rural areas declined from 93 deaths per 1,000 live births during 1984–88 to 73 deaths per 1,000 live births during 1994–98. Neonatal mortality declined by 20 percent and postneonatal mortality declined by 22 percent in rural areas over the same period. In urban areas, infant mortality declined from 65 deaths per 1,000 live births during 1984–88 to 47 deaths per 1,000 live births during 1994–98. Neonatal and postneonatal mortality in urban areas declined by 25 percent and 33 percent, respectively. A comparison with corresponding figures from NFHS-1 shows a decline in every rural and urban estimate of infant and child mortality for the five-year period before each survey.

The estimated NFHS-2 infant mortality rate of 68 deaths per 1,000 live births during 1994–98 is somewhat lower than the SRS value of 73 deaths per 1,000 live births averaged for the period 1994–98. This difference between NFHS-2 and the average SRS infant mortality rates is significant statistically (the lower and upper confidence limits for the NFHS-2 estimate are 64.7 and 70.4, respectively (Appendix Table C.2)). The NFHS-2 estimate of the infant mortality rate for rural areas is also lower than the average SRS estimate over the same period (73 deaths per 1,000 live births from NFHS-2 compared with 78 deaths per 1,000 live births from the SRS). The NFHS-2 estimate for urban areas is the same as the average SRS estimate for urban areas (47 deaths per 1,000 live births).

Socioeconomic Differentials in Infant and Child Mortality

The probability of dying in early childhood is higher in some population groups than in others. Table 6.4 and Figure 6.2 present differentials in infant and child mortality rates for the 10-year period preceding the survey by selected background characteristics. Children in rural areas of India experience a 70 percent higher probability of dying before their fifth birthday than urban children, slightly more than the 64 percent differential in the most recent five-year period shown in Table 6.3.

The overall infant mortality rate declines sharply with increasing education of mothers, as expected, ranging from a high of 87 deaths per 1,000 live births for illiterate mothers to a low of 33 deaths per 1,000 live births for mothers who have at least completed high school. Other mortality indicators shown in the table vary similarly with mother's education. As one would expect, mother's education has a stronger negative effect on postneonatal and child mortality than on neonatal mortality (which is strongly affected by biological factors).

All the infant and child mortality rates are much higher for Hindus than for Muslims. The infant mortality rate is 31 percent higher and the child mortality rate is 28 percent higher for Hindu children than for Muslim children. These findings are consistent with those of NFHS-1, which also recorded much higher rates of infant and child mortality for Hindus than Muslims in India. Mortality differentials by religion presumably reflect influences other than religion alone. For example, a larger proportion of Muslims than Hindus in India live in urban areas, where mortality rates are generally low. This is confirmed by a study based on NFHS-1 data, which noted that the difference in infant and child mortality rates between Hindu and Muslim children is reduced considerably when other demographic and socioeconomic variables are controlled statistically (Pandey et al., 1998).

Table 6.4 Infant and child mortality by background characteristics

Neonatal, postneonatal, infant, child, and under-five mortality rates for the 10-year period preceding the survey by selected background characteristics and residence, India, 1998–99

Background characteristic	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
URBAN					
Mother's education					
Illiterate	44.1	23.8	67.8	28.8	94.7
Literate, < middle complete	30.8	11.8	42.6	14.7	56.7
Middle school complete	29.5	13.3	42.8	9.2	51.6
High school complete and above	22.2	8.2	30.4	3.7	34.0
Religion					
Hindu	36.6	16.7	53.3	17.2	69.6
Muslim	25.9	14.0	39.8	18.8	57.9
Christian	29.6	8.0	37.5	10.9	48.0
Sikh	21.8	18.8	40.6	13.1	53.1
Jain	(44.5)	(4.7)	(49.2)	(0.0)	(49.2)
Buddhist/Neo-Buddhist	(17.5)	(9.2)	(26.7)	(6.1)	(32.6)
Other	(2.0)	(8.7)	(10.7)	(5.9)	(16.6)
No religion	*	*	*	*	*
Caste/tribe					
Scheduled caste	40.1	20.2	60.4	25.2	84.0
Scheduled tribe	35.6	22.1	57.6	23.4	79.6
Other backward class	35.3	15.8	51.2	16.3	66.6
Other	29.8	13.7	43.5	14.1	57.0
Standard of living index					
Low	48.8	27.3	76.1	39.1	112.2
Medium	34.6	16.9	51.5	17.6	68.2
High	24.1	8.9	33.0	6.6	39.4
Total	33.5	15.8	49.2	17.0	65.4
RURAL					
Mother's education					
Illiterate	57.0	32.4	89.4	41.5	127.2
Literate, < middle complete	44.0	20.3	64.3	20.0	82.9
Middle school complete	36.1	15.0	51.1	11.4	61.9
High school complete and above	26.9	8.8	35.7	5.6	41.1
Religion					
Hindu	53.8	29.1	82.8	36.3	116.2
Muslim	43.6	23.8	67.5	28.6	94.1
Christian	30.0	24.0	53.9	23.3	76.0
Sikh	42.5	14.3	56.8	12.0	68.2
Jain	*	*	*	*	*
Buddhist/Neo-Buddhist	58.7	18.2	76.9	20.9	96.2
Other	63.6	27.4	91.0	23.4	112.2
No religion	(48.5)	(36.0)	(84.5)	(83.0)	(160.5)
Caste/tribe					
Scheduled caste	56.2	31.9	88.1	43.0	127.3
Scheduled tribe	55.1	31.8	86.9	48.8	131.4
Other backward class	54.7	27.6	82.2	32.7	112.2
Other	45.1	24.2	69.3	25.6	93.1
Standard of living index					
Low	56.5	33.7	90.2	45.8	131.8
Medium	50.7	25.3	76.0	28.8	102.6
High	37.4	14.7	52.1	11.7	63.2
Total	51.7	28.0	79.7	34.6	111.5

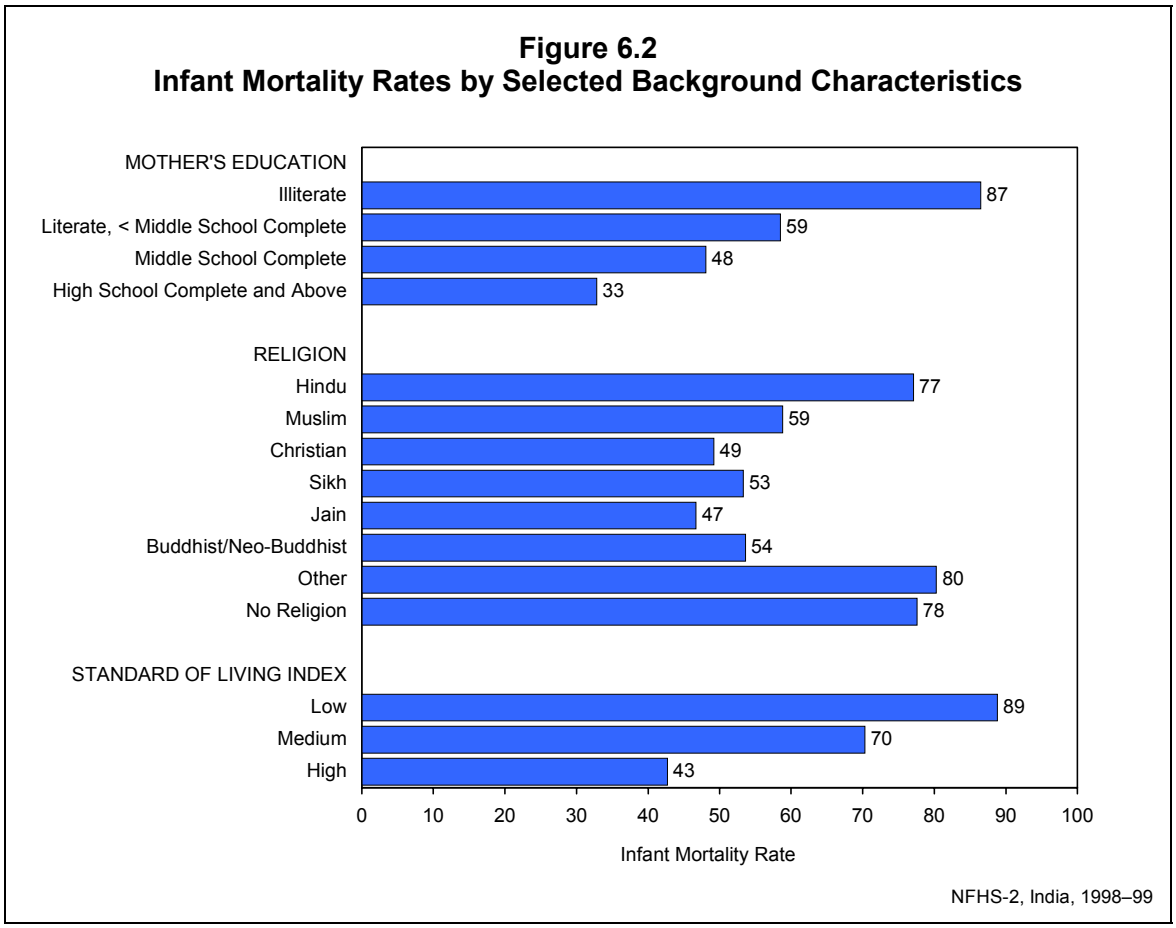
Table 6.4 Infant and child mortality by background characteristics (contd.)

Neonatal, postneonatal, infant, child, and under-five mortality rates for the 10-year period preceding the survey by selected background characteristics and residence, India, 1998–99

Background characteristic	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
		TOTAL			
Mother's education					
Illiterate	55.3	31.2	86.5	39.7	122.8
Literate, < middle complete	40.5	18.0	58.5	18.4	75.8
Middle school complete	33.7	14.4	48.1	10.5	58.1
High school complete and above	24.3	8.5	32.8	4.4	37.1
Religion					
Hindu	50.4	26.7	77.1	32.4	107.0
Muslim	38.0	20.8	58.8	25.4	82.7
Christian	29.8	19.4	49.2	19.7	68.0
Sikh	38.0	15.3	53.3	12.3	64.9
Jain	(36.3)	(10.5)	(46.7)	(11.3)	(57.5)
Buddhist/Neo-Buddhist	39.5	14.0	53.6	14.1	66.9
Other	55.5	24.7	80.3	20.9	99.4
No religion	(45.4)	(32.1)	(77.6)	(77.2)	(148.8)
Caste/tribe					
Scheduled caste	53.2	29.8	83.0	39.5	119.3
Scheduled tribe	53.3	30.9	84.2	46.3	126.6
Other backward class	50.8	25.2	76.0	29.3	103.1
Other	40.7	21.1	61.8	22.2	82.6
Standard of living index					
Low	55.8	33.1	88.8	45.2	130.0
Medium	47.0	23.4	70.3	26.1	94.6
High	30.9	11.8	42.7	9.1	51.5
Total	47.7	25.3	73.0	30.6	101.4

Note: The 10-year period preceding the survey does not include the month in which the interview took place. Rates are specified on a per-thousand basis. See text for definition of rates. Total includes children with missing information on mother's education, religion, caste/tribe, and the standard of living index, whose mortality rates are not shown separately.
( ) Based on 250–499 children surviving to the beginning of the age interval
*Rates not shown; based on fewer than 250 children surviving to the beginning of the age interval
[1]Computed as the difference between the infant and neonatal mortality rates

Children of women belonging to scheduled castes and scheduled tribes have higher rates of infant and child mortality than children of women belonging to other backward classes or 'other' women. Children of 'other' women have by far the lowest rates of infant and child mortality. As expected, all indicators of infant and child mortality decline substantially with increases in the household standard of living. For example, for children in households with a high standard of living the infant mortality rate is 43 deaths per 1,000 live births and the under-five mortality rate is 52 deaths per 1,000 live births; the corresponding rates for children in households with a low standard of living are more than twice as high at 89 and 130, respectively. The postneonatal mortality rate is almost three times as high in households with a low standard of living as in households with a high standard of living, the child mortality rate is almost five times as high, and the neonatal mortality rate is almost twice as high. Similar differentials in infant and child mortality by mothers' education, religion, caste/tribe, and living standard are observed in both urban and rural areas.



Demographic Differentials in Infant and Child Mortality

This section examines differentials in early childhood mortality by demographic characteristics of the child and the mother. Table 6.5 and Figure 6.3 present various indicators of infant and child mortality for the 10 years preceding the survey by sex of the child, mother's age at childbirth, birth order, length of the previous birth interval, medical care received by the mother during pregnancy, delivery, and the early postpartum period, and size of the child at the time of birth.

Table 6.5 shows that the female mortality rate below age five years is slightly higher than the male mortality rate (105 deaths per 1,000 live births for females compared with 98 deaths per 1,000 live births for males). This pattern is evident in rural areas, but not in urban areas. Excess female mortality occurs mainly after the first year of life. The infant mortality rate during the 10-year period before the survey is slightly higher for boys (75 deaths per 1,000 live births) than for girls (71 deaths per 1,000 live births), but the child mortality rate (${}_4q_1$) is considerably higher for girls (37 deaths per 1,000) than for boys (25 deaths per 1,000). This reversal of sex differentials in mortality with increasing age has been observed in other studies in South Asia and is thought to reflect the relative medical and nutritional neglect of the girl-child (Das Gupta, 1987; Basu, 1989).

Table 6.5 Infant and child mortality by demographic characteristics

Neonatal, postneonatal, infant, child, and under-five mortality rates for the 10-year period preceding the survey by selected demographic characteristics and residence, India, 1998–99

Demographic characteristic	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
		URBAN			
Sex of child					
Male	37.8	16.0	53.8	14.6	67.6
Female	28.8	15.5	44.3	19.7	63.1
Mother's age at birth					
< 20	48.4	19.3	67.7	21.3	87.5
20–29	28.1	14.4	42.4	14.2	56.0
30–39	36.6	17.1	53.7	23.5	75.9
40–49	*	*	*	*	*
Birth order					
1	34.3	13.7	48.1	9.1	56.8
2	32.3	12.6	44.8	14.3	58.5
3	26.8	15.7	42.5	19.5	61.1
4	36.6	19.4	56.0	25.7	80.3
5	29.9	21.1	50.9	21.0	70.8
6+	47.9	27.4	75.4	37.5	110.0
Previous birth interval					
< 24 months	49.4	23.1	72.6	27.8	98.3
24–47 months	26.9	15.4	42.2	19.6	61.0
48+ months	17.9	7.9	25.9	8.8	34.4
Medical care[2]					
No care	46.2	20.0	66.2	U	U
One or two types of care	35.8	19.3	55.1	U	U
All three types of care	21.8	8.2	30.1	U	U
Birth size[3]					
Large	31.0	9.3	40.3	U	U
Average	21.5	13.9	35.4	U	U
Small	43.5	23.1	66.6	U	U
Very small	(106.5)	(17.5)	(124.0)	U	U

Table 6.5 Infant and child mortality by demographic characteristics (contd.)

Neonatal, postneonatal, infant, child, and under-five mortality rates for the 10-year period preceding the survey by selected demographic characteristics and residence, India, 1998–99

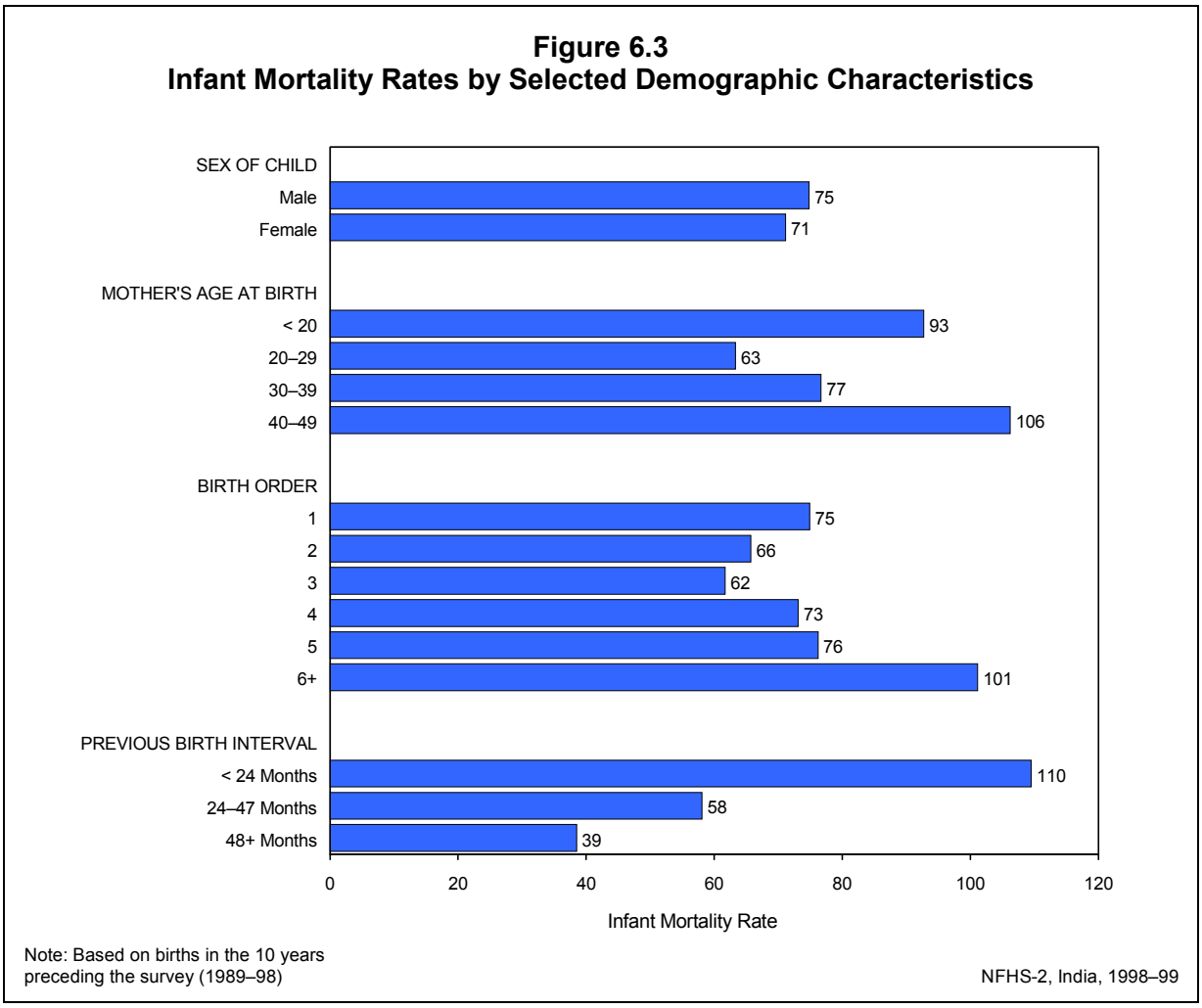
Demographic characteristic	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
		RURAL			
Sex of child					
Male	54.3	26.4	80.7	27.9	106.4
Female	49.0	29.7	78.6	41.7	117.0
Mother's age at birth					
< 20	66.1	31.8	97.9	33.1	127.7
20–29	44.7	25.3	70.0	33.5	101.2
30–39	52.0	30.9	83.0	41.4	121.0
40–49	60.8	47.5	108.4	53.3	155.9
Birth order					
1	58.8	25.4	84.2	22.4	104.7
2	47.5	25.0	72.6	29.5	100.0
3	41.6	25.2	66.8	38.0	102.2
4	46.5	30.4	76.9	39.5	113.3
5	52.4	28.8	81.2	46.6	124.1
6+	65.0	40.6	105.6	52.3	152.4
Previous birth interval					
< 24 months	77.4	41.6	119.0	55.1	167.5
24–47 months	37.5	24.3	61.9	34.4	94.2
48+ months	26.0	16.5	42.5	15.2	57.0
Medical care[2]					
No care	54.2	36.8	90.9	U	U
One or two types of care	35.8	19.0	54.7	U	U
All three types of care	22.4	14.5	36.9	U	U
Birth size[3]					
Large	33.4	21.1	54.6	U	U
Average	32.4	21.6	54.0	U	U
Small	48.5	29.7	78.2	U	U
Very small	111.2	42.6	153.8	U	U

Table 6.5 Infant and child mortality by demographic characteristics (contd.)

Neonatal, postneonatal, infant, child, and under-five mortality rates for the 10-year period preceding the survey by selected demographic characteristics and residence, India, 1998–99

Demographic characteristic	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
		TOTAL			
Sex of child					
Male	50.7	24.2	74.8	24.9	97.9
Female	44.6	26.6	71.1	36.7	105.2
Mother's age at birth					
< 20	63.1	29.7	92.7	31.0	120.8
20–29	40.7	22.6	63.3	28.7	90.2
30–39	48.7	27.9	76.7	37.4	111.2
40–49	61.9	44.3	106.2	57.2	157.4
Birth order					
1	52.4	22.4	74.9	18.9	92.3
2	43.8	22.0	65.7	25.7	89.8
3	38.5	23.2	61.7	33.9	93.5
4	44.7	28.4	73.1	36.8	107.3
5	48.7	27.5	76.2	42.0	115.0
6+	62.5	38.6	101.1	49.8	145.9
Previous birth interval					
< 24 months	71.7	37.8	109.5	49.2	153.3
24–47 months	35.5	22.6	58.1	31.4	87.7
48+ months	24.1	14.4	38.5	13.6	51.5
Medical care[2]					
No care	53.6	35.5	89.1	U	U
One or two types of care	35.8	19.0	54.8	U	U
All three types of care	22.2	11.8	34.0	U	U
Birth size[3]					
Large	32.8	18.1	50.9	U	U
Average	30.0	19.9	49.9	U	U
Small	47.5	28.3	75.9	U	U
Very small	110.1	37.0	147.2	U	U

Note: The period preceding the survey does not include the month in which the interview took place. Rates are specified on a per-thousand basis. See text for definition of rates.
U: Not available
( ) Based on 250–499 children surviving to the beginning of the age interval
*Rates not shown; based on fewer than 250 children surviving to the beginning of the age interval
[1]Computed as the difference between the infant and neonatal mortality rates
[2]Medical care includes (i) antenatal care received from a health worker, (ii) delivery assistance given by a doctor, nurse, trained midwife, or other health professional, and (iii) postnatal care received in a health facility or at home within two months of delivery; rates are for the three-year period preceding the survey.
[3]Birth size as reported by the mother; rates are for the three-year period preceding the survey.



The lower female than male infant mortality rate in India results from considerably higher neonatal mortality among boys (51 deaths per 1,000) than among girls (45 deaths per 1,000) coupled with slightly higher female than male mortality rates during the postneonatal period.

For both social and biological reasons, infant mortality rates and child mortality rates often exhibit a U-shaped pattern with respect to the mother's age at childbirth, with children of the youngest and oldest mothers experiencing higher mortality rates than children whose mothers are in their prime reproductive ages. Children born to young mothers are more likely to be of low birth weight, which is probably an important factor contributing to their higher neonatal mortality rate. Similarly, children born to mothers above age 30 are at a relatively high risk of experiencing congenital problems. The expected U-shaped pattern of mortality by mother's age is observed for all indicators of infant and child mortality in India.

Birth order also tends to have a U-shaped relationship to infant deaths, with first births and high-order births having elevated mortality rates. In Table 6.5 and Figure 6.3, birth order shows the expected U-shaped pattern for neonatal and infant mortality rates. This association is likely to reflect not only the effect of birth order but also the effect of the age of the mother at childbirth. Postneonatal mortality and child mortality rates tend to increase with birth order. The

under-five mortality rate declines slightly from the first birth order to the second birth order and then increases steadily with birth order. The increase in the child mortality rate with birth order may reflect a more intense competition faced by higher birth-order children for the caregiver's time, for medical resources, and for nutritious food when children are weaned. It is also likely that higher birth-order children are disproportionately from lower socioeconomic groups, in which mortality tends to be higher.

The timing of successive births has a powerful effect on the survival chances of children in India. Infant and child mortality rates decrease sharply as the length of the previous birth interval increases, and all measures are especially high for children born less than 24 months after a previous birth. The infant mortality rate is almost three times as high for children with a previous birth interval of less than 24 months as for children with a previous interval of 48 months or more (110 deaths compared with 39 deaths per 1,000 live births). The previous birth interval has a similar effect on all other indicators of infant and child mortality shown in Table 6.5. Although the length of the previous birth interval is likely to affect mortality risks directly, a substantial portion of the association between birth intervals and mortality risks may reflect the effect of factors that are correlated with birth intervals. For example, shorter birth intervals are likely to occur in large families, and large families tend to come from lower socioeconomic groups and are more likely than other families to live in rural areas where medical facilities and other survival-enhancing resources are less readily available. Nevertheless, multivariate analyses of birth-interval effects and child survival commonly find an association between short birth intervals (less than 24 months) and increased mortality even after controlling for other demographic and socioeconomic characteristics (Retherford et al., 1989).

Antenatal, delivery, and postnatal care are usually associated with lower infant mortality. Table 6.5 shows that children of women who receive all three types of care have considerably lower risk of neonatal and postneonatal mortality than those with only one or two types of care. Mortality rates are highest for children of mothers who receive none of the three types of pregnancy-related care.

Another important determinant of the survival chances of children is the baby's weight at the time of birth. Many studies have found that low birth weight babies (under 2,500 grams) have a substantially increased risk of mortality. Because most babies in India are not weighed at the time of birth, in addition to birth weight, mothers were asked whether babies born during the three years preceding the survey were "large, average, small, or very small" at birth. The last panel in Table 6.5 shows neonatal, postneonatal, and infant mortality rates by birth size. Children who are perceived by their mothers to be smaller than average at birth experience much higher mortality risks than children perceived to be of average size or larger. Mortality among children perceived to be very small is markedly higher.

Table 6.5 also shows demographic differentials in infant and child mortality separately for urban and rural areas. In both urban and rural areas, the pattern of demographic differentials is similar to that for the country as a whole.

Table 6.6 and Figure 6.4 present variations in infant and child mortality rates by state. Infant mortality rates vary dramatically from one state to another, ranging from 16 in Kerala to more than 86 in Meghalaya, Uttar Pradesh, and Madhya Pradesh. Other states with infant mortality rates above the national average are Orissa (81), Rajasthan (80), Bihar (73), and Assam

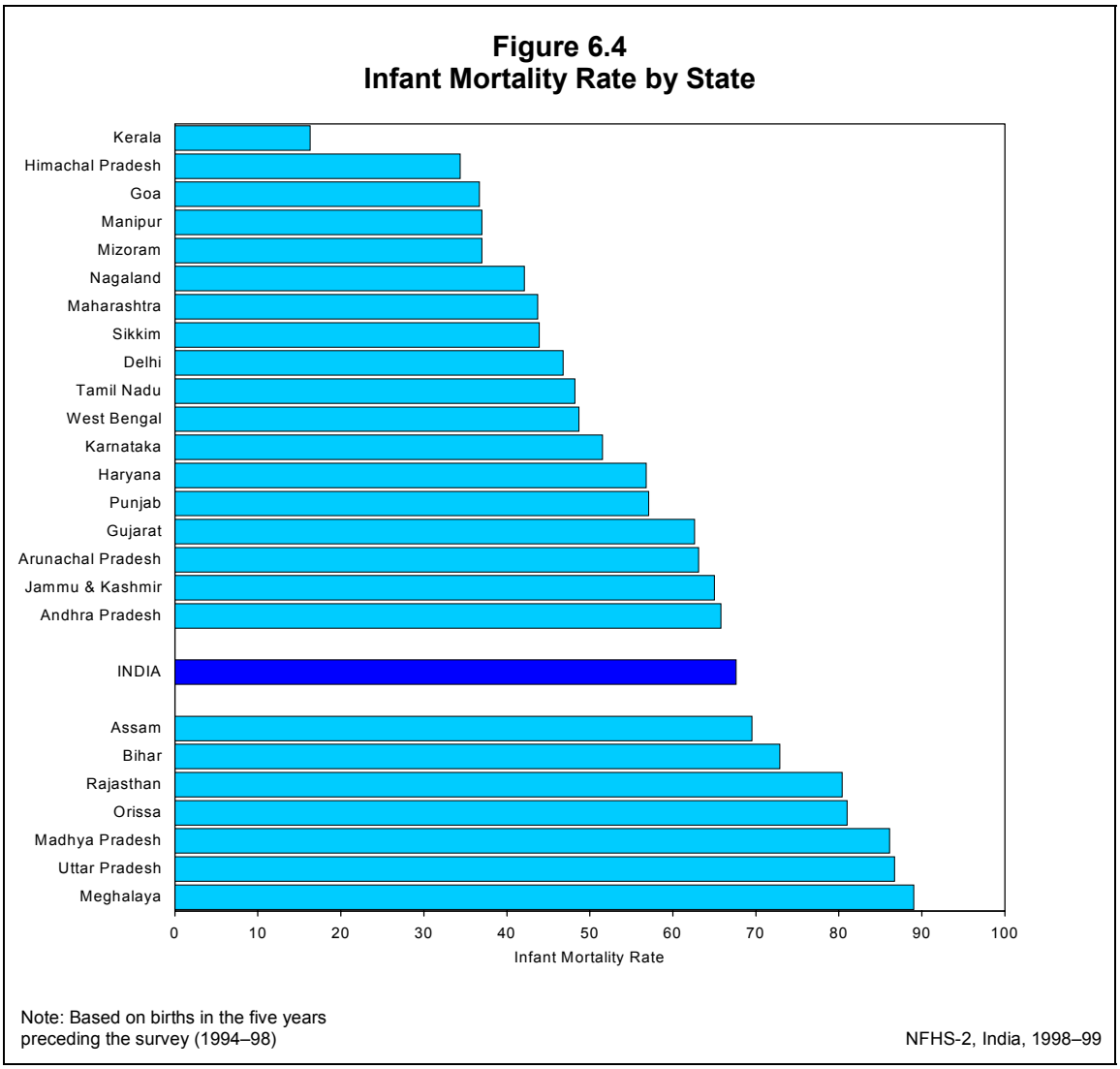
Table 6.6 Infant and child mortality by state

Neonatal, postneonatal, infant, child, and under-five mortality rates for the five-year period preceding the survey by state, India, 1998–99

State	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
India	43.4	24.2	67.6	29.3	94.9
North					
Delhi	29.5	17.4	46.8	9.0	55.4
Haryana	34.9	21.9	56.8	21.2	76.8
Himachal Pradesh	22.1	12.3	34.4	8.3	42.4
Jammu & Kashmir	40.3	24.7	65.0	16.1	80.1
Punjab	34.3	22.8	57.1	15.9	72.1
Rajasthan	49.5	30.9	80.4	37.6	114.9
Central					
Madhya Pradesh	54.9	31.2	86.1	56.4	137.6
Uttar Pradesh	53.6	33.1	86.7	39.2	122.5
East					
Bihar	46.5	26.4	72.9	34.7	105.1
Orissa	48.6	32.3	81.0	25.5	104.4
West Bengal	31.9	16.8	48.7	19.9	67.6
Northeast					
Arunachal Pradesh	41.8	21.3	63.1	37.4	98.1
Assam	44.6	24.9	69.5	21.4	89.5
Manipur	18.6	18.4	37.0	19.9	56.1
Meghalaya	50.7	38.3	89.0	36.2	122.0
Mizoram	18.8	18.2	37.0	18.4	54.7
Nagaland	20.1	22.0	42.1	22.7	63.8
Sikkim	26.3	17.6	43.9	28.4	71.0
West					
Goa	31.2	5.5	36.7	10.5	46.8
Gujarat	39.6	23.0	62.6	24.0	85.1
Maharashtra	32.0	11.7	43.7	15.0	58.1
South					
Andhra Pradesh	43.8	22.1	65.8	21.0	85.5
Karnataka	37.1	14.4	51.5	19.3	69.8
Kerala	13.8	2.5	16.3	2.6	18.8
Tamil Nadu	34.8	13.3	48.2	15.9	63.3

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

(70). The child mortality rate ($_4q_1$) also varies considerably in India, ranging from 3 in Kerala to 56 in Madhya Pradesh. Other states with child mortality above the national average are Uttar Pradesh, Rajasthan, Arunachal Pradesh, Meghalaya, and Bihar.



6.3 Maternal Mortality

Worldwide, about 500,000 women die every year from pregnancy and childbirth related causes and most of these deaths occur in developing countries (World Health Organization, 1999). Although reliable national estimates of maternal mortality are not available for most countries, South Asia is thought to have among the highest maternal mortality rates in the world. Most demographic surveys do not have samples that are large enough to produce reliable direct estimates of maternal mortality. The NFHS samples, however, are large enough to estimate maternal mortality at the national level for the two-year period preceding each survey. The NFHS estimates are based on a series of questions in the Household Questionnaire about deaths occurring to usual residents of the household since January of the second calendar year preceding the start of the survey in each state. In the case of deaths to women age 15–49 (13–49 in NFHS-1), a series of follow-up questions was asked about whether the women was pregnant when she died, whether the death occurred during childbirth, whether she died within two months after the end of a pregnancy or childbirth, and whether the death was due to a complication of the pregnancy or childbirth.

On the basis of this information, it is possible to calculate the maternal mortality ratio (MMR), which is defined here as the number of maternal deaths to women age 15–49 per 100,000 live births. This measure is based on the annual number of female deaths to usual residents of the sample households that occurred during childbirth or within two months after the end of a pregnancy or childbirth. The average maternal mortality ratio at the national level for the two-year period preceding NFHS-2 is 540 deaths per 100,000 live births. The corresponding value for the two-year period preceding NFHS-1 was 424 deaths per 100,000 live births (revised using a two-year general fertility rate as in the calculation of the NFHS-2 maternal mortality ratio), suggesting a considerable increase in the maternal mortality ratio in the country. However, it should be noted that despite the large size of the NFHS-1 and NFHS-2 samples, sampling errors for the maternal mortality estimates are quite large. The 95 percent confidence interval for the maternal mortality ratio ranges from 428 to 653 per 100,000 live births for NFHS-2 and from 324 to 524 per 100,000 live births for NFHS-1. There is considerable overlap in the confidence intervals from the two surveys, indicating that the difference between the NFHS-1 and NFHS-2 estimates of MMR is not significant statistically.

In both NFHS-1 and NFHS-2, the rural MMR is much higher than urban MMR (434 compared with 385 in NFHS-1 and 619 compared with 267 in NFHS-2). The confidence intervals are even wider for the urban and rural estimates. Because of large sampling errors, there is no easy way to assess the completeness and accuracy of these estimates, and reliable maternal mortality ratios cannot be calculated for individual states or population subgroups.

Other estimates of the maternal mortality ratio for India range from 407 for 1998 from the Sample Registration System (Office of the Registrar General, 2000) to 570 for 1990 from the World Health Organization (WHO, 1999). The two NFHS estimates—424 from NFHS-1 for 1991–92 and 540 from NFHS-2 for 1997–98—are of the same order of magnitude as these other estimates. All of these estimates imply that more than 100,000 women in India die every year from causes related to pregnancy and childbirth. This finding reinforces the urgency of ensuring that all pregnant women receive adequate antenatal care during pregnancy and that deliveries take place under hygienic conditions with the assistance of trained medical practitioners.

6.4 Morbidity

There is limited experience in collecting morbidity data from population-based demographic sample surveys. NFHS-1 collected data on five major morbidity conditions—partial and complete blindness, tuberculosis, leprosy, physical impairment of the limbs, and malaria—among all persons in the sampled households. The results were found to be generally plausible and useful. For these reasons, it was decided to include similar morbidity questions in NFHS-2. In NFHS-2, questions on blindness, leprosy, and physical impairment of the limbs were replaced by questions on asthma and jaundice. The questions on tuberculosis and malaria were retained, and a question on medical treatment of tuberculosis was added to get a better measure of the prevalence of tuberculosis. The household head or other knowledgeable adult in the household reported morbidity for all household members, and no effort was made to do clinical tests for any of the disease conditions.

Table 6.7 shows the prevalence of asthma, tuberculosis, jaundice, and malaria in the household population by age, sex, and place of residence. There are several reasons why the results of NFHS-2 may understate the prevalence of these conditions. Respondents may

Table 6.7 Morbidity

Number of persons per 100,000 usual household residents suffering from asthma, tuberculosis, jaundice, or malaria by age, sex, and residence, India, 1998–99

Age and sex	Number of persons per 100,000 suffering from: Asthma	Tuberculosis[1]	Medically treated tuberculosis	Jaundice during the past 12 months	Malaria during the past 3 months	Number of usual residents
URBAN						
Age						
< 15	829	144	106	1,555	2,112	40,908
15–59	1,795	426	338	1,132	2,207	79,941
60+	8,304	1,141	913	583	1,913	9,488
Sex						
Male	1,955	446	350	1,354	2,133	67,586
Female	1,978	330	262	1,085	2,180	62,750
Total	1,966	390	307	1,225	2,156	130,336
RURAL						
Age						
< 15	986	155	106	1,503	3,990	134,529
15–59	2,517	776	630	1,423	4,343	196,498
60+	11,036	1,448	1,141	903	4,858	29,737
Sex						
Male	2,784	690	558	1,675	4,320	184,367
Female	2,508	507	391	1,134	4,184	176,397
Total	2,649	600	476	1,410	4,254	360,764
TOTAL						
Age						
< 15	950	153	106	1,515	3,552	175,437
15–59	2,309	675	545	1,339	3,725	276,439
60+	10,375	1,374	1,086	826	4,146	39,224
Sex						
Male	2,561	624	502	1,589	3,734	251,953
Female	2,369	460	357	1,121	3,658	239,147
Total	2,468	544	432	1,361	3,697	491,100

[1]Includes medically treated tuberculosis

underreport diseases carrying a stigma, such as tuberculosis, due to intentional concealment. Underestimation may also occur because the household respondents are unaware that they or other members of the household have the condition. It is also possible that the respondents know that a household member suffers from a given condition but fail to report it because they do not recognize the term used by the enumerator to describe the condition. On the other hand, a factor contributing to a possible overestimation of prevalence without clinical verification is that some other disease can be mistaken by the respondent as one of the listed diseases; for example, chronic bronchitis may be reported as asthma or tuberculosis, or common flu may be reported as malaria.

Asthma

Asthma is a chronic respiratory disease characterized by sudden attacks of laboured breathing, chest constriction, and coughing. There has been a rapid increase in asthma cases in recent years in many parts of the world. In India, 2,468 persons per 100,000 population were reported to be suffering from asthma at the time of the survey. The prevalence of asthma is considerably higher in rural areas (2,649 per 100,000 population) than in urban areas (1,966 per 100,000 population), and is slightly higher among males (2,561 per 100,000) than among females (2,369 per 100,000). Age differences are marked, with the prevalence of asthma increasing from 950 per 100,000 at age 0–14 to 10,375 per 100,000 at age 60 and over.

Tuberculosis

Tuberculosis, which is also resurgent worldwide, is an infectious disease that affects the lungs and other body tissues. Tuberculosis of the lungs, the most commonly known form, is characterized by coughing up mucus and sputum, fever, weight loss, and chest pain. According to NFHS-2, the overall prevalence of tuberculosis in India is 544 per 100,000 population. This is 16 percent higher than the prevalence recorded in NFHS-1 (467 per 100,000), indicating that tuberculosis may be on the rise in India. The prevalence of tuberculosis is much higher in rural areas (600 per 100,000) than in urban areas (390 per 100,000). The prevalence rate is much higher for males (624 per 100,000) than for females (460 per 100,000). The sex differential in the prevalence of tuberculosis is about the same in urban and rural areas. Probable reasons for the much higher prevalence of tuberculosis among males than females are that men are more likely than women to come in contact with people who suffer from active tuberculosis and that men in India smoke more than women. The prevalence of tuberculosis increases rapidly with age. It is substantially higher among persons age 60 and above (1,374 per 100,000) than among those age 15–59 (675 per 100,000) or age 0–14 (153 per 100,000).

Medically treated tuberculosis is expected to give a more reliable measure of the prevalence of active tuberculosis than the measure based on all reported cases considered in the preceding paragraph. As expected, the prevalence of medically treated tuberculosis is considerably lower (432 per 100,000) than the prevalence based on all reported cases (544 per 100,000). Differentials in the prevalence of medically treated tuberculosis by residence, age, and sex are similar to differentials in the prevalence of all reported cases.

Jaundice

Jaundice is characterized by yellowish discolouration of the eyes and skin, fever, liver enlargement, and abdominal pain. NFHS-2 asked household respondents if any member of the household had suffered from jaundice at any time during the 12 months preceding the survey. In India as a whole, 1,361 persons per 100,000 population were reported to have suffered from jaundice during the 12 months preceding the survey. People living in rural areas were somewhat more likely to have suffered from jaundice (1,410 per 100,000) than those living in urban areas (1,225 per 100,000). Males were 42 percent more likely to have suffered from jaundice than females. Jaundice is the only condition measured that decreases with age. The prevalence of jaundice was highest for the age group 0–14 (1,515 per 100,000), followed by the age groups 15–59 (1,339 per 100,000) and 60 years and above (826 per 100,000). The age and sex differentials in the prevalence of jaundice are similar in urban and rural areas.

Malaria

Malaria is characterized by recurrent high fever with shivering. NFHS-2 asked household respondents whether any member of their household suffered from malaria any time during the three months preceding the survey. In India, 3,697 persons per 100,000 population were reported to have suffered from malaria during the three months preceding the survey. Since the prevalence of malaria is known to vary considerably by season, the NFHS-2 estimates should not be interpreted as representative of the level throughout the year. It would also be misleading to compare this estimate with the lower NFHS-1 estimate because the months of the year comprising the reference period for the malaria estimates from the two surveys are different.

Rural residents are almost twice as likely to suffer from malaria (4,254 per 100,000) as are urban residents (2,156 per 100,000). The reported prevalence of malaria is slightly higher for males than for females. The prevalence of malaria during the past three months increases with age, from 3,552 per 100,000 in the population under age 15 to 4,146 per 100,000 in the population age 60 years and above. The steady increase with age occurs in rural areas but not in urban areas.

Comparisons by State

Table 6.8 shows comparisons of prevalence rates for morbidity by state. The prevalence of asthma varies considerably by state, from a low of 1,204 per 100,000 in Delhi to a high of 5,995 per 100,000 in Meghalaya. Other states with relatively low levels of asthma prevalence are Punjab and Himachal Pradesh, and other states with relatively high prevalence rates are Nagaland, Kerala, Sikkim, and Andhra Pradesh.

State variations in the prevalence rate of tuberculosis are also large. Tuberculosis prevalence ranges from 207 per 100,000 in Punjab to 1,654 per 100,000 in Nagaland. All states in the Northeast Region except Assam have prevalence rates above 1,000 per 100,000. Tuberculosis prevalence rates are also noticeably high in Bihar and Orissa. Variations in the prevalence of medically treated tuberculosis are generally in line with the variations in all reported cases of tuberculosis.

State differentials are also substantial for jaundice. Jaundice is most common in Nagaland, but it is also a substantial problem in most other northeastern states and in West Bengal and Goa. The prevalence of malaria varies widely across the states, at least partly because of seasonal variations in the timing of the survey fieldwork. Malaria was most often reported in Meghalaya, Nagaland, Arunachal Pradesh, and Madhya Pradesh, where 10–17 percent of the population were reported to have malaria during the three months preceding the survey. On the other hand, there were very few reports of malaria in Kerala, Himachal Pradesh, and Tamil Nadu. Four states (Arunachal Pradesh, Meghalaya, Nagaland, and Andhra Pradesh) have a higher prevalence of all these diseases than the national average, and six states (Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Karnataka, and Tamil Nadu) consistently have a lower prevalence than the national average.

Table 6.8 Morbidity by state

Number of persons per 100,000 usual household residents suffering from asthma, tuberculosis, jaundice, or malaria by state and residence, India, 1998–99

State	Number of persons per 100,000 suffering from:				
	Asthma	Tuberculosis[1]	Medically treated tuberculosis	Jaundice during the past 12 months	Malaria during the past 3 months
			URBAN		
India	1,966	390	307	1,225	2,156
North					
Delhi	1,216	548	483	946	592
Haryana	1,545	305	284	885	1,217
Himachal Pradesh	841	200	177	575	177
Jammu & Kashmir	1,158	320	320	977	199
Punjab	1,112	200	164	1,057	949
Rajasthan	2,573	329	290	808	3,007
Central					
Madhya Pradesh	1,737	405	326	1,318	5,240
Uttar Pradesh	1,667	490	347	1,037	1,441
East					
Bihar	1,430	629	558	1,551	1,833
Orissa	3,000	819	652	1,152	4,571
West Bengal	2,410	357	170	1,892	918
Northeast					
Arunachal Pradesh	1,451	1,055	792	1,451	11,346
Assam	1,931	583	345	2,716	1,910
Manipur	1,900	1,086	1,086	1,324	847
Meghalaya	2,798	580	506	1,306	5,533
Mizoram	2,112	1,096	907	1,837	4,438
Nagaland	4,343	1,723	1,546	6,972	14,447
Sikkim	3,197	1,151	128	2,046	1,535
West					
Goa	2,003	445	329	1,989	1,267
Gujarat	1,304	279	242	1,141	3,378
Maharashtra	2,172	342	282	1,618	3,551
South					
Andhra Pradesh	3,525	299	199	1,456	2,613
Karnataka	1,442	216	190	372	280
Kerala	3,901	348	301	165	47
Tamil Nadu	1,318	431	366	1,185	346

Table 6.8 Morbidity by state (contd.)

Number of persons per 100,000 usual household residents suffering from asthma, tuberculosis, jaundice, or malaria by state and residence, India, 1998–99

State	Number of persons per 100,000 suffering from:				
	Asthma	Tuberculosis[1]	Medically treated tuberculosis	Jaundice during the past 12 months	Malaria during the past 3 months
			RURAL		
India	2,649	600	476	1,410	4,254
North					
Delhi	1,068	92	92	639	725
Haryana	2,074	379	327	1,037	2,447
Himachal Pradesh	1,389	265	240	437	394
Jammu & Kashmir	1,870	455	455	933	706
Punjab	1,391	210	210	942	1,140
Rajasthan	3,237	420	358	1,070	4,458
Central					
Madhya Pradesh	2,457	669	587	2,134	11,646
Uttar Pradesh	2,061	566	444	943	4,103
East					
Bihar	2,103	1,035	868	1,510	4,034
Orissa	3,288	835	714	1,265	7,770
West Bengal	2,654	537	330	2,544	1,669
Northeast					
Arunachal Pradesh	3,371	1,302	1,164	1,703	12,814
Assam	3,394	721	358	2,773	3,066
Manipur	2,108	1,118	988	1,924	2,551
Meghalaya	6,793	1,679	683	2,996	19,433
Mizoram	2,190	1,027	708	4,630	10,623
Nagaland	6,076	1,637	961	4,940	16,597
Sikkim	4,938	980	742	2,432	1,044
West					
Goa	1,971	480	304	2,417	688
Gujarat	2,451	550	438	1,087	5,199
Maharashtra	2,788	236	191	1,471	4,509
South					
Andhra Pradesh	4,560	695	532	1,611	5,633
Karnataka	1,888	297	237	374	770
Kerala	5,084	581	434	640	58
Tamil Nadu	1,667	505	455	1,118	399

Table 6.8 Morbidity by state (contd.)

Number of persons per 100,000 usual household residents suffering from asthma, tuberculosis, jaundice, or malaria by state and residence, India, 1998–99

State	Number of persons per 100,000 suffering from:				
	Asthma	Tuberculosis[1]	Medically treated tuberculosis	Jaundice during the past 12 months	Malaria during the past 3 months
			TOTAL		
India	2,468	544	432	1,361	3,697
North					
Delhi	1,204	511	451	921	603
Haryana	1,922	358	314	993	2,093
Himachal Pradesh	1,339	259	234	450	374
Jammu & Kashmir	1,725	428	428	942	602
Punjab	1,308	207	197	976	1,082
Rajasthan	3,073	397	342	1,005	4,099
Central					
Madhya Pradesh	2,273	602	520	1,927	10,015
Uttar Pradesh	1,979	551	424	963	3,552
East					
Bihar	2,028	989	833	1,515	3,788
Orissa	3,255	833	707	1,253	7,414
West Bengal	2,593	492	290	2,381	1,482
Northeast					
Arunachal Pradesh	3,117	1,270	1,115	1,669	12,619
Assam	3,278	710	357	2,768	2,974
Manipur	2,040	1,107	1,020	1,728	1,995
Meghalaya	5,995	1,459	648	2,658	16,656
Mizoram	2,149	1,063	813	3,155	7,359
Nagaland	5,729	1,654	1,078	5,348	16,166
Sikkim	4,711	1,002	662	2,382	1,108
West					
Goa	1,984	466	314	2,245	920
Gujarat	1,979	438	357	1,109	4,449
Maharashtra	2,524	282	230	1,534	4,098
South					
Andhra Pradesh	4,292	592	446	1,571	4,851
Karnataka	1,733	269	221	373	600
Kerala	4,806	526	403	528	56
Tamil Nadu	1,546	479	424	1,142	380

[1]Includes medically treated tuberculosis

6.5 Child Immunization

The vaccination of children against six serious but preventable diseases (tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis, and measles) has been a cornerstone of the child health care system in India. As part of the National Health Policy, the National Immunization Programme is being implemented on a priority basis. The Expanded Programme on Immunization (EPI) was initiated by the Government of India in 1978 with the objective of reducing morbidity, mortality, and disabilities from these six diseases by making free vaccination services easily available to all eligible children. Immunization against poliomyelitis was introduced in 1979–80, and tetanus toxoid for school children was added in 1980–81. Immunization against tuberculosis (BCG) was

brought under the EPI in 1981–82. The latest addition to the Programme was vaccination against measles in 1985–86 (Ministry of Health and Family Welfare, 1991).

The Universal Immunization Programme (UIP) was introduced in 1985–86 with the following objectives: to cover at least 85 percent of all infants against the six vaccine-preventable diseases by 1990 and to achieve self-sufficiency in vaccine production and the manufacture of cold-chain equipment (Ministry of Health and Family Welfare, 1991). This scheme has been introduced in every district of the country and the target now is to achieve 100 percent immunization coverage. Pulse Polio Immunization Campaigns began in December 1995 as part of a major national effort to eliminate polio.

The standard immunization schedule developed for the child immunization programme specifies the age at which each vaccine is to be administered, the number of doses to be given, and the route of vaccination (intramuscular, oral, or subcutaneous). Routine vaccinations received by infants and children are usually recorded on a vaccination card that is issued for the child.

NFHS-2 asked mothers in India whether they had a vaccination card for each child born since January 1995 (or since January 1996 in states in which the survey began in 1999). If a card was available, the interviewer was required to copy carefully the dates when the child received vaccinations against each disease. For vaccinations not recorded on the card, the mother's report that the vaccination was or was not given was accepted. If the mother could not show a vaccination card, she was asked whether the child had received any vaccinations. If any vaccinations had been received, the mother was asked whether the child had received a vaccination against tuberculosis (BCG); diphtheria, whooping cough (pertussis), and tetanus (DPT); poliomyelitis (polio); and measles. For DPT and polio, information was obtained on the number of doses of the vaccine given to the child. Mothers were not asked the dates of vaccinations. To distinguish Polio 0 (polio vaccine given at the time of birth) from Polio 1 (polio vaccine given about six weeks after birth), mothers were also asked whether the first polio vaccine was given just after birth or later[3].

Table 6.9 gives the percentages of urban and rural children age 12–23 months who received specific vaccinations at any time before the interview and before 12 months of age, according to whether a vaccination card was shown to the interviewer or the mother was the source of all vaccination information. The 12–23 month age group was chosen for analysis because both international and Government of India guidelines specify that children should be fully immunized by the time they complete their first year of life. Because the date of vaccination was not asked of the mother if she could not show a vaccination card, for children whose information is based on the mother's report, the proportion of vaccinations given during the first year of life is assumed to be the same as the proportion of vaccinations given during the first year of life among children with an exact date of vaccination on the card.

[3]Because mothers sometimes report that the first dose was given just after birth even if it was given several weeks later, an adjustment was made to the estimates of the number of polio vaccinations given, based on reports of the number of DPT vaccinations. This adjustment is based on the fact that when children receive a DPT vaccination, they are almost always given a polio vaccination at the same time. Thus, if the number of polio vaccinations was reported to be less than the number of DPT vaccinations and the first polio vaccination was reported to be given just after birth, then Polio 0 is assumed to really be Polio 1, Polio 1 is assumed to be Polio 2, etc. For comparative purposes, this same adjustment was made to the NFHS-1 vaccination estimates.

Table 6.9 Childhood vaccinations by source of information

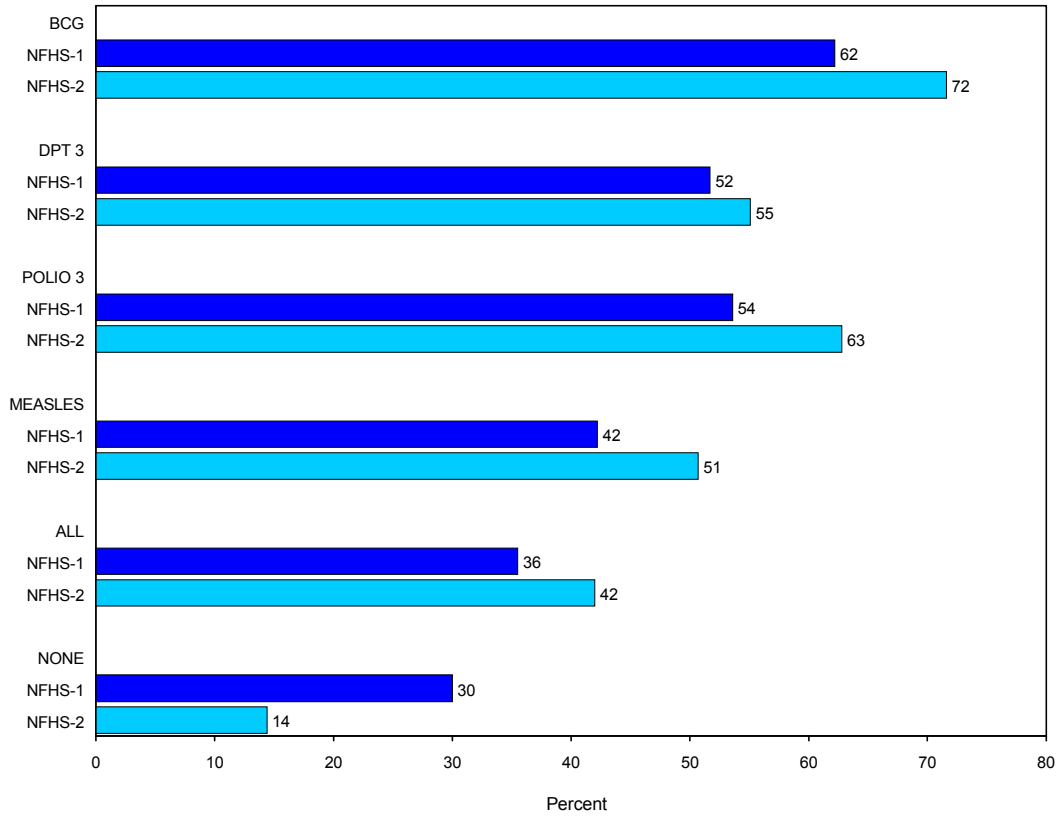
Percentage of children age 12–23 months who received specific vaccinations at any time before the interview and before 12 months of age by source of information on vaccination history and residence, India, 1998–99

	Percentage vaccinated											
			DPT			Polio						Number of children
Source of information	BCG	Polio 0	1	2	3	1	2	3	Measles	All[1]	None	
URBAN												
Vaccinated at any time before the interview												
Vaccination card	96.6	33.0	98.9	96.4	91.1	98.5	96.0	90.8	81.0	77.5	0.1	1,048
Mother's report	78.4	14.9	75.3	69.5	58.3	86.9	83.7	67.5	59.2	46.0	11.7	1,233
Either source	86.8	23.3	86.1	81.9	73.4	92.2	89.4	78.2	69.2	60.5	6.4	2,282
Vaccinated by 12 months of age[2]	85.1	23.3	83.6	79.1	70.6	89.4	86.1	74.9	59.7	51.9	8.6	2,282
RURAL												
Vaccinated at any time before the interview												
Vaccination card	94.5	19.8	98.4	91.4	83.0	97.9	91.1	83.0	69.7	65.4	0.1	2,344
Mother's report	55.3	5.9	53.7	46.6	35.5	73.8	68.0	47.7	34.8	24.3	23.9	5,450
Either source	67.1	10.1	67.1	60.1	49.8	81.1	75.0	58.3	45.3	36.6	16.7	7,795
Vaccinated by 12 months of age[2]	64.3	10.1	64.4	57.0	46.6	77.5	71.1	54.4	36.2	29.3	20.2	7,795
TOTAL												
Vaccinated at any time before the interview												
Vaccination card	95.2	23.9	98.6	92.9	85.5	98.1	92.6	85.4	73.2	69.1	0.1	3,393
Mother's report	59.6	7.6	57.6	50.8	39.7	76.2	70.9	51.3	39.3	28.3	21.6	6,684
Either source	71.6	13.1	71.4	65.0	55.1	83.6	78.2	62.8	50.7	42.0	14.4	10,076
Vaccinated by 12 months of age[2]	69.1	13.1	68.8	62.1	52.1	80.3	74.6	59.2	41.7	34.5	17.5	10,076

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey.
[1]BCG, measles, and three doses each of DPT and polio vaccines (excluding Polio 0)
[2]For children whose information was based on the mother's report, the proportion of vaccinations given by 12 months of age is assumed to be the same as for children with a written record of vaccination.

In NFHS-2, children who received BCG, measles, and three doses each of DPT and polio (excluding Polio 0) are considered to be fully vaccinated. Based on information obtained from a card or reported by the mother ('either source'), 42 percent of children age 12–23 months are fully vaccinated and 14 percent have not received any vaccinations. Coverage for BCG, DPT, and polio (except Polio 0) vaccinations is much higher than the percentage fully vaccinated. BCG, the first dose of DPT, and the first and second doses of polio vaccine have each been received by at least 71 percent of children. Fifty-five percent of children have received three doses of DPT and 63 percent have received three doses of polio vaccine. Although DPT and polio vaccinations are given at the same time as part of the routine immunization programme, the coverage rates are higher for polio than for DPT (especially for the first two doses), undoubtedly because of the Pulse Polio campaigns. Not all children who begin with the DPT and polio vaccination series go on to complete them. The difference between the percentages of children receiving the first and third doses is 16 percentage points for DPT and 21 percentage points for polio. Fifty-one percent of children age 12–23 months have been vaccinated against measles.

Figure 6.5
Percentage of Children Age 12–23 Months Who Have Received Specific Vaccinations, NFHS-1 and NFHS-2



India

The relatively low percentage vaccinated against measles is partly responsible for the fact that the percentage fully vaccinated is not higher than it is.

There has been considerable improvement in vaccination coverage in India since the time of NFHS-1 when the proportion of children fully vaccinated was 36 percent and the proportion who had received no vaccinations was 30 percent (Figure 6.5). The coverage of each specific vaccination has also improved considerably since NFHS-1. Nonetheless, these data indicate that achievement of the goal of universal immunization coverage for children in India is far from complete.

Government of India statistics suggest a much higher level of vaccination coverage than NFHS-2 estimates. According to government statistics for 1997–98, 61 percent of children age 12–23 months are fully vaccinated and coverage is 79 percent for BCG, 73 percent for the third dose of DPT, 73 percent for the third dose of polio vaccine, and 66 percent for measles (Ministry of Health and Family Welfare, 1999).

According to the immunization schedule, all primary vaccinations, including measles, should be completed by the time a child is 12 months old. Table 6.9 shows that only 35 percent

of all children (or 82 percent of fully vaccinated children) were fully vaccinated by age 12 months. The percentages of children who received BCG, each dose of DPT, and each dose of polio by age 12 months are only slightly lower than the percentages who received these vaccines at any time before the survey. For measles vaccination, however, which is supposed to be given when the child is nine months old, the gap is wider (51 percent at any time before the survey compared with 42 percent by age 12 months). Eighteen percent of children who were vaccinated against measles received the vaccination after their first birthday.

The analysis of vaccine-specific data indicates much higher coverage for each type of vaccine in urban areas than in rural areas. Sixty-one percent of children age 12–23 months in urban areas had received all of the recommended vaccinations by the time of the survey, compared with 37 percent in rural areas. The proportion fully vaccinated during the first year of life is also much higher in urban areas (52 percent) than in rural areas (29 percent). Dropout rates for both DPT and polio are lower in urban areas than in rural areas.

Table 6.10 and Figure 6.6 present vaccination coverage rates (according to the vaccination card or the mother) for children age 12–23 months by selected background characteristics. The table also shows the percentage of children with vaccination cards that were shown to the interviewer. Mothers could show vaccination cards for 34 percent of children age 12–23 months, up slightly from 31 percent in NFHS-1. Vaccination cards were shown for 46 percent of children in urban areas and 30 percent in rural areas. As expected, vaccination coverage is much higher for children for whom a vaccination card was shown than for other children (see Table 6.9).

Boys (43 percent) are slightly more likely than girls (41 percent) to be fully vaccinated. Boys are also somewhat more likely than girls to have received each of the individual vaccinations. Mothers showed vaccination cards for 34 percent of boys and 33 percent of girls. In NFHS-1, vaccination coverage was also slightly higher for boys than for girls and a vaccination card was shown for a higher proportion of boys than girls. It is noteworthy that the male-female difference in the percentage fully immunized and in the percentage showing a vaccination card is small and diminishing over time, indicating that discrimination against female children in India with regard to immunizations is not a major problem.

The relationship between vaccination coverage and birth order is consistently negative for almost all vaccinations. A large majority of first-order births occur to younger women who are more likely than older women to utilize maternal and child health care services. As with the use of maternal health care services, there is a strong positive relationship between mother's education and children's vaccination coverage. Only 28 percent of children of illiterate mothers are fully vaccinated compared with 73 percent of children of mothers who have at least completed high school. Muslim children (33 percent) are less likely to be fully vaccinated than are Hindu (42 percent), Christian (61 percent), Sikh (70 percent), Buddhist/Neo-Buddhist (73 percent), or 'other' (60 percent) children. By caste/tribe, scheduled-tribe children (26 percent) are less likely to be fully vaccinated than are scheduled-caste (40 percent), other backward class (43 percent), or 'other' (47 percent) children. Household standard of living has a strong positive relationship with vaccination coverage, as expected. Only 30 percent of children from households with a low standard of living are fully vaccinated compared with 65 percent of children from households with a high standard of living. Differentials in immunization coverage for individual vaccines are similar to those just reported for full immunization.

Table 6.10 Childhood vaccinations by background characteristics

Percentage of children age 12–23 months who received specific vaccinations at any time before the interview (according to the vaccination card or the mother) and percentage with a vaccination card that was shown to the interviewer by selected background characteristics, India, 1998–99

	Percentage vaccinated												
			DPT			Polio						Percentage showing vaccination card	Number of children
Background characteristic	BCG	Polio 0	1	2	3	1	2	3	Measles	All[1]	None		
Sex of child													
Male	72.8	13.2	73.2	66.6	56.3	84.5	79.3	63.4	51.6	43.1	13.5	34.4	5,163
Female	70.3	13.0	69.5	63.3	54.0	82.7	77.1	62.2	49.8	40.9	15.3	32.9	4,913
Birth order													
1	79.8	19.2	80.1	74.9	66.9	88.6	84.5	72.7	61.8	54.0	9.8	42.3	2,957
2	79.0	15.8	78.7	72.9	63.0	89.2	84.4	69.8	56.7	48.9	9.1	38.5	2,663
3	72.0	9.7	70.0	63.0	51.4	82.2	75.9	59.3	49.4	38.8	15.0	29.9	1,805
4+	54.6	5.9	55.3	47.4	36.8	73.3	66.6	47.2	33.1	24.1	24.4	21.7	2,651
Residence													
Urban	86.8	23.3	86.1	81.9	73.4	92.2	89.4	78.2	69.2	60.5	6.4	45.9	2,282
Rural	67.1	10.1	67.1	60.1	49.8	81.1	75.0	58.3	45.3	36.6	16.7	30.1	7,795
Mother's education													
Illiterate	59.1	7.1	58.7	51.0	40.2	76.3	69.4	50.9	35.8	27.8	21.2	24.2	5,867
Literate, < middle school complete	82.8	15.2	82.6	76.8	66.7	90.4	85.9	72.8	61.8	52.3	8.0	41.4	1,782
Middle school complete	90.5	23.0	91.1	85.8	77.6	94.0	90.9	79.5	71.8	62.7	4.6	49.0	921
High school complete and above	95.2	27.9	95.6	92.7	86.0	97.4	95.5	87.1	82.8	72.7	1.4	52.2	1,505
Religion													
Hindu	72.5	13.1	72.1	65.6	55.7	84.7	79.3	63.5	51.5	42.4	13.3	33.7	7,941
Muslim	62.3	9.9	63.2	56.0	45.7	76.3	70.0	54.0	40.4	32.7	21.0	30.6	1,605
Christian	84.0	32.1	84.5	81.4	72.8	88.5	86.8	76.5	66.2	61.1	11.0	42.3	264
Sikh	86.4	14.0	86.8	84.5	77.6	87.9	86.9	80.5	75.7	69.5	11.1	45.9	138
Buddhist/Neo-Buddhist	94.6	15.6	94.1	94.0	88.7	94.4	94.3	90.1	77.3	73.0	1.1	39.9	58
Other	88.1	11.4	89.4	88.9	75.2	90.1	89.8	67.2	69.8	59.7	9.1	41.6	31
Caste/tribe													
Scheduled caste	69.6	11.7	68.4	62.9	52.7	82.6	77.8	61.3	47.6	40.2	15.1	31.3	2,031
Scheduled tribe	60.0	4.5	57.0	48.6	37.5	73.9	66.9	49.0	34.3	26.4	24.2	24.5	935
Other backward class	71.6	18.7	72.4	66.0	56.7	86.6	81.3	65.6	50.7	43.0	11.6	33.4	3,217
Other	76.1	11.6	76.4	69.9	60.4	84.6	79.4	65.6	57.1	46.8	13.3	38.1	3,770
Standard of living index													
Low	59.3	9.0	59.2	52.2	42.7	76.4	69.8	51.9	37.6	30.4	20.8	26.2	3,637
Medium	74.1	12.9	74.0	67.4	56.9	85.3	80.0	64.8	51.6	43.2	13.1	35.2	4,680
High	91.2	22.6	91.0	86.3	78.0	94.6	91.8	81.2	77.2	64.7	4.0	45.8	1,649
Total	71.6	13.1	71.4	65.0	55.1	83.6	78.2	62.8	50.7	42.0	14.4	33.7	10,076

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey. Total includes 21 children belonging to the Jain religion, 7 children with no religion, and 1, 10, 124, and 109 children with missing information on mother's education, religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.

[1]BCG, measles, and three doses each of DPT and polio vaccines (excluding Polio 0)

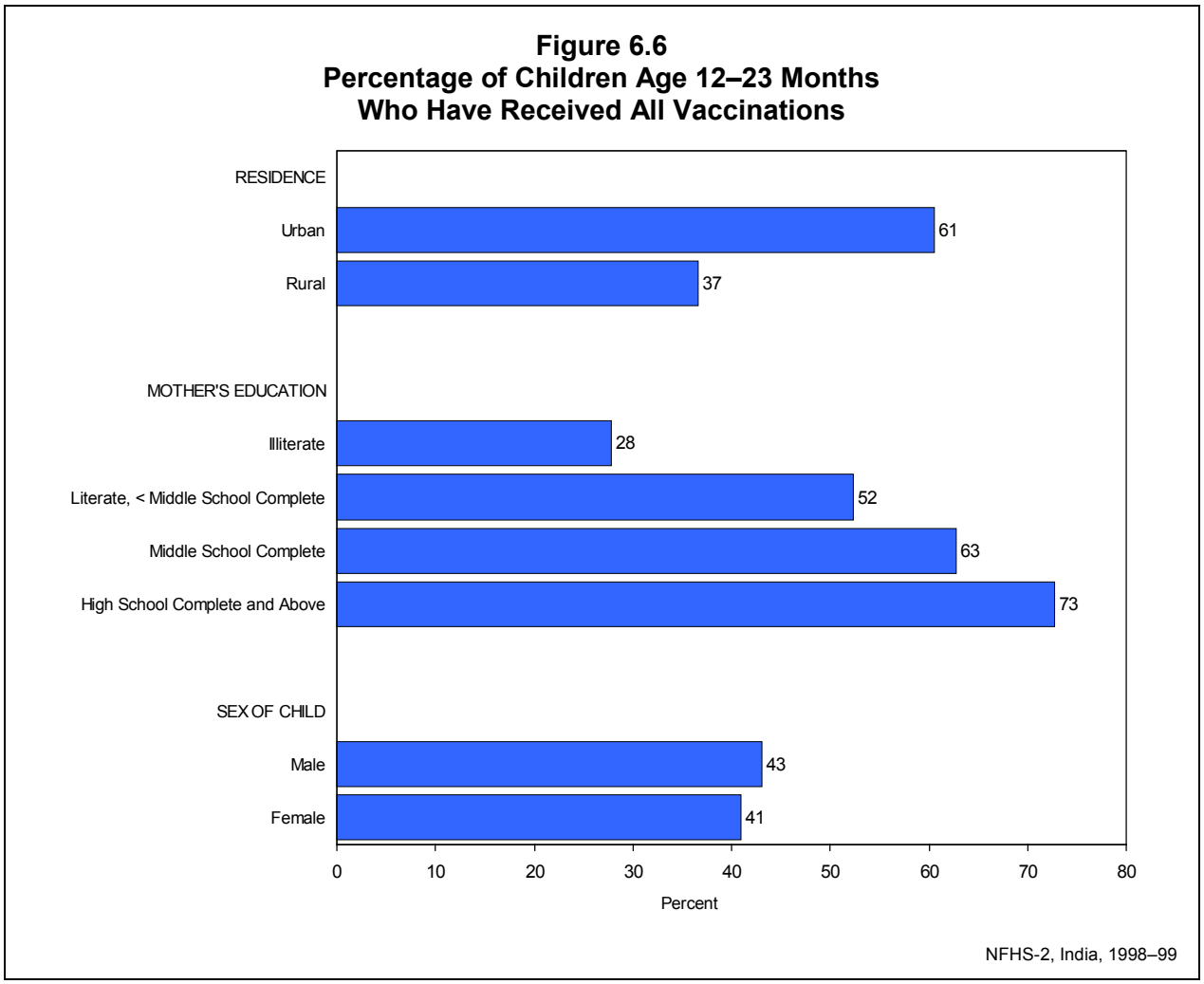


Table 6.11 and Figure 6.7 show vaccination coverage rates for each type of vaccination and the percentage of mothers showing a vaccination card for children age 12–23 months in each state. There are considerable interstate differentials in the coverage rates for different vaccinations and for children receiving all vaccinations. The percentage of children who are fully vaccinated ranges from 11 percent in Bihar to 89 percent in Tamil Nadu. Among major states, Bihar (11 percent), Assam (17 percent), Rajasthan (17 percent), Uttar Pradesh (21 percent), and Madhya Pradesh (22 percent) stand out as having a much lower percentage of children fully vaccinated than the national average of 42 percent. As these states account for more than 40 percent of the total population of the country, their low coverage for vaccination pulls down the coverage rate for the country as a whole. All northern states except Rajasthan, and all southern and western states, have fared relatively well with regard to full coverage of vaccinations. Most of the northeastern states have a relatively poor record on vaccination coverage. A similar picture emerges with respect to individual vaccinations. Tamil Nadu, Goa, Maharashtra, Himachal Pradesh, and Kerala are approaching universal coverage for BCG and three doses of DPT and polio. In most states, there is a considerable drop from the second to the third dose for both DPT and polio, and in almost every state fewer children have received measles vaccine than any of the other vaccinations. Dropouts for DPT and polio and relatively low levels of coverage for measles are major factors in the failure to achieve full immunization coverage.

Table 6.11 Childhood vaccinations by state

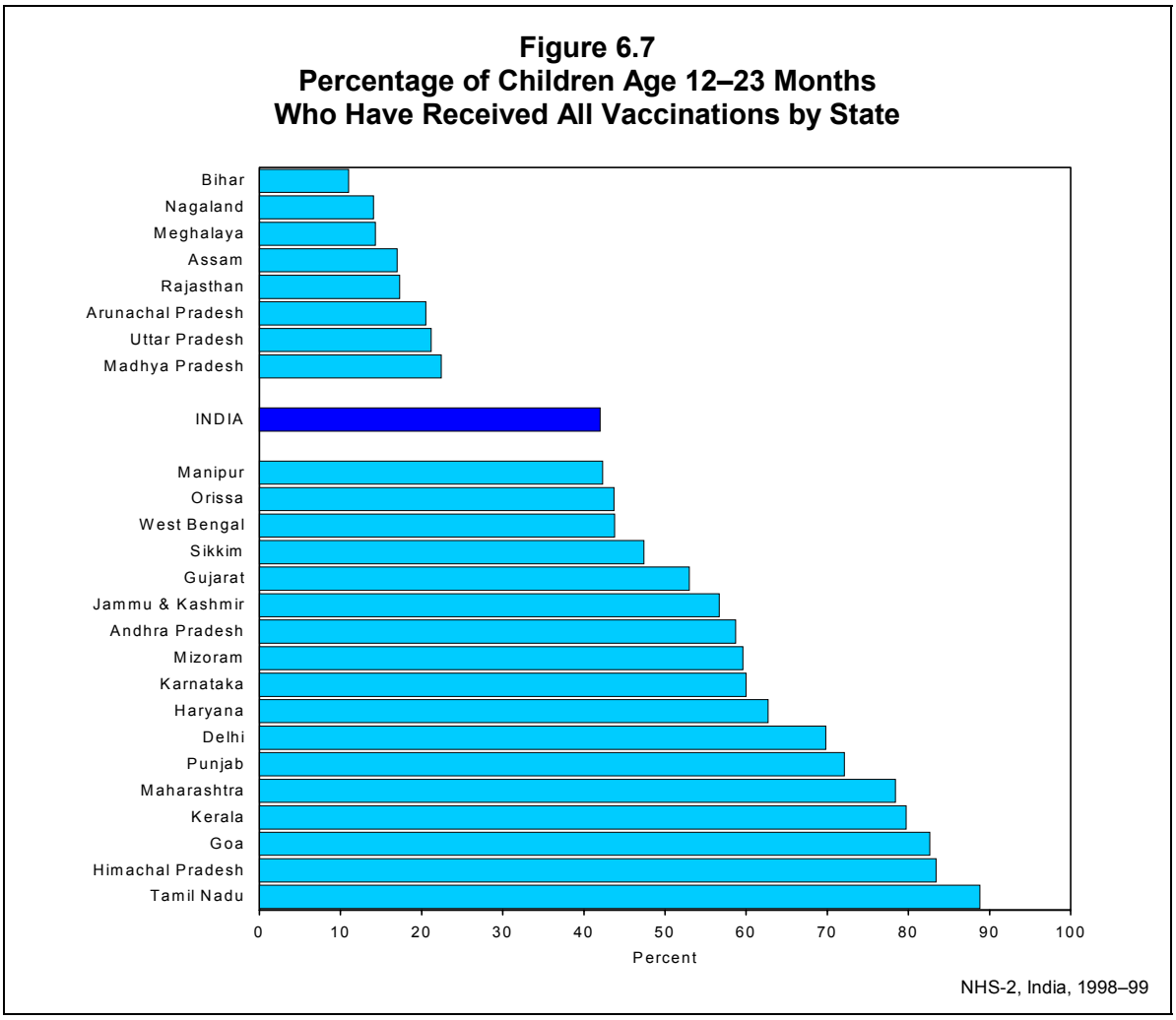
Percentage of children age 12–23 months who received specific vaccinations at any time before the interview (according to the vaccination card or the mother) and percentage with a vaccination card that was shown to the interviewer by state, India, 1998–99

	Percentage vaccinated											Percentage showing vaccination card
			DPT			Polio						
State	BCG	Polio 0	1	2	3	1	2	3	Measles	All[1]	None	
India	71.6	13.1	71.4	65.0	55.1	83.6	78.2	62.8	50.7	42.0	14.4	33.7
North												
Delhi	92.0	36.9	90.8	88.3	79.9	93.8	91.7	81.0	77.5	69.8	5.1	43.7
Haryana	86.8	6.1	89.5	84.5	71.1	90.1	87.4	74.3	72.2	62.7	9.9	24.4
Himachal Pradesh	94.6	4.2	96.7	96.1	88.8	97.2	97.2	89.8	89.1	83.4	2.8	54.6
Jammu & Kashmir	85.6	4.8	85.7	83.6	72.3	88.3	85.4	74.3	68.9	56.7	10.4	51.1
Punjab	88.7	11.2	88.4	87.3	82.0	90.5	88.5	83.6	76.5	72.1	8.7	43.0
Rajasthan	53.9	3.2	47.8	40.2	26.1	75.5	67.3	44.6	27.1	17.3	22.5	14.7
Central												
Madhya Pradesh	64.9	10.1	62.8	52.3	37.0	85.4	79.0	56.7	35.5	22.4	13.9	25.1
Uttar Pradesh	57.5	4.7	57.3	46.5	33.9	66.5	60.3	42.3	34.6	21.2	29.5	20.4
East												
Bihar	37.7	3.6	39.7	33.4	24.2	81.3	71.7	41.0	16.6	11.0	16.8	17.4
Orissa	84.7	14.6	80.1	74.8	61.9	88.7	84.8	68.4	54.0	43.7	9.4	46.2
West Bengal	76.5	2.1	77.9	70.1	58.3	83.9	76.5	61.7	52.4	43.8	13.6	58.0
Northeast												
Arunachal Pradesh	54.2	4.5	57.4	52.7	41.8	67.6	62.5	43.3	33.6	20.5	28.7	24.6
Assam	53.5	3.1	57.4	48.5	37.5	61.8	53.6	37.9	24.6	17.0	33.2	32.5
Manipur	71.0	32.1	76.4	71.0	59.1	81.3	76.9	62.5	45.8	42.3	17.2	43.4
Meghalaya	46.1	11.5	44.8	36.8	25.4	51.8	43.8	27.6	17.7	14.3	42.3	20.6
Mizoram	88.2	4.6	86.9	83.9	69.5	88.3	83.5	71.9	71.0	59.6	10.5	41.1
Nagaland	46.1	5.5	48.1	40.9	29.6	66.6	60.3	41.8	19.6	14.1	32.7	18.4
Sikkim	76.5	8.2	75.7	71.7	62.5	79.8	75.7	63.5	58.9	47.4	17.6	47.0
West												
Goa	99.2	31.6	97.6	95.2	93.4	99.2	98.4	95.8	84.3	82.6	0.0	69.7
Gujarat	84.7	5.3	83.1	75.4	64.1	90.2	82.5	68.6	63.6	53.0	6.6	31.8
Maharashtra	93.7	8.3	94.9	91.7	89.4	97.2	94.7	90.8	84.3	78.4	2.0	48.9
South												
Andhra Pradesh	90.2	5.3	89.8	86.9	79.5	93.8	90.9	81.6	64.7	58.7	4.5	41.3
Karnataka	84.8	26.4	87.0	84.8	75.2	91.9	89.0	78.3	67.3	60.0	7.7	41.2
Kerala	96.2	60.6	96.0	94.4	88.0	96.9	95.2	88.4	84.6	79.7	2.2	63.2
Tamil Nadu	98.6	85.5	98.6	97.5	96.7	99.7	99.5	98.0	90.2	88.8	0.3	45.8

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey.
[1]BCG, measles, and three doses each of DPT and polio vaccines (excluding Polio 0)

The percentage of children with a vaccination card that was shown to the interviewer varies considerably by state, from 15 percent in Rajasthan to 70 percent in Goa. These differentials reflect both differences in the proportion who have a vaccination card for their young children in each state and, among those who have cards, differences in the ability or willingness to find the card and show it to the interviewer.

Table 6.12 shows the percentage of children age 12–35 months with a vaccination card that was shown to the interviewer and the percentage who received various vaccinations during the first year of life by current age of the child and place of residence. The table shows a considerable improvement in vaccination coverage over a short period of time. The proportion vaccinated during the first year of life is estimated separately for children in each age group. The



row labelled 'No vaccinations' indicates the percentage of children who have not received any vaccination by 12 months of age.

The proportion of children whose vaccination status was determined from a vaccination card declines with the age of children. This may reflect an upward trend in the use of vaccination cards as well as an upward trend in overall vaccination coverage. On the other hand, vaccination cards may have been lost or discarded, especially for older children who have received all their vaccinations. The proportion of children fully vaccinated by age 12 months is about the same for children age 12–23 months (35 percent) as for children age 24–35 months (34 percent). A similar pattern is observed in both urban and rural areas. However, a decline in coverage with increasing children's age is observed for BCG, DPT, and the first two doses of polio, indicating that there has been some progress for individual vaccines. However, because the percentage vaccinated by 12 months of age declines only marginally for measles, the extent of progress for individual vaccines is not fully seen in the very small decline in the percentage receiving all vaccinations.

Table 6.12 Childhood vaccinations received by 12 months of age

Percentage of children age 12–23 months and 24–35 months with a vaccination card that was shown to the interviewer and percentage who received specific vaccinations by 12 months of age, according to residence and child's current age, India, 1998–99

Vaccination status	Urban		Rural		Total	
	12–23 months	24–35 months	12–23 months	24–35 months	12–23 months	24–35 months
Vaccination card shown to interviewer	45.9	32.7	30.1	21.4	33.7	24.0
Percentage vaccinated by 12 months of age[1]						
BCG	85.1	82.4	64.3	59.9	69.1	65.2
Polio 0	23.3	21.5	10.1	9.0	13.1	11.9
DPT						
1	83.6	81.3	64.4	58.7	68.8	64.1
2	79.1	77.6	57.0	53.2	62.1	59.0
3	70.6	69.2	46.6	43.5	52.1	49.6
Polio						
1	89.4	87.3	77.5	71.8	80.3	75.7
2	86.1	84.6	71.1	68.7	74.6	72.6
3	74.9	75.2	54.4	54.5	59.2	59.6
Measles	59.7	59.2	36.2	35.7	41.7	41.3
All vaccinations[2]	51.9	51.4	29.3	28.6	34.5	33.9
No vaccinations	8.6	12.1	20.2	25.6	17.5	22.2
Number of children	2,282	2,277	7,795	7,536	10,076	9,813

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey.
[1]Information was obtained either from the vaccination card or from the mother if there was no written record. For children whose information was based on the mother's report, the proportion of vaccinations given by 12 months of age is assumed to be the same as for children with a written record of vaccinations.
[2]BCG, measles, and three doses each of DPT and polio vaccines (excluding Polio 0)

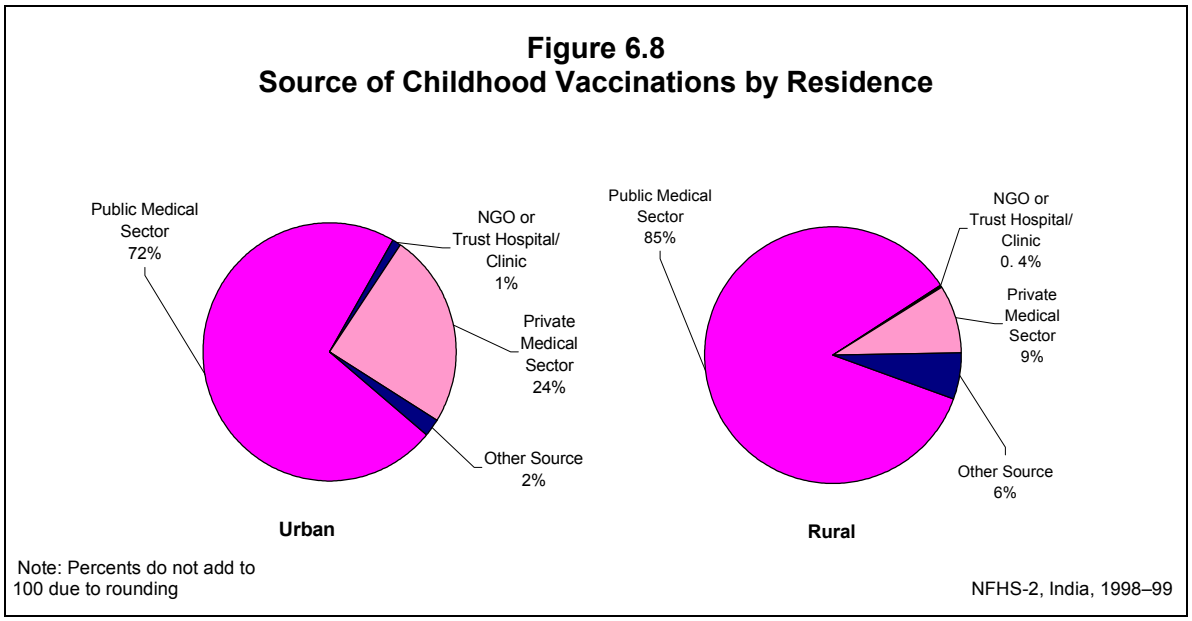
Table 6.13 and Figure 6.8 give the percent distribution of children under age three years who have received any vaccinations by the source of most of the vaccinations, according to selected background characteristics. The public sector is the primary provider of childhood vaccinations in India. Eighty-two percent of all children who have received any vaccinations received most of them from a public-sector medical source and only 13 percent received them from a private-sector medical source. The percentage of children receiving vaccinations from the private sector is considerably lower in rural areas (9 percent) than in urban areas (24 percent), where private-sector services tend to be concentrated. Even in urban areas, however, 72 percent of children received their vaccinations from the public sector. Children of more educated mothers and those belonging to households with a high standard of living are more likely than other children to receive vaccinations from the private sector. Christian and Jain children are much more likely to receive vaccinations from the private sector than children belonging to other religions. Children from scheduled tribes and scheduled castes are much less likely than other children to receive vaccinations from the private sector.

Table 6.13 Source of childhood vaccinations

Percent distribution of children under age 3 who have received any vaccinations by source of most of the vaccinations, according to selected background characteristics, India, 1998–99

Background characteristic	Source: Public medical sector	Source: NGO or trust hospital/ clinic	Source: Private medical sector	Source: Other	Total percent	Number of children
Age of child						
< 12 months	79.9	0.8	14.1	5.2	100.0	7,432
12–23 months	82.7	0.5	12.1	4.7	100.0	8,622
24–35 months	83.0	0.6	11.4	5.0	100.0	8,384
Sex of child						
Male	81.7	0.6	12.9	4. 8	100.0	12,824
Female	82.3	0.6	12.0	5.1	100.0	11,614
Birth order						
1	77.8	0.7	17.3	4.1	100.0	7,589
2	81.4	0.7	13.5	4.4	100.0	6,683
3	83.0	0.5	10.0	6.5	100.0	4,331
4+	87.2	0.5	6.8	5.5	100.0	5,835
Residence						
Urban	72.3	1.2	24.3	2.3	100.0	6,176
Rural	85.2	0.4	8.5	5.9	100.0	18,262
Mother's education						
Illiterate	87.1	0.5	6.5	5.9	100.0	12,886
Literate, < middle school complete	83.3	0.6	10.5	5.5	100.0	4,783
Middle school complete	81.2	0.8	13.6	4.4	100.0	2,548
High school complete and above	65.2	0.8	32.3	1.7	100.0	4,219
Religion						
Hindu	82.2	0.5	11.9	5.4	100.0	19,546
Muslim	82.6	0.6	13.7	3.0	100.0	3,545
Christian	72.8	3.5	22.3	1.4	100.0	625
Sikh	84.7	0.1	14.3	0.9	100.0	369
Jain	71.6	0.0	23.5	4.9	100.0	69
Buddhist/Neo-Buddhist	70.8	0.0	13.0	16.2	100.0	184
Other	85.9	0.9	11.6	1.6	100.0	62
No religion	93.8	0.0	6.2	0.0	100.0	13
Caste/tribe						
Scheduled caste	87.2	0.6	7.9	4.2	100.0	4,746
Scheduled tribe	86.3	0.8	5.5	7.3	100.0	2,053
Other backward class	83.0	0.4	13.1	3.5	100.0	8,110
Other	77.3	0.7	15.9	6.1	100.0	9,315
Standard of living index						
Low	87.6	0.7	5.3	6.5	100.0	8,060
Medium	84.0	0.5	10.7	4.8	100.0	11,547
High	67.4	0.7	29.5	2.4	100.0	4,551
Total	82.0	0.6	12.5	5.0	100.0	24,438

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey. Total includes 2, 26, 214, and 281 children with missing information on mother's education, religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.
NGO: Nongovernmental organization



6.6 Vitamin A Supplementation

Vitamin A deficiency is one of the most common nutritional deficiency disorders in the world, affecting more than 250 million children worldwide (Bloem et al., 1997). The National Programme on Prevention of Blindness targets children under age five years and administers oral doses of vitamin A every six months starting at age nine months. NFHS-2 asked mothers of children born during the three years before the survey whether their children ever received a dose of vitamin A. Those who said that their child had received at least one dose of vitamin A were asked how long ago the last dose of vitamin A was given. Table 6.14 shows the percentage of children age 12–35 months who received at least one dose of vitamin A and who received a dose of vitamin A within the past six months by selected background characteristics. In the country as a whole, only 3 out of 10 children age 12–35 months received at least one dose of vitamin A, and only 17 percent received a dose within the past six months. This indicates that a large majority of children in India have not received vitamin A supplementation at all and even fewer children receive vitamin A supplementation regularly.

Children living in urban areas, children of more educated mothers, and children living in high standard of living households are considerably more likely than other children to receive vitamin A supplementation (Table 6.14). Children of birth order 4 or above are much less likely than children of birth orders 1, 2, or 3 to have received any vitamin A supplementation. Muslim, Hindu, and Christian children are less likely to receive vitamin A than other children. Similarly, children from schedule castes, schedule tribes, and other backward classes are less likely to receive vitamin A than other children. As is the case with immunizations, boys have a slight edge in vitamin A coverage. In general, children from groups that are less likely to have received at least one dose of vitamin A supplementation are also less likely to have received a dose in the past six months.

Table 6.14 Vitamin A supplementation for children

Percentage of children age 12–35 months who received at least one dose of vitamin A and who received at least one dose of vitamin A within the six months preceding the survey by selected background characteristics, India, 1998–99

Background characteristic	Percentage who received vitamin A: At least one dose	Percentage who received vitamin A: At least one dose within the past six months	Number of children
Age of child			
12–23 months	28.4	20.4	10,076
24–35 months	31.0	13.8	9,813
Sex of child			
Male	30.8	18.1	10,251
Female	28.4	16.1	9,638
Birth order			
1	35.7	20.2	5,680
2	33.4	19.4	5,215
3	29.8	17.0	3,556
4+	19.6	11.8	5,439
Residence			
Urban	38.7	21.2	4,559
Rural	27.0	15.9	15,331
Mother's education			
Illiterate	20.4	12.6	11,541
Literate, < middle school complete	39.1	21.2	3,625
Middle school complete	41.9	22.4	1,829
High school complete and above	47.0	27.0	2,892
Religion			
Hindu	29.7	17.1	15,621
Muslim	24.1	14.5	3,226
Christian	33.0	20.0	484
Sikh	55.3	31.7	301
Jain	(57.1)	(34.0)	45
Buddhist/Neo-Buddhist	67.5	28.2	119
Other	57.3	23.3	58
No religion	43.5	20.0	17
Caste/tribe			
Scheduled caste	27.1	15.6	3,956
Scheduled tribe	26.0	15.1	1,819
Other backward class	26.8	15.4	6,347
Other	34.8	20.1	7,545
Standard of living index			
Low	21.7	12.7	7,138
Medium	30.9	17.9	9,251
High	43.3	24.2	3,271
Total	29.7	17.1	19,889

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey. Total includes 2, 19, 222, and 229 children with missing information on mother's education, religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

Table 6.15 Vitamin A supplementation for children by state

Percentage of children age 12–35 months who received at least one dose of vitamin A and who received at least one dose of vitamin A within the six months preceding the survey by state, India, 1998–99

State	Percentage who received vitamin A	
	At least one dose	At least one dose within the past six months
India	29.7	17.1
North		
Delhi	32.7	17.4
Haryana	45.2	21.4
Himachal Pradesh	71.1	35.1
Jammu & Kashmir	36.0	22.8
Punjab	56.5	30.2
Rajasthan	17.6	12.5
Central		
Madhya Pradesh	24.4	14.7
Uttar Pradesh	13.9	9.5
East		
Bihar	10.2	6.8
Orissa	42.0	26.4
West Bengal	43.4	23.5
Northeast		
Arunachal Pradesh	20.9	9.6
Assam	15.4	8.9
Manipur	38.4	18.8
Meghalaya	24.7	10.7
Mizoram	70.6	41.8
Nagaland	6.8	4.4
Sikkim	45.8	22.0
West		
Goa	78.0	52.3
Gujarat	51.9	26.3
Maharashtra	64.7	36.6
South		
Andhra Pradesh	24.8	14.0
Karnataka	48.4	22.8
Kerala	43.6	28.2
Tamil Nadu	16.2	10.0

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey.

State variations in the percentage of children who received at least one dose of vitamin A and the percentage who received at least one dose within the six months preceding the survey are shown in Table 6.15. The percentage of children age 12–35 who received at least one dose of vitamin A supplementation ranges from 7 percent in Nagaland to 78 percent in Goa. In addition to Nagaland, Bihar (10 percent), Uttar Pradesh (14 percent), Assam (15 percent), Tamil Nadu (16 percent), and Rajasthan (18 percent) stand out as having very low proportions of children receiving at least one dose of vitamin A. In addition to Goa, Himachal Pradesh (71 percent) and Maharashtra (65 percent) stand out as having relatively successful vitamin A supplementation programmes. State variations in the percentage of children receiving at least one dose of vitamin A supplementation within the past six months follow closely the variations in the percentage of children receiving at least one dose at any time in the past.

6.7 Child Morbidity and Treatment

This section discusses the prevalence and treatment of acute respiratory infection (ARI), fever, and diarrhoea. Mothers of children born during the three years preceding the survey were asked if their children suffered from cough, fever, or diarrhoea during the two weeks preceding the survey, and if so, the type of treatment given. Accuracy of all these measures is affected by the reliability of the mother's recall of when the disease episode occurred. The two-week recall period is thought to be most suitable for ensuring that there will be an adequate number of cases to analyze and that recall errors will not be too serious. Table 6.16 shows the percentage of children with cough accompanied by fast breathing (symptoms of acute respiratory infection), fever, and diarrhoea during the two weeks preceding the survey and the percentage with acute respiratory infection who were taken to a health facility or provider, by selected background characteristics.

Acute Respiratory Infection

Acute respiratory infection, primarily pneumonia, is a major cause of illness among infants and children and the leading cause of childhood mortality throughout the world (Murray and Lopez, 1996). Early diagnosis and treatment with antibiotics can prevent a large proportion of ARI/pneumonia deaths. NFHS-2 found that 19 percent of children under age three in India suffered from acute respiratory infection (cough accompanied by short, rapid breathing) at some time during the two-week period before the survey (Table 6.16). A comparison with NFHS-1 ARI data is not meaningful since the two surveys took place at different times of the year and rates of ARI are affected by the time of the year when the measurements are taken.

Table 6.16 shows that there is little variation in the prevalence of ARI by most of the background characteristics included in the table. ARI is somewhat more common among boys than girls and among children living in rural areas than urban areas. Children of mothers who have at least completed high school have a lower occurrence of ARI than other children. The prevalence of ARI is higher among scheduled-tribe children than among other children, and children living in lower standard of living households also have a higher prevalence of ARI. Children living in households that use piped drinking water and in households that use a water filter for the purification of water have a lower prevalence of ARI than do other children. The small variation in the prevalence of ARI by most socioeconomic characteristics indicates that respiratory infections affect children from all strata in India irrespective of their socioeconomic background.

Table 6.16 also shows the percentage of children suffering from ARI symptoms in the two weeks before the survey who were taken to a health facility or provider. Sixty-four percent of children received some advice or treatment from a health facility or health provider when ill with ARI. This percentage, as expected, is relatively low for children whose mothers are illiterate or who live in households with a low standard of living. The percentage is relatively high for children whose mothers do not belong to a scheduled caste or scheduled tribe. Notably, boys, urban children, and children of birth order one are also more likely than other children to have been taken to a health facility or provider for advice or treatment.

Table 6.16 Prevalence of acute respiratory infection, fever, and diarrhoea

Percentage of children under age 3 who were ill with a cough accompanied by fast breathing (symptoms of acute respiratory infection—ARI), fever, or diarrhoea during the two weeks preceding the survey and percentage with ARI who were taken to a health facility or provider by selected background characteristics, India, 1998–99

Background characteristic	Percentage of children suffering in past two weeks from: Cough accompanied by fast breathing (ARI)	Fever	Diarrhoea: Any diarrhoea[1]	Diarrhoea: Diarrhoea with blood	Number of children	Percentage with ARI taken to a health facility or provider	Number of children with ARI
Age of child							
1–5 months	17.4	20.9	16.9	0.9	5,074	55.7	884
6–11 months	23.7	33.6	25.1	2.8	4,901	66.9	1,161
12–23 months	20.0	33.4	21.3	2.9	10,076	65.1	2,019
24–35 months	17.5	27.8	15.1	3.0	9,813	64.8	1,716
Sex of child							
Male	20.7	30.3	19.4	2.5	15,515	66.5	3,214
Female	17.9	28.5	18.9	2.6	14,349	60.8	2,564
Birth order							
1	19.7	30.0	18.5	2.0	8,630	70.1	1,700
2	18.3	27.7	17.8	2.4	7,785	65.0	1,424
3	19.3	29.5	20.1	2.3	5,316	62.8	1,023
4+	20.1	30.6	20.5	3.6	8,134	57.4	1,631
Residence							
Urban	16.2	28.8	19.6	1.6	6,768	75.1	1,096
Rural	20.3	29.7	19.0	2.9	23,096	61.4	4,682
Mother's education							
Illiterate	20.6	29.5	20.1	3.3	17,273	58.3	3,550
Literate, < middle school complete	20.3	31.5	19.8	2.0	5,457	69.5	1,105
Middle school complete	18.8	28.9	18.6	2.0	2,753	76.3	517
High school complete and above	13.8	27.2	15.0	0.9	4,377	77.0	604
Religion							
Hindu	19.1	28.3	19.0	2.5	23,568	62.9	4,502
Muslim	20.8	34.5	20.7	2.9	4,773	66.8	994
Christian	20.3	32.8	16.5	2.9	705	57.1	143
Sikh	13.8	25.8	10.1	1.3	425	90.5	59
Jain	12.0	28.3	23.8	2.7	72	*	9
Buddhist/Neo-Buddhist	18.8	41.9	23.2	0.7	189	93.0	35
Other	31.6	34.1	27.5	1.2	81	69.5	26
No religion	19.1	21.7	11.1	1.0	22	(69.5)	4
Caste/tribe							
Scheduled caste	19.6	29.4	19.8	2.9	5,894	60.3	1,153
Scheduled tribe	22.4	31.4	21.1	3.7	2,810	50.4	631
Other backward class	19.1	28.1	18.3	2.6	9,573	67.9	1,826
Other	18.7	30.4	19.1	2.1	11,257	67.2	2,108
Standard of living index							
Low	21.0	29.8	19.9	3.2	10,710	55.1	2,245
Medium	19.4	30.1	19.7	2.6	13,906	67.4	2,694
High	15.7	26.7	16.1	1.3	4,889	76.9	768

Contd…

Table 6.16 Prevalence of acute respiratory infection, fever, and diarrhoea (contd.)

Percentage of children under age 3 who were ill with a cough accompanied by fast breathing (symptoms of acute respiratory infection—ARI), fever, or diarrhoea during the two weeks preceding the survey and percentage with ARI who were taken to a health facility or provider by selected background characteristics, India, 1998–99

Background characteristic	Percentage of children suffering in past two weeks from:				Number of children	Percentage with ARI taken to a health facility or provider	Number of children with ARI
	Cough accompanied by fast breathing (ARI)	Fever	Diarrhoea				
			Any diarrhoea[1]	Diarrhoea with blood			
Source of drinking water							
Piped water	15.1	28.4	19.3	1.8	9,697	75.7	1,461
Hand pump	21.7	29.6	19.2	3.2	13,343	60.1	2,902
Well water	21.1	30.9	18.5	2.5	5,834	61.1	1,230
Surface water	19.3	30.0	22.1	3.8	783	47.3	151
Other	17.6	34.6	16.8	1.4	200	(66.3)	35
Purification of water[2]							
Straining by cloth	18.6	29.0	22.0	2.3	5,151	71.2	957
Alum	20.3	29.0	18.8	1.6	323	76.1	65
Water filter	12.2	25.4	15.2	0.9	1,159	78.9	142
Boiling	16.9	31.2	16.5	1.8	2,054	75.7	348
Electronic purifier	20.8	24.2	18.0	0.1	69	*	14
Other	23.3	30.3	25.2	3.3	216	80.0	50
Nothing	19.9	29.6	19.0	2.8	21,673	61.1	4,321
Total	19.3	29.5	19.2	2.6	29,864	64.0	5,778

Note: Table includes only surviving children age 1–35 months from among the two most recent births in the three years preceding the survey. Total includes children with missing information on mother's education, religion, caste/tribe, the standard of living index, and source of drinking water, who are not shown separately.
( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases
[1]Includes diarrhoea with blood
[2]Number of children and number of children with ARI add to more than the respective totals because multiple methods of purification of water could be recorded.

There is considerable variation in the prevalence of ARI by state (Table 6.17). The percentage of children under age three who suffered from ARI during the two weeks preceding the survey ranges from 8 percent in Karnataka to 30 percent in Sikkim. Interstate variations in the prevalence of ARI, fever, or diarrhoea should be interpreted with caution, however, because these conditions vary throughout the year and the fieldwork was conducted at different times of the year in different states.

Fever

In Table 6.16, fever is the most common of the three conditions examined, with 30 percent of children suffering from fever during the two weeks before the survey. The prevalence of fever is lower among children under age six months (21 percent) than among older children (28–34 percent). In general, the prevalence of fever does not vary widely or in a predictable way with most of the remaining demographic and socioeconomic characteristics. As with acute respiratory infection, fever tends to strike young children irrespective of their demographic and socioeconomic background. The prevalence of fever varies from 21 percent in Gujarat to 42 percent in Kerala (Table 6.17).

Table 6.17 Prevalence of acute respiratory infection, fever, and diarrhoea by state

Percentage of children under age 3 who were ill with a cough accompanied by fast breathing (symptoms of acute respiratory infection—ARI), fever, or diarrhoea during the two weeks preceding the survey and percentage with ARI who were taken to a health facility or provider by state, India, 1998–99

State	Percentage of children suffering in past two weeks from:				Percentage with ARI taken to a health facility or provider
	Cough accompanied by fast breathing (ARI)	Fever	Diarrhoea		
			Any diarrhoea[1]	Diarrhoea with blood	
India	19.3	29.5	19.2	2.6	64.0
North					
Delhi	16.9	35.7	30.1	1.6	83.3
Haryana	11.8	23.7	13.9	1.8	87.9
Himachal Pradesh	10.8	29.9	31.3	4.5	95.6
Jammu & Kashmir	22.2	39.4	32.8	4.1	76.2
Punjab	14.4	24.9	9.8	0.6	93.8
Rajasthan	22.0	25.8	19.8	3.4	60.6
Central					
Madhya Pradesh	29.2	31.0	23.4	4.3	57.9
Uttar Pradesh	21.1	27.8	23.3	3.8	61.3
East					
Bihar	21.7	31.0	17.7	2.9	58.2
Orissa	22.5	36.0	28.1	4.5	57.1
West Bengal	24.8	29.9	8.3	1.0	52.4
Northeast					
Arunachal Pradesh	25.4	38.5	23.4	3.0	49.2
Assam	17.8	28.4	8.2	2.2	41.7
Manipur	26.9	36.8	16.6	4.1	45.0
Meghalaya	28.8	41.2	21.8	6.1	48.7
Mizoram	11.2	35.9	23.0	3.5	51.0
Nagaland	18.4	34.0	21.7	2.6	28.0
Sikkim	30.0	31.3	31.0	2.5	41.3
West					
Goa	17.1	34.4	18.7	0.6	98.2
Gujarat	11.0	20.7	19.7	1.3	71.2
Maharashtra	13.5	37.4	25.4	1.7	84.6
South					
Andhra Pradesh	19.3	28.6	15.0	1.5	69.4
Karnataka	7.9	25.9	13.9	0.7	77.4
Kerala	22.8	41.5	11.6	0.9	82.8
Tamil Nadu	10.3	22.3	14.4	1.7	82.9

Note: Table includes only surviving children age 1–35 months from among the two most recent births in the three years preceding the survey.
[1]Includes diarrhoea with blood

Diarrhoea

Diarrhoea is the second most important killer of children under age five worldwide, following acute respiratory infection. Deaths from acute diarrhoea are most often caused by dehydration due to loss of water and electrolytes. Nearly all dehydration-related deaths can be prevented by prompt administration of rehydration solutions. Because deaths from diarrhoea are a significant proportion of all child deaths, the Government of India has launched the Oral Rehydration Therapy Programme as one of its priority activities for child survival. One major goal of this programme is to increase awareness among mothers and communities about the causes and treatment of diarrhoea. Oral rehydration salt (ORS) packets are made widely available and mothers are taught how to use them. NFHS-2 asked mothers of children born during the three years preceding the survey a series of questions about episodes of diarrhoea suffered by their children in the two weeks before the survey, including questions on feeding practices during diarrhoea, the treatment of diarrhoea, and their knowledge and use of ORS.

Table 6.16 shows that 19 percent of children under age three suffered from diarrhoea in the two-week period before the survey. There are seasonal variations in the prevalence of diarrhoea, however, so that the percentages shown in Table 6.16 cannot be assumed to reflect the situation throughout the year.

Among children age 1–35 months, those age 6–11 months are most susceptible to diarrhoea (as is the case with ARI and fever). Differentials by sex of child, birth order, place of residence, and caste/tribe are small. Sikh children are considerably less likely to suffer from diarrhoea than children belonging to other religions. As expected, children of mothers with high school or more education and children in high standard of living households are somewhat less likely to suffer from diarrhoea than other children. Also consistent with expectations, diarrhoea is somewhat less common among children living in households that boil water or use a water filter for purification of drinking water than among other children. Children living in households that use surface water for drinking are more vulnerable to diarrhoea than children living in households that use other sources for drinking water.

Three percent of all children age 1–35 months (14 percent of children who suffered from diarrhoea in the two weeks before the survey) suffered from diarrhoea with blood, a symptom of dysentery. Children under age six months had the lowest prevalence of diarrhoea with blood (less than 1 percent). Children of birth order four or higher, children living in rural areas, children whose mothers are illiterate, scheduled-tribe children, children living in low standard of living households, children living in households using surface water for drinking, and children living in households using ‘other’ means of water purification or using unpurified water for drinking all had an elevated risk of having diarrhoea with blood.

Prevalence of diarrhoea also varies considerably by state (Table 6.17). Prevalence of any diarrhoea among children age 1–35 months during the two weeks preceding the survey ranges from 8 percent in Assam and West Bengal to 33 percent in Jammu and Kashmir. Prevalence of diarrhoea with blood was highest in Meghalaya (6 percent).

Table 6.18 shows that 62 percent of mothers with births during the three years preceding the survey know about ORS packets, up from 43 percent among women who gave birth during the three years before NFHS-1. Knowledge of ORS packets is somewhat lower among mothers age 15–19 and among mothers age 35 years or older than among mothers in the middle age groups. As expected, knowledge is considerably higher among urban mothers (76 percent) than rural mothers (59 percent), and among more educated mothers, especially literate mothers as compared with illiterate mothers. Knowledge of ORS is higher among Sikh, Jain, and Christian mothers than among mothers belonging to other religions. Mothers belonging to scheduled tribes are less likely to know about ORS packets than mothers belonging to other caste/tribe groups. Among all the groups shown in the table, knowledge of ORS packets is lowest among mothers who are not regularly exposed to any mass media (48 percent).

In order to assess mothers' knowledge of children's need for extra fluids during episodes of diarrhoea, all mothers of children born in the three years preceding the survey were asked: 'When a child has diarrhoea, should he/she be given less to drink than usual, about the same amount, or more than usual?' Table 6.18 shows the response of mothers to this question by selected background characteristics. In India as a whole, only 29 percent of mothers report that children should be given more to drink than usual during an episode of diarrhoea and, contrary to the standard recommendation, 34 percent report that children should be given less to drink. This suggests that mothers in India need much more education in the proper management of diarrhoea. The proportion reporting correctly that children with diarrhoea should be given more to drink is particularly low among rural mothers, illiterate mothers, mothers belonging to a scheduled tribe, and mothers not regularly exposed to any mass media. The proportion reporting correctly that children with diarrhoea should be given more to drink is much higher among Sikh and Christian mothers than among mothers belonging to other religions. Mothers age 15–19 and 35 years or older are less likely to answer correctly than mothers age 20–34.

To assess whether mothers are aware of one or more signs associated with diarrhoea which suggest the need for medical treatment, mothers were also asked: 'When a child is sick with diarrhoea, what signs of illness would tell you that he or she should be taken to a health facility or health worker?' All answers given by the respondent were recorded. The signs warranting medical treatment include repeated watery stools, repeated vomiting, blood in the stools, fever, marked thirst, not eating or not drinking well, getting sicker or very sick, and not getting better. Table 6.18 shows that only 37 percent of mothers were able to name two or more signs of diarrhoea that indicate that a child with diarrhoea should be given medical treatment. The percentage who know two or more signs for medical treatment of diarrhoea does not vary much by socioeconomic characteristics. Contrary to expectations, there is no difference in the percentage by place of residence. Literate mothers and mothers exposed to mass media are slightly more likely to know the danger signs. Notably, however, knowledge of two or more signs of diarrhoea that suggest the need for medical treatment is universally low across all demographic and socioeconomic groups. This suggests a need for further educating mothers with regard to children's diarrhoea so that they are better able to recognize the danger signs of diarrhoea for which a health provider should be consulted.

Table 6.18 Knowledge of diarrhoea care

Among mothers with births during the three years preceding the survey, percentage who know about oral rehydration salt (ORS) packets, percent distribution by quantity to be given to drink during diarrhoea, and percentage who know two or more signs of diarrhoea that indicate the need for medical treatment by selected background characteristics, India, 1998–99

Background characteristic	Percentage who know about ORS packets	Reported quantity to be given to drink					Percentage who know two or more signs for medical treatment of diarrhoea[1]	Number of mothers
		Less	Same	More	Don't know/ missing	Total percent		
Age								
15–19	55.7	39.5	29.8	21.0	9.7	100.0	33.9	3,691
20–24	64.6	34.5	29.7	28.9	6.9	100.0	37.0	10,691
25–29	64.8	32.8	28.4	32.7	6.1	100.0	38.8	8,432
30–34	62.0	32.0	27.1	33.1	7.8	100.0	37.5	3,741
35–49	53.1	32.8	30.1	26.5	10.6	100.0	35.0	1,900
Residence								
Urban	75.8	30.9	28.4	36.8	3.9	100.0	37.1	6,291
Rural	58.6	35.2	29.2	27.3	8.4	100.0	37.1	22,163
Education								
Illiterate	51.2	37.9	30.1	22.2	9.7	100.0	34.9	16,757
Literate, < middle school complete	72.3	34.2	29.0	32.0	4.8	100.0	38.3	5,028
Middle school complete	77.2	30.5	28.9	36.0	4.6	100.0	42.1	2,539
High school complete and above	86.5	21.5	24.5	51.1	2.9	100.0	41.4	4,125
Religion								
Hindu	61.5	34.3	29.7	28.6	7.4	100.0	36.8	22,566
Muslim	63.4	36.1	26.0	29.7	8.2	100.0	36.4	4,454
Christian	74.1	26.3	30.3	39.8	3.7	100.0	46.8	674
Sikh	81.9	19.2	24.7	50.0	6.1	100.0	37.1	388
Jain	75.7	31.0	32.0	33.1	3.9	100.0	39.8	68
Buddhist/Neo-Buddhist	66.7	36.3	26.1	32.1	5.5	100.0	46.0	173
Other	57.6	49.9	19.9	24.4	5.8	100.0	39.3	80
No religion	54.6	16.7	50.3	25.3	7.7	100.0	44.8	22
Caste/tribe								
Scheduled caste	59.3	36.9	28.9	26.5	7.6	100.0	37.5	5,658
Scheduled tribe	51.3	35.1	34.9	22.0	7.9	100.0	35.1	2,709
Other backward class	62.4	33.3	29.9	29.2	7.6	100.0	38.9	9,169
Other	66.9	33.1	26.9	33.1	6.9	100.0	35.8	10,586
Exposure to media								
Exposed to any media	74.6	31.9	28.6	35.0	4.6	100.0	39.0	15,255
Watches television weekly	77.7	30.5	28.8	36.5	4.1	100.0	38.3	11,205
Listens to radio weekly	75.8	30.7	28.0	36.5	4.9	100.0	41.8	9,254
Visits cinema/theatre monthly	79.7	31.7	30.6	33.9	3.8	100.0	37.7	2,804
Reads newspaper/magazine weekly	83.2	24.0	27.0	45.8	3.3	100.0	42.3	5,234
Not regularly exposed to any media	48.3	36.9	29.5	22.9	10.7	100.0	34.8	13,199
Total	62.4	34.2	29.0	29.4	7.4	100.0	37.1	28,454

Note: Total includes 5, 30, and 332 mothers with missing information on education, religion, and caste/tribe, respectively, who are not shown separately.
[1]Percentage who know two or more signs of illness that indicate that a child should be taken to a health facility or health worker

Table 6.19 Knowledge of diarrhoea care by state

Among mothers with births during the three years preceding the survey, percentage who know about oral rehydration salt (ORS) packets, percent distribution by quantity to be given to drink during diarrhoea, and percentage who know two or more signs of diarrhoea that indicate the need for medical treatment by state, India, 1998–99

State	Percentage who know about ORS packets	Reported quantity to be given to drink					Percentage who know two or more signs for medical treatment of diarrhoea[1]
		Less	Same	More	Don't know/ missing	Total percent	
India	62.4	34.2	29.0	29.4	7.4	100.0	37.1
North							
Delhi	73.9	15.0	15.8	64.9	4.4	100.0	33.2
Haryana	71.7	20.2	24.9	49.7	5.2	100.0	31.9
Himachal Pradesh	92.7	18.8	29.5	49.1	2.5	100.0	26.8
Jammu & Kashmir	72.9	30.1	24.4	41.1	4.4	100.0	40.7
Punjab	81.8	19.6	28.9	47.2	4.4	100.0	38.6
Rajasthan	44.8	43.2	29.7	21.0	6.1	100.0	17.9
Central							
Madhya Pradesh	55.5	29.5	36.9	28.1	5.5	100.0	30.9
Uttar Pradesh	59.1	35.2	28.8	25.3	10.7	100.0	36.4
East							
Bihar	37.5	32.1	24.7	27.6	15.5	100.0	49.6
Orissa	72.9	10.3	24.5	62.1	3.2	100.0	44.4
West Bengal	76.0	57.6	16.9	21.2	4.2	100.0	34.4
Northeast							
Arunachal Pradesh	77.1	24.4	37.8	28.4	9.5	100.0	28.6
Assam	42.9	21.7	17.9	40.4	20.0	100.0	43.9
Manipur	91.6	10.8	36.3	39.5	13.3	100.0	47.3
Meghalaya	51.9	31.2	33.2	23.4	12.2	100.0	57.3
Mizoram	96.0	3.1	22.0	66.3	8.6	100.0	36.3
Nagaland	58.6	18.0	64.6	13.8	3.7	100.0	63.0
Sikkim	63.8	17.5	13.9	66.6	1.9	100.0	36.8
West							
Goa	85.8	36.0	24.3	32.4	7.3	100.0	43.1
Gujarat	61.5	38.0	33.4	27.7	0.9	100.0	29.3
Maharashtra	65.1	42.4	35.4	17.6	4.6	100.0	41.2
South							
Andhra Pradesh	73.0	36.8	35.3	22.5	5.5	100.0	29.6
Karnataka	78.9	23.8	31.7	39.5	4.9	100.0	28.6
Kerala	88.9	3.2	8.9	85.5	2.5	100.0	52.3
Tamil Nadu	83.1	42.3	37.8	16.6	3.3	100.0	50.7

[1]Percentage who know two or more signs of illness that indicate that a child should be taken to a health facility or health worker

Table 6.19 shows differentials in the knowledge of diarrhoea care by state. Knowledge of ORS packets is almost universal in Mizoram (96 percent), Himachal Pradesh (93 percent), and Manipur (92 percent) and it also exceeds 80 percent in Kerala, Goa, Tamil Nadu, and Punjab. Knowledge of ORS packets is lowest in Bihar, Assam, and Rajasthan, where most mothers do not know about ORS packets. Women in Meghalaya, Madhya Pradesh, and Uttar Pradesh also have relatively low levels of knowledge of ORS packets.

The proportion reporting correctly that children with diarrhoea should be given more to drink also varies considerably across states, from only 14 percent in Nagaland to 86 percent in Kerala. Tamil Nadu and Maharashtra are the only other states where less than 20 percent of

mothers know that children with diarrhoea should be given more to drink than before the diarrhoea. Knowledge of two or more signs of diarrhoea requiring medical treatment is lowest in Rajasthan (18 percent) and highest in Nagaland (63 percent), followed by Meghalaya, Kerala, and Tamil Nadu.

Table 6.20 shows the percentage of children under age three with diarrhoea during the two weeks preceding the survey who were taken to a health facility or provider, the percentage who received various types of oral rehydration therapy (ORT), and the percentage who received other types of treatment, by selected background characteristics. Among children who suffered from diarrhoea during the two weeks preceding NFHS-2, 63 percent were taken to a health facility or provider (almost the same percentage that were taken for medical advice or treatment for ARI). Twenty-seven percent of children with diarrhoea did not receive any treatment at all. The percentage taken to a health facility or provider for diarrhoea is slightly higher for boys than for girls and much higher for urban children than for rural children and for children of more educated mothers. The percentage is particularly low for scheduled-tribe children and for children living in households with a low standard of living.

Twenty-seven percent of the children age 1–35 months who suffered from diarrhoea during the two weeks preceding the survey were treated with a solution made from ORS packets. This is up from 18 percent in NFHS-1, indicating some improvement in the use of ORS packets for the treatment of childhood diarrhoea in India. As expected, use of ORS packets is relatively high among urban children, children of more educated mothers, and children living in high standard of living households. Use of ORS packets is lower among Hindu and Muslim children than among children belonging to other religions. Scheduled-tribe children were less likely than any other group to be taken to a health facility or provider, but they were more likely than any other caste/tribe group to receive ORS during their diarrhoea.

More than half (52 percent) of children did not receive any of the various types of oral rehydration therapy when sick with diarrhoea. Only 22 percent received increased fluids when sick with diarrhoea and only 15 percent received gruel. The youngest children (age 1–11 months), children living in rural areas, children whose mothers are illiterate, and children belonging to households with a low standard of living are less likely than other children to receive any of the various types of oral rehydration therapy.

The use of antibiotics and other antidiarrhoeal drugs is not generally recommended for the treatment of childhood diarrhoea. Yet 53 percent of the children who had diarrhoea in the two weeks before NFHS-2 were treated with pills or syrup, and 15 percent received an injection. These figures indicate poor knowledge about the proper treatment of diarrhoea not only among mothers but also among health-care providers. The results underscore the need for informational programmes for mothers and supplemental training for health-care providers that emphasizes the importance of ORT, increased fluid intake, and continued feeding and discourages the use of drugs to treat childhood diarrhoea. The use of unnecessary antidiarrhoeal drugs is widespread across most socioeconomic groups, and is particularly common for children of more educated mothers and for children belonging to higher standard of living households.

Table 6.20 Treatment of diarrhoea

Among children under age 3 who had diarrhoea in the past two weeks, the percentage taken to a health facility or provider, the percentage who received various types of oral rehydration therapy (ORT), and the percentage who received other treatments by selected background characteristics, India, 1998–99

Background characteristic	Taken to a health facility or provider	Oral rehydration					Other treatment					No treat-ment	Number of children with diarrhoea
		Oral rehydration salt (ORS) packets	Gruel	Homemade sugar-salt-water solution	Increased fluids	ORT not given	Pill or syrup	Injec-tion	Intrave-nous (IV/drip/bottle)	Home remedy/herbal medicine	Other		
Age of child													
1–11 months	60.7	21.2	8.9	3.0	17.9	62.2	47.8	13.1	3.2	4.8	0.3	33.8	2,087
12–23 months	66.6	31.6	18.3	3.2	23.5	46.7	56.4	16.7	3.9	2.9	0.5	23.3	2,149
24–35 months	62.6	27.7	18.4	3.6	26.3	46.7	54.0	14.4	3.8	3.5	0.9	24.2	1,485
Sex of child													
Male	64.8	26.8	15.6	3.4	22.3	52.4	53.7	14.4	3.7	3.4	0.5	26.8	3,015
Female	61.9	26.8	14.1	3.1	22.1	52.2	51.5	15.3	3.5	4.1	0.7	28.0	2,706
Residence													
Urban	75.2	32.7	20.2	5.2	25.5	42.9	59.6	12.7	5.5	3.7	0.9	18.4	1,324
Rural	59.9	25.0	13.3	2.6	21.2	55.2	50.6	15.4	3.0	3.8	0.4	30.1	4,397
Mother's education													
Illiterate	58.5	22.8	12.1	2.6	18.9	57.9	50.8	15.0	3.4	3.1	0.6	31.4	3,473
Literate, < middle school complete	65.2	28.8	15.9	3.8	22.6	48.8	50.4	14.8	3.5	4.7	0.6	26.0	1,078
Middle school complete	74.2	34.7	20.5	2.8	26.0	44.7	59.3	14.2	3.1	5.5	0.4	18.0	513
High school complete and above	78.2	38.6	23.7	6.2	35.7	34.6	61.1	14.1	5.3	4.1	0.2	15.6	658
Religion													
Hindu	62.0	26.3	14.5	3.0	21.7	53.5	51.5	14.9	3.1	3.7	0.6	28.7	4,476
Muslim	67.7	26.8	15.7	4.2	21.8	50.3	59.0	13.5	4.4	3.8	0.4	21.9	989
Christian	62.3	34.9	23.2	3.2	34.1	40.2	36.4	22.4	9.2	7.9	1.5	24.8	117
Sikh	89.7	43.4	21.6	3.9	45.7	29.3	70.0	19.5	0.0	2.3	0.0	14.7	43
Buddhist/Neo-Buddhist	84.1	30.5	16.1	4.9	18.2	43.5	54.7	20.9	14.8	0.1	0.0	21.5	44
Other	55.6	36.6	2.2	2.8	29.4	46.5	44.9	0.3	18.9	0.8	0.0	49.6	22
Caste/tribe													
Scheduled caste	64.6	25.3	15.8	1.9	23.4	52.5	52.0	17.4	4.1	2.5	0.4	27.6	1,168
Scheduled tribe	52.2	31.9	13.2	3.5	18.6	50.6	44.1	9.6	2.8	4.7	0.3	36.3	592
Other backward class	63.8	25.2	14.2	2.8	21.9	55.0	52.5	16.4	3.8	4.3	0.6	28.2	1,750
Other	66.1	27.6	15.7	4.2	22.6	50.4	55.7	13.5	3.6	3.6	0.7	23.8	2,145
Standard of living index													
Low	55.5	24.2	12.9	2.6	19.1	56.0	45.1	14.7	2.9	3.1	0.6	33.2	2,126
Medium	65.1	27.3	14.7	3.4	22.2	52.6	56.0	15.2	4.0	4.2	0.5	25.6	2,745
High	77.2	32.6	20.7	4.5	30.7	41.4	61.1	13.5	4.4	4.3	0.8	17.9	786
Total	63.4	26.8	14.9	3.2	22.2	52.3	52.7	14.8	3.6	3.8	0.5	27.4	5,721

Note: Table includes only surviving children age 1–35 months from among the two most recent births in the three years preceding the survey. Total includes 17 Jain children, 2 children having no religion, and 11, 66, and 64 children with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.

Table 6.21 shows state differentials in the percentage of children under age three with diarrhoea during the two weeks preceding the survey who were taken to a health facility or provider, the percentage who received various types of oral rehydration therapy, and the percentage who received other types of treatment. The percentage of children taken to a health facility or provider when sick with diarrhoea is considerably higher in the northern states (with the exception of Rajasthan) than in other states. Kerala and Maharashtra also have a relatively high percentage of children receiving medical attention when sick with diarrhoea. The northeastern and eastern states, on the other hand, have the lowest percentage of children taken to a health facility or provider for diarrhoea treatment.

Use of oral rehydration therapy for children with diarrhoea is quite limited in Rajasthan and Uttar Pradesh where almost two-thirds of the children who had diarrhoea during the two weeks preceding the survey were not given ORT. In Kerala, on the other hand, 9 out of 10 children received ORT. Use of antidiarrhoeal drugs or injections is most widespread in the contiguous states of Haryana, Punjab, and Himachal Pradesh. Jammu and Kashmir and Maharashtra also have a relatively high percentage of children receiving pills, syrup, or injections when they are sick with diarrhoea.

Table 6.22 shows the percent distribution of children who were treated with ORS for diarrhoea in the two weeks before NFHS-2 by the source of the ORS packets. For 38 percent of children who were treated with ORS, the packets were obtained from public-sector medical sources, for 40 percent the packets were obtained from private-sector medical sources, for less than 1 percent the packets were obtained from an NGO or trust, and for the remaining 21 percent the packets were obtained from other sources. Among the public-sector sources, government or municipal hospitals are mentioned most often, followed by community health centres (CHC), rural hospitals, or Primary Health Centres (PHC), sub-centres, and government dispensaries. Among the private-sector medical sources, ORS packets were usually obtained from a private doctor or a private hospital or clinic. The pharmacy or drugstore category accounts for 9 percent of all cases. If this category is added to the shop category, the proportion purchasing ORS packets from shops, pharmacies, or drugstores becomes 26 percent.

State differentials in feeding practices during diarrhoea compared with feeding practices before diarrhoea are shown in Table 6.23. In India as a whole, only 22 percent of children who were sick with diarrhoea were given more to drink and only 10 percent were given more to eat. On the other hand, 30 percent of the children were given less to drink and 44 percent of the children were given less food to eat or no food at all. This is contrary to the recommendations for proper management of diarrhoea and suggests the need for public education programmes on proper feeding practices during diarrhoea. Kerala stands out among the states as having the highest percentage of children given more to drink during a diarrhoea episode than before (73 percent). In every other state, no more than 44 percent of women give children more to drink when they are sick with diarrhoea. Assam, Rajasthan, Maharashtra, and Tamil Nadu have very small proportions (below 15 percent) of children receiving more to drink when sick with diarrhoea. With regard to the amount given to eat during diarrhoea, Haryana, Punjab, Himachal Pradesh, and Mizoram stand out as having relatively high proportions of children given more or the same amount to eat. Kerala, Goa, Manipur, West Bengal, and Orissa are at the other end of the spectrum. In these states, more than 55 percent of the children were given less food or no food to eat when sick with diarrhoea.

Table 6.21 Treatment of diarrhoea by state

Among children under age 3 who had diarrhoea in the past two weeks, the percentage taken to a health facility or provider, the percentage who received various types of oral rehydration therapy (ORT), and the percentage who received other treatments by state, India, 1998–99

		Oral rehydration					Other treatment					
State	Taken to a health facility or provider	Oral rehydration salt (ORS) packets	Gruel	Homemade sugar-salt-water solution	Increased fluids	ORT not given	Pill or syrup	Injec-tion	Intrave-nous (IV/drip/bottle)	Home remedy/herbal medicine	Other	No treat-ment
India	63.4	26.8	14.9	3.2	22.2	52.3	52.7	14.8	3.6	3.8	0.5	27.4
North												
Delhi	80.1	39.1	27.2	12.1	38.1	32.4	52.7	10.7	0.8	10.2	0.0	18.3
Haryana	92.6	25.7	14.0	3.0	41.1	41.9	82.2	30.9	3.7	4.5	0.0	6.6
Himachal Pradesh	91.6	45.6	26.2	0.6	35.0	32.4	80.9	18.9	4.4	1.2	0.0	5.4
Jammu & Kashmir	81.2	47.5	13.6	6.5	32.0	33.3	68.4	13.6	2.6	5.1	0.3	10.2
Punjab	91.7	42.3	20.5	7.4	42.0	34.6	77.7	29.4	2.3	1.1	0.0	11.1
Rajasthan	58.2	20.3	9.2	1.5	13.9	65.9	49.3	7.5	2.5	4.2	2.2	36.3
Central												
Madhya Pradesh	59.4	29.8	14.2	1.6	21.0	54.3	54.4	16.3	3.1	2.7	0.0	30.3
Uttar Pradesh	62.1	15.8	10.5	2.0	18.8	63.8	58.8	14.6	2.7	2.5	0.2	30.2
East												
Bihar	50.3	15.4	16.5	2.1	25.0	59.0	42.4	23.4	6.0	4.2	0.0	38.8
Orissa	46.9	35.1	14.4	9.1	41.9	32.8	23.9	4.8	0.3	6.5	0.2	34.5
West Bengal	54.2	40.5	35.0	4.3	15.6	27.4	30.6	5.3	3.9	0.0	1.3	26.7
Northeast												
Arunachal Pradesh	52.8	40.2	14.8	9.1	34.1	35.2	26.4	1.0	3.2	2.3	0.0	36.8
Assam	48.2	37.1	19.7	2.7	11.1	46.2	22.1	12.6	7.3	3.5	0.0	38.8
Manipur	44.8	50.7	33.5	4.7	22.1	30.2	59.0	5.7	8.6	1.9	0.9	15.2
Meghalaya	44.1	22.4	29.5	4.0	23.2	48.1	44.0	4.4	0.0	7.7	0.0	33.2
Mizoram	33.7	44.7	23.6	0.0	43.6	31.5	54.5	0.8	0.0	2.7	0.0	25.7
Nagaland	23.3	29.7	35.0	9.8	19.2	38.4	11.5	4.7	0.0	12.2	0.0	37.1
Sikkim	31.8	27.0	22.8	3.6	39.4	34.9	23.4	0.7	5.0	5.7	0.0	39.3
West												
Goa	65.4	55.6	37.2	3.5	15.5	24.1	38.6	3.2	0.0	4.9	5.1	14.1
Gujarat	63.1	28.9	4.9	3.7	17.4	57.8	58.2	3.3	1.6	4.2	2.0	29.8
Maharashtra	77.2	33.2	11.9	4.4	14.4	48.5	64.3	14.3	9.1	1.9	0.4	17.0
South												
Andhra Pradesh	69.0	39.6	20.3	3.9	21.5	44.8	53.0	17.0	1.2	5.1	0.6	20.6
Karnataka	67.9	34.3	22.2	3.6	29.7	41.7	45.7	21.3	1.2	3.7	0.6	19.8
Kerala	77.8	47.9	49.2	4.7	72.8	10.0	56.4	3.7	2.3	9.7	0.0	12.1
Tamil Nadu	67.3	27.9	14.7	1.2	14.9	54.6	41.3	27.7	2.5	9.2	2.0	21.6

Note: Table includes only surviving children age 1–35 months from among the two most recent births in the three years preceding the survey.

Table 6.22 Source of ORS packets

Among children under age 3 who were treated with a solution made from oral rehydration salt (ORS) packets for diarrhoea in the two weeks preceding the survey, the percent distribution of children by source of ORS packets, India, 1998–99

Source	Percent
Public medical sector	37.6
Government/municipal hospital	13.5
Government dispensary	2.5
UHC/UHP/UFWC	0.7
CHC/rural hospital/PHC	12.7
Sub-centre	4.3
Government mobile clinic	0.2
Government paramedic	1.0
Other public medical sector	2.5
NGO or trust	0.8
Hospital/clinic	0.6
NGO worker	0.3
Private medical sector	40.2
Private hospital/clinic	13.0
Private doctor	14.7
Private mobile clinic	0.1
Private paramedic	1.9
Vaidya/hakim/homeopath	0.6
Pharmacy/drugstore	9.2
Dai (TBA)	0.0
Other private medical sector	0.8
Other source	21.4
Shop	17.2
Husband	2.0
Other relative/friend	0.2
Other	1.9
Total percent	100.0
Number of children treated with ORS	1,528

Note: Table includes only surviving children age 1–35 months from among the two most recent births in the three years preceding the survey. Table excludes children with missing information on source of ORS packets.
UHC: Urban health centre; UHP: Urban health post; UFWC: Urban family welfare centre; CHC: Community health centre; PHC: Primary Health Centre; NGO: Nongovernmental organization; TBA: Traditional birth attendant

Table 6.23 Feeding practices during diarrhoea by state

Percent distribution of children under age 3 who had diarrhoea in the past two weeks by amount given to drink and eat during diarrhoea by state, India, 1998–99

	Amount given to drink during diarrhoea compared with amount given before diarrhoea						Amount given to eat during diarrhoea compared with amount given before diarrhoea						
State	Less	Same	More	Don't know	Missing	Total percent	Less	Same	More	Stopped completely	Don't know	Missing	Total percent
India	29.8	46.0	22.2	1.9	0.1	100.0	37.4	42.8	10.1	6.5	2.9	0.3	100.0
North													
Delhi	16.6	44.1	38.1	1.3	0.0	100.0	41.3	35.2	18.0	1.3	3.8	0.4	100.0
Haryana	17.0	41.2	41.1	0.7	0.0	100.0	20.6	39.1	36.0	3.7	0.7	0.0	100.0
Himachal Pradesh	16.5	47.6	35.0	0.9	0.0	100.0	27.3	48.8	21.9	1.0	0.9	0.0	100.0
Jammu & Kashmir	22.5	45.1	32.0	0.3	0.0	100.0	37.6	44.3	7.3	8.3	2.5	0.0	100.0
Punjab	19.2	38.7	42.0	0.0	0.0	100.0	25.5	37.9	35.3	1.3	0.0	0.0	100.0
Rajasthan	27.9	57.5	13.9	0.7	0.0	100.0	32.6	52.7	5.8	6.4	2.6	0.0	100.0
Central													
Madhya Pradesh	27.0	49.0	21.0	2.8	0.2	100.0	34.1	45.3	8.4	7.3	4.9	0.0	100.0
Uttar Pradesh	34.2	42.9	18.8	3.9	0.2	100.0	36.1	40.3	9.7	8.4	4.5	0.9	100.0
East													
Bihar	28.9	43.6	25.0	2.6	0.0	100.0	34.9	41.2	10.2	8.6	5.2	0.0	100.0
Orissa	19.3	38.0	41.9	0.6	0.3	100.0	48.2	37.9	5.7	7.3	0.9	0.0	100.0
West Bengal	46.8	37.6	15.6	0.0	0.0	100.0	52.6	27.9	15.5	4.0	0.0	0.0	100.0
Northeast													
Arunachal Pradesh	23.3	32.7	34.1	8.5	1.3	100.0	36.2	35.6	15.1	4.8	8.2	0.0	100.0
Assam	32.8	53.3	11.1	2.8	0.0	100.0	36.5	39.5	12.7	8.6	2.7	0.0	100.0
Manipur	28.6	47.5	22.1	1.9	0.0	100.0	42.2	36.9	3.9	16.0	0.9	0.0	100.0
Meghalaya	28.1	47.2	23.2	1.5	0.0	100.0	48.3	39.4	3.9	4.6	3.8	0.0	100.0
Mizoram	13.1	42.1	43.6	1.1	0.0	100.0	20.6	40.4	29.8	3.8	5.3	0.0	100.0
Nagaland	21.2	58.6	19.2	1.0	0.0	100.0	26.3	61.5	7.4	3.7	1.0	0.0	100.0
Sikkim	21.6	38.2	39.4	0.8	0.0	100.0	46.3	32.5	16.8	3.6	0.7	0.0	100.0
West													
Goa	40.3	44.2	15.5	0.0	0.0	100.0	54.3	35.8	3.4	5.1	1.5	0.0	100.0
Gujarat	26.4	55.4	17.4	0.8	0.0	100.0	35.2	54.1	5.8	3.3	1.3	0.4	100.0
Maharashtra	36.2	48.0	14.4	1.4	0.0	100.0	40.0	43.0	9.5	5.2	2.2	0.0	100.0
South													
Andhra Pradesh	33.0	45.5	21.5	0.0	0.0	100.0	37.4	43.6	14.0	5.0	0.0	0.0	100.0
Karnataka	21.6	47.6	29.7	1.2	0.0	100.0	27.3	50.4	14.0	6.6	1.8	0.0	100.0
Kerala	8.6	18.6	72.8	0.0	0.0	100.0	57.7	31.6	6.4	4.2	0.0	0.0	100.0
Tamil Nadu	30.8	54.3	14.9	0.0	0.0	100.0	47.4	43.4	4.2	5.0	0.0	0.0	100.0

Note: Table includes only surviving children age 1–35 months from among the two most recent births in the three years preceding the survey.

6.8 HIV/AIDS

Acquired Immune Deficiency Syndrome (AIDS) is an illness caused by the HIV virus, which weakens the immune system and leads to death through secondary infections such as tuberculosis or pneumonia. The virus is generally transmitted through sexual contact, through the placenta of HIV-infected women to their unborn children, or through contact with contaminated needles (injections) or blood. HIV and AIDS prevalence in India have been on the rise for more than a decade and have reached alarming proportions in recent years. The Government of India established a National AIDS Control Organization (NACO) under the Ministry of Health and Family Welfare in 1989 to deal with the epidemic. Since then there have been various efforts to prevent HIV transmission, such as public health education through the media and the activities of many nongovernmental organizations (NGOs).

NFHS-2 included a set of questions on knowledge of AIDS and AIDS prevention. Ever-married women age 15–49 were first asked if they had ever heard of an illness called AIDS. Respondents who had heard of AIDS were asked further questions about their sources of information on AIDS, whether they believe that AIDS is preventable, and if so, what precautions, if any, a person can take to avoid infection.

Knowledge of AIDS

Table 6.24 shows the percentage of women who have heard about AIDS by background characteristics. Sixty percent of women in India have never heard of AIDS. Knowledge of AIDS varies little by women's age, but it is somewhat higher among women age 25–34. Urban residence, education, and the standard of living all have a very strong positive association with AIDS knowledge. Seventy percent of urban women in India have heard about AIDS compared with only 30 percent of rural women. Knowledge of AIDS increases from only 18 percent among illiterate women to 92 percent among women who have at least completed high school. Similarly, knowledge of AIDS increases from 20 percent among women in households with a low standard of living to 74 percent among women in households with a high standard of living.

Jain (83 percent), Christian (78 percent), Buddhist/Neo-Buddhist (69 percent), and Sikh (54 percent) women are much more likely to know about AIDS than Hindus, Muslims, or women belonging to other religions (28–39 percent). Only 17 percent of scheduled-tribe women have heard about AIDS compared with 32 percent of scheduled-caste women, 42 percent of women belonging to other backward classes, and 48 percent of 'other' women. Exposure to mass media increases women's knowledge about AIDS substantially. Eighty-five percent of women who read a newspaper or magazine at least once a week know about AIDS compared with only 10 percent of women who are not regularly exposed to any mass media (newspapers, magazines, radio, television, cinema, or theatre).

Table 6.24 Source of knowledge about AIDS

The percentage of ever-married women who have heard about AIDS and among women who have heard about AIDS, the percentage who received information from specific sources by selected background characteristics, India, 1998–99

Background characteristic	Percentage who have heard about AIDS	Number of women	Among those who have heard about AIDS, percentage who received information from:										Number of women who have heard about AIDS
			Radio	Television	Cinema	News-paper/ magazine	Poster/ hoarding	Health worker	Adult education programme	Friend/ relative	School/ teacher	Other source	
Age													
15–24	37.2	24,571	42.4	80.0	8.2	23.5	12.6	3.3	0.4	29.5	1.4	5.4	9,131
25–34	42.7	32,839	42.7	79.6	8.8	28.6	13.2	4.0	0.5	30.7	0.9	6.3	14,007
35–49	40.3	31,789	39.7	77.1	7.2	27.2	11.6	3.4	0.5	32.1	0.9	7.3	12,808
Residence													
Urban	70.3	23,370	36.4	91.1	10.6	34.0	16.0	2.8	0.5	23.2	1.0	4.8	16,424
Rural	29.7	65,829	45.9	68.5	6.0	20.8	9.5	4.3	0.5	37.3	1.0	7.8	19,522
Education													
Illiterate	18.4	51,871	33.6	61.7	3.7	1.2	2.3	3.0	0.2	44.0	0.5	9.1	9,564
Literate, < middle school complete	53.8	17,270	39.9	76.3	5.8	15.7	10.3	3.0	0.3	33.6	0.4	5.4	9,296
Middle school complete	74.0	7,328	44.3	83.7	8.1	30.2	15.7	3.7	0.2	26.3	0.7	4.3	5,421
High school complete and above	91.7	12,719	48.1	92.7	13.5	55.1	21.0	4.5	0.9	20.1	2.1	6.0	11,661
Religion													
Hindu	39.2	72,903	42.3	79.8	8.7	26.0	12.4	3.5	0.4	30.7	1.0	6.6	28,591
Muslim	35.4	11,190	37.2	75.0	4.9	23.5	8.4	2.9	0.7	30.0	1.1	3.1	3,963
Christian	77.6	2,263	51.1	64.6	9.3	42.1	15.6	5.1	1.2	40.8	1.6	11.4	1,756
Sikh	54.2	1,427	28.5	94.6	4.1	35.3	20.4	3.0	0.5	21.0	0.7	3.1	773
Jain	83.1	331	31.3	89.2	6.9	50.6	22.8	2.3	0.2	15.0	0.6	7.7	275
Buddhist/Neo-Buddhist	68.6	676	23.8	80.7	3.2	20.0	21.2	7.7	0.0	32.6	1.0	9.9	464
Other	28.4	285	41.7	51.6	7.2	24.9	9.6	10.4	0.4	42.7	0.3	15.3	81
No religion	37.0	44	50.6	71.1	2.4	43.9	24.2	2.4	2.4	46.2	0.0	4.9	16
Caste/tribe													
Scheduled caste	32.4	16,301	39.4	72.5	6.2	15.5	9.6	4.2	0.4	36.6	1.0	8.1	5,288
Scheduled tribe	17.2	7,750	41.0	57.0	3.7	21.4	14.1	7.5	0.4	42.1	2.1	11.2	1,335
Other backward class	41.9	29,383	46.5	76.6	9.5	25.0	12.2	3.6	0.5	37.4	1.0	6.6	12,314
Other	48.4	34,904	38.7	84.2	8.0	32.2	13.5	3.1	0.5	23.4	1.0	5.4	16,878

Contd…

Table 6.24 Source of knowledge about AIDS (contd.)

The percentage of ever-married women who have heard about AIDS and among women who have heard about AIDS, the percentage who received information from specific sources by selected background characteristics, India, 1998–99

Background characteristic	Percentage who have heard about AIDS	Number of women	Among those who have heard about AIDS, percentage who received information from:										Number of women who have heard about AIDS
			Radio	Television	Cinema	News-paper/ magazine	Poster/ hoarding	Health worker	Adult education programme	Friend/ relative	School/ teacher	Other source	
Standard of living index													
Low	19.6	29,033	40.4	51.5	5.1	8.3	6.1	3.8	0.4	50.1	0.9	10.2	5,682
Medium	40.1	41,289	42.5	76.1	6.7	19.9	10.4	3.9	0.4	32.7	0.8	6.4	16,559
High	74.3	17,845	40.9	93.9	11.2	43.4	17.7	3.2	0.6	20.6	1.4	4.9	13,267
Exposure to mass media													
Exposed to any media	60.7	53,224	43.3	83.5	8.7	29.2	13.2	3.5	0.5	27.9	1.1	5.8	32,316
Listens to radio weekly	61.6	32,547	59.2	81.1	9.9	32.0	13.0	3.7	0.6	28.4	1.2	6.0	20,040
Watches television weekly	68.1	40,788	40.2	90.9	9.2	30.4	13.9	3.4	0.5	25.5	1.1	5.4	27,776
Goes to cinema/theatre monthly	71.9	9,457	48.8	84.6	19.6	33.1	14.3	3.8	0.7	32.4	1.4	6.3	6,795
Reads newspaper/ magazine weekly	85.1	18,567	47.9	89.4	12.2	51.1	19.6	4.1	0.8	22.4	1.6	5.7	15,809
Not regularly exposed to any media	10.1	35,975	26.2	37.3	2.4	5.3	5.8	4.4	0.2	57.6	0.9	12.0	3,630
Total	40.3	89,199	41.5	78.8	8.1	26.8	12.5	3.6	0.5	30.9	1.0	6.4	35,946

Note: Total includes women with missing information on education, religion, caste/tribe, and the standard of living index, who are not shown separately.

State variations in the percentage of ever-married women who have heard about AIDS are shown in Table 6.25 and Figure 6.9. Knowledge of AIDS ranges from a low of only 12 percent in Bihar to 93 percent in Manipur and Mizoram. Bihar, Uttar Pradesh, Rajasthan, and Madhya Pradesh all have very low levels of AIDS awareness (below 23 percent). On the other hand, Tamil Nadu, Kerala, Delhi, Goa, and Nagaland (in addition to Manipur and Mizoram) have relatively high levels of AIDS awareness (above 72 percent). In NFHS-1, AIDS-awareness questions were asked in only 13 states so it is not possible to assess trends in AIDS awareness between NFHS-1 and NFHS-2 for India as a whole. However, in all of the 12 states with comparable information currently available, awareness of AIDS increased substantially between the two surveys. Particularly dramatic increases in AIDS knowledge have taken place in Tamil Nadu (from 23 to 87 percent), Delhi (from 36 percent to 79 percent), Maharashtra (from 19 to 61 percent), and Goa (from 42 percent to 76 percent).

Source of Knowledge about AIDS

As part of the AIDS prevention programme, the Government of India has been using mass media, especially electronic media, extensively to create awareness among the general public about AIDS and its prevention. NFHS-2 asked women who had heard of AIDS about their sources of AIDS information. Table 6.24 shows the percentage of ever-married women who have heard about AIDS from specific sources. Television is the most important source of information about AIDS among ever-married women in India. Seventy-nine percent of women report television as a source of their information about AIDS. Other important sources are the radio (42 percent), friends or relatives (31 percent), and newspapers or magazines (27 percent). Only 4 percent report that they received information about AIDS from a health worker.

Television is the most important source of information about AIDS in both urban and rural areas, followed by the radio. Rural women are more likely than urban women to have learned about AIDS from the radio, a health worker, or a friend or relative. On the other hand, urban women are more likely to have learned about AIDS from television, cinema, newspapers or magazines, or posters or hoardings. More educated women are less likely than less educated women to have learned about AIDS from a friend or relative, but they are more likely to have learned about AIDS from each of the other sources. Scheduled-tribe women are less likely than other women to have learned about AIDS from television or cinema, but are more likely than other women to have learned about it from a health worker or a friend or relative.

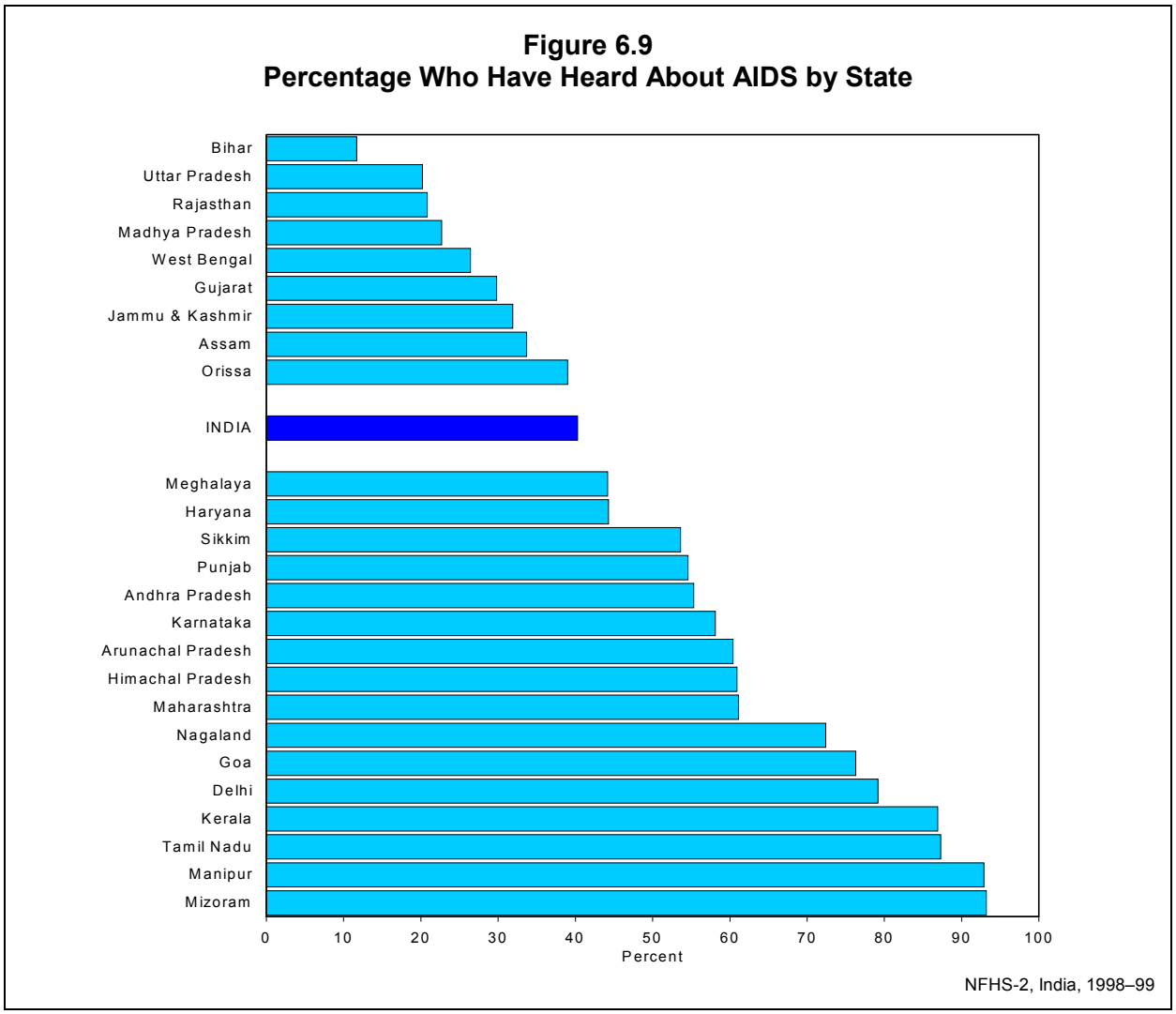
Women in households with a high standard of living are more likely than other women to have learned about AIDS from television, cinema, newspapers or magazines, or posters or hoardings; they are less likely to have learned about AIDS from a friend or relative. Finally, women who are not regularly exposed to mass media are much less likely to have learned about AIDS from any media sources, but they are more likely to have learned about AIDS from a friend or relative, as might be expected.

Among ever-married women who have heard about AIDS, television is the primary source of information in most states, followed by the radio (Table 6.25). Newspapers and magazines are also important sources of information about AIDS in most states. The percentage who received AIDS information from a health worker is much higher in Mizoram, Sikkim, Himachal Pradesh, and Goa than in other states, but even in those states only 10–13 percent of women mention health workers as a source of information. Friends and relatives are a relatively

Table 6.25 Source of knowledge about AIDS by state

The percentage of ever-married women who have heard about AIDS and among women who have heard about AIDS, the percentage who received information from specific sources by state, India, 1998–99

State	Percentage who have heard about AIDS	Among those who have heard about AIDS, percentage who received information from:									
		Radio	Television	Cinema	Newspaper/ magazine	Poster/ hoarding	Health worker	Adult education programme	Friend/ relative	School/ teacher	Other source
India	40.3	41.5	78.8	8.1	26.8	12.5	3.6	0.5	30.9	1.0	6.4
North											
Delhi	79.2	36.1	96.9	13.2	38.8	21.6	2.4	0.4	14.2	0.6	3.1
Haryana	44.3	32.2	90.5	3.6	26.3	17.8	3.2	0.6	24.4	2.4	2.6
Himachal Pradesh	60.9	33.3	89.8	2.7	28.0	31.9	10.4	0.5	21.7	0.8	3.7
Jammu & Kashmir	31.9	45.9	86.4	2.2	16.4	4.0	2.2	0.4	17.9	0.9	1.0
Punjab	54.6	25.2	94.6	3.9	34.2	23.0	3.1	0.7	24.2	0.6	2.8
Rajasthan	20.8	28.1	87.4	4.5	26.7	12.6	3.3	0.2	13.0	1.3	4.0
Central											
Madhya Pradesh	22.7	27.8	93.8	5.3	29.9	7.0	3.4	0.3	10.7	0.8	2.0
Uttar Pradesh	20.2	39.4	90.4	7.4	22.4	6.3	1.2	0.0	11.1	0.3	1.9
East											
Bihar	11.7	55.4	82.9	13.8	22.1	2.9	1.2	0.4	16.4	1.1	3.2
Orissa	39.0	61.8	74.4	5.1	16.7	7.0	2.2	0.4	40.2	0.8	2.9
West Bengal	26.4	31.3	84.8	5.2	25.8	6.0	1.8	0.0	16.3	0.3	4.2
Northeast											
Arunachal Pradesh	60.4	30.8	62.7	5.0	9.3	8.1	1.7	0.5	65.3	1.4	4.5
Assam	33.7	63.2	63.6	15.5	27.9	17.0	3.1	0.2	38.5	0.9	5.1
Manipur	92.9	73.2	34.5	4.1	23.1	12.5	6.1	0.1	57.4	0.8	17.9
Meghalaya	44.2	54.9	60.6	4.5	42.9	21.0	6.0	1.4	57.4	1.1	4.8
Mizoram	93.2	67.4	30.4	1.7	60.1	44.4	12.9	1.6	59.3	2.8	16.0
Nagaland	72.4	39.8	40.0	1.2	25.8	27.1	3.1	1.0	72.3	1.0	23.4
Sikkim	53.6	57.1	70.7	4.6	21.2	24.3	10.7	0.5	40.3	0.9	4.5
West											
Goa	76.3	26.5	82.5	2.4	34.7	18.5	10.2	1.8	32.9	2.5	13.0
Gujarat	29.8	15.2	85.9	5.2	46.4	37.6	3.8	0.3	11.9	1.5	5.4
Maharashtra	61.1	22.2	76.8	2.7	23.0	16.6	6.5	0.2	32.8	1.5	13.6
South											
Andhra Pradesh	55.3	33.7	74.3	14.7	15.9	6.8	2.9	0.3	40.6	0.9	7.7
Karnataka	58.1	68.3	80.6	12.0	26.9	10.9	4.4	0.4	33.4	0.9	3.4
Kerala	86.9	66.8	57.3	4.3	60.6	7.2	3.9	2.5	34.6	2.0	5.0
Tamil Nadu	87.3	52.4	75.1	11.8	19.2	14.3	3.4	0.4	50.9	0.9	8.9



important source of AIDS information in the northeastern and southern states, as well as in Orissa, Goa, and Maharashtra.

Knowledge of Ways to Avoid AIDS

Respondents who have heard of AIDS were asked if a person can do anything to avoid becoming infected. Those who reported that something could be done were asked what a person could do to avoid AIDS. Table 6.26 shows the percentage of ever-married women who know of no way to avoid AIDS and the percentages who report that AIDS can be avoided in specific ways, by selected background characteristics.

Among women who have heard about AIDS, 33 percent do not know any way to avoid infection. As expected, this percentage is higher among rural women than among urban women and among women not regularly exposed to mass media than among other women. The percentage who do not know any way to avoid becoming infected with AIDS decreases sharply with increasing levels of education and household standard of living, as expected. This percentage is also considerably higher among Muslim women (40 percent) than among women

Table 6.26 Knowledge about avoidance of AIDS

Among ever-married women who have heard about AIDS, the percentage who believe AIDS can be avoided in specific ways by selected background characteristics, India, 1998–99

Background characteristic	Percentage who believe AIDS can be avoided by:									Knows no way to avoid AIDS	Number of women
	Abstaining from sex	Using condoms	Having only one sex partner	Avoiding sex with commercial sex workers	Avoiding sex with homo-sexuals	Avoiding blood transfusions	Avoiding injections/ using clean needles	Avoiding IV drug use	Other ways		
Age											
15–24	6.3	20.3	37.8	23.8	2.9	17.3	28.6	1.3	5.7	34.7	9,131
25–34	7.3	22.1	42.2	27.1	3.1	20.0	31.1	1.7	6.3	30.0	14,007
35–49	6.2	16.9	39.5	24.5	3.3	18.8	29.1	1.5	6.4	34.4	12,808
Residence											
Urban	7.7	26.2	42.0	28.7	3.9	22.5	34.4	1.8	6.3	28.4	16,424
Rural	5.8	14.4	38.6	22.5	2.4	15.9	25.8	1.3	6.1	36.5	19,522
Education											
Illiterate	3.5	5.6	31.4	18.7	1.8	8.1	15.9	0.7	4.2	48.9	9,564
Literate, < middle school complete	5.0	12.8	35.3	24.0	1.9	14.2	25.2	0.9	6.1	38.6	9,296
Middle school complete	6.7	20.8	43.5	26.4	2.5	19.4	31.8	1.6	6.0	28.7	5,421
High school complete and above	10.6	36.6	49.5	31.4	5.5	31.3	43.8	2.7	8.0	16.9	11,661
Religion											
Hindu	6.6	19.9	40.4	25.5	3.1	18.9	30.0	1.5	6.3	32.1	28,591
Muslim	4.9	15.9	36.8	23.3	2.4	14.7	23.1	0.9	4.9	40.4	3,963
Christian	5.2	16.5	45.7	31.4	4.4	29.1	39.2	2.8	7.7	27.4	1,756
Sikh	22.0	34.5	40.3	11.1	2.6	23.6	29.4	3.3	4.7	30.8	773
Jain	9.5	30.7	42.3	22.6	5.1	18.7	32.7	0.3	6.6	26.0	275
Buddhist/Neo-Buddhist	3.2	23.2	34.8	34.4	3.4	12.8	31.4	1.4	8.2	33.3	464
Other	3.0	22.9	26.2	18.0	3.3	23.4	23.6	4.5	7.9	41.8	81
No religion	7.9	23.5	44.5	25.6	0.5	23.2	24.1	7.2	0.0	42.1	16
Caste/tribe											
Scheduled caste	5.0	14.1	39.7	23.3	2.3	15.1	24.1	1.0	5.6	37.0	5,288
Scheduled tribe	6.3	16.3	25.7	21.0	3.7	15.4	26.4	2.8	8.0	44.6	1,335
Other backward class	4.5	15.3	47.2	29.0	3.1	20.8	30.2	1.4	5.6	28.2	12,314
Other	8.8	25.1	36.5	23.7	3.4	19.1	31.5	1.7	6.7	33.6	16,878

Contd…

Table 6.26 Knowledge about avoidance of AIDS (contd.)

Among ever-married women who have heard about AIDS, the percentage who believe AIDS can be avoided in specific ways by selected background characteristics, India, 1998–99

Background characteristic	Percentage who believe AIDS can be avoided by:									Knows no way to avoid AIDS	Number of women
	Abstaining from sex	Using condoms	Having only one sex partner	Avoiding sex with commercial sex workers	Avoiding sex with homo-sexuals	Avoiding blood transfusions	Avoiding injections/ using clean needles	Avoiding IV drug use	Other ways		
Standard of living index											
Low	2.9	5.5	36.5	21.5	1.3	9.4	17.8	0.5	4.6	43.5	5,682
Medium	5.0	15.0	38.3	24.9	2.7	16.3	27.3	1.2	5.8	36.1	16,559
High	10.3	31.8	44.0	27.3	4.4	26.3	38.0	2.4	7.4	24.2	13,267
Exposure to mass media											
Exposed to any media	6.9	21.4	41.2	26.5	3.3	20.2	31.6	1.6	6.4	30.6	32,316
Listens to radio weekly	7.4	22.1	42.8	27.5	4.0	22.6	34.0	1.7	6.8	28.3	20,040
Watches television weekly	7.3	23.3	41.8	26.9	3.4	21.3	32.8	1.7	6.5	29.4	27,776
Goes to cinema/theatre monthly	6.9	25.5	44.8	29.1	4.4	24.7	37.1	1.9	7.1	25.4	6,795
Reads newspaper/magazine weekly	9.0	31.4	47.3	31.1	4.7	27.9	40.7	2.2	7.6	20.6	15,809
Not regularly exposed to any media	4.1	5.5	30.1	15.3	1.3	7.1	13.3	0.7	4.3	52.0	3,630
Total	6.7	19.8	40.1	25.3	3.1	18.9	29.7	1.5	6.2	32.8	35,946

Note: Total includes 3, 26, 131, and 438 women with missing information on education, religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.

from almost all other religious groups. Scheduled-tribe women are less likely to know any way to avoid AIDS than other women.

Among women who report that something can be done to prevent AIDS, the most commonly mentioned ways of avoiding AIDS are having only one sex partner (40 percent) and avoiding injections or using clean needles (30 percent). Avoiding sex with commercial sex workers, using condoms, and avoiding blood transfusions are also mentioned as ways to avoid AIDS by substantial proportions of women (25, 20, and 19 percent, respectively). Only 7 percent mention abstaining from sex, 3 percent mention avoiding sex with homosexuals, and 2 percent mention avoiding intravenous drug use. The percentage reporting each means of avoiding AIDS is lower among rural than among urban women and among women not regularly exposed to mass media than among other women. The level of education and the household standard of living are strongly and positively associated with women mentioning each of these ways of avoiding AIDS.

Table 6.27 shows state variations in specific ways to avoid AIDS. Even among women who have heard about AIDS, about one-half of women or more do not know of any way to avoid getting AIDS in Sikkim, Arunachal Pradesh, Jammu and Kashmir, Assam, West Bengal, and Bihar. On the other hand, in Mizoram, Tamil Nadu, and Orissa a large majority of women (84 percent or more) know of at least one way to avoid AIDS. The percentage mentioning the use of condoms as a way to avoid AIDS ranges 3 percent in Nagaland to 52 percent in Delhi. Other states where condoms are rarely mentioned as a way to avoid infection include Karnataka (9 percent), Tamil Nadu (11 percent), and Kerala (12 percent). 'Having only one sex partner' is mentioned more often than 'avoiding injections or using clean needles' in 16 out of 25 states. 'Abstaining from sex' is mentioned much less frequently as a way to avoid AIDS in the southern and western states than in other states.

The lack of knowledge of AIDS, its modes of transmission, and ways to avoid infection among women in India is a major challenge to efforts to avoid the spread of AIDS. Most ever-married women in their childbearing years have never heard of AIDS, and many of those who have heard of AIDS do not know even one way to avoid infection. It is clear that AIDS prevention organizations need to strengthen the educational components of their programmes, in addition to trying to reduce high-risk behaviour, since even basic information about AIDS is seriously deficient, at least among women in India.

Table 6.27 Knowledge about avoidance of AIDS by state

Among ever-married women who have heard about AIDS, the percentage who believe AIDS can be avoided in specific ways by state, India, 1998–99

State	Percentage who believe AIDS can be avoided by:									Knows no way to avoid AIDS
	Abstaining from sex	Using con-doms	Having only one sex partner	Avoiding sex with commercial sex workers	Avoiding sex with homo-sexuals	Avoiding blood trans-fusions	Avoiding injections/ using clean needles	Avoiding IV drug use	Other ways	
India	6.7	19.8	40.1	25.3	3.1	18.9	29.7	1.5	6.2	32.8
North										
Delhi	17.4	52.0	54.4	21.0	7.0	30.2	42.2	1.3	4.1	23.7
Haryana	23.0	36.5	43.4	8.4	1.0	20.7	31.6	2.0	4.0	28.5
Himachal Pradesh	21.9	39.8	44.9	11.4	0.9	15.3	30.1	0.9	2.4	26.7
Jammu & Kashmir	6.7	15.9	26.7	8.4	2.8	12.6	20.4	2.4	6.5	51.8
Punjab	25.2	34.8	40.3	10.6	1.8	23.2	29.9	4.0	5.4	32.1
Rajasthan	10.7	33.7	36.0	4.1	1.5	9.7	19.0	1.4	5.3	40.5
Central										
Madhya Pradesh	10.1	26.4	21.6	7.3	2.0	11.4	23.2	1.2	3.0	44.9
Uttar Pradesh	10.0	24.8	27.9	11.2	2.8	14.8	22.5	1.5	4.6	45.0
East										
Bihar	18.8	23.7	25.7	11.8	3.2	9.8	16.8	4.5	12.1	49.6
Orissa	16.9	14.5	39.5	34.5	2.8	27.1	61.8	4.9	25.2	15.7
West Bengal	6.7	21.1	18.9	15.2	2.1	10.7	20.4	1.0	5.4	50.5
Northeast										
Arunachal Pradesh	1.9	20.7	21.1	9.1	5.3	21.2	16.8	2.9	4.9	52.5
Assam	15.2	26.5	23.2	13.8	3.7	18.7	18.6	2.7	3.3	51.7
Manipur	7.2	15.4	26.5	39.8	2.7	36.9	51.5	10.2	5.9	29.0
Meghalaya	11.8	18.9	33.6	10.5	2.3	22.6	25.6	8.1	5.1	47.8
Mizoram	20.7	39.8	42.8	34.9	8.8	25.3	63.7	9.8	9.0	6.2
Nagaland	10.6	3.2	12.9	42.7	3.3	40.5	55.2	20.7	25.5	25.3
Sikkim	2.3	23.6	22.5	4.3	1.4	11.7	18.2	0.5	7.3	62.6
West										
Goa	2.9	15.0	33.7	36.6	1.1	28.7	40.7	2.0	9.5	25.1
Gujarat	1.8	27.2	33.0	34.6	2.6	18.7	25.6	0.8	6.0	35.4
Maharashtra	2.2	20.1	37.6	33.3	1.8	10.9	27.3	0.8	6.9	33.3
South										
Andhra Pradesh	3.9	16.1	32.2	26.0	2.1	20.8	38.2	1.5	6.0	36.8
Karnataka	3.0	8.6	25.3	37.6	13.8	30.2	38.7	1.1	7.5	36.0
Kerala	0.7	12.0	57.8	26.2	2.0	23.8	24.5	0.5	4.6	26.6
Tamil Nadu	1.2	11.0	74.7	37.6	1.5	22.5	28.6	0.7	3.5	11.5

CHAPTER 7

NUTRITION AND THE PREVALENCE OF ANAEMIA

This chapter focuses on the nutrition of women and young children, examining both the types of food consumed and the consequences of inadequate nutrition and poor feeding practices. NFHS-1 included basic information about feeding practices and the nutritional status of young children. NFHS-2 contains more comprehensive information on these topics, and, for the first time, information on the diet of women. Measurement of height and weight has been expanded to include ever-married women as well as young children. Two additional tests have been included for the first time—anaemia testing for women and young children and the testing of cooking salt to determine the extent of iodization. A specially trained health investigator attached to each interviewing team conducted height and weight measurements and anaemia testing.

7.1 Women's Food Consumption

The consumption of a wide variety of nutritious foods is important for women's health. Adequate amounts of protein, fat, carbohydrates, vitamins, and minerals are required for a well-balanced diet. Meat, fish, eggs, and milk, as well as pulses and nuts, are rich in protein. Green, leafy vegetables are a rich source of iron, folic acid, vitamin C, carotene, riboflavin, and calcium. Many fruits are also good sources of vitamin C. Bananas are rich in carbohydrates. Papayas, mangoes, and other yellow fruits contain carotene, which is converted to vitamin A. Vitamin A is also present in milk and milk products, as well as egg yolks (Gopalan et al., 1996).

NFHS-2 asked ever-married women how often they consume various types of food (daily, weekly, occasionally, or never). Women consume vegetables (other than green, leafy vegetables) most often (Table 7.1). Almost two-thirds of women consume these vegetables every day and 93 percent of women eat these vegetables at least once a week. Pulses and beans, as well as green, leafy vegetables, are also an important part of the diet. Almost half of women (47 percent) eat pulses or beans every day and 42 percent eat green, leafy vegetables every day. Milk or curd is a common part of the diet for a majority of women, but 45 percent of women consume milk or curd only occasionally or never. Fruits are eaten daily by only 8 percent of women and only one-third of women eat fruits at least once a week. Almost one-third of women in India never eat chicken, meat, or fish and very few women (only 6 percent) eat chicken, meat, or fish every day. Eggs are consumed slightly less often than chicken, meat, or fish.

Table 7.2 shows that there are substantial differentials in food consumption patterns by selected background characteristics. Age does not play an important role in women's consumption patterns. Women in urban areas are more likely than women in rural areas to include every type of food in their diet, particularly nutritious foods such as fruits and milk or curd. Illiterate women have poorer and less varied diets than literate women, and their diet is particularly deficient in the consumption of fruits. Hindus are less likely than Muslims or Christians to eat eggs, chicken, meat, or fish at least once a week. Sikhs and Jains rarely eat chicken, meat, fish, or eggs, but they are more likely than women in any other religious group to consume milk or curd, as well as pulses or beans. Jains are more likely than women in any other religious group to eat fruits at least once a week.

Table 7.1 Women's food consumption

Percent distribution of ever-married women by frequency of consumption of specific foods, India, 1998–99

Type of food	Frequency of consumption					Total percent
	Daily	Weekly	Occasionally	Never	Missing	
Milk or curd	37.5	17.4	34.1	10.9	0.0	100.0
Pulses or beans	46.9	40.8	11.6	0.6	0.0	100.0
Green, leafy vegetables	41.8	43.4	14.3	0.4	0.0	100.0
Other vegetables	65.1	28.0	6.6	0.2	0.0	100.0
Fruits	8.1	24.9	62.2	4.7	0.1	100.0
Eggs	2.8	25.0	37.9	34.2	0.0	100.0
Chicken, meat, or fish	5.8	26.1	37.3	30.8	0.0	100.0

Table 7.2 Women's food consumption by background characteristics

Percentage of ever-married women consuming specific foods at least once a week by selected background characteristics, India, 1998–99

Background characteristic	Type of food							Number of women
	Milk or curd	Pulses or beans	Green, leafy vegetables	Other vegetables	Fruits	Eggs	Chicken, meat, or fish	
Age								
15–24	53.3	88.1	85.5	92.7	30.8	28.2	31.3	24,571
25–34	55.4	87.7	85.5	93.2	34.0	28.6	32.5	32,839
35–49	55.8	87.6	84.8	93.3	33.7	26.7	31.8	31,789
Residence								
Urban	65.3	92.8	88.4	95.0	53.9	39.7	41.7	23,370
Rural	51.3	86.0	84.1	92.4	25.6	23.6	28.5	65,829
Education								
Illiterate	46.5	85.0	83.8	91.6	20.8	22.5	25.9	51,871
Literate, < middle school complete	57.3	90.1	85.6	94.5	37.6	34.4	41.2	17,270
Middle school complete	65.4	91.8	87.8	95.3	47.5	35.9	41.5	7,328
High school complete and above	80.2	93.8	89.3	96.3	68.4	36.1	38.5	12,719
Religion								
Hindu	55.7	88.5	85.1	93.0	31.9	24.9	27.5	72,903
Muslim	46.8	83.7	85.8	93.8	32.9	44.1	55.7	11,190
Christian	53.7	78.2	76.5	93.6	53.0	49.7	70.1	2,263
Sikh	91.0	98.7	97.3	97.9	48.2	11.8	5.1	1,427
Jain	82.3	94.7	88.2	87.9	70.9	2.3	2.3	331
Buddhist/Neo-Buddhist	43.4	92.1	93.4	88.9	41.0	48.1	51.2	676
Other	23.3	74.0	91.6	87.4	27.8	31.7	43.8	285
No religion	31.3	67.0	94.5	87.9	40.7	32.7	64.3	44
Caste/tribe								
Scheduled caste	44.9	85.6	84.5	93.2	24.5	27.5	32.6	16,301
Scheduled tribe	34.4	80.6	81.5	87.6	20.9	21.9	25.7	7,750
Other backward class	57.8	89.4	84.7	93.9	33.5	29.8	31.8	29,383
Other	62.1	89.0	86.9	93.6	39.7	27.8	33.4	34,904
Standard of living index								
Low	35.0	81.4	82.1	91.6	17.0	23.8	29.1	29,033
Medium	58.1	89.4	85.3	93.1	31.5	28.6	33.1	41,289
High	80.0	94.3	90.0	95.7	62.0	32.3	33.6	17,845
Total	55.0	87.8	85.2	93.1	33.0	27.8	31.9	89,199

Note: Total includes 11, 79, 862, and 1,032 women with missing information on education, religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.

Women from scheduled tribes have a relatively poor diet that is particularly deficient in fruits and milk or curd. In fact, scheduled-tribe women are less likely than women in any other caste/tribe group to consume each of the food items shown. Women from scheduled castes and other backward classes also have relatively poor diets compared with women in the 'other' category. As expected, poverty has a strong negative effect on the consumption of nutritious types of food. Women in households with a low standard of living are less likely than other women to eat each type of food listed, and their diet is particularly deficient in fruits and milk or curd.

Table 7.3 provides information on the regular consumption of specific foods by state. More than 90 percent of women in Haryana and Punjab consume milk or curd at least once a week, whereas less than 20 percent of women in Manipur and Arunachal Pradesh consume milk or curd regularly. Pulses and beans are eaten regularly by a majority of women in every state except Manipur. Green, leafy vegetables are eaten regularly by at least 70 percent of women in every state except Kerala, where only 55 percent of women eat green, leafy vegetables on a regular basis. Regular consumption of other vegetables is common everywhere, ranging from less than 80 percent in Arunachal Pradesh and Rajasthan to more than 99 percent in Punjab, Haryana, and Gujarat. The regular consumption of fruits varies widely from less than 20 percent in Uttar Pradesh and the three eastern states to 72 percent in Himachal Pradesh. The consumption of eggs is well below average in all of the northern and central states, as well as in Gujarat, Manipur, Orissa, and Bihar. The regular consumption of chicken, meat, or fish is very low throughout Northern and Central India (with the exception of Jammu and Kashmir), as well as Gujarat. Not more than 15 percent of women in any of these states eat chicken, meat, or fish at least once a week. The regular consumption of these foods is relatively high throughout the Northeast, as well as West Bengal, Goa, and most states in the South.

7.2 Nutritional Status of Women

In NFHS-2, ever-married women age 15–49 were weighed using a solar-powered digital scale with an accuracy of ±100 grams. Their height was measured using an adjustable wooden measuring board specially designed to provide accurate measurements (to the nearest 0.1 cm) of women and children in a field situation. The weight and height data were used to calculate several indicators of women's nutritional status as shown in Table 7.4. The height of an adult is an outcome of several factors including nutrition during childhood and adolescence. A woman's height can be used to identify women at risk of having a difficult delivery, since small stature is often related to small pelvic size. The risk of having a baby with a low birth weight is also higher for mothers who are short.

The cutoff point for height, below which a woman can be identified as nutritionally at risk, varies among populations, but it is usually considered to be in the range of 140–150 centimetres (cm). NFHS-2 found a mean height for women in India of 151 cm. The mean height varies only slightly (between 150 and 155 cm) for women in different population groups, as shown in Table 7.4. Sikh women and Jain women are taller, on average, than women in any other group. Thirteen percent of women are under 145 cm in height. The percentage of women who are below 145 cm does not vary much by age, marital status, or residence, but there is a strong negative relationship between this measure of height and both education and the standard of living index. The percentage of women who are short varies most by religion, ranging from

Table 7.3 Women's food consumption by state

Percentage of ever-married women consuming specific foods at least once a week by state, India, 1998–99

State	Type of food						
	Milk or curd	Pulses or beans	Green, leafy vegetables	Other vegetables	Fruits	Eggs	Chicken, meat, or fish
India	55.0	87.8	85.2	93.1	33.0	27.8	31.9
North							
Delhi	73.3	91.2	86.8	92.8	57.8	21.2	15.1
Haryana	93.2	99.3	99.2	99.2	54.8	7.7	3.8
Himachal Pradesh	87.0	99.1	94.3	98.8	71.7	14.7	6.2
Jammu & Kashmir	72.1	68.5	85.5	88.3	44.0	14.2	31.1
Punjab	91.1	99.2	99.1	99.5	50.7	10.8	3.6
Rajasthan	70.7	81.4	77.8	78.9	20.5	6.1	7.8
Central							
Madhya Pradesh	32.5	79.9	80.9	86.1	22.7	11.7	11.2
Uttar Pradesh	57.2	88.0	90.0	90.7	19.0	9.9	8.7
East							
Bihar	46.7	88.7	96.0	96.1	18.3	22.1	21.5
Orissa	20.7	80.7	90.9	95.8	14.4	15.6	28.2
West Bengal	25.0	76.3	91.4	98.7	15.0	43.5	69.0
Northeast							
Arunachal Pradesh	19.9	51.2	95.6	72.7	28.9	33.5	57.4
Assam	41.7	85.3	87.6	94.9	33.3	58.4	57.7
Manipur	15.3	37.3	96.9	93.2	34.3	14.8	47.4
Meghalaya	23.7	61.5	88.9	91.8	40.3	32.6	61.8
Mizoram	22.9	64.5	99.2	87.1	61.6	42.5	59.3
Nagaland	82.7	59.6	96.3	80.6	40.9	30.2	72.3
Sikkim	72.4	82.9	94.9	87.5	28.8	26.8	57.1
West							
Goa	65.0	76.5	74.6	82.5	65.8	36.6	89.0
Gujarat	80.0	97.0	74.1	99.2	44.4	14.0	12.4
Maharashtra	47.3	94.5	87.9	91.1	44.7	34.4	38.2
South							
Andhra Pradesh	72.0	92.3	72.7	95.7	47.6	59.7	56.7
Karnataka	75.5	98.6	93.3	91.8	53.7	39.9	33.9
Kerala	45.3	69.8	54.8	90.9	56.5	27.3	82.8
Tamil Nadu	66.5	94.6	77.6	98.7	46.2	52.7	52.6

4–8 percent for Sikhs and Jains to 24–25 percent for women with 'other' religions and no religion. By caste/tribe, scheduled caste women are most likely to be short (17 percent).

Table 7.4 also shows several measures of an index that relates a woman's weight to her height. The body mass index (BMI) can be used to assess both thinness and obesity. The BMI is defined as the weight in kilograms divided by the height in metres squared (kg/m^2). This index excludes women who were pregnant at the time of the survey or women who had given birth during the two months preceding the survey. The mean BMI for women in India is 20.3 (varying within the narrow range of 19–23 for the different groups shown in the table). Chronic energy deficiency is usually indicated by a BMI of less than 18.5. More than one-third (36 percent) of women have a BMI below 18.5, indicating a high prevalence of nutritional deficiency. Nutritional problems are particularly serious for rural women, illiterate women, women from 'other' religions, scheduled-caste and scheduled-tribe women, working women who are not self-employed, and women who live in households with a low standard of living.

Table 7.4 Nutritional status of women

Among ever-married women, mean height, percentage with height below 145 cm, mean body mass index (BMI), and percentage with specified levels of BMI by selected background characteristics, India, 1998–99

Background characteristic	Height			Weight-for-height[1]				
	Mean height (cm)	Percentage below 145 cm	Number of women for height	Mean body mass index (BMI)	Percentage with BMI below 18.5 kg/m^2	Percentage with BMI of 25.0 kg/m^2 or more	Percentage with BMI of 30.0 kg/m^2 or more	Number of women for BMI
Age								
15–19	150.6	14.7	7,480	19.3	38.8	1.7	0.1	6,707
20–24	151.2	13.0	15,185	19.3	41.8	3.6	0.4	12,928
25–29	151.4	12.4	16,618	19.8	39.1	7.3	1.2	15,030
30–34	151.5	12.3	14,051	20.4	35.0	11.7	2.4	13,399
35–49	151.2	13.7	29,451	21.1	31.1	16.8	3.9	29,056
Marital status								
Currently married	151.3	13.1	77,737	20.3	35.6	10.6	2.2	72,093
Not currently married	150.8	14.8	5,049	20.1	39.3	10.3	2.1	5,026
Residence								
Urban	151.6	12.0	21,690	22.1	22.6	23.5	5.8	20,563
Rural	151.1	13.6	61,095	19.6	40.6	5.9	0.9	56,556
Education								
Illiterate	150.6	15.4	47,773	19.5	42.6	5.1	0.9	44,251
Literate, < middle school complete	151.4	12.2	16,253	20.6	32.6	12.9	2.7	15,234
Middle school complete	152.0	9.8	6,908	21.1	28.0	15.7	3.2	6,447
High school complete and above	152.9	7.7	11,840	22.5	17.8	26.0	6.4	11,178
Religion								
Hindu	151.1	13.5	67,895	20.1	36.9	9.6	2.0	63,394
Muslim	151.5	12.3	10,108	20.5	34.1	12.4	2.8	9,207
Christian	152.1	10.3	2,100	21.4	24.6	17.6	3.4	1,981
Sikh	155.0	3.9	1,358	23.0	16.4	30.1	8.0	1,280
Jain	153.6	7.6	300	23.4	15.8	33.7	9.8	286
Buddhist/Neo-Buddhist	149.9	17.3	638	20.4	33.3	10.5	2.8	607
Other	149.5	24.6	270	19.2	49.4	7.0	0.4	261
No religion	149.8	24.1	42	20.6	34.5	13.8	3.4	37
Caste/tribe								
Scheduled caste	150.3	17.0	15,234	19.5	42.1	5.8	0.9	14,040
Scheduled tribe	150.8	13.5	7,175	19.1	46.3	3.3	0.5	6,590
Other backward class	151.0	13.5	27,295	20.2	35.8	9.4	1.7	25,474
Other	152.0	10.9	32,334	21.0	30.5	15.4	3.7	30,345
Work status								
Working in family farm/business	151.5	11.4	11,877	19.5	41.9	5.2	0.8	11,114
Employed by someone else	150.8	14.7	16,301	19.5	44.3	6.4	1.2	15,512
Self-employed	150.8	15.4	4,133	20.5	35.0	12.1	2.5	3,955
Not worked in past 12 months	151.3	12.9	50,450	20.7	31.6	13.1	2.9	46,514
Standard of living index								
Low	150.0	17.7	26,687	18.9	48.1	2.6	0.3	24,589
Medium	151.3	12.5	38,451	20.1	35.6	8.6	1.5	35,732
High	153.0	7.5	16,706	22.7	17.3	27.2	6.8	15,938
Total	151.2	13.2	82,785	20.3	35.8	10.6	2.2	77,119

Note: Total includes women with missing information on education, religion, caste/tribe, work status, and the standard of living index, who are not shown separately.
[1]Excludes women who are pregnant and women with a birth in the preceding two months. The body mass index (BMI) is the ratio of the weight in kilograms to the square of the height in metres (kg/m^2).

Table 7.5 Nutritional status of women by state

Among ever-married women, mean height, percentage with height below 145 cm, mean body mass index (BMI), and percentage with specified levels of BMI by state, India, 1998–99

State	Height		Weight-for-height[1]			
	Mean height (cm)	Percentage below 145 cm	Mean body mass index (BMI)	Percentage with BMI below 18.5 kg/m^2	Percentage with BMI of 25.0 kg/m^2 or more	Percentage with BMI of 30.0 kg/m^2 or more
India	151.2	13.2	20.3	35.8	10.6	2.2
North						
Delhi	152.5	9.9	23.7	12.0	33.8	9.2
Haryana	154.3	4.6	21.3	25.9	16.6	3.9
Himachal Pradesh	152.7	6.1	20.8	29.7	13.1	2.3
Jammu & Kashmir	153.5	6.7	21.0	26.4	13.8	3.0
Punjab	154.5	4.1	23.0	16.9	30.2	9.1
Rajasthan	153.7	5.6	19.9	36.1	7.1	1.6
Central						
Madhya Pradesh	151.7	10.8	19.8	38.2	6.1	1.2
Uttar Pradesh	150.3	16.4	20.0	35.8	7.5	1.5
East						
Bihar	149.5	19.5	19.4	39.3	3.7	0.5
Orissa	150.5	14.9	19.2	48.0	4.4	0.6
West Bengal	150.0	19.2	19.7	43.7	8.6	1.3
Northeast						
Arunachal Pradesh	150.8	11.9	21.0	10.7	5.1	0.6
Assam	149.9	17.3	20.1	27.1	4.2	0.7
Manipur	151.5	10.3	21.1	18.8	10.8	1.2
Meghalaya	150.6	21.1	20.3	25.8	5.8	1.2
Mizoram	151.6	10.7	20.4	22.6	5.3	0.5
Nagaland	151.6	10.6	20.9	18.4	8.2	0.7
Sikkim	150.2	14.8	22.0	11.2	15.7	2.5
West						
Goa	151.8	12.3	21.6	27.1	21.2	4.3
Gujarat	151.8	10.2	20.7	37.0	15.8	4.4
Maharashtra	151.4	11.9	20.2	39.7	11.7	2.9
South						
Andhra Pradesh	151.2	12.7	20.3	37.4	12.0	2.2
Karnataka	152.0	9.6	20.4	38.8	13.6	2.9
Kerala	152.6	8.8	22.0	18.7	20.6	3.8
Tamil Nadu	151.5	12.0	21.0	29.0	14.7	2.7

[1]Excludes women who are pregnant and women with a birth in the preceding two months. The body mass index (BMI) is the ratio of the weight in kilograms to the square of the height in metres (kg/m^2).

Obesity is becoming a substantial problem among several groups of women in India, particularly women living in urban areas, women who are well educated, and women from households with a high standard of living. Approximately one-quarter of women in each of these groups have a BMI of 25 or more and 6–7 percent have a BMI of 30 or more. In addition to being relatively tall, Sikh and Jain women are more likely than women in any other group to be obese.

State differentials in the mean height of women are not large, but women in the Northern Region are 1–3 cm taller than average (Table 7.5). The shortest women are from the Eastern Region, as well as Uttar Pradesh and parts of the Northeast. A similar pattern is evident for the percentage of women below 145 cm. The mean body mass index also varies within a narrow range, from 19.2 in Orissa to 23.7 in Delhi. Arunachal Pradesh, Sikkim, and Delhi have the

lowest percentage of women with a low BMI (11–12 percent) and Orissa has the highest percentage (48 percent). The level of obesity is much higher in Delhi and Punjab than in any other state. Over 30 percent of women in these two states have a BMI of at least 25 and 9 percent have a BMI of at least 30. Other states with particularly high levels of obesity are Goa and Kerala (21 percent each). Obesity is least common (less than 10 percent) in all parts of Central and Eastern India, most states in the Northeast, and Rajasthan.

7.3 Anaemia Among Women

Anaemia is characterized by a low level of haemoglobin in the blood. Haemoglobin is necessary for transporting oxygen from the lungs to other tissues and organs of the body. Anaemia usually results from a nutritional deficiency of iron, folate, vitamin B_{12}, or some other nutrients. This type of anaemia is commonly referred to as iron-deficiency anaemia. Iron deficiency is the most widespread form of malnutrition in the world, affecting more than two billion people (Stolzfus and Dreyfuss, 1998). In India, anaemia affects an estimated 50 percent of the population (Seshadri, 1998).

Anaemia may have detrimental effects on the health of women and children and may become an underlying cause of maternal mortality and perinatal mortality. Anaemia also results in an increased risk of premature delivery and low birth weight (Seshadri, 1997). Early detection of anaemia can help to prevent complications related to pregnancy and delivery, as well as child-development problems. Information on the prevalence of anaemia can be useful for the development of health-intervention programmes designed to prevent anaemia, such as iron-fortification programmes. In India, under the Government's Reproductive and Child Health Programme, iron and folic acid tablets are provided to pregnant women in order to prevent anaemia during pregnancy.

Because anaemia is such a serious health problem in India, NFHS-2 undertook direct measurement of the haemoglobin levels of all ever-married women age 15–49 and their children under three years of age. Measurements were taken in the field using the HemoCue system[1]. This system uses a single drop of blood from a finger prick (or heel prick in the case of infants under six months old), which is drawn into a cuvette and then inserted into a portable, battery-operated instrument[2]. In less than one minute, the haemoglobin concentration is indicated on a digital read-out.

Before the anaemia testing was undertaken in a household, the health investigator read a detailed informed consent statement to the respondent, informing her about anaemia, describing the procedure to be followed for the test, and emphasizing the voluntary nature of the test. She was then asked whether or not she would consent to have the test done for herself and her young children, if any. The health investigator then signed the questionnaire at the bottom of the statement to indicate that it had been read to the respondent and recorded her agreement or lack

[1]The HemoCue instrument has been used extensively throughout the world for estimating the concentration of haemoglobin in capillary blood in field situations. The HemoCue has been found to give accurate results on venous blood samples, comparable to estimates from more sophisticated laboratory instruments (Von Schenk et al., 1986; McNulty et al., 1995; Krenzicheck and Tanseco, 1996). A recent small-scale study in India (Prakash et al., 1999), however, found that the HemoCue provided slightly higher estimates of haemoglobin than the standard blood cell counter (BCC) method.

[2]Because the first 2–3 drops of blood are wiped away to be sure that the sample used for analysis consists of fresh capillary blood, it is actually the third or fourth drop of blood that is drawn into the cuvette.

of agreement to the testing. If the test was conducted, at the end of the test the respondent was given a written record of the results for herself and each of her young children. In addition, the health investigator described to her the meaning of the results and advised her if medical treatment was necessary. In cases of severe anaemia, the respondent was read an additional statement asking whether or not she would give her permission for the survey organization to inform a local health official about the problem. For each Primary Sampling Unit, a local health official was given a list of severely anaemic women (and children) who had consented to the referral.

Table 7.6 and Figure 7.1 show anaemia levels for ever-married women age 15–49. Three levels of severity of anaemia are distinguished: mild anaemia (10.0–10.9 grams/decilitre for pregnant women and 10.0–11.9 g/dl for nonpregnant women), moderate anaemia (7.0–9.9 g/dl), and severe anaemia (less than 7.0 g/dl). Appropriate adjustments in these cutoff points were made for women living at altitudes above 1,000 metres and women who smoke, since both of these groups require more haemoglobin in their blood (Centers for Disease Control and Prevention, 1998).

In India, haemoglobin levels were tested for 88 percent of women (see Table D.3 in Appendix D). Overall, 52 percent of women have some degree of anaemia[3]. Thirty-five percent of women are mildly anaemic, 15 percent are moderately anaemic, and 2 percent are severely anaemic. There are some differences in the prevalence of anaemia by background characteristics, but anaemia is substantial for women in every population group. The prevalence of anaemia is slightly higher for younger women less than age 25 than for older women and for women who are not currently married than for currently married women. It is considerably higher for rural women (54 percent) than for urban women (46 percent). Anaemia decreases steadily with increases in the level of educational attainment, from 56 percent among illiterate women to 40 percent among women who have completed at least high school. Anaemia also decreases steadily with increases in the standard of living index. About half of Hindu, Muslim, and Buddhist women are anaemic. Anaemia is slightly lower among Christians and substantially lower among Sikhs and Jains. The highest levels of anaemia are evident for women from 'other' religions and women with no religion. By caste/tribe, scheduled-tribe women have the highest levels of anaemia (65 percent), followed by scheduled-caste women (56 percent) and women from other backward classes (51 percent). Women who are not in any of these three groups have the lowest level of anaemia (48 percent). The prevalence of anaemia does not vary much by work status, but women who do not work have slightly less anaemia than working women.

The prevalence of anaemia is slightly higher for breastfeeding women than for other groups, but there is no difference in the prevalence of anaemia between pregnant women and nonpregnant women who are not breastfeeding. Since anaemia is often considered to be particularly problematic for pregnant women, it is noteworthy that these women have slightly lower than average levels of anaemia. The provision of iron and folic acid supplements to pregnant women has undoubtedly reduced the overall prevalence of anaemia in pregnant women (58 percent of pregnant women received IFA tablets or syrup during pregnancy for births in the

[3]If the hemoglobin measurements are not adjusted for smoking and for the altitude of the enumeration area, the estimated prevalence of anaemia is slightly lower (51 percent of women would be defined as anaemic instead of 52 percent). The small impact of the adjustment factor is to be expected since, in India, less than 3 percent of women age 15 and over smoke (see Table 2.16), and 90 percent of the sample PSUs (2,836 of the 3,165 PSUs) are at an altitude below 1,000 metres.

Table 7.6 Anaemia among women

Percentage of ever-married women classified as having iron-deficiency anaemia by degree of anaemia, according to selected background characteristics, India, 1998–99

Background characteristic	Percentage of women with any anaemia	Percentage of women with: Mild anaemia	Moderate anaemia	Severe anaemia	Number of women
Age					
15–19	56.0	36.2	17.9	1.9	7,117
20–24	53.8	34.8	17.0	2.0	14,560
25–29	51.4	34.8	14.7	1.9	15,965
30–34	50.5	34.8	13.7	1.9	13,595
35–49	50.5	35.1	13.6	1.9	28,426
Marital status					
Currently married	51.5	34.9	14.8	1.8	74,830
Not currently married	55.5	36.6	15.7	3.1	4,833
Residence					
Urban	45.7	32.0	12.2	1.5	20,872
Rural	53.9	36.1	15.8	2.0	58,791
Education					
Illiterate	55.8	36.7	16.8	2.3	45,818
Literate, < middle school complete	50.1	34.4	13.8	1.9	15,735
Middle school complete	48.0	34.0	12.6	1.3	6,718
High school complete and above	40.3	29.7	9.7	0.9	11,381
Religion					
Hindu	52.4	35.5	15.0	2.0	65,507
Muslim	49.6	34.2	14.2	1.3	9,545
Christian	47.1	30.7	14.4	2.0	2,007
Sikh	39.6	26.6	11.8	1.2	1,315
Jain	42.5	30.8	10.9	0.8	290
Buddhist/Neo-Buddhist	48.6	30.1	15.3	3.1	630
Other	75.7	47.3	24.6	3.8	265
No religion	59.5	34.2	24.9	0.4	40
Caste/tribe					
Scheduled caste	56.0	37.2	16.5	2.3	14,657
Scheduled tribe	64.9	41.2	21.4	2.3	6,908
Other backward class	50.7	34.3	14.5	2.0	26,246
Other	47.6	33.3	12.9	1.5	31,112
Work status					
Working in family farm/business	53.1	35.7	15.2	2.2	11,450
Employed by someone else	54.9	35.8	16.2	3.0	15,671
Self-employed	52.2	35.0	15.3	2.0	3,974
Not worked in past 12 months	50.4	34.6	14.3	1.5	48,543
Standard of living Index					
Low	60.2	38.9	18.6	2.7	25,620
Medium	50.3	34.5	14.1	1.7	37,107
High	41.9	30.1	10.7	1.1	16,034

Contd…

three years preceding the survey—see Table 8.6). However, by far the highest levels of moderate anaemia are experienced by pregnant women (25 percent), and pregnant women also are subject to a somewhat higher level of severe anaemia. For this reason, anaemia remains a serious problem among pregnant women.

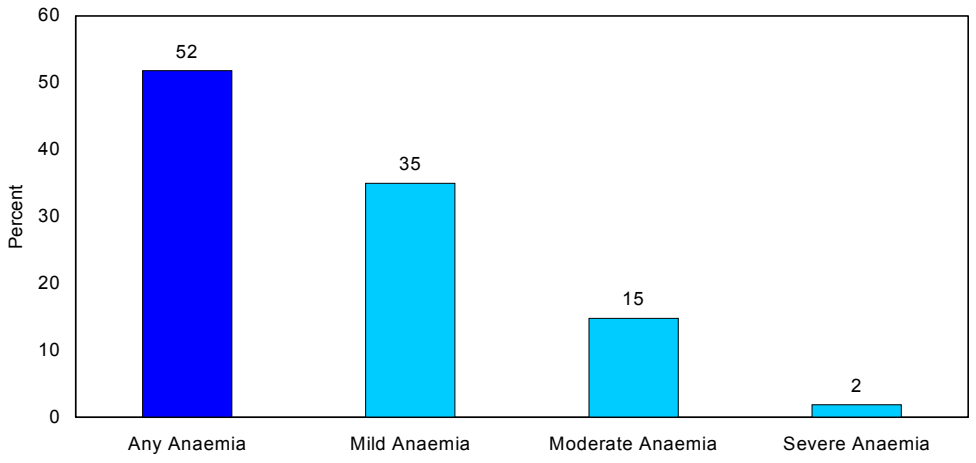
Table 7.6 Anaemia among women (contd.)

Percentage of ever-married women classified as having iron-deficiency anaemia by degree of anaemia, according to selected background characteristics, India, 1998–99

Background characteristic	Percentage of women with any anaemia	Percentage of women with: Mild anaemia	Moderate anaemia	Severe anaemia	Number of women
Pregnancy/breastfeeding status					
Pregnant	49.7	21.8	25.4	2.5	5,654
Breastfeeding (not pregnant)	56.4	38.9	15.8	1.6	19,054
Nonpregnant/non-breastfeeding	50.4	35.1	13.4	1.9	54,954
Height					
< 145 cm	56.2	36.5	17.2	2.5	10,515
≥ 145 cm	51.1	34.8	14.5	1.8	68,987
Body mass index					
< 18.5 kg/m^2	56.8	37.0	17.1	2.7	27,743
≥ 18.5 kg/m^2	49.1	34.0	13.7	1.5	51,336
Fruit and vegetable consumption[1]					
Fruit and vegetables	46.7	32.2	12.9	1.7	23,740
Fruit only	42.9	30.9	10.9	1.2	2,554
Vegetables only	55.1	36.9	16.1	2.0	44,207
Neither	51.5	34.7	14.7	2.0	9,142
Total	51.8	35.0	14.8	1.9	79,663

Note: The haemoglobin levels are adjusted for altitude of the enumeration area and for smoking when calculating the degree of anaemia. Total includes 10, 65, 741, 26, 902, 161, 584, and 20 women with missing information on education, religion, caste/tribe, work status, the standard of living index, height, body mass index, and fruit and vegetable consumption, respectively, who are not shown separately.
[1]Based on consumption at least weekly. Vegetables include only green, leafy vegetables.

Figure 7.1
Anaemia Among Women



NFHS-2, India, 1998–99

Shorter women and women with a low body mass index have a somewhat higher prevalence of anaemia than other women. The diet of women also plays a role in the likelihood that they have anaemia. Consumption of iron-rich foods can reduce the prevalence or severity of anaemia, and the absorption of iron from the diet can be enhanced (for example, by vitamin C) or inhibited (for example, by tea or coffee) if particular items are consumed around the time that a meal is eaten. Women who eat fruit at least once a week are less likely to be anaemic than women who eat fruit less often or not at all. The consumption of green, leafy vegetables, however, does not appear to have any protective effect against anaemia. In fact, women who regularly consume green, leafy vegetables, but not fruit, have the highest prevalence of anaemia (55 percent).

Levels of anaemia are substantial in every state in India (Table 7.7). The lowest prevalence of anaemia is found in Kerala (23 percent), Manipur (29 percent), Goa (36 percent), and Nagaland (38 percent). The majority of women are anaemic in 10 states, and anaemia is particularly pronounced in the Eastern Region and in many of the states in the Northeastern Region. More than one-quarter of women suffer from moderate to severe anaemia in Meghalaya and Assam. In interpreting state differentials in anaemia, it is important to note that anaemia has multiple causes in addition to the low intake of iron-rich foods. These include the low dietary intake of enhancers of iron absorption, the presence in the diet of inhibitors of iron absorption, overcooking of food, and parasitic infestations. More research is needed on these and other factors to better understand the underlying causes of high anaemia levels and the differentials across states and population subgroups.

7.4 Infant Feeding Practices

Infant feeding practices have significant effects on both mothers and children. Mothers are affected through the influence of breastfeeding on the period of postpartum infertility, and hence on fertility levels and the length of birth intervals. These effects vary by both the duration and intensity of breastfeeding. Proper infant feeding, starting from the time of birth, is important for the physical and mental development of the child. Breastfeeding improves the nutritional status of young children and reduces morbidity and mortality. Breast milk not only provides important nutrients but also protects the child against infection. The timing and type of supplementary foods introduced in an infant's diet also have significant effects on the child's nutritional status.

The Baby Friendly Hospitals Initiative, launched by the United Nations Children's Fund (UNICEF), recommends initiation of breastfeeding immediately after childbirth. The World Health Organization (WHO) and UNICEF recommend that infants should be given only breast milk for about the first six months of their life. Under the Reproductive and Child Health Programme, the Government of India recommends that infants should be exclusively breastfed from birth to age four months (Ministry of Health and Family Welfare, n.d.). Most babies do not require any other foods or liquids during this period. By age seven months, adequate and appropriate complementary foods should be added to the infant's diet in order to provide sufficient nutrients for optimal growth. It is recommended that breastfeeding should continue, along with complementary foods, through the second year of life or beyond. It is further recommended that a feeding bottle with a nipple should not be used at any age, for reasons related mainly to sanitation and the prevention of infections.

Table 7.7 Anaemia among women by state

Percentage of ever-married women classified as having iron-deficiency anaemia by degree of anaemia, according to state, India, 1998–99

State	Percentage of women with any anaemia	Percentage of women with:		
		Mild anaemia	Moderate anaemia	Severe anaemia
India	51.8	35.0	14.8	1.9
North				
Delhi	40.5	29.6	9.6	1.3
Haryana	47.0	30.9	14.5	1.6
Himachal Pradesh	40.5	31.4	8.4	0.7
Jammu & Kashmir	58.7	39.3	17.6	1.9
Punjab	41.4	28.4	12.3	0.7
Rajasthan	48.5	32.3	14.1	2.1
Central				
Madhya Pradesh	54.3	37.6	15.6	1.0
Uttar Pradesh	48.7	33.5	13.7	1.5
East				
Bihar	63.4	42.9	19.0	1.5
Orissa	63.0	45.1	16.4	1.6
West Bengal	62.7	45.3	15.9	1.5
Northeast				
Arunachal Pradesh	62.5	50.6	11.3	0.6
Assam	69.7	43.2	25.6	0.9
Manipur	28.9	21.7	6.3	0.8
Meghalaya	63.3	33.4	27.5	2.4
Mizoram	48.0	35.2	12.1	0.7
Nagaland	38.4	27.8	9.6	1.0
Sikkim	61.1	37.3	21.4	2.4
West				
Goa	36.4	27.3	8.1	1.0
Gujarat	46.3	29.5	14.4	2.5
Maharashtra	48.5	31.5	14.1	2.9
South				
Andhra Pradesh	49.8	32.5	14.9	2.4
Karnataka	42.4	26.7	13.4	2.3
Kerala	22.7	19.5	2.7	0.5
Tamil Nadu	56.5	36.7	15.9	3.9

Note: The haemoglobin levels are adjusted for altitude of the enumeration area and for smoking when calculating the degree of anaemia.

WHO has suggested several indicators of breastfeeding practices to guide countries in gathering information for measuring and evaluating infant feeding practices. These indicators include the ever breastfed rate, the exclusive breastfeeding rate, the timely complementary feeding rate, the continued breastfeeding rate, and the bottle feeding rate. The *exclusive breastfeeding rate* is defined as the proportion of infants under age four months who receive only breast milk. The *timely complementary feeding rate* is the proportion of infants age 6–9 months who receive both breast milk and solid or semi-solid food. The *continued breastfeeding rate through one year of age* is the proportion of children age 12–15 months who are still breastfed. The *continued breastfeeding rate until two years of age* is the proportion of children age 20–23 months who are still breastfed. The *bottle feeding rate* is the proportion of infants who are fed using a bottle with a nipple. These indicators of breastfeeding and other feeding practices are presented in this section.

In NFHS-2, data on breastfeeding and complementary feeding were obtained from a series of questions in the Woman's Questionnaire. These questions pertain to births since January of the third calendar year before the survey, but the tables are restricted to children born in the three years preceding the survey. For any given woman, information was obtained for a maximum of two births.

Initiation of breastfeeding immediately after childbirth is important because it benefits both the mother and the infant. As soon as the infant starts suckling at the breast, the hormone oxytocin is released, resulting in uterine contractions that facilitate expulsion of the placenta and reduce the risk of postpartum haemorrhage. It is also recommended that the first breast milk (colostrum) should be given to the child rather than squeezed from the breast and discarded, because it provides natural immunity to the child.

Table 7.8 shows the percentage of children born during the three years before the survey who started breastfeeding within one hour and one day of birth. It also gives the percentage of children whose mothers squeezed the first milk from the breast before breastfeeding, which is not the recommended practice. Although breastfeeding is nearly universal in India, very few children are put to the breast immediately after birth. Only 16 percent of children began breastfeeding within one hour of birth, and only 37 percent began breastfeeding within one day. Nearly two-thirds of women (63 percent) squeezed the first milk from the breast before they began breastfeeding.

Differentials in the early initiation of breastfeeding and in squeezing the first milk from the breast are also shown in Table 7.8. With the exception of women in the 'other religion' category, no more than 30 percent of children in any group were put to the breast within one hour of birth. Between one-quarter and two-thirds of children were first breastfed in the first day of their life. The early initiation of breastfeeding is relatively high for urban women, women with at least a middle school education, women from several religious groups (Christian, Jain, Buddhist, 'other', and none), women from scheduled tribes, and women from households with a high standard of living. The circumstances surrounding delivery of the baby can have an important effect on the early initiation of breastfeeding. Children whose delivery was assisted by a health professional, as well as children born in health facilities, tend to initiate breastfeeding relatively early. Mizoram and Tamil Nadu are the only states in which a majority of children were breastfed within one hour of birth (Table 7.9). Less than 10 percent of children were breastfed within one hour of birth in Rajasthan, Punjab, Bihar, Uttar Pradesh, and Madhya Pradesh. In those five states plus Haryana, only one-third of children or less were first put to the breast within one day of birth.

The custom of squeezing the first milk from the breast before breastfeeding a child is widely practised in India, but it is more common in rural areas and for children whose mothers are illiterate, scheduled-tribe children, Sikhs and those with no religion, children whose mothers work on the family farm or in a family business, children living in households with a low to medium standard of living, children born at home, and children born without the assistance of a health professional. It should be stressed, however, that contrary to recommendations for feeding infants, mothers squeeze the first milk from the breast before breastfeeding for a majority of children in all groups. In 20 of the 25 states, the mothers of most children squeeze the first milk from the breast before breastfeeding (Table 7.9). The only exceptions are Tamil Nadu, Manipur, Bihar, Goa, and Arunachal Pradesh.

Table 7.8 Initiation of breastfeeding

Percentage of children born during the three years preceding the survey who started breastfeeding within one hour and within one day of birth and percentage whose mother squeezed the first milk from her breast before breastfeeding by selected background characteristics, India, 1998–99

Background characteristic	Percentage started breastfeeding within one hour of birth	Percentage started breastfeeding within one day of birth[1]	Percentage whose mother squeezed first milk from breast	Number of children
Residence				
Urban	19.2	45.0	58.8	7,191
Rural	14.8	34.8	64.0	25,202
Mother's education				
Illiterate	12.7	29.9	66.6	19,061
Literate, < middle school complete	18.3	43.5	62.0	5,818
Middle school complete	21.3	48.2	56.7	2,935
High school complete and above	22.2	51.6	52.4	4,574
Religion				
Hindu	15.0	36.0	62.5	25,650
Muslim	17.4	37.6	64.4	5,120
Christian	29.4	65.8	50.2	753
Sikh	8.7	23.6	83.4	450
Jain	17.4	47.3	57.2	76
Buddhist/Neo-Buddhist	29.6	59.1	66.4	199
Other	41.2	66.2	54.4	87
No religion	27.6	65.7	75.7	24
Caste/tribe				
Scheduled caste	15.3	34.5	64.3	6,478
Scheduled tribe	19.7	45.6	67.8	3,080
Other backward class	15.9	36.7	56.6	10,404
Other	15.3	37.2	65.7	12,050
Mother's work status				
Working in family farm/business	12.7	32.8	67.8	4,198
Employed by someone else	17.9	38.5	63.1	4,792
Self-employed	15.1	42.1	61.9	1,099
Not worked in past 12 months	16.0	37.3	61.9	22,295
Standard of living index				
Low	15.1	34.1	63.9	11,804
Medium	15.8	37.4	63.4	15,080
High	16.8	42.7	58.5	5,112
Assistance during delivery				
Health professional[2]	21.5	49.4	55.4	13,715
Dai (TBA)	11.0	27.9	65.7	11,323
Other	12.8	28.6	73.3	7,252
Place of delivery				
Public health facility	27.1	59.0	55.6	5,247
NGO or trust hospital/clinic	16.0	52.1	55.5	234
Private health facility	20.7	48.1	50.6	5,409
Own home	12.2	28.7	68.6	17,224
Parents' home	10.9	29.8	66.3	3,945
Other	8.6	32.4	66.0	225
Total	15.8	37.1	62.8	32,393

Note: Table includes only the two most recent births during the three years preceding the survey, whether living or dead at the time of interview. Total includes 5, 33, 380, 9, 397, 103, and 108 children with missing information on mother's education, religion, caste/tribe, mother's work status, the standard of living index, assistance during delivery, and place of delivery, respectively, who are not shown separately.
TBA: Traditional birth attendant; NGO: Nongovernmental organization
[1]Includes children who started breastfeeding within one hour of birth
[2]Includes doctor, auxiliary nurse midwife, nurse, midwife, lady health visitor, and other health professionals

Table 7.9 Initiation of breastfeeding by state

Percentage of children born during the three years preceding the survey who started breastfeeding within one hour and within one day of birth and percentage whose mother squeezed the first milk from her breast before breastfeeding by state, India, 1998–99

State	Percentage started breastfeeding within one hour of birth	Percentage started breastfeeding within one day of birth[1]	Percentage whose mother squeezed first milk from breast
India	15.8	37.1	62.8
North			
Delhi	23.8	51.2	59.9
Haryana	11.7	31.1	76.5
Himachal Pradesh	20.7	42.3	86.2
Jammu & Kashmir	20.8	59.2	77.1
Punjab	6.1	19.5	87.3
Rajasthan	4.8	33.6	69.1
Central			
Madhya Pradesh	9.9	29.3	71.1
Uttar Pradesh	6.5	13.4	75.6
East			
Bihar	6.2	20.7	42.1
Orissa	24.9	63.2	58.1
West Bengal	25.0	50.6	76.3
Northeast			
Arunachal Pradesh	49.0	77.1	49.5
Assam	44.7	77.6	64.1
Manipur	27.0	47.5	39.9
Meghalaya	26.7	71.6	66.9
Mizoram	54.0	78.2	60.7
Nagaland	24.5	70.2	59.8
Sikkim	31.4	73.4	74.5
West			
Goa	34.4	61.8	47.4
Gujarat	10.1	36.6	61.1
Maharashtra	22.8	47.7	66.4
South			
Andhra Pradesh	10.3	37.3	52.4
Karnataka	18.5	41.5	61.4
Kerala	42.9	92.0	52.8
Tamil Nadu	50.3	78.7	21.5

Note: Table includes only the two most recent births during the three years preceding the survey, whether living or dead at the time of interview.
[1]Includes children who started breastfeeding within one hour of birth

Mothers of children born in the three years before the survey were asked if the child had been given plain water, other liquids, or solid or mushy (semi-solid) food at any time during the day or night before the interview. Results are shown in Tables 7.10 and 7.11. Children who received nothing but breast milk during that period are defined as being *exclusively breastfed.* The introduction of supplementary foods before four months of age may put infants at risk of malnutrition because other liquids and solid foods are nutritionally inferior to breast milk. Consumption of liquids and solid or mushy foods at an early age also increases children's exposure to pathogens and consequently puts them at a greater risk of getting diarrhoea. However, a recent study based on findings from NFHS-1 (Anandaiah and Choe, 2000) concluded that breastfeeding with supplements is more beneficial than exclusive breastfeeding

Table 7.10 Breastfeeding status by child's age

Percent distribution of children under age 3 years by breastfeeding status, according to child's age in months, India, 1998–99

	Breastfeeding status						
			Breastfeeding and:				
Age in months	Not breastfeeding	Exclusively breastfeeding	Receiving plain water only	Receiving supplements	Don't know if fed supplements	Total percent	Number of living children
< 1	3.7	72.0	14.4	9.9	0.0	100.0	452
1	1.2	61.0	21.1	16.7	0.0	100.0	973
2	2.2	54.2	23.3	20.3	0.0	100.0	1,087
3	1.7	43.3	27.5	27.5	0.0	100.0	1,023
4	1.6	37.0	25.9	35.4	0.0	100.0	986
5	2.2	25.3	28.8	43.6	0.2	100.0	1,006
6	2.9	19.4	28.2	49.4	0.0	100.0	968
7	3.9	13.1	24.8	57.9	0.2	100.0	922
8	4.8	10.0	19.1	66.0	0.2	100.0	821
9	6.5	6.3	20.0	67.2	0.0	100.0	791
10	6.1	6.3	15.7	71.4	0.5	100.0	719
11	6.6	3.4	12.6	77.3	0.1	100.0	681
12	7.7	2.7	8.8	80.8	0.0	100.0	797
13	10.3	2.3	9.9	77.4	0.1	100.0	961
14	13.3	1.6	6.8	77.7	0.6	100.0	1,008
15	12.5	1.4	6.4	79.8	0.0	100.0	960
16	13.6	1.6	6.4	78.0	0.3	100.0	1,006
17	15.6	0.9	4.2	79.0	0.3	100.0	939
18	21.2	0.7	5.0	73.1	0.0	100.0	906
19	23.2	0.6	5.1	70.9	0.1	100.0	741
20	30.1	0.7	3.5	65.1	0.6	100.0	706
21	28.9	1.1	4.6	65.3	0.0	100.0	717
22	32.2	0.5	4.4	62.9	0.0	100.0	682
23	33.6	0.2	4.9	60.8	0.4	100.0	652
24	41.0	0.3	2.6	55.8	0.2	100.0	699
25	47.8	0.3	3.4	48.3	0.3	100.0	886
26	47.4	0.3	1.8	50.3	0.3	100.0	903
27	51.6	0.0	1.5	46.5	0.4	100.0	920
28	54.0	0.1	0.9	44.5	0.4	100.0	869
29	58.4	0.1	0.5	40.8	0.2	100.0	935
30	55.6	0.1	1.7	42.6	0.0	100.0	934
31	57.5	0.2	0.8	41.5	0.0	100.0	827
32	63.5	0.2	0.1	36.2	0.0	100.0	714
33	61.4	0.0	0.7	37.8	0.2	100.0	679
34	62.7	0.1	1.1	35.9	0.2	100.0	741
35	60.2	0.1	2.0	37.4	0.3	100.0	706
< 4 months	2.0	55.2	22.8	20.0	0.0	100.0	3,535
4–6 months	2.2	27.3	27.6	42.8	0.1	100.0	2,959
7–9 months	5.0	10.0	21.4	63.4	0.1	100.0	2,534

Note: Table includes only surviving children from among the two most recent births during the three years preceding the survey. Breastfeeding status refers to the day or night before the interview. Children classified as 'breastfeeding and receiving plain water only' receive no supplements.

even for children at very young ages (less than four months). That report suggests that mothers who are not well nourished and who are in poor health themselves may not be able to provide adequate breast milk for their infants.

In India, only 55 percent of children under four months of age are exclusively breastfed, 23 percent receive breast milk plus water, and 20 percent receive supplements along with breast milk (Table 7.10). The percentage of infants exclusively breastfed drops steadily from 72 percent for children under one month of age to 6 percent for children who are nine months old. Very few older children are exclusively breastfed. The proportion of children receiving breast milk and

supplements increases from 10 percent for children in the first month of life to 81 percent for children age 12 months, and declines thereafter as children are weaned from the breast and their food consumption no longer supplements breast milk. However, breastfeeding generally continues for a long period. Ninety-two percent of children are still being breastfed at 12 months of age, as are 59 percent of children at 24 months of age. For the majority of children in India, breastfeeding usually stops at about 26–27 months of age, but 40 percent of children are still breastfed at age 35 months.

Table 7.11 and Figure 7.2 show in more detail the types of food consumed by children under age three years the day or night before the interview. Because of the small number of non-breastfeeding children, one-month age categories have been combined into two-month groups for the youngest children. Powdered milk is rarely given to young children at any age, but other milk (such as cow's milk or buffalo's milk) is given to young children more often. Except for children under two months of age, more than 60 percent of non-breastfeeding children in each age group were given these other types of milk the day or night before the interview. About one-third to one-half of breastfeeding children age 6–35 months received non-powdered milk in addition to breast milk. For all children under age three years, milk is given more often than other liquids, although the differences are not large for children once they become two years old. The consumption of green, leafy vegetables generally increases with age, from less than 3 percent for children age 6 months or less to 50 percent or more at age 24–35 months. The consumption of fruits is negligible for children less than six months old, but it increases rapidly thereafter, reaching a plateau of about one-third of children age 18–35 months. Even among non-breastfeeding children, the majority did not eat any fruit the day or night before the interview.

From about six months of age, the introduction of complementary food is critical for meeting the protein, energy, and micronutrient needs of children. However, in India the introduction of complementary food is delayed for a substantial proportion of children. Only 24 percent of breastfeeding children who are 6 months old consume solid or mushy foods. This proportion rises to only 46 percent at 9 months of age. Even at 12 months of age, more than one-quarter of breastfeeding children did not eat any solid or mushy food the day or night before the interview. Only 35 percent of breastfeeding children age 6–9 months receive solid or mushy food, as recommended.

Bottle feeding has a direct effect on the mother's exposure to the risk of pregnancy because the period of amenorrhoea may be shortened when breastfeeding is reduced or replaced by bottle feeding. Because it is often difficult to sterilize the nipple properly, the use of bottles with nipples also exposes children to an increased risk of getting diarrhoea and other diseases. For children who are being breastfed, the use of bottles with nipples is not common in India. In every age group, less than 18 percent of breastfeeding children drank anything from a bottle with a nipple during the day or night before the interview (Table 7.11). The use of a bottle with a nipple is much more common for children who are not being breastfed, particularly during the first year of life.

Table 7.11 Type of food received by children

Percentage of children under age 3 years who received specific types of food the day or night before the interview and percentage using a bottle with a nipple by current breastfeeding status and child's age in months, India, 1998–99

Age in months	Type of food received						Using bottle with a nipple	Number of living children
	Powdered milk	Any other milk	Any other liquid	Green, leafy vegetables	Fruits	Any solid or mushy food[1]		
BREASTFEEDING CHILDREN								
< 1	1.3	6.5	3.1	0.7	0.9	1.4	3.7	436
1	2.0	13.1	3.9	0.5	1.1	2.2	7.5	962
2	3.6	14.4	4.1	0.5	0.4	1.9	9.8	1,063
3	6.0	18.9	6.1	0.5	0.7	3.7	15.4	1,005
4	5.1	22.9	8.1	1.1	3.2	10.7	14.5	970
5	7.6	28.9	12.7	1.4	2.7	14.8	16.8	984
6	4.6	32.5	17.7	2.2	6.9	23.6	16.2	940
7	6.3	36.2	20.6	4.9	9.7	30.9	14.8	886
8	8.0	41.5	26.8	10.8	13.5	43.6	17.7	782
9	6.1	43.0	28.1	10.4	13.8	45.5	15.7	739
10	4.4	42.8	32.6	13.8	17.2	57.3	16.3	675
11	8.0	45.1	35.2	18.7	20.9	64.8	14.4	636
12	3.9	50.0	39.5	25.8	24.2	71.1	14.3	735
13	5.1	43.9	42.0	26.1	20.9	72.1	11.4	862
14	3.6	48.7	41.6	29.0	20.2	77.4	11.6	874
15	5.3	49.8	43.6	33.7	26.4	81.7	9.7	841
16	3.6	47.9	44.3	35.6	23.7	76.6	11.2	869
17	3.2	50.6	48.1	37.8	26.9	84.1	8.8	792
18	6.1	52.1	48.2	38.9	27.7	82.2	9.1	714
19	2.6	51.5	46.6	36.8	26.6	80.7	8.4	570
20	5.0	53.3	46.2	37.2	32.4	85.4	12.4	494
21	2.9	47.7	51.7	40.2	26.3	79.7	6.4	510
22	3.4	49.2	48.0	37.4	30.5	83.8	8.5	462
23	3.8	42.2	43.9	38.7	27.6	81.8	7.8	433
24	5.2	48.5	50.7	47.1	27.4	87.9	5.7	412
25	4.1	42.8	45.9	45.0	27.0	86.9	6.1	463
26	5.2	50.5	49.3	51.3	24.3	89.4	7.0	475
27	3.1	52.2	50.4	52.4	30.1	88.9	4.8	446
28	5.3	56.2	55.1	51.3	25.7	90.8	7.1	399
29	3.2	56.3	53.7	53.6	22.9	90.6	8.7	389
30	3.9	53.4	54.1	52.6	29.8	90.3	6.0	415
31	5.8	47.5	53.0	57.6	30.9	91.3	6.9	352
32	2.5	51.2	58.1	51.2	27.7	91.0	7.2	261
33	3.6	46.2	61.2	53.9	30.6	92.4	8.0	262
34	4.8	42.1	45.0	56.5	27.2	91.0	4.9	276
35	1.7	46.1	54.1	49.1	27.0	87.6	6.7	281
< 4 months	3.6	14.4	4.5	0.6	0.7	2.5	10.0	3,466
4–5 months	6.4	25.9	10.4	1.3	2.9	12.8	15.6	1,953
6–9 months	6.2	37.9	22.9	6.8	10.7	35.0	16.1	3,346

Table 7.11 Type of food received by children (contd.)

Percentage of children under age 3 years who received specific types of food the day or night before the interview and percentage using a bottle with a nipple by current breastfeeding status and child's age in months, India, 1998–99

Age in months	Type of food received						Using bottle with a nipple	Number of living children
	Powdered milk	Any other milk	Any other liquid	Green, leafy vegetables	Fruits	Any solid or mushy food[1]		
NON-BREASTFEEDING CHILDREN								
< 2	(13.0)	(42.3)	(6.1)	(4.7)	(0.1)	(5.2)	(40.0)	28
2–3	(22.4)	(62.2)	(12.8)	(0.0)	(0.0)	(11.7)	(87.0)	41
4–5	(46.6)	(70.2)	(32.9)	(8.0)	(8.6)	(30.5)	(86.6)	38
6	(15.7)	(89.9)	(44.7)	(18.0)	(17.4)	(41.1)	(58.4)	28
7	(26.6)	(69.7)	(36.5)	(14.8)	(18.8)	(49.1)	(75.3)	36
8	(30.2)	(83.5)	(29.8)	(11.5)	(21.7)	(64.4)	(91.5)	39
9	38.6	66.8	45.2	15.8	21.2	59.4	81.1	52
10	32.9	77.9	34.3	16.1	23.8	75.9	85.6	44
11	27.7	72.3	35.4	26.8	35.5	81.0	71.5	45
12	4.2	93.4	51.9	24.9	47.5	78.2	54.4	61
13	14.2	80.8	55.1	42.0	39.2	88.2	55.0	99
14	11.7	90.4	53.8	42.7	33.8	86.1	52.4	134
15	8.3	85.1	53.4	45.1	46.0	90.7	37.2	120
16	11.3	78.7	55.1	46.5	37.5	87.3	45.4	137
17	9.8	85.0	56.7	45.0	46.0	92.3	37.6	147
18	11.0	74.8	55.9	37.9	46.0	89.9	25.3	192
19	3.0	78.9	57.1	51.0	54.4	93.1	28.0	172
20	4.6	72.3	53.0	40.9	35.1	85.8	26.6	212
21	6.8	71.7	61.5	46.8	41.5	89.9	20.9	208
22	6.6	74.4	50.2	46.1	59.5	91.3	22.0	219
23	8.1	74.2	56.0	52.6	54.0	92.3	25.6	219
24	3.7	73.1	58.6	53.8	42.2	92.9	22.0	286
25	5.1	67.9	63.7	58.0	35.8	93.7	14.6	423
26	4.9	68.6	61.6	55.2	44.6	93.8	13.7	428
27	5.0	65.2	61.2	51.8	34.2	90.5	15.9	475
28	2.3	66.9	62.0	57.3	37.8	94.7	12.8	469
29	3.6	69.7	61.0	57.2	41.2	92.4	15.2	547
30	3.9	67.4	66.8	55.1	39.7	91.9	15.6	519
31	2.8	70.0	61.2	55.9	40.9	92.9	9.8	475
32	4.1	69.5	60.8	56.7	38.0	91.4	13.3	454
33	5.2	64.5	60.3	57.9	41.7	93.2	12.8	417
34	4.1	60.6	62.1	57.3	42.3	93.9	11.2	464
35	4.8	64.9	58.3	60.0	42.8	95.8	9.2	425
< 4 months	18.6	54.1	10.1	1.9	0.0	9.0	67.9	69
4–5 months	(46.6)	(70.2)	(32.9)	(8.0)	(8.6)	(30.5)	(86.6)	38
6–9 months	29.5	75.9	39.2	14.9	20.1	54.9	78.3	155

Table 7.11 Type of food received by children (contd.)

Percentage of children under age 3 years who received specific types of food the day or night before the interview and percentage using a bottle with a nipple by current breastfeeding status and child's age in months, India, 1998–99

Age in months	Type of food received						Using bottle with a nipple	Number of living children
	Powdered milk	Any other milk	Any other liquid	Green, leafy vegetables	Fruits	Any solid or mushy food[1]		
ALL CHILDREN								
< 1	1.5	7.5	3.4	0.8	0.9	1.5	4.2	452
1	2.3	13.6	3.8	0.6	1.0	2.3	8.3	973
2	4.0	15.4	4.2	0.5	0.4	2.2	11.3	1,087
3	6.3	19.7	6.3	0.5	0.7	3.8	16.8	1,023
4	6.1	23.7	8.2	1.1	3.3	11.0	15.8	986
5	8.2	29.8	13.4	1.6	2.8	15.2	18.2	1,006
6	4.9	34.1	18.5	2.7	7.2	24.1	17.4	968
7	7.1	37.5	21.2	5.3	10.1	31.6	17.2	922
8	9.0	43.5	27.0	10.8	13.9	44.5	21.2	821
9	8.2	44.6	29.3	10.7	14.3	46.4	20.0	791
10	6.2	45.0	32.7	13.9	17.6	58.4	20.5	719
11	9.3	46.9	35.2	19.2	21.9	65.9	18.1	681
12	3.9	53.3	40.5	25.7	26.0	71.6	17.4	797
13	6.1	47.7	43.4	27.7	22.8	73.8	15.9	961
14	4.7	54.2	43.2	30.8	22.0	78.6	17.0	1,008
15	5.7	54.2	44.8	35.1	28.8	82.8	13.1	960
16	4.7	52.1	45.8	37.1	25.6	78.0	15.8	1,006
17	4.2	56.0	49.5	38.9	29.9	85.4	13.3	939
18	7.1	56.9	49.8	38.7	31.6	83.8	12.6	906
19	2.7	57.9	49.1	40.1	33.1	83.5	13.0	741
20	4.9	59.0	48.3	38.3	33.2	85.6	16.6	706
21	4.0	54.6	54.5	42.1	30.7	82.7	10.6	717
22	4.4	57.3	48.7	40.2	39.8	86.2	12.9	682
23	5.2	52.9	48.0	43.4	36.5	85.3	13.8	652
24	4.6	58.6	54.0	49.8	33.4	89.9	12.4	699
25	4.6	54.8	54.4	51.2	31.2	90.1	10.1	886
26	5.1	59.1	55.1	53.1	33.9	91.5	10.1	903
27	4.1	58.9	56.0	52.1	32.2	89.7	10.5	920
28	3.7	62.0	58.8	54.5	32.3	92.9	10.2	869
29	3.4	64.1	58.0	55.7	33.6	91.7	12.5	935
30	3.9	61.2	61.1	54.0	35.3	91.2	11.3	934
31	4.0	60.5	57.7	56.7	36.7	92.2	8.6	827
32	3.5	62.9	59.8	54.7	34.2	91.2	11.1	714
33	4.6	57.4	60.6	56.3	37.4	92.9	11.0	679
34	4.4	53.7	55.8	57.0	36.7	92.8	8.8	741
35	3.6	57.4	56.6	55.6	36.5	92.5	8.2	706
< 4 months	3.9	15.2	4.6	0.6	0.7	2.6	11.2	3,535
4–5 months	7.1	26.8	10.8	1.4	3.0	13.1	17.0	1,991
6–9 months	7.2	39.6	23.6	7.1	11.1	35.9	18.8	3,501

Note: Table includes only surviving children from among the two most recent births during the three years preceding the survey. Percents by type of food may sum to more than 100.0 because children may have received more than one type of food.
( ) Based on 25–49 unweighted cases
[1]Includes green, leafy vegetables and fruits

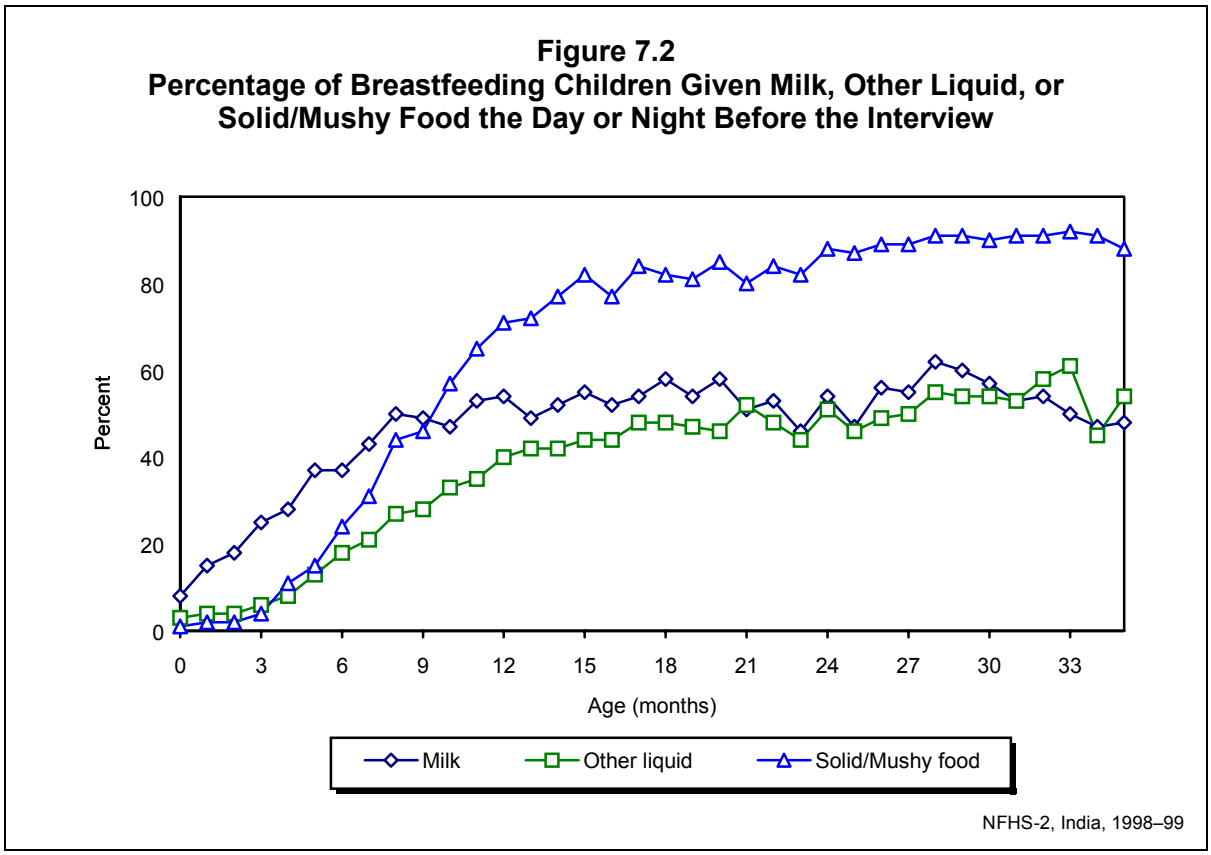


Table 7.12 shows several statistics that describe the duration of breastfeeding. Estimates of both means and medians are based on the current proportions of children breastfeeding in each age group because information on current status is usually more accurate than information based on mother's recall. The median length of any breastfeeding is slightly more than two years (25.4 months). Supplementation begins relatively early, however. The median length of exclusive breastfeeding is 1.9 months and the median length of exclusive breastfeeding or breastfeeding with water only is 5.3 months.

The mean durations of any breastfeeding, exclusive breastfeeding, and exclusive breastfeeding or breastfeeding with water only are 25.2 months, 4.0 months, and 7.2 months, respectively. The mean durations are slightly longer than the median durations for the last two measures, but are about the same for the overall duration of breastfeeding.

An alternative measure of the duration of breastfeeding is the prevalence-incidence mean, which is calculated as the 'prevalence' of breastfeeding divided by its 'incidence'. In this case, prevalence is defined as the number of children whose mothers were breastfeeding at the time of the survey, and incidence is defined as the average number of births per month (averaged over a 36–month period to overcome problems of seasonality of births and possible reference-period errors). For each measure of breastfeeding, the prevalence-incidence mean is about the same as the mean calculated in the conventional manner.

Table 7.12 Median duration of breastfeeding

Median duration of breastfeeding among children under age 3 years by selected background characteristics, and mean duration of breastfeeding, India, 1998–99

Background characteristic	Median duration (months)[1]			Number of children
	Any breastfeeding	Exclusive breastfeeding	Exclusive breastfeeding or breastfeeding plus water only	
Sex of child				
Male	26.4	1.8	5.2	16,805
Female	24.6	2.0	5.5	15,588
Residence				
Urban	21.8	0.9	3.7	7,191
Rural	26.3	2.2	5.7	25,202
Mother's education				
Illiterate	27.1	2.4	6.6	19,061
Literate, < middle school complete	24.2	1.5	4.4	5,818
Middle school complete	23.7	0.7	3.8	2,935
High school complete and above	21.4	1.3	3.2	4,574
Religion				
Hindu	25.8	2.0	5.5	25,650
Muslim	24.5	1.8	5.1	5,120
Christian	23.1	1.6	3.1	753
Sikh	21.7	0.6	4.2	450
Jain	16.9	1.0	2.4	76
Buddhist/Neo-Buddhist	25.6	2.5	4.7	199
Other	27.1	5.7	8.6	87
No religion	≥ 36.0	0.4	0.5	24
Caste/tribe				
Scheduled caste	26.4	2.2	5.9	6,478
Scheduled tribe	27.7	3.1	7.3	3,080
Other backward class	24.3	2.1	5.6	10,404
Other	24.8	1.3	4.2	12,050
Mother's work status				
Working in family farm/business	26.8	2.4	6.1	4,198
Employed by someone else	28.2	2.5	6.0	4,792
Self-employed	≥ 36.0	2.2	4.5	1,099
Not worked in past 12 months	24.7	1.7	5.1	22,295
Standard of living index				
Low	28.5	2.5	6.6	11,804
Medium	24.8	1.9	5.2	15,080
High	22.0	0.8	3.3	5,112
Place of delivery				
Public health facility	23.9	1.2	3.6	5,247
NGO or trust hospital/clinic	23.2	1.8	5.0	234
Private health facility	21.3	1.6	3.8	5,409
Own home	27.3	2.2	6.3	17,224
Parents' home	25.3	2.4	6.2	3,945
Other	27.6	2.5	3.5	225
Median duration	25.4	1.9	5.3	32,393
Mean duration (months)[1]	25.2	4.0	7.2	32,393
Prevalence/incidence mean	24.8	3.5	6.9	32,393

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 5, 33, 380, 9, 397, and 108 children with missing information on mother's education, religion, caste/tribe, mother's work status, the standard of living index, and place of delivery, respectively, who are not shown separately. The median duration of any breastfeeding is shown as ≥ 36 months for groups in which the exact median cannot be calculated because the proportion of breastfeeding children does not drop below 50 percent in any age group for children under 36 months of age.
NGO: Nongovernmental organization
[1]Based on current status

The median duration of breastfeeding is two months shorter for girls than for boys. This pattern is often observed in societies where there is a strong preference for sons, since the parents may stop breastfeeding a girl at a younger age to increase their chances of having another child earlier (with the hope that the next child will be a boy). The median length of breastfeeding is five months longer in rural areas than in urban areas. Most children living in rural areas are breastfed for more than two years. Children in urban areas are exclusively breastfed for a very short median period of less than one month. The median duration of breastfeeding decreases steadily with increasing educational attainment and increasing standard of living. The duration of breastfeeding is particularly short for Jains and particularly long for children in the 'no religion' category, but both of these estimates are based on a small number of children. Working women breastfeed their children for a longer time than women who do not work, a pattern that was also observed in NFHS-1. Children who are born at home tend to be breastfed for several more months than children who are born in health facilities.

The median duration of breastfeeding is at least 20 months in every state except Tamil Nadu, where it is only 16 months (Table 7.13). There are five states (mostly in the Eastern Region), where the exact median duration of breastfeeding cannot be calculated because the proportion of breastfeeding children does not drop below 50 percent in any age group for children under 36 months of age. In these states, the median duration of breastfeeding is 36 months or longer. Andhra Pradesh is the only state where the median duration of exclusive breastfeeding is more than four months. The median duration of exclusive breastfeeding or breastfeeding plus water only is eight months or less in every state.

The recommended feeding indicators for young children are summarized for every state in Table 7.14. Just over half of children in India (55 percent) are exclusively breastfed for the recommended period of four months. This percentage varies widely from less than 20 percent in Delhi, Meghalaya, Sikkim, and Himachal Pradesh to 75 percent in Andhra Pradesh. As noted earlier, the introduction of solid or mushy food in addition to breast milk is much later than recommended for the majority of children in India. The worst performing states in this respect are Bihar, Uttar Pradesh, and Rajasthan, where less than 20 percent of children receive timely complementary feeding. Children in Kerala and several states in the Northeastern Region are most likely to receive timely complementary feeding. Prolonged breastfeeding is common throughout India, with 89 percent of children still being breastfed at age 12–15 months and 69 percent being breastfed at age 20–23 months. In every state except Tamil Nadu, at least 70 percent of children are breastfed at age 12–15 months and at least 45 percent are breastfed at age 20–23 months. More than 80 percent of children age 20–23 months are breastfed in the contiguous states of Assam, West Bengal, Sikkim, Bihar, and Orissa. Bottle feeding of infants is most common in Goa (63 percent), Delhi (41 percent), and Tamil Nadu (34 percent). These are states that also exhibited unusually high levels of bottle feeding in NFHS-1.

7.5 Nutritional Status of Children

Nutritional status is a major determinant of the health and well-being of children. Inadequate or unbalanced diets and chronic illness are associated with poor nutrition among children. To assess their nutritional status, measurements of weight and height/length were obtained for children born in the three years preceding the survey. Children were weighed and measured with the same type of scales and measuring boards used for women. Children under two years of age were

Table 7.13 Median duration of breastfeeding by state

Median duration of any, exclusive, and full breastfeeding among children under age 3 years by state, India, 1998–99

State	Median duration (months)[1]		
	Any breastfeeding	Exclusive breastfeeding	Exclusive breastfeeding or breastfeeding plus water only
India	25.4	1.9	5.3
North			
Delhi	22.6	0.5	1.7
Haryana	24.3	1.2	3.9
Himachal Pradesh	24.1	0.6	2.8
Jammu & Kashmir	29.5	1.5	3.8
Punjab	21.2	0.7	2.9
Rajasthan	25.5	1.8	6.2
Central			
Madhya Pradesh	≥ 36.0	2.6	6.6
Uttar Pradesh	25.8	2.2	5.7
East			
Bihar	≥ 36.0	1.9	7.5
Orissa	≥ 36.0	1.8	5.3
West Bengal	≥ 36.0	1.1	2.9
Northeast			
Arunachal Pradesh	30.8	0.6	2.3
Assam	≥ 36.0	1.2	3.2
Manipur	29.3	3.1	3.8
Meghalaya	22.6	0.5	0.7
Mizoram	21.8	0.7	4.3
Nagaland	23.1	0.7	3.7
Sikkim	27.3	0.5	0.7
West			
Goa	23.3	0.5	0.7
Gujarat	22.0	3.0	5.9
Maharashtra	23.8	1.0	5.9
South			
Andhra Pradesh	25.0	4.6	5.1
Karnataka	20.0	3.2	5.6
Kerala	24.5	2.8	3.4
Tamil Nadu	16.1	1.8	3.5

Note: Table includes only the two most recent births during the three years preceding the survey. The median duration of any breastfeeding is shown as ≥ 36 months for states in which the exact median cannot be calculated because the proportion of breastfeeding children does not drop below 50 percent in any age group for children under 36 months of age.
[1]Based on current status

measured lying down and older children were measured standing up. Data on weight and height/length were used to calculate the following three summary indices of nutritional status:

- weight-for-age
- height-for-age
- weight-for-height

Table 7.14 Recommended feeding indicators by state

Recommended feeding indicators for children age 0–23 months by state, India, 1998–99

State	Recommended feeding indicators				
	Percentage of children 0–3 months who are exclusively breastfed	Percentage of children 6–9 months who receive breast milk and solid/mushy food	Percentage of children 12–15 months who are breastfed	Percentage of children 20–23 months who are breastfed	Percentage of children <12 months who are bottle fed
India	55.2	33.5	88.9	68.9	15.9
North					
Delhi	13.2	37.0	70.4	59.9	41.0
Haryana	47.2	41.8	88.3	77.5	15.9
Himachal Pradesh	17.5	61.3	73.1	60.2	30.8
Jammu & Kashmir	41.5	38.9	90.0	69.5	32.3
Punjab	36.3	38.7	76.0	53.8	30.2
Rajasthan	53.7	17.5	91.5	76.3	12.1
Central					
Madhya Pradesh	64.2	27.3	91.4	73.2	11.4
Uttar Pradesh	56.9	17.3	87.9	78.6	16.8
East					
Bihar	55.2	15.0	95.1	85.1	10.3
Orissa	58.0	30.1	94.6	89.7	13.8
West Bengal	48.8	46.3	95.8	86.9	21.1
Northeast					
Arunachal Pradesh	(33.9)	(60.2)	(94.1)	(76.0)	6.6
Assam	42.5	58.5	96.1	83.5	12.5
Manipur	69.7	86.8	90.8	67.9	13.0
Meghalaya	16.1	77.1	91.2	63.2	30.9
Mizoram	40.7	(74.2)	(89.9)	47.4	18.4
Nagaland	43.9	81.3	83.7	(61.4)	23.1
Sikkim	16.3	87.3	89.6	(82.0)	20.0
West					
Goa	*	(65.4)	(76.0)	(56.5)	63.2
Gujarat	65.2	46.5	86.2	56.1	6.3
Maharashtra	38.5	30.8	89.0	63.7	14.7
South					
Andhra Pradesh	74.6	59.4	84.6	60.6	13.2
Karnataka	66.5	38.4	86.5	44.9	11.4
Kerala	68.5	72.9	95.5	61.8	20.4
Tamil Nadu	48.3	55.4	69.4	29.0	34.1

Note: Table includes only the two most recent births in the three years preceding the survey.
( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases

The nutritional status of children calculated according to these three measures is compared with the nutritional status of an international reference population recommended by the World Health Organization (Dibley et al., 1987a; 1987b). The use of this reference population is based on the empirical finding that well-nourished children in all population groups for which data exist follow very similar growth patterns (Martorell and Habicht, 1986). A scientific report from the Nutrition Foundation of India (Agarwal et al., 1991) has concluded that the WHO standard is generally applicable to Indian children.

Table 7.15 Nutritional status of children by demographic characteristics

Percentage of children under age 3 years classified as undernourished on three anthropometric indices of nutritional status, according to selected demographic characteristics, India, 1998–99

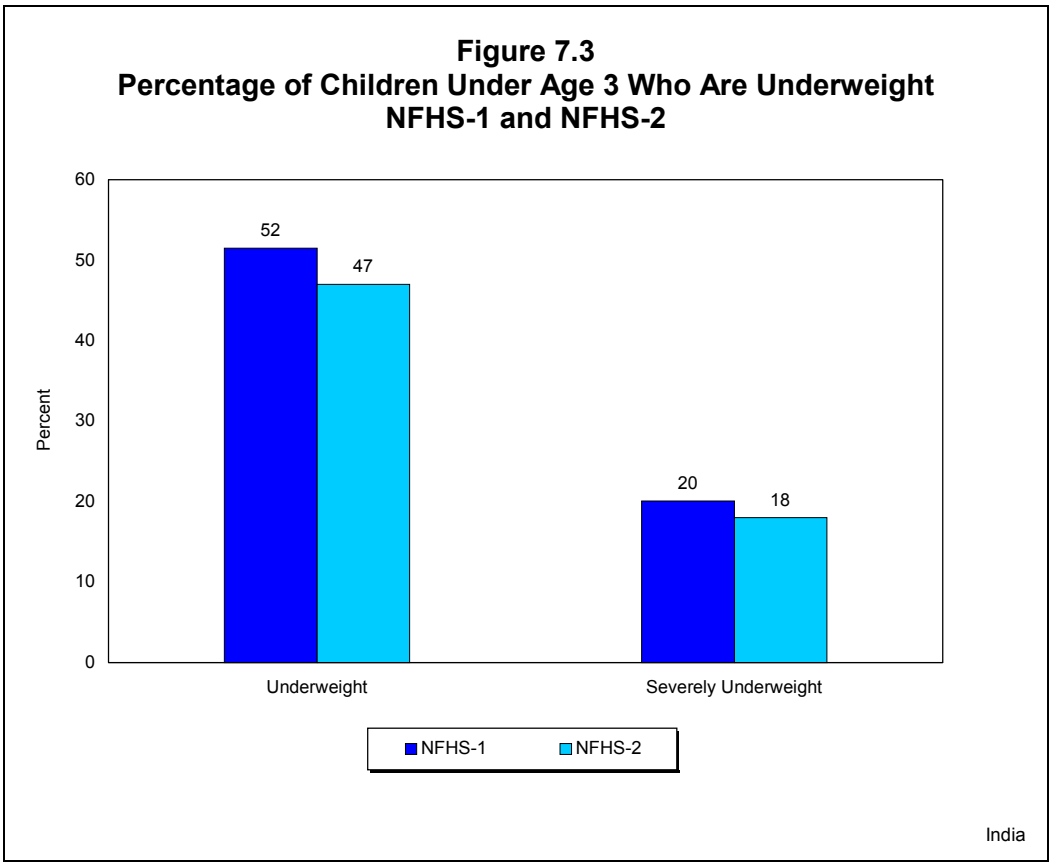
Demographic characteristic	Weight-for-age		Height-for-age		Weight-for-height		Number of children
	Percentage below –3 SD	Percentage below –2 SD[1]	Percentage below –3 SD	Percentage below –2 SD[1]	Percentage below –3 SD	Percentage below –2 SD[1]	
Age of child							
< 6 months	2.0	11.9	4.2	15.4	1.9	9.3	4,203
6–11 months	11.8	37.5	11.3	30.9	2.8	13.2	4,116
12–23 months	23.1	58.5	29.8	57.5	4.1	21.9	8,295
24–35 months	24.1	58.4	32.0	56.5	1.9	13.2	7,986
Sex of child							
Male	16.9	45.3	21.8	44.1	2.9	15.7	12,822
Female	19.1	48.9	24.4	47.0	2.7	15.2	11,778
Birth order							
1	13.6	40.9	17.8	39.6	2.8	14.5	7,111
2–3	16.3	46.2	21.8	44.4	2.5	15.0	10,893
4–5	23.8	52.9	28.5	52.3	3.2	16.8	4,287
6+	28.5	58.6	35.2	56.2	3.3	18.2	2,309
Previous birth interval[2]							
First birth	13.6	41.0	17.9	39.7	2.8	14.5	7,144
< 24 months	21.3	52.2	27.9	50.8	3.1	15.8	3,908
24–47 months	19.8	50.0	25.6	48.9	2.5	15.6	9,753
48+ months	18.0	45.1	21.2	42.4	3.2	16.5	3,794
Total	18.0	47.0	23.0	45.5	2.8	15.5	24,600

Note: Each index is expressed in standard deviation units (SD) from the median of the International Reference Population.
[1]Includes children who are below –3 SD from the International Reference Population median
[2]First-born twins (triplets, etc.) are counted as first births because they do not have a previous birth interval.

The three indices of nutritional status are expressed in standard deviation units (z-scores) from the median for the international reference population. Children who are more than two standard deviations below the reference median on any of the indices are considered to be *undernourished*, and children who fall more than three standard deviations below the reference median are considered to be *severely undernourished*.

Each of these indices provides somewhat different information about the nutritional status of children. Weight-for-age is a composite measure that takes into account both chronic and acute undernutrition. Children who are more than two standard deviations below the reference median on this index are considered to be *underweight*. The height-for-age index measures linear growth retardation. Children who are more than two standard deviations below the median of the reference population in terms of height-for-age are considered short for their age or *stunted*. The percentage in this category indicates the prevalence of chronic undernutrition, which often results from a failure to receive adequate nutrition over a long period of time or from chronic or recurrent diarrhoea. Height-for-age, therefore, does not vary appreciably by the season in which data are collected.

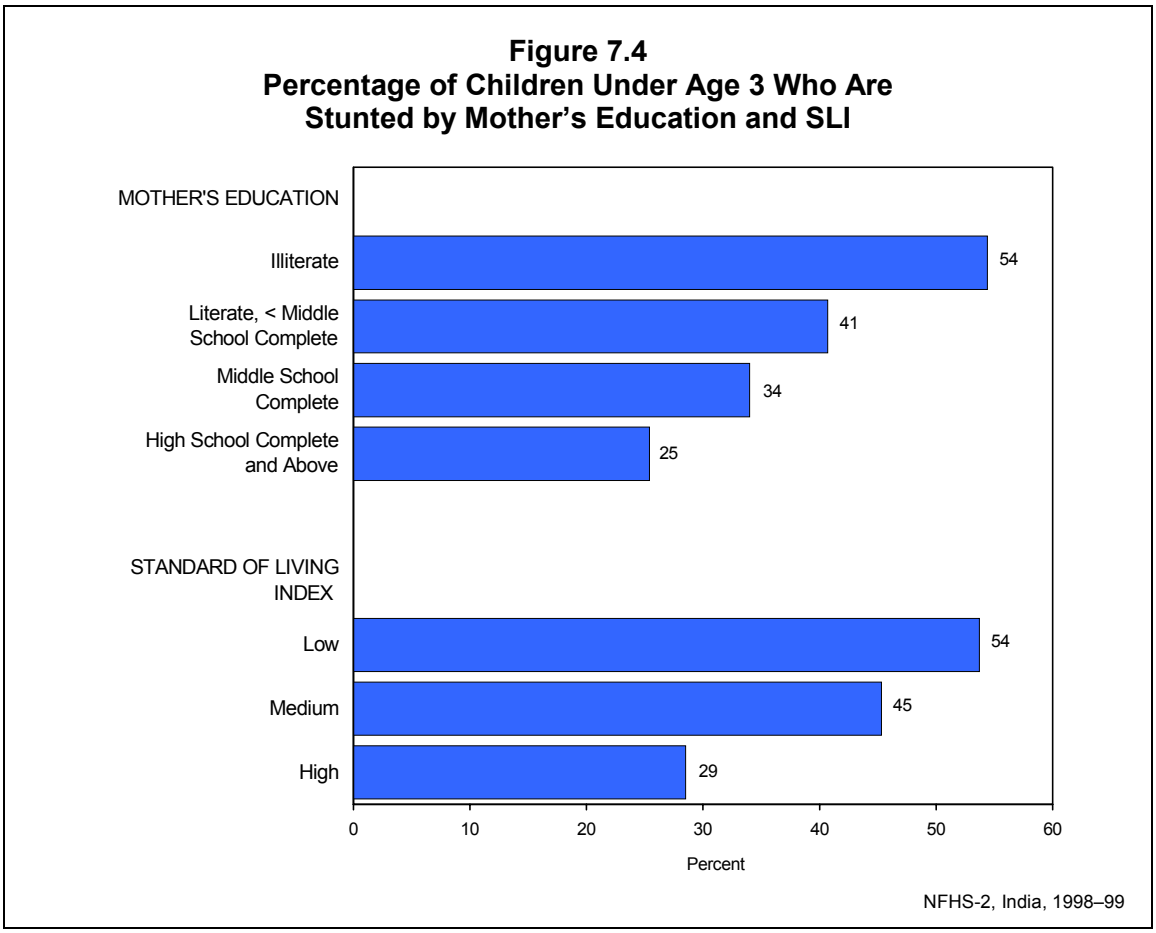
The weight-for-height index examines body mass in relation to body length. Children who are more than two standard deviations below the median of the reference population in terms of weight-for-height are considered too thin or *wasted*. The percentage in this category



indicates the prevalence of acute undernutrition. Wasting is associated with a failure to receive adequate nutrition in the period immediately before the survey and may be the result of seasonal variations in food supply or recent episodes of illness.

The validity of these indices is determined by many factors, including the coverage of the population of children and the accuracy of the anthropometric measurements. The survey was not able to measure the height and weight of all eligible children, usually because the child was not at home at the time of the health investigator's visit or because the mother refused to allow the child to be weighed and measured. In India, NFHS-2 did not measure 13 percent of children under age three (see Table D.3 in Appendix D). Also excluded from the analysis are children whose month and year of birth were not known and those with grossly improbable height or weight measurements. In addition, two of the three indices (weight-for-age and height-for-age) are sensitive to misreporting of children's ages, including heaping on preferred digits.

Table 7.15 shows the percentage of children classified as undernourished by selected demographic characteristics. Almost half of children under three years of age (47 percent) are underweight, and a similar percentage (46 percent) are stunted. The proportion of children who are severely undernourished is also notable—18 percent according to weight-for-age and 23 percent according to height-for-age. Wasting is also quite evident in India, affecting 16 percent of children under three years of age. The proportion of children under three years of age who are underweight decreased from 52 percent in NFHS-1 to 47 percent in NFHS-2 (Figure 7.3), and the proportion severely underweight decreased from 20 percent to 18 percent. A similar comparison cannot be made at the national level for stunting and wasting because children's height was not measured in five states in NFHS-1.



The proportion of children who are undernourished increases rapidly with the child's age through age 12–23 months, where it peaks at 22 percent for wasting and 58–59 percent for the other two measures. Even during the first six months of life, when most babies are breastfed, 9–15 percent of children are undernourished according to the three nutritional indices. It is notable that at age 24–35 months, when most children have been weaned from breast milk, almost one-third of children are severely stunted and almost one-quarter are severely underweight.

Overall, girls and boys are about equally undernourished, but girls are slightly more likely than boys to be underweight and stunted, whereas boys are slightly more likely to be wasted. Undernutrition generally increases with increasing birth order. Young children in families with six or more children are nutritionally the most disadvantaged. First births have lower than average levels of undernutrition on almost all the measures, and children born after a short birth interval are more likely than other children to be stunted or underweight.

Table 7.16 shows the nutritional status of children by selected background characteristics. Undernutrition is substantially higher in rural areas than in urban areas. Even in urban areas, however, more than one-third of children are underweight or stunted. Children whose mothers are illiterate are about twice as likely to be undernourished as children whose mothers have completed at least high school (see Figure 7.4) and the differentials are even larger in the case of severe undernutrition.

Table 7.16 Nutritional status of children by background characteristics

Percentage of children under age 3 years classified as undernourished on three anthropometric indices of nutritional status, according to selected background characteristics, India, 1998–99

Background characteristic	Weight-for-age		Height-for-age		Weight-for-height		Number of children
	Percentage below –3 SD	Percentage below –2 SD[1]	Percentage below –3 SD	Percentage below –2 SD[1]	Percentage below –3 SD	Percentage below –2 SD[1]	
Residence							
Urban	11.6	38.4	15.4	35.6	2.2	13.1	5,757
Rural	19.9	49.6	25.4	48.5	3.0	16.2	18,842
Mother's education							
Illiterate	24.1	55.0	30.2	54.4	3.4	17.1	13,878
Literate, < middle school complete	13.1	44.6	18.3	40.7	2.0	15.3	4,634
Middle school complete	10.8	36.6	13.4	34.0	2.5	13.3	2,400
High school complete and above	5.8	26.6	8.2	25.4	1.6	11.0	3,685
Religion							
Hindu	18.4	47.7	23.3	46.0	2.9	16.0	19,572
Muslim	18.6	48.3	24.8	47.1	2.5	14.1	3,745
Christian	9.6	30.8	14.0	30.6	2.5	13.4	582
Sikh	8.4	26.8	16.0	35.4	1.1	7.0	365
Jain	1.3	20.9	0.8	13.2	0.0	11.9	60
Buddhist/Neo-Buddhist	7.5	43.7	8.7	32.5	0.9	11.9	168
Other	19.1	49.6	11.2	44.0	0.4	17.7	68
No religion	20.1	44.1	26.9	54.4	0.0	5.0	17
Caste/tribe							
Scheduled caste	21.2	53.5	27.5	51.7	3.0	16.0	4,919
Scheduled tribe	26.0	55.9	27.6	52.8	4.4	21.8	2,236
Other backward class	18.3	47.3	23.1	44.8	3.4	16.6	7,941
Other	13.8	41.1	19.4	40.7	1.8	12.8	9,265
Mother's work status							
Working in family farm/business	22.9	56.0	29.3	52.8	3.3	17.7	3,134
Employed by someone else	24.6	55.5	26.9	51.8	3.8	19.6	3,602
Self-employed	21.4	51.7	24.7	47.7	2.8	19.3	838
Not worked in past 12 months	15.5	43.3	21.0	42.7	2.5	14.0	17,018
Mother's height							
< 145 cm	28.3	59.8	36.8	60.7	2.9	17.1	3,100
≥ 145 cm	16.5	45.1	21.1	43.3	2.8	15.2	21,458
Mother's body mass index							
< 18.5 kg/m^2	23.4	57.2	25.9	50.3	3.0	19.6	9,824
≥ 18.5 kg/m^2	14.4	40.2	21.2	42.3	2.7	12.7	14,698
Standard of living index							
Low	25.3	56.9	29.8	53.7	3.9	19.7	8,548
Medium	16.5	46.8	22.4	45.3	2.4	14.3	11,636
High	6.7	26.8	10.7	28.5	1.5	10.2	4,137
Total	18.0	47.0	23.0	45.5	2.8	15.5	24,600

Note: Each index is expressed in standard deviation units (SD) from the median of the International Reference Population. Total includes 3, 23, 239, 7, 42, 78, and 278 children with missing information on mother's education, religion, caste/tribe, mother's work status, mother's height, mother's body mass index, and the standard of living index, respectively, who are not shown separately.
[1]Includes children who are below –3 SD from the International Reference Population median

Hindu and Muslim children are equally likely to be undernourished, but Christian, Sikh, and Jain children are considerably better nourished. Children belonging to scheduled castes, scheduled tribes, or other backward classes have relatively high levels of undernutrition according to all three measures. Children from scheduled tribes have the poorest nutritional

Table 7.17 Nutritional status of children by state

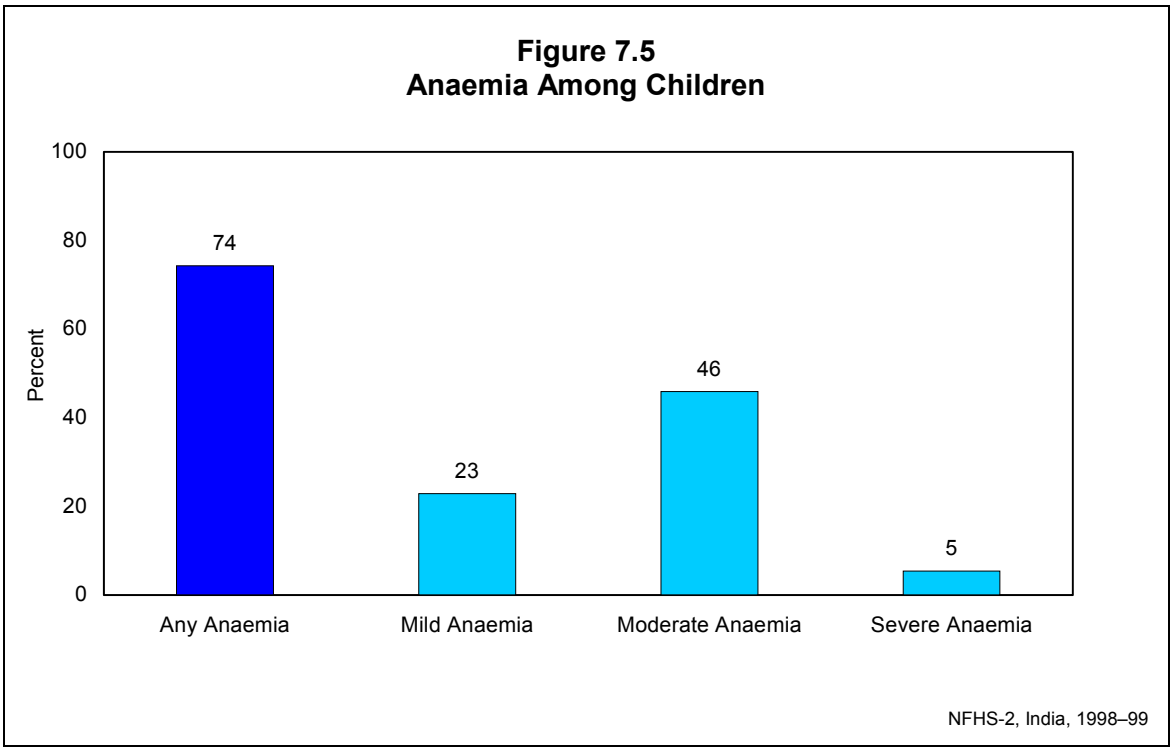
Percentage of children under age 3 years classified as undernourished on three anthropometric indices of nutritional status, according to state, India, 1998–99

State	Weight-for-age		Height-for-age		Weight-for-height	
	Percentage below –3 SD	Percentage below –2 SD[1]	Percentage below –3 SD	Percentage below –2 SD[1]	Percentage below –3 SD	Percentage below –2 SD[1]
India	18.0	47.0	23.0	45.5	2.8	15.5
North						
Delhi	10.1	34.7	18.0	36.8	4.1	12.5
Haryana	10.1	34.6	24.3	50.0	0.8	5.3
Himachal Pradesh	12.1	43.6	18.1	41.3	3.3	16.9
Jammu & Kashmir	8.3	34.5	17.3	38.8	1.2	11.8
Punjab	8.8	28.7	17.2	39.2	0.8	7.1
Rajasthan	20.8	50.6	29.0	52.0	1.9	11.7
Central						
Madhya Pradesh	24.3	55.1	28.3	51.0	4.3	19.8
Uttar Pradesh	21.9	51.7	31.0	55.5	2.1	11.1
East						
Bihar	25.5	54.4	33.6	53.7	5.5	21.0
Orissa	20.7	54.4	17.6	44.0	3.9	24.3
West Bengal	16.3	48.7	19.2	41.5	1.6	13.6
Northeast						
Arunachal Pradesh	7.8	24.3	11.9	26.5	2.0	7.9
Assam	13.3	36.0	33.7	50.2	3.3	13.3
Manipur	5.3	27.5	11.2	31.3	1.8	8.2
Meghalaya	11.3	37.9	24.5	44.9	1.0	13.3
Mizoram	5.0	27.7	13.9	34.6	2.8	10.2
Nagaland	7.4	24.1	11.7	33.0	2.4	10.4
Sikkim	4.2	20.6	9.7	31.7	0.8	4.8
West						
Goa	4.7	28.6	4.8	18.1	0.7	13.1
Gujarat	16.2	45.1	23.3	43.6	2.4	16.2
Maharashtra	17.6	49.6	14.1	39.9	2.5	21.2
South						
Andhra Pradesh	10.3	37.7	14.2	38.6	1.6	9.1
Karnataka	16.5	43.9	15.9	36.6	3.9	20.0
Kerala	4.7	26.9	7.3	21.9	0.7	11.1
Tamil Nadu	10.6	36.7	12.0	29.4	3.8	19.9

Note: Each index is expressed in standard deviation units (SD) from the median of the International Reference Population.
[1]Includes children who are below –3 SD from the International Reference Population median

status, and the high prevalence of wasting in this group (22 percent) is of particular concern. Interestingly, undernutrition is relatively low for children whose mothers have not worked in the past 12 months.

The nutritional status of children is strongly related to maternal nutritional status. Undernutrition is much more common for children of mothers whose height is less than 145 centimetres or whose body mass index is below 18.5 than for other children. All of the measures of undernutrition are strongly related to the household's standard of living. Children from households with a low standard of living are twice as likely to be undernourished as children from households with a high standard of living.



Inadequate nutrition is a problem throughout India, but the situation is considerably better in some states. Table 7.17 shows that undernutrition is most pronounced in Bihar, Madhya Pradesh, Orissa, Uttar Pradesh, and Rajasthan. In addition, Maharashtra, Karnataka, and Tamil Nadu are all characterized by high levels of wasting among children. Nutritional problems are least evident in Sikkim, Arunachal Pradesh, Goa, and Kerala. Even in these states, however, levels of undernutrition are unacceptably high.

7.6 Anaemia Among Children

Anaemia is a serious concern for young children because it can result in impaired cognitive performance, behavioural and motor development, coordination, language development, and scholastic achievement, as well as increased morbidity from infectious diseases (Seshadri, 1997). One of the most vulnerable groups is children age 6–24 months (Stoltzfus and Dreyfuss, 1998).

Table 7.18 and Figure 7.5 show anaemia levels for children age 6–35 months. Overall, nearly three-quarters (74 percent) of these children have some level of anaemia[4], including 23 percent who are mildly anaemic (10.0–10.9 g/dl), 46 percent who are moderately anaemic (7.0–9.9 g/dl), and 5 percent who are severely anaemic (less than 7.0 g/dl). Notably, a much larger proportion of children than women are anaemic and the difference is particularly pronounced in the case of moderate to severe anaemia.

[4]If the hemoglobin measurements are not adjusted for the altitude of the enumeration area, the estimated prevalence of anaemia is only slightly lower (73.7 percent instead of 74.3 percent).

Table 7.18 Anaemia among children

Percentage of children age 6–35 months classified as having iron-deficiency anaemia by selected background characteristics, India, 1998–99

Background characteristic	Percentage of children with anaemia	Percentage of children with: Mild anaemia	Moderate anaemia	Severe anaemia	Number of children
Age of child					
6–11 months	71.7	27.0	41.5	3.2	3,923
12–23 months	77.7	22.0	49.4	6.3	8,215
24–35 months	72.0	21.9	44.5	5.6	7,877
Sex of child					
Male	75.1	22.2	47.0	5.9	10,477
Female	73.3	23.7	44.8	4.8	9,539
Birth order					
1	70.7	23.6	42.5	4.6	5,759
2–3	74.9	22.7	46.4	5.8	8,896
4–5	76.4	22.7	48.0	5.7	3,459
6+	78.4	22.4	50.3	5.7	1,902
Residence					
Urban	70.8	23.7	42.0	5.1	4,642
Rural	75.3	22.7	47.1	5.5	15,374
Mother's education					
Illiterate	78.2	21.7	50.0	6.4	11,255
Literate, < middle school complete	74.6	24.4	45.1	5.1	3,866
Middle school complete	69.7	25.2	40.2	4.3	1,959
High school complete and above	61.9	24.0	35.1	2.8	2,935
Religion					
Hindu	74.6	22.4	46.7	5.5	15,982
Muslim	74.2	26.0	43.0	5.2	2,952
Christian	61.0	23.7	34.1	3.3	500
Sikh	76.5	18.0	52.8	5.7	304
Jain	(69.4)	(20.7)	(48.7)	(0.0)	44
Buddhist/Neo-Buddhist	73.3	27.9	41.9	3.5	139
Other	88.9	16.9	57.0	15.0	60
No religion	(55.1)	(11.9)	(40.7)	(2.5)	16
Caste/tribe					
Scheduled caste	78.3	22.0	49.7	6.6	4,048
Scheduled tribe	79.8	22.8	50.1	6.9	1,921
Other backward class	72.0	22.8	44.4	4.8	6,487
Other	72.7	23.6	44.1	5.0	7,373
Mother's work status					
Working in family farm/business	75.8	21.8	49.3	4.7	2,669
Employed by someone else	76.9	21.7	48.7	6.6	3,067
Self-employed	74.8	20.6	48.6	5.5	707
Not worked in past 12 months	73.3	23.6	44.5	5.3	13,566
Standard of living index					
Low	78.7	23.1	50.0	5.7	7,064
Medium	73.5	22.7	45.2	5.7	9,444
High	67.3	23.5	39.6	4.2	3,292
Mother's anaemia status					
Not anaemic	67.8	23.2	40.7	3.9	9,172
Mildly anaemic	76.8	23.4	48.4	5.1	7,235
Moderately anaemic	85.6	21.6	55.5	8.5	3,212
Severely anaemic	86.8	18.0	45.3	23.6	323
Total	74.3	22.9	45.9	5.4	20,016

Note: Haemoglobin levels are adjusted for altitude when calculating the degree of anaemia. Total includes 2, 20, 187, 7, 215, and 73 children with missing information on mother's education, religion, caste/tribe, mother's work status, the standard of living index, and mother's anaemia status, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

Table 7.19 Anaemia among children by state

Percentage of children age 6–35 months classified as having iron-deficiency anaemia by state, India, 1998–99

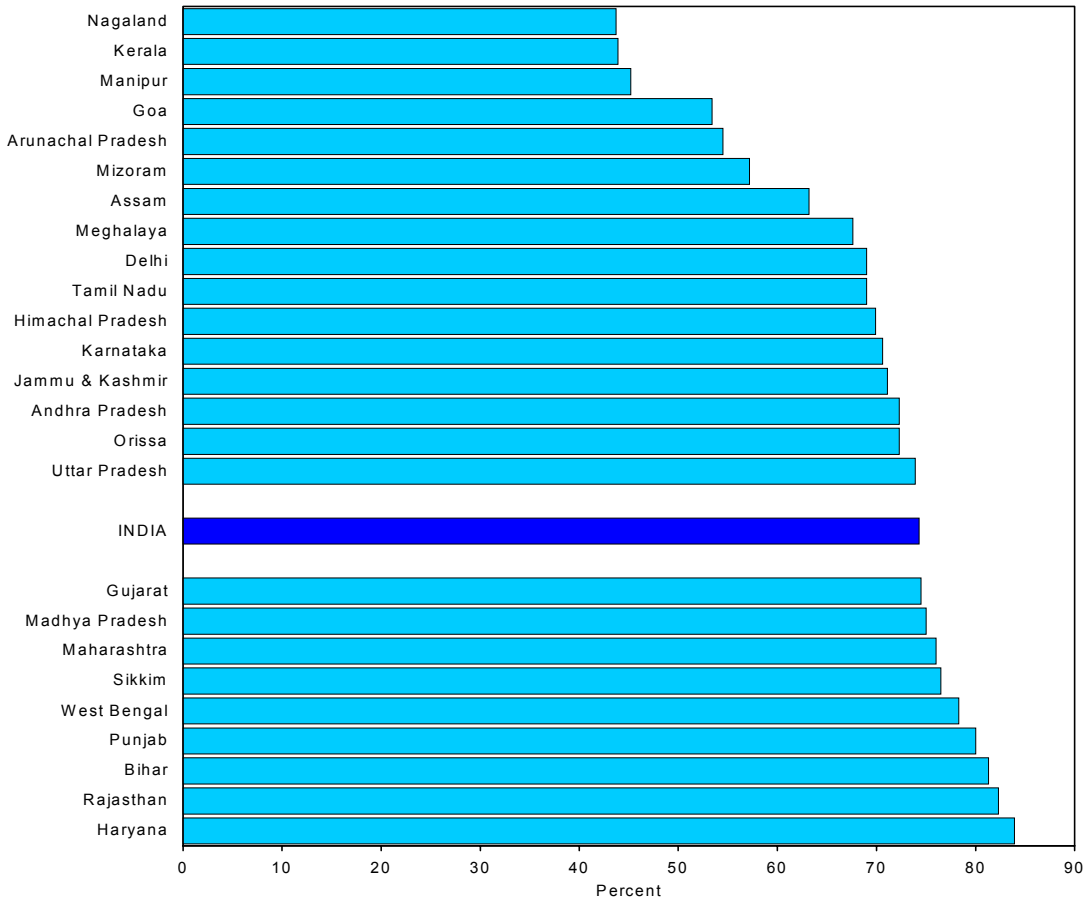
State	Percentage of children with anaemia	Percentage of children with: Mild anaemia	Moderate anaemia	Severe anaemia
India	74.3	22.9	45.9	5.4
North				
Delhi	69.0	22.2	42.9	3.9
Haryana	83.9	18.0	58.8	7.1
Himachal Pradesh	69.9	28.7	39.0	2.2
Jammu & Kashmir	71.1	29.1	38.5	3.5
Punjab	80.0	17.4	56.7	5.9
Rajasthan	82.3	20.1	52.7	9.5
Central				
Madhya Pradesh	75.0	22.0	48.1	4.9
Uttar Pradesh	73.9	19.4	47.8	6.7
East				
Bihar	81.3	26.9	50.3	4.1
Orissa	72.3	26.2	43.2	2.9
West Bengal	78.3	26.9	46.3	5.2
Northeast				
Arunachal Pradesh	54.5	29.1	24.7	0.7
Assam	63.2	31.0	32.2	0.0
Manipur	45.2	22.6	21.7	0.9
Meghalaya	67.6	23.4	39.8	4.3
Mizoram	57.2	32.2	22.7	2.3
Nagaland	43.7	22.0	18.7	3.0
Sikkim	76.5	28.4	40.7	7.5
West				
Goa	53.4	23.5	27.9	2.0
Gujarat	74.5	24.2	43.7	6.7
Maharashtra	76.0	24.1	47.4	4.4
South				
Andhra Pradesh	72.3	23.0	44.9	4.4
Karnataka	70.6	19.6	43.3	7.6
Kerala	43.9	24.4	18.9	0.5
Tamil Nadu	69.0	21.9	40.2	6.9

Note: Haemoglobin levels are adjusted for altitude when calculating the degree of anaemia.

Several groups of children have particularly high levels of anaemia. These include children age 12–23 months, children of higher birth orders, rural children, children whose mothers are illiterate, Sikh children and children of 'other' religions, children from scheduled castes and scheduled tribes, and children from poor families. As expected, there is a strong positive relationship between the haemoglobin levels of mothers and prevalence of anaemia among children. Almost one-quarter of children whose mothers are severely anaemic are severely anaemic themselves.

Table 7.19 and Figure 7.6 show the level of anaemia by state. Nagaland, Kerala, and Manipur are the only states where less than half of the children are anaemic. The highest prevalence of anaemia is found in Haryana, Rajasthan, Bihar, and Punjab, where at least 80 percent of children are anaemic. In these four states, 54–66 percent of children are moderately or severely anaemic.

Figure 7.6
Anaemia Among Children by State



NFHS-2, India, 1998–99

7.7 Iodization of Salt

Iodine is an important micronutrient. A lack of iodine in the diet can lead to Iodine Deficiency Disorders (IDD), which, according to the World Health Organization, can cause miscarriages, brain disorders, cretinism, and retarded psychomotor development. Iodine deficiency is the single most important and preventable cause of mental retardation worldwide.

It has been estimated that 200 million people in India are exposed to the risk of iodine deficiency and 70 million suffer from goitre and other IDDs (IDD & Nutrition Cell, 1998). In addition, about one-fifth of pregnant women are at considerable risk of giving birth to children who will not reach their optimum physical and mental potential because of maternal iodine deficiency (Vir, 1995).

Iodine deficiency can be avoided by using salt that has been fortified with iodine. In 1983–84, the Government of India adopted a policy to achieve universal iodization of edible salt by 1992. In 1988, the Prevention of Food Adulteration Act was amended to fix the minimum iodine content of salt at 30 parts per million (ppm) at the manufacturing level and 15 ppm at the

consumer level (MOHFW, 1994). The Government of India has advised all states and union territories to issue notifications banning the sale of edible salt that is not iodized. However, the ban on non-iodized salt was lifted in September, 2000.

NFHS-2, with its representative sample of households throughout the country, is an ideal vehicle for measuring the degree of iodization of salt used in households in India. Iodine levels in salt can be measured in the laboratory using a standard titration test or in the field using a rapid-test kit. In NFHS-2, interviewers measured the iodine content of cooking salt in each interviewed household using a rapid-test kit. The test kit consists of ampoules of a stabilized starch solution and of a weak acid-based solution. The interviewer squeezes one drop of the starch solution onto a sample of cooking salt obtained from the household. If the colour changes (from light blue through dark violet), the interviewer matches the colour of the salt as closely as possible to a colour chart on the test kit and records the iodine level as 7, 15, or 30 ppm. If the initial test is negative (no change in colour), the interviewer is required to conduct a second confirmatory test on a new salt sample, using the acid-based solution in addition to the starch solution. This test is necessary because the starch solution will not show any colour change even on iodized salt if the salt is alkaline or is mixed with alkaline free-flow agents. If the colour of the salt does not change even after the confirmatory test, the salt is not iodized. Because of uncertainties and subjective judgement in the matching process, the rapid test should not be seen as giving an exact quantitative estimate of salt iodization, but it does provide useful information on whether or not salt is iodized, as well as the extent of iodization. A recent multicentric study in eight centres in India concluded that the rapid test kit can be used for semi-quantitative estimation of the iodine content of salt to monitor the quality of salt being used in a community (Kapil et al., 1999).

Table 7.20 shows the extent of salt iodization at the household level. Overall, despite government regulations in effect at the time of the survey, only 49 percent of households use cooking salt that is iodized at the recommended level of 15 ppm or more. More than one-quarter of households (28 percent) use salt that is not iodized at all and 22 percent use salt that is inadequately iodized (less than 15 ppm). Differentials in salt iodization by background characteristics are pronounced. Seventy-seven percent of households in large cities use salt with 15 ppm or more of iodine compared with 67–68 percent of households in small cities and towns and only 42 percent of households in rural areas. Among religious groups, households with Jain or Sikh heads are most likely to use adequately iodized salt. The use of iodized salt is relatively low in households headed by persons from scheduled castes, scheduled tribes, or other backward classes. The widest differentials are observed for the standard of living index. Seventy-eight percent of households with a high standard of living use adequately iodized salt compared with only 35 percent of households with a low standard of living.

Table 7.20 Iodization of salt

Percent distribution of households by degree of iodization of salt, according to selected background characteristics, India, 1998–99

Background characteristic	Not iodized	7 ppm	15 ppm	30 ppm	Missing	Total percent	Number of households
Type of place of residence							
Large city	14.8	7.8	11.1	65.7	0.7	100.0	6,745
Small city	17.7	14.1	12.5	55.2	0.5	100.0	7,393
Town	19.3	13.6	13.7	52.8	0.6	100.0	11,106
Rural area	32.5	25.3	18.3	23.2	0.7	100.0	65,953
Religion of household head							
Hindu	29.3	22.1	16.3	31.6	0.7	100.0	74,699
Muslim	23.1	23.0	21.2	32.1	0.6	100.0	10,662
Christian	33.3	16.5	12.2	37.9	0.1	100.0	2,716
Sikh	17.1	8.2	15.7	58.7	0.3	100.0	1,556
Jain	12.6	6.2	13.0	68.1	0.0	100.0	363
Buddhist/Neo-Buddhist	26.4	9.1	16.1	47.5	0.9	100.0	749
Other	19.7	22.2	20.3	37.7	0.0	100.0	306
No religion	28.9	19.2	14.1	37.6	0.3	100.0	59
Caste/tribe of household head							
Scheduled caste	32.0	25.5	17.4	24.4	0.8	100.0	17,051
Scheduled tribe	34.0	22.1	18.6	24.7	0.6	100.0	8,337
Other backward class	33.9	23.2	15.9	26.5	0.5	100.0	29,543
Other	20.7	18.2	16.7	43.7	0.7	100.0	35,386
Standard of living index							
Low	36.0	28.1	18.6	16.5	0.8	100.0	33,064
Medium	28.6	21.5	17.5	31.7	0.6	100.0	40,434
High	12.8	9.2	11.6	66.0	0.4	100.0	16,640
Total	28.4	21.6	16.8	32.6	0.7	100.0	91,196

Note: Total includes 87, 880, and 1,057 households with missing information on religion, caste/tribe, and the standard of living index, respectively, which are not shown separately.
ppm: Parts per million

The use of iodized salt varies dramatically from one state to another. The variations are due to a number of factors, including the scale of salt production, transportation requirements, enforcement efforts, the pricing structure, and storage patterns. In particular, salt iodization is likely to be more common in states where salt is transported exclusively by railways, at least partly because the Salt Department monitors the iodine content of salt shipped by railways. The use of adequately iodized salt is uniformly high throughout the Northeastern Region and in most states in the Northern Region, reaching a high of 91 percent in Himachal Pradesh and Mizoram (Table 7.21). All of the states in the Southern Region have low levels of use of adequately iodized salt, ranging from only 21 percent in Tamil Nadu to 43 percent in Karnataka. Outside of the Southern Region, Orissa is the only state where less than 40 percent of households use adequately iodized salt. It is clear that in many states the lax enforcement of salt iodization regulations in effect at the time of NFHS-2 was thwarting efforts to eliminate Iodine Deficiency Disorders in India.

Table 7.21 Iodization of salt by state

Percent distribution of households by degree of iodization of salt, according to state, India, 1998–99

State	Not iodized	7 ppm	15 ppm	30 ppm	Missing	Total percent
India	28.4	21.6	16.8	32.6	0.7	100.0
North						
Delhi	6.1	4.5	13.5	75.7	0.1	100.0
Haryana	19.5	9.2	13.9	57.1	0.2	100.0
Himachal Pradesh	3.2	6.2	14.9	75.6	0.1	100.0
Jammu & Kashmir	24.8	22.3	27.5	25.4	0.0	100.0
Punjab	16.7	7.8	13.7	61.6	0.3	100.0
Rajasthan	37.1	15.3	21.9	24.4	1.3	100.0
Central						
Madhya Pradesh	25.0	16.3	14.4	42.3	2.1	100.0
Uttar Pradesh	22.7	26.9	19.6	29.2	1.6	100.0
East						
Bihar	22.9	30.1	26.6	20.4	0.0	100.0
Orissa	29.6	35.1	18.2	16.8	0.4	100.0
West Bengal	11.3	26.5	25.8	36.0	0.5	100.0
Northeast						
Arunachal Pradesh	0.8	15.0	46.9	37.2	0.1	100.0
Assam	1.8	18.2	32.7	46.9	0.3	100.0
Manipur	2.3	9.7	15.4	72.5	0.1	100.0
Meghalaya	6.7	30.0	24.9	38.1	0.3	100.0
Mizoram	0.7	8.0	27.9	63.3	0.0	100.0
Nagaland	10.9	21.2	25.5	41.7	0.7	100.0
Sikkim	3.1	17.5	31.8	47.3	0.3	100.0
West						
Goa	37.3	20.2	4.0	37.9	0.6	100.0
Gujarat	29.5	14.2	14.9	41.2	0.2	100.0
Maharashtra	32.0	6.9	11.0	49.1	1.0	100.0
South						
Andhra Pradesh	36.8	35.7	10.2	17.2	0.1	100.0
Karnataka	24.1	32.4	12.9	30.5	0.1	100.0
Kerala	47.6	13.2	5.6	33.7	0.0	100.0
Tamil Nadu	62.7	15.8	8.1	13.1	0.3	100.0

ppm: Parts per million

CHAPTER 8

MATERNAL AND REPRODUCTIVE HEALTH

Promotion of maternal and child health has been one of the most important objectives of the Family Welfare Programme in India. The Government of India took steps to strengthen maternal and child health services as early as the First and Second Five-Year Plans (1951–56 and 1956–61). As part of the Minimum Needs Programme initiated during the Fifth Five-Year Plan (1974–79), maternal health, child health, and nutrition services were integrated with family planning services. The primary aim at that time was to provide at least a minimum level of public health services to pregnant women, lactating mothers, and preschool children (Kanitkar, 1979).

In 1992–93, the Child Survival and Safe Motherhood Programme continued the process of integration by bringing together several key child survival interventions with safe motherhood and family planning activities (Ministry of Health and Family Welfare, 1992). In 1996, safe motherhood and child health services were incorporated into the Reproductive and Child Health Programme. This new programme seeks to integrate maternal health, child health, and fertility regulation interventions with reproductive health programmes for both women and men. With regard to maternal and reproductive health (Ministry of Health and Family Welfare, 1997; 1998b), the important elements of the programme include:

- Provision of antenatal care, including at least three antenatal care visits, iron prophylaxis for pregnant and lactating mothers, two doses of tetanus toxoid vaccine, detection and treatment of anaemia in mothers, and management and referral of high-risk pregnancies

- Encouragement of institutional deliveries or home deliveries assisted by trained health personnel

- Provision of postnatal care, including at least three postnatal visits

- Identification and management of reproductive tract and sexually transmitted infections

In rural areas, the government delivers reproductive and other health services through its network of Primary Health Centres (PHCs), sub-centres, and other government health facilities. In addition, pregnant women and children can obtain services from private maternity homes, hospitals, private practitioners, and in some cases, nongovernmental organizations (NGOs). In urban areas, reproductive health services are available mainly through government or municipal hospitals, urban health posts, hospitals and nursing homes operated by NGOs, and private nursing and maternity homes.

In rural areas, a female paramedical worker, called an auxiliary nurse midwife (ANM), is posted at a sub-centre to provide basic maternal health, child health, and family welfare services to women and children either in their homes or in the health clinic. Her work is overseen by the lady health visitor (LHV) posted at the PHC. With regard to safe motherhood, the ANM is responsible for registering pregnant women, motivating them to obtain antenatal and postnatal care, assessing their health throughout pregnancy and in the postpartum period, and referring women with high-risk pregnancies. The ANM is assisted by a male health worker whose duties

include motivating men to participate in the family welfare programme and educating men about reproductive tract and sexually transmitted infections. The ANM and LHV also assist the medical officer at the PHC where health services including antenatal and postnatal care are provided (Ministry of Health and Family Welfare, 1997; 1998b).

The National Population Policy adopted by the Government of India in 2000 (Ministry of Health and Family Welfare, 2000) reiterates the government's commitment to the safe motherhood programmes within the wider context of reproductive health. Among the national sociodemographic goals for 2010 specified by the policy, several goals pertain to safe motherhood, namely that 80 percent of all deliveries should take place in institutions by 2010, 100 percent of deliveries should be attended by trained personnel, and the maternal mortality ratio should be reduced to a level below 100 per 100,000 live births. Empowering women for improved health and nutrition is 1 of the 12 strategic themes identified in the policy to be pursued in stand alone or intersectoral programmes.

An important objective of NFHS-2 is to provide information on the use of safe-motherhood services provided by the public and private sectors. In addition, the survey included questions on the prevalence and treatment of reproductive health problems. Relevant questions on safe motherhood were included in the Woman's Questionnaire. The topics covered include pregnancy complications, antenatal and postnatal care, place of and assistance during delivery, delivery characteristics, and postpartum complications. Although NFHS-2 obtained this information for the two most recent live births since 1 January 1995 for the states surveyed in the first phase and 1 January 1996 for the states surveyed in the second phase, the information presented in this chapter pertains only to the subset of those births that took place during the three years preceding the woman's interview. With regard to reproductive health, all women were asked about their experience of specific symptoms of reproductive health problems, and if problems were reported, whether and where treatment was received.

8.1 Antenatal Problems and Care

Antenatal care (ANC) refers to pregnancy-related health care provided by a doctor or a health worker in a medical facility or at home. The Safe Motherhood Initiative proclaims that all pregnant women must receive basic, professional antenatal care (Harrison, 1990). Ideally, antenatal care should monitor a pregnancy for signs of complications, detect and treat pre-existing and concurrent problems of pregnancy, and provide advice and counselling on preventive care, diet during pregnancy, delivery care, postnatal care, and related issues. The Reproductive and Child Health Programme recommends that as part of antenatal care, women receive two doses of tetanus toxoid vaccine, adequate amounts of iron and folic acid tablets or syrup to prevent and treat anaemia, and at least three antenatal check-ups that include blood pressure checks and other procedures to detect pregnancy complications (Ministry of Health and Family Welfare, 1997; 1998b).

NFHS-2 collected information from women on specific problems they may have had during their pregnancies and whether they received any antenatal check-ups. Women who did not receive antenatal check-ups were asked why they did not. Women who received antenatal check-ups were asked about the care provider, the timing of the first antenatal check-up, the total number of check-ups, the procedures conducted during the check-ups, and the advice given. In addition, the survey asked women whether they received tetanus toxoid injections and iron and

Table 8.1 Health problems during pregnancy

Among births during the three years preceding the survey, percentage of mothers experiencing specific health problems during pregnancy by residence, India, 1998–99

Problem during pregnancy	Urban	Rural	Total
Night blindness	6.4	13.7	12.1
Blurred vision	17.0	23.2	21.8
Convulsions not from fever	11.0	15.2	14.3
Swelling of the legs, body, or face	28.2	25.8	26.3
Excessive fatigue	43.6	43.3	43.4
Anaemia	27.1	26.3	26.5
Vaginal bleeding	3.1	3.6	3.5
Number of births	7,191	25,202	32,393

Note: Table includes only the two most recent births during the three years preceding the survey.

folic acid tablets or syrup during the pregnancy. Results from each of these questions are discussed in this chapter.

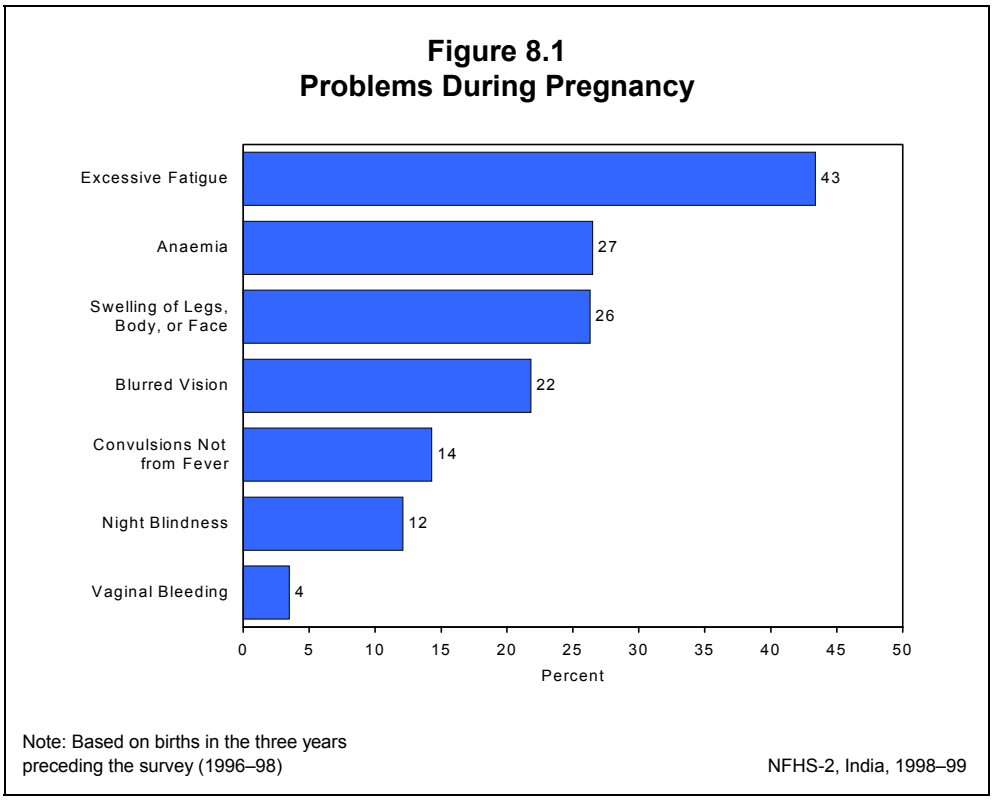
Problems During Pregnancy

For each of the two most recent births in the three years preceding the survey, the mother was asked if at any time during the pregnancy she experienced any of the following pregnancy-related problems: night blindness, blurred vision, convulsions (not from fever), swelling (of the legs, body or face), excessive fatigue, anaemia, or vaginal bleeding. Night blindness, or difficulty seeing at dusk, is the result of chronic vitamin A deficiency and is often seen in pregnant women in areas where vitamin A deficiency is endemic. Convulsions accompanied by signs of hypertension can be symptomatic of eclampsia, a potentially fatal condition. The potential health risk posed by vaginal bleeding during pregnancy varies by when in the pregnancy the bleeding takes place. Although documenting the prevalence of the symptoms of pregnancy complications is vital for planning services to reduce maternal morbidity and mortality, the information presented here is based on women's self reports and should be interpreted with care.

As shown in Table 8.1 and Figure 8.1, the pregnancy-related health problems most commonly reported are excessive fatigue (43 percent), followed by anaemia (27 percent), swelling of the legs, body, or face (26 percent), and blurred vision (22 percent). Fourteen percent reported convulsions that were not from fever and 12 percent reported night blindness. Only 4 percent reported any vaginal bleeding. The reported prevalence of both kinds of vision problems and of convulsions that were not from fever are higher in rural than in urban areas. There is little urban-rural difference in the prevalence of the other pregnancy-related health problems.

Antenatal Check-Ups

A pregnant woman can have an antenatal check-up by visiting a doctor or another health professional in a medical facility, receiving a home visit from a health worker, or both. NFHS-2 asked women who had a birth during the three years preceding the survey whether any health worker had visited them at home to provide antenatal check-ups. The survey also asked whether



women had gone for antenatal check-ups outside the home, and if they had, what type of service provider gave them the check-ups.

Table 8.2 and Figure 8.2 show the percent distribution of births in the three years preceding the survey by the source of antenatal check-ups received during pregnancy according to selected background characteristics. Women who received antenatal check-ups both at home and outside the home are categorized as having received care outside the home. If a woman received check-ups from more than one type of health provider, only the provider with the highest qualification is considered.

NFHS-2 results show that mothers in India received antenatal check-ups for only 65 percent of births during the three years preceding the survey, almost unchanged from 64 percent in NFHS-1. Mothers received antenatal check-ups from doctors for 49 percent of births and from other health professionals (such as ANMs, nurses, midwives, or LHVs) for 11 percent of births. Mothers received antenatal check-ups exclusively at home from a health worker for 6 percent of births.

Older women (age 35–49) are much less likely than younger women to have received antenatal check-ups for their births and the likelihood that an antenatal check-up was received declines sharply with birth order. Mothers of 78 percent of first order births received an antenatal check-up compared with only 37 percent of mothers of births of order six or higher. As expected, antenatal check-ups from doctors are much more common in urban areas than in rural areas. At least four out of five births to literate women received antenatal check-ups compared with half of the births to illiterate women. The proportion of births whose mothers received antenatal check-ups from a doctor increases sharply with education, from 32 percent for illiterate mothers to 62 percent for mothers who are literate but have not completed middle school and 85 percent

Table 8.2 Antenatal check-ups

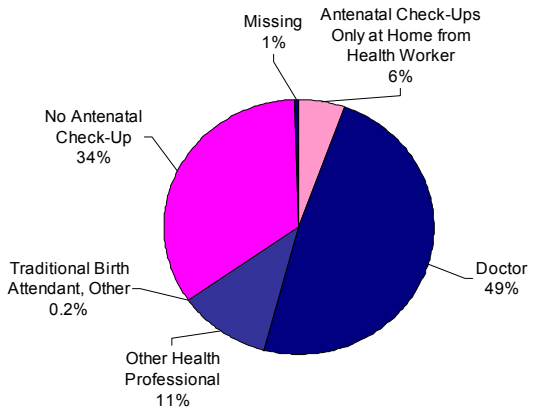
Percent distribution of births during the three years preceding the survey by source of antenatal check-up, according to selected background characteristics, India, 1998–99

Background characteristic	Antenatal check-up only at home from health worker	Antenatal check-up outside home[1] from:			No antenatal check-up	Missing	Total percent	Number of births
		Doctor	Other health professional	Traditional birth attendant, other				
Mother's age at birth								
< 20	6.3	48.7	12.4	0.4	31.7	0.6	100.0	7,589
20–34	5.3	49.5	10.7	0.2	33.6	0.6	100.0	23,469
35–49	5.7	32.1	6.1	0.1	54.9	1.2	100.0	1,335
Birth order								
1	3.8	63.1	10.4	0.3	21.7	0.6	100.0	9,365
2–3	5.9	51.4	12.0	0.2	30.0	0.6	100.0	14,104
4–5	7.1	32.7	11.2	0.2	48.2	0.5	100.0	5,644
6+	6.8	22.9	7.3	0.2	62.0	0.9	100.0	3,279
Residence								
Urban	2.0	74.8	8.8	0.2	13.6	0.6	100.0	7,191
Rural	6.6	41.2	11.5	0.3	39.8	0.6	100.0	25,202
Mother's education								
Illiterate	7.3	32.1	11.2	0.3	48.4	0.7	100.0	19,061
Literate, < middle school complete	4.8	62.1	12.9	0.3	19.3	0.7	100.0	5,818
Middle school complete	3.0	71.8	11.2	0.1	13.5	0.4	100.0	2,935
High school complete and above	1.2	85.4	7.2	0.1	5.8	0.3	100.0	4,574
Religion								
Hindu	6.2	47.2	11.2	0.2	34.5	0.6	100.0	25,650
Muslim	3.3	50.7	8.5	0.4	36.4	0.7	100.0	5,120
Christian	3.0	73.4	7.5	0.2	15.4	0.4	100.0	753
Sikh	1.3	44.7	29.0	0.0	24.9	0.1	100.0	450
Jain	3.1	84.7	6.5	0.0	5.7	0.0	100.0	76
Buddhist/Neo-Buddhist	1.4	74.9	9.2	0.0	14.5	0.0	100.0	199
Other	0.3	59.9	15.7	0.1	19.7	4.2	100.0	87
No religion	10.0	53.7	0.7	0.0	35.6	0.0	100.0	24
Caste/tribe								
Scheduled caste	5.9	41.7	13.3	0.2	38.2	0.6	100.0	6,478
Scheduled tribe	10.0	34.7	11.5	0.3	43.1	0.4	100.0	3,080
Other backward class	5.9	48.9	9.6	0.2	34.8	0.6	100.0	10,404
Other	4.0	56.5	10.6	0.2	27.9	0.7	100.0	12,050
Standard of living index								
Low	7.3	35.8	11.0	0.2	45.1	0.7	100.0	11,804
Medium	5.1	50.1	11.1	0.3	32.8	0.7	100.0	15,080
High	2.8	73.7	10.5	0.2	12.4	0.4	100.0	5,112
Total	5.6	48.6	10.9	0.2	34.0	0.6	100.0	32,393

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 5, 33, 380, and 397 births with missing information on mother's education, religion, caste/tribe, and the standard of living index, respectively, which are not shown separately.

[1]Includes all births for which the mothers received an antenatal check-up outside the home, even if they also received an antenatal check-up at home from a health worker. If more than one type of antenatal check-up provider was mentioned, only the provider with the highest qualifications is shown.

Figure 8.2
Source of Antenatal Check-Ups During Pregnancy



Note: Percents add to more than 100 due to rounding

NFHS-2, India, 1998–99

for mothers who have completed at least high school. Conversely, the percentage of births for which mothers received home visits only from a health worker decreases with mothers' education. The majority of women in all religious groups receive antenatal check-ups; nonetheless, there is substantial variation in the likelihood of women receiving an antenatal check-up by religion. Antenatal check-ups were received for only 63–65 percent of births to Hindu and Muslim women compared with 84–86 percent of births to Christian and Buddhist/Neo-Buddhist women and 94 percent of births to Jain women. Jain women, followed by Buddhist/Neo-Buddhist and Christian women, are also most likely to have received check-ups from a doctor; but Sikh women are much more likely than women of any other religion to have received check-ups from health professionals other than doctors. By caste/tribe, the likelihood of having received any antenatal check-up and a check-up from a doctor is lowest for births to scheduled-tribe mothers and highest for births to mothers who do not belong to a scheduled caste, scheduled tribe, or other backward class. The likelihood of having received antenatal check-ups at all, as well as from a doctor, increases sharply with the household's standard of living. Among births to mothers living in households with a low standard of living, 54 percent received antenatal check-ups and 36 percent received antenatal check-ups from doctors. By contrast, among births to mothers living in households with a high standard of living, 87 percent received antenatal check-ups and 74 percent received check-ups from doctors.

In summary, more than one out of every three women in India did not receive an antenatal check-up for births in the three years preceding the survey. Women not receiving antenatal check-ups tend disproportionately to be older women, women of high parity, women from scheduled tribes, illiterate women, and poor women. This suggests that improving the coverage of antenatal programmes requires special efforts to reach older and high-parity women and women who are socioeconomically disadvantaged.

Table 8.3 Reason for not receiving an antenatal check-up

Percent distribution of births during the three years preceding the survey to mothers who did not receive an antenatal check-up by the main reason for not receiving an antenatal check-up, according to residence, India, 1998–99

Reason for not receiving an antenatal check-up	Urban	Rural	Total
Not necessary	63.4	59.1	59.5
Not customary	3.8	4.3	4.3
Costs too much	11.3	15.0	14.7
Too far/no transport	0.9	3.9	3.7
Poor quality service	1.6	0.8	0.8
No time to go	2.6	1.7	1.8
Family did not allow	11.3	8.2	8.5
Lack of knowledge	3.2	4.2	4.1
No health worker visited	0.2	1.6	1.5
Other	1.7	1.1	1.2
Total percent	100.0	100.0	100.0
Number of births	978	10,040	11,018

Note: Table includes only the two most recent births during the three years preceding the survey.

Reasons for Not Receiving Antenatal Check-Ups

Table 8.3 shows the percent distribution of births in the three years preceding the survey whose mothers did not receive any antenatal check-ups in a health facility or at home by the main reason for not receiving check-ups. For almost three-quarters of the births to mothers who did not have any antenatal check-ups, mothers did not consider having a check-up to be necessary (60 percent) or customary (4 percent) or were not allowed by their families to have one (9 percent). Costs account for another 15 percent of cases and lack of knowledge, distance, and lack of transport account for the majority of the remaining reasons. These results suggest the need to inform mothers and families about the availability and benefits of antenatal check-ups to help overcome traditional attitudes and other hurdles that prevent mothers from seeking antenatal care for their pregnancies. In addition, since about one-fifth of the reasons reported deal with problems of accessibility, quality, and cost of services, utilization of antenatal care services could also be increased by lowering direct and indirect costs, improving quality, and making services more accessible.

Number and Timing of Antenatal Check-Ups

The number of antenatal check-ups and the timing of the first check-up are important for the health of the mother and the outcome of the pregnancy. The conventional recommendation for normal pregnancies is that once pregnancy is confirmed, antenatal check-ups should be scheduled at four-week intervals during the first seven months, then every two weeks until the last month, and weekly thereafter (MacDonald and Pritchard, 1980). Four antenatal check-ups—one each during the third, sixth, eighth, and ninth months of pregnancy—have been recommended as the minimum necessary (Park and Park, 1989). The conventional recommendation is to schedule the first check-up within six weeks of a woman's last menstrual period. Studies on the timing of the

Table 8.4 Number and timing of antenatal check-ups and stage of pregnancy

Percent distribution of births during the three years preceding the survey by number of antenatal check-ups and by the stage of pregnancy at the time of the first check-up, according to residence, India, 1998–99

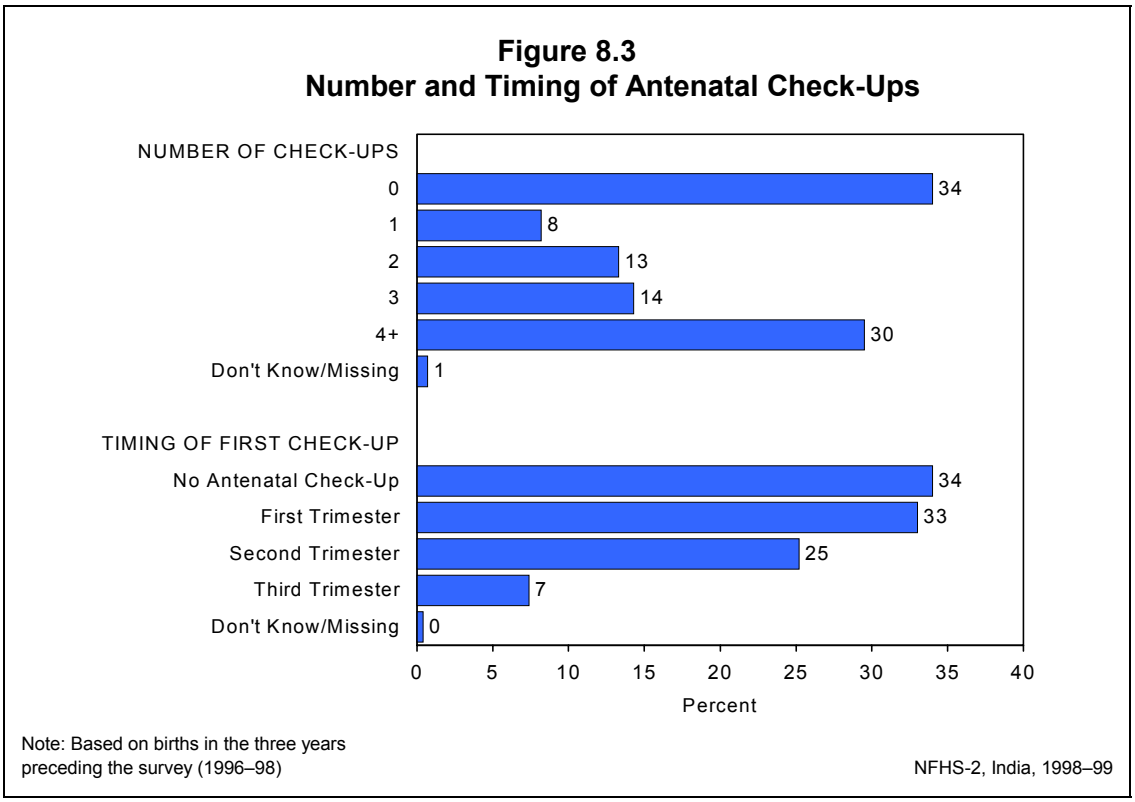
Number and timing of check-ups	Urban	Rural	Total
Number of antenatal check-ups			
0	13.6	39.8	34.0
1	6.0	8.8	8.2
2	10.5	14.1	13.3
3	14.5	14.2	14.3
4+	54.7	22.4	29.5
Don't know/missing	0.7	0.8	0.7
Total percent	100.0	100.0	100.0
Median number of check-ups (for those who received at least one antenatal check-up)	4.2	2.5	2.8
Stage of pregnancy at the time of the first antenatal check-up			
No antenatal check-up	13.6	39.8	34.0
First trimester	55.1	26.6	33.0
Second trimester	24.2	25.5	25.2
Third trimester	6.9	7.6	7.4
Don't know/missing	0.2	0.4	0.4
Total percent	100.0	100.0	100.0
Median months pregnant at first antenatal check-up (for those who received at least one antenatal check-up)	3.0	3.9	3.5
Number of births	7,191	25,202	32,393

Note: Table includes only the two most recent births during the three years preceding the survey.

initial antenatal check-up, however, show that even when antenatal care is initiated as late as the third trimester, there is a substantial reduction in perinatal mortality (Ramachandran, 1992).

In India, the Reproductive and Child Health Programme includes the provision of at least three antenatal care visits for pregnant women. Guidelines of the programme require that each pregnancy be registered in the first 12–16 weeks (Ministry of Health and Family Welfare, 1997). Accordingly, the first antenatal check-up should take place at the latest during the second trimester of pregnancy. NFHS-2 asked women who received antenatal check-ups for births in the three years preceding the survey about the total number of check-ups they received and when in their pregnancies they received their first check-up.

Table 8.4 and Figure 8.3 show the percent distribution of births in the three years preceding the survey by the number and timing of antenatal check-ups. In India, mothers of 44 percent of births received at least three antenatal check-ups (unchanged from NFHS-1) and 30 percent had four or more check-ups. The median number of check-ups was 2.8. There are substantial differences in the number of antenatal check-ups by residence. At least three antenatal



check-ups were received for 69 percent of births to mothers living in urban areas, but for only 37 percent of births to mothers living in rural areas. The median number of check-ups is also higher in urban areas (4.2) than in rural areas (2.5). The shorter distances to antenatal-care services and the comparative ease of travelling in urban areas, as well as the higher educational attainment of mothers in urban areas, could be important factors for the larger number of check-ups received by mothers in urban areas.

One-third of the births that took place in the three years preceding the survey were to mothers who received their first antenatal check-up in the first trimester of pregnancy (up from one-quarter of births in NFHS-1), and another one-quarter were to mothers who received their first check-up in the second trimester (Table 8.4 and Figure 8.3). Check-ups during the first trimester were about twice as common in urban areas (55 percent) as in rural areas (27 percent). The first check-up was rarely received as late as the third trimester. Among births for which the mother received at least one antenatal check-up, the median timing of the first antenatal check-up is 3.5 months for India as a whole and is about one month later in rural areas (3.9) than in urban areas (3.0).

Components of Antenatal Check-Ups

The effectiveness of antenatal check-ups in ensuring safe motherhood depends in part on the tests and measurements done and the advice given during the check-ups. NFHS-2 collected information on this important aspect of antenatal care for the first time by asking mothers who received antenatal check-ups whether they received each of several components of antenatal check-ups at least once during any of their check-ups during pregnancy. For births during the three years preceding the survey for which antenatal check-ups were received, Table 8.5 presents the percentage whose mothers received specific components of check-ups by residence. Except

Table 8.5 Components of antenatal check-ups

Among births during the three years preceding the survey for which an antenatal check-up was received, the percentage receiving specific components of antenatal check-ups by residence, India, 1998–99

Components of antenatal check-ups	Urban	Rural	Total
Antenatal measurements/tests			
Weight measured	74.7	48.3	56.0
Height measured	37.1	22.2	26.5
Blood pressure checked	80.1	55.5	62.7
Blood tested	78.1	51.4	59.2
Urine tested	76.2	46.9	55.5
Abdomen examined	87.6	70.2	75.3
Internal examination	55.2	31.4	38.3
X-ray	6.9	3.5	4.5
Sonography or ultrasound	34.4	11.8	18.4
Amniocentesis	3.4	1.9	2.3
Antenatal advice			
Diet	76.7	63.9	67.6
Danger signs of pregnancy	45.5	31.7	35.7
Delivery care	51.0	37.4	41.3
Newborn care	47.7	34.0	38.0
Family planning	33.8	26.1	28.3
Number of births for which the mother received at least one antenatal check-up	6,171	15,002	21,173

Note: Table includes only the two most recent births during the three years preceding the survey.

for X-rays (which are not recommended as a standard component of antenatal care), all of the measurements and tests are part of essential obstetric care or are required for monitoring high-risk pregnancies.

Among all births for which mothers received antenatal check-ups, mothers had an abdominal examination in 75 percent of these cases and had their blood pressure checked in 63 percent of these cases. Other common components of antenatal check-ups were blood tests (59 percent), measurement of weight (56 percent), and urine tests (56 percent). Mothers of only 38 percent of births had an internal examination during any antenatal check-up, 27 percent had their height measured, and 18 percent had a sonogram or ultrasound. X-rays and amniocentesis were rarely performed. Most of these measurements or tests were performed at least 1.5 times more often during antenatal check-ups for births to mothers living in urban areas than for those living in rural areas. The differentials by residence are greatest for sonography or ultrasound (which is about three times as likely to be performed in urban areas as in rural areas).

Table 8.5 also shows the type of advice received by mothers who had antenatal check-ups for births in the three years preceding the survey. Dietary advice was given to mothers most often (in 68 percent of cases). Mothers were much less likely to receive advice on delivery care (41 percent), newborn care (38 percent), the danger signs of pregnancy (36 percent), and family planning (28 percent). The proportion receiving advice on each of these topics is consistently higher in urban areas than in rural areas.

Tetanus Toxoid Vaccination

In India, an important cause of death in infancy is neonatal tetanus, which is caused by newborn infants becoming infected by tetanus organisms, usually at the umbilical stump. Neonatal tetanus is most common among children who are delivered in unhygienic environments and when unsterilized instruments are used to cut the umbilical cord. Tetanus typically develops during the first or second week of life and is fatal in 70–90 percent of cases (Foster, 1984). If neonatal tetanus infection occurs where expert medical help is not available, as is common in many rural areas in India, death is almost certain. Neonatal tetanus, however, is a preventable disease. Two doses of tetanus toxoid vaccine given one month apart during early pregnancy are nearly 100 percent effective in preventing tetanus among both newborn infants and their mothers. Immunity against tetanus is transferred to the foetus through the placenta when the mother is vaccinated.

In India, the tetanus toxoid immunization programme for expectant mothers was initiated in 1975–76 and was integrated with the Expanded Programme on Immunization (EPI) in 1978 (Ministry of Health and Family Welfare, 1991). To step up the pace of the immunization programme, the Government of India initiated the Universal Immunization Programme (UIP) in 1985–86. An important objective of the UIP was to vaccinate all pregnant women against tetanus by 1990. In 1992–93, the UIP was integrated into the Child Survival and Safe Motherhood Programme, which in turn has been integrated into the Reproductive and Child Health Programme. According to the National Immunization Schedule, a pregnant woman should receive two doses of tetanus toxoid injection, the first when she is 16 weeks pregnant and the second when she is 20 weeks pregnant (Central Bureau of Health Intelligence, 1991). Re-inoculation is recommended every three years. If two doses were received less than three years earlier, a single booster injection is recommended.

For each of the two most recent births during the three years preceding the survey, NFHS-2 asked mothers whether they were given an injection in the arm to prevent them and their baby from getting tetanus. Women who said they had received a tetanus injection were asked how many times they had received the injection during pregnancy.

Table 8.6 shows the distribution of births by the number of tetanus toxoid injections given to mothers, according to selected background characteristics. Tetanus toxoid coverage in India is far from complete. For births in the three years preceding the survey, 24 percent of the mothers did not receive any tetanus toxoid injections during pregnancy, and another 8 percent received only one injection. The proportion of mothers who received two or more tetanus toxoid injections during their pregnancies rose from 55 percent to 67 percent between NFHS-1 and NFHS-2.

Tetanus toxoid injections are more common in urban areas than in rural areas. Tetanus toxoid coverage (two or more injections) is much higher for births to women under age 35 (68 percent) than for the small number of births to older women (47 percent). Coverage varies inversely by birth order. At least two tetanus toxoid injections were received by mothers for 78 percent of first births compared with 56 percent of fourth and fifth births and less than half (42 percent) of higher-order births. Tetanus toxoid coverage is similar for Hindus (67 percent) and Muslims (66 percent), but coverage is much higher for births to mothers who are Jain or Sikh (both 88 percent). Coverage is substantially lower for births to scheduled-tribe mothers (46 percent) than for births to mothers in other caste and class groups (65–72 percent).

Table 8.6 Tetanus toxoid vaccination and iron and folic acid tablets or syrup

Percent distribution of births during the three years preceding the survey by the number of tetanus toxoid injections received by the mother, percentage of births for which the mothers were given iron and folic acid (IFA) tablets or syrup during pregnancy, and among those who received iron and folic acid tablets or syrup, percentage who received enough for three months or longer and percentage who consumed all the supply given, according to selected background characteristics, India, 1998–99

Background characteristic	Number of tetanus toxoid injections					Percentage given iron and folic acid tablets or syrup	Number of births	Percentage who received supply for 3+ months[1]	Percentage who consumed all the supply[1]	Number of births whose mothers received IFA
	None	One	Two or more	Don't know/ missing	Total percent					
Mother's age at birth										
< 20	23.1	8.4	67.6	0.8	100.0	58.8	7,589	79.9	78.5	4,460
20–34	23.4	8.2	67.6	0.8	100.0	58.4	23,469	83.5	81.1	13,715
35–49	43.3	8.3	47.0	1.5	100.0	36.6	1,335	77.6	80.6	488
Birth order										
1	15.5	5.9	77.7	0.9	100.0	68.7	9,365	84.8	82.8	6,435
2–3	20.4	9.2	69.7	0.8	100.0	61.4	14,104	83.1	80.3	8,664
4–5	33.8	9.5	55.8	0.9	100.0	45.8	5,644	78.4	77.8	2,584
6+	48.1	8.6	42.2	1.0	100.0	29.9	3,279	73.8	74.3	980
Residence										
Urban	9.9	7.3	81.9	1.0	100.0	75.7	7,191	87.5	83.2	5,440
Rural	28.2	8.5	62.5	0.8	100.0	52.5	25,202	80.5	79.4	13,222
Mother's education										
Illiterate	35.3	9.1	54.7	0.9	100.0	43.6	19,061	77.4	76.3	8,304
Literate, < middle school complete	12.5	8.4	78.4	0.7	100.0	70.4	5,818	83.0	80.7	4,094
Middle school complete	7.5	7.5	84.2	0.7	100.0	78.5	2,935	86.4	81.5	2,304
High school complete and above	3.0	5.0	91.2	0.8	100.0	86.5	4,574	90.4	88.7	3,958
Religion										
Hindu	24.5	8.2	66.5	0.8	100.0	57.5	25,650	82.5	80.1	14,748
Muslim	25.8	7.7	65.6	0.8	100.0	51.7	5,120	80.8	80.9	2,649
Christian	14.8	10.3	74.0	1.0	100.0	77.3	753	87.9	81.3	582
Sikh	7.9	4.5	87.5	0.2	100.0	79.4	450	80.7	93.5	357
Jain	3.9	8.2	87.9	0.0	100.0	90.3	76	85.5	74.8	68
Buddhist/Neo-Buddhist	17.0	16.6	65.3	1.1	100.0	82.6	199	90.8	78.0	165
Other	18.7	22.1	52.0	7.1	100.0	69.9	87	89.0	94.1	61
No religion	43.0	13.5	43.5	0.0	100.0	61.8	24	86.6	94.5	15
Caste/tribe										
Scheduled caste	25.8	8.6	64.8	0.8	100.0	54.6	6,478	80.7	76.2	3,538
Scheduled tribe	38.7	13.6	46.4	1.3	100.0	48.6	3,080	81.6	82.0	1,496
Other backward class	23.8	7.1	68.4	0.7	100.0	56.8	10,404	84.9	81.4	5,910
Other	19.2	7.7	72.2	0.9	100.0	63.0	12,050	82.0	81.6	7,587
Standard of living index										
Low	34.1	9.5	55.4	1.0	100.0	46.0	11,804	79.1	77.1	5,433
Medium	22.3	8.2	68.7	0.8	100.0	59.4	15,080	81.8	80.2	8,956
High	6.4	5.6	87.5	0.6	100.0	79.2	5,112	88.4	86.1	4,050
Total	24.1	8.2	66.8	0.8	100.0	57.6	32,393	82.5	80.5	18,663

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes births with missing information on mother's education, religion, caste/tribe, and the standard of living index, which are not shown separately.
[1]Among births whose mother received iron and folic acid tablets or syrup

For 39 percent of their births, scheduled-tribe mothers did not receive any tetanus toxoid vaccine. Illiterate mothers received at least two tetanus toxoid injections for 55 percent of their births, whereas literate mothers received at least two tetanus toxoid injections for 78 percent or more of their births. Tetanus toxoid coverage increases with an increasing standard of living of the household. Notably, among births to mothers living in households with a low standard of living in only about half (55 percent) of the cases did the mother receive the recommended two doses of tetanus toxoid. These results suggest that despite generally improving coverage of tetanus toxoid vaccinations, the coverage for socioeconomically disadvantaged women lags far behind the level for the country as a whole.

Iron and Folic Acid Supplementation

Nutritional deficiencies in women are often exacerbated during pregnancy because of the additional nutrient requirements of foetal growth. Iron deficiency anaemia is the most common micronutrient deficiency in the world. It is a major threat to safe motherhood and to the health and survival of infants because it contributes to low birth weight, lowered resistance to infection, impaired cognitive development, and decreased work capacity. Studies in different parts of India have estimated that the proportion of births with a low birth weight (less than 2,500 grams) ranges from 15 percent in Trivandrum to 46 percent in Baroda (Nutrition Foundation of India, 1993). Overall, about one-third of newborn children in India are of low birth weight, indicating that many pregnant women in India suffer from nutritional deficiencies. Improvement in a woman's nutritional status, coupled with proper health care during pregnancy, can substantially increase her child's birth weight (Ramachandran, 1992). To this end, the provision of iron and folic acid (IFA) tablets to pregnant women to prevent nutritional anaemia forms an integral part of the safe-motherhood services offered as part of the MCH activities of the Family Welfare Programme (Ministry of Health and Family Welfare, 1991), and now offered as part of the Reproductive and Child Health Programme. The programme recommendation is that pregnant women consume 100 tablets of iron and folic acid during pregnancy.

For each birth during the three years preceding the survey, NFHS-2 collected information on whether the mother received IFA tablets or syrup during pregnancy. IFA syrup was included in the question along with IFA tablets since IFA syrup is sometimes prescribed in the private sector and may even be prescribed in the public sector when and where tablets are not available. Table 8.6 shows that mothers in India received IFA supplements for more than half (58 percent) of the births. As with tetanus toxoid coverage, however, IFA coverage is well below average for births to older women, illiterate women, women with a low standard of living, scheduled-tribe women, and mothers of higher-order births. IFA coverage is also lower in rural areas (53 percent) than in urban areas (76 percent) and is much lower for births to Hindu and Muslim mothers (52–58 percent) than for births to mothers of any other religion (70–90 percent). For India as a whole, IFA coverage improved slightly from 52 percent in NFHS-1 to 58 percent in NFHS-2. However, some of this improvement may be due to the fact that IFA syrup was included in the measurement of IFA coverage in NFHS-2 but not in NFHS-1.

Not all mothers who received IFA received the recommended three-month supply of tablets or syrup. Among births to mothers who received IFA during pregnancy, for 83 percent mothers received at least a three-month supply and for 81 percent mothers consumed all the supplements that were given to them. Differentials by background characteristics in the proportion that received at least a three-month supply and the proportion that consumed the

supply received are similar, except by religion and caste/tribe. Both indicators are negatively related to birth order and positively related to mother's education level and the standard of living, and both are relatively low in rural areas and for higher order births. Consumption of the supply received is relatively low for Jain and Buddhist/Neo-Buddhist mothers, and for scheduled-caste mothers, whereas the proportion who received at least a three-month supply is slightly lower than average for Muslims and Sikhs and does not vary much by caste/tribe. Thus, despite some success in ensuring that pregnant women receive the recommended dosage of IFA, many women are not actually consuming an adequate amount of IFA during their pregnancies. This suggests that the Reproductive and Child Health Programme needs to do a better job of informing pregnant women about the advantages of IFA, trying to understand why many women do not consume all the IFA they receive, and overcoming resistance to the consumption of IFA.

Antenatal Care Indicators by State

Table 8.7 shows the percentage of live births during the three years preceding the survey whose mothers received different types of antenatal care by state. Six summary indicators of utilization of antenatal care services are presented: the percentage who received at least one antenatal check-up, the percentage who received three or more antenatal check-ups, the percentage who received an antenatal check-up in the first trimester of pregnancy, the percentage who received two or more tetanus toxoid injections, the percentage given any iron and folic acid tablets or syrup, and the percentage who received a supply of iron and folic acid tablets or syrup for three or more months.

The utilization of antenatal care services differs greatly by state; however, with a few exceptions, states that do well on any one indicator of antenatal care also perform well on the other indicators. Goa, Kerala, and Tamil Nadu consistently rank in the top five states in the country in terms of their performance on all six indicators. In these three states, mothers of 99 percent of births received at least one antenatal check-up, 91–98 percent received three or more antenatal check-ups, 60–81 percent received a check-up in the first trimester of pregnancy, 86–95 percent received two or more tetanus toxoid injections, 93–95 percent received any iron and folic acid tablets or syrup, and 84–89 percent received at least a three months supply. Kerala ranks highest on four of the six indicators. Goa is slightly ahead of Kerala in the percentage with at least one antenatal check-up and Tamil Nadu ranks highest in coverage by two or more tetanus toxoid injections. Although Andhra Pradesh is never in the top three, it is the only other state that performs consistently well on almost all indicators. Only a few states perform relatively well on one or more but not all of the antenatal care indicators. For example, Mizoram performs well in terms of the percentage who received at least one antenatal check-up (92 percent) and also in terms of the percentage who received three or more antenatal check-ups (76 percent) but does not perform as well on any of the other indicators. Other states that perform relatively well on only some indicators include Karnataka, Maharashtra, West Bengal, Punjab, Delhi, and Himachal Pradesh.

Table 8.7 Antenatal care indicators by state

Percentage of births during the three years preceding the survey for which mothers received different types of antenatal care by state, India, 1998–99

State	Percentage that received at least one antenatal check-up	Percentage that received three or more antenatal check-ups	Percentage that received an antenatal check-up in the first trimester of pregnancy	Percentage that received two or more tetanus toxoid injections	Percentage given any iron and folic acid tablets or syrup	Percentage that received supply of iron and folic acid tablets or syrup for 3+ months
India	65.4	43.8	33.0	66.8	57.6	47.5
North						
Delhi	83.5	68.2	49.0	84.9	77.8	69.5
Haryana	58.1	37.4	32.8	79.7	67.0	53.3
Himachal Pradesh	86.8	60.9	48.2	66.2	85.6	70.9
Jammu & Kashmir	83.2	66.0	47.9	77.7	70.8	55.8
Punjab	74.0	57.0	42.6	89.9	79.6	64.2
Rajasthan	47.5	22.9	19.2	52.1	39.3	30.6
Central						
Madhya Pradesh	61.0	28.1	26.1	55.0	48.9	38.4
Uttar Pradesh	34.6	14.9	16.9	51.4	32.4	20.6
East						
Bihar	36.3	17.8	15.1	57.8	24.1	19.8
Orissa	79.5	47.3	33.7	74.3	67.6	62.2
West Bengal	90.0	57.0	35.1	82.4	71.6	56.4
Northeast						
Arunachal Pradesh	61.6	40.5	24.5	45.6	56.3	47.6
Assam	60.1	30.8	30.7	51.7	55.0	45.3
Manipur	80.2	54.4	45.0	64.2	50.0	38.0
Meghalaya	53.6	31.3	20.6	30.8	49.5	40.6
Mizoram	91.8	75.8	39.6	37.8	72.7	62.0
Nagaland	60.4	23.1	23.8	50.9	42.5	26.7
Sikkim	69.9	42.6	30.2	52.7	62.4	50.4
West						
Goa	99.0	95.7	73.4	86.1	94.7	87.8
Gujarat	86.4	60.2	35.8	72.7	78.0	66.6
Maharashtra	90.4	65.4	46.7	74.9	84.8	71.6
South						
Andhra Pradesh	92.7	80.1	52.5	81.5	81.2	70.7
Karnataka	86.3	71.4	52.7	74.9	78.0	74.2
Kerala	98.8	98.3	81.1	86.4	95.2	88.6
Tamil Nadu	98.5	91.4	59.5	95.4	93.2	84.1

Note: Table includes only the two most recent births during the three years preceding the survey.

Uttar Pradesh, Bihar, and Rajasthan perform consistently poorly on all antenatal care indicators. Compared with Kerala for example, where mothers of 98 percent of births received three or more antenatal check-ups, mothers of only 35–36 percent of births in Bihar and Uttar Pradesh received at least one antenatal check-up and only 15–18 percent received three or more check-ups. In Rajasthan, mothers of 48 percent of births received at least one antenatal check-up and 23 percent received three or more. In addition, in Bihar, Rajasthan, and Uttar Pradesh mothers of less than one in five births received an antenatal check-up in the first trimester of pregnancy. These three states also fall well below the national average in terms of the percentage

receiving iron and folic acid tablets or syrup. Only 24 percent of women in Bihar, 32 percent in Uttar Pradesh, and 39 percent in Rajasthan received any iron and folic acid tablets or syrup compared with an all-India average of 58 percent. With respect to tetanus toxoid injections, Meghalaya, Mizoram, and Arunachal Pradesh perform even worse than Bihar, Rajasthan, and Uttar Pradesh. While at least half of all women in the latter three states received two or more tetanus toxoid injections, only 31 percent in Meghalaya, 38 percent in Mizoram, and 46 percent in Arunachal Pradesh did so. Meghalaya also performs relatively poorly on most other antenatal care indicators, as does Nagaland. Manipur performs relatively well in terms of the percentage receiving antenatal check-ups but not in the percentage receiving iron and folic acid tablets or syrup. Notably, Madhya Pradesh, the only other large state in North India, though performing below the national average, performs better than Bihar, Rajasthan, and Uttar Pradesh on all antenatal care indicators other than the provision of tetanus toxoid vaccine.

In summary, antenatal care utilization in India varies greatly by state and for some indicators the variation ranges from only marginal coverage to almost complete coverage. For example, the percentage that received three or more antenatal check-ups ranges from only 15 percent in Uttar Pradesh to 98 percent in Kerala. In general, the southern and western states and some of the northern states perform uniformly well and the central states plus Bihar and Rajasthan perform uniformly poorly. The performance of the Northeastern states on most of the antenatal care indicators is mixed; notably, however, the percentage receiving tetanus toxoid injections is below the national average in all of these states.

The majority of states improved their performance with respect to antenatal care indicators between NFHS-1 and NFHS-2. The states with the largest absolute gains in the percentage of births for which the mother received at least one antenatal check-up were Nagaland, Orissa, Manipur, and Rajasthan (all of which increased by at least 15 percentage points). Large decreases in this indicator (12–17 percentage points) occurred in Haryana, Uttar Pradesh, and Punjab. All but three states (Kerala, Mizoram, and Meghalaya) improved coverage of tetanus toxoid vaccinations. Coverage increased by more than 20 percentage points in Bihar and Rajasthan. The percentage of births for which the mother received any iron and folic acid tablets or syrup increased in every state except Meghalaya. The increase was 15 percent or higher in Nagaland, Orissa, West Bengal, and Manipur.

8.2 Delivery Care

Place of Delivery

Another important thrust of the Reproductive and Child Health Programme is to encourage deliveries under proper hygienic conditions under the supervision of trained health professionals. For each birth during the three years preceding the survey, NFHS-2 asked the mother where she gave birth and who assisted during the delivery. Table 8.8 and Figure 8.4 show that one-third (34 percent) of births in India took place in health facilities, more than half took place in the women's own homes, and one in eight took place in their parents' homes. Births taking place in health facilities were about equally divided between those that took place in a private health facility and those that took place in public institutions (such as government-operated district,

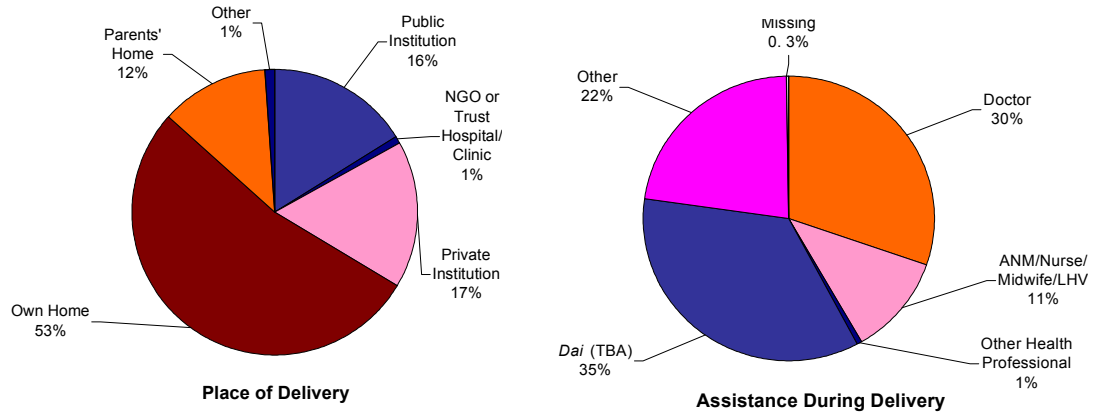
Table 8.8 Place of delivery

Percent distribution of births during the three years preceding the survey by place of delivery, according to selected background characteristics, India, 1998–99

	Place of delivery							
	Health facility/institution			Home				
Background characteristic	Public	NGO/trust	Private	Own home	Parents' home	Other[1]	Total percent	Number of births
Mother's age at birth								
< 20	16.7	0.7	14.4	46.0	21.0	1.1	100.0	7,589
20–34	16.4	0.8	17.8	54.2	9.8	1.0	100.0	23,469
35–49	9.5	0.5	9.9	75.3	3.1	1.7	100.0	1,335
Birth order								
1	23.2	1.0	26.4	32.6	15.8	1.0	100.0	9,365
2–3	16.4	0.7	16.7	51.5	13.6	1.1	100.0	14,104
4–5	9.6	0.6	7.3	73.7	7.9	1.0	100.0	5,644
6+	6.4	0.3	5.1	83.7	3.2	1.2	100.0	3,279
Residence								
Urban	29.1	1.5	34.5	27.6	6.3	1.0	100.0	7,191
Rural	12.5	0.5	11.6	60.5	13.8	1.0	100.0	25,202
Mother's education								
Illiterate	10.2	0.4	6.8	68.1	13.4	1.1	100.0	19,061
Literate, < middle school complete	23.3	1.1	19.0	42.3	13.4	0.9	100.0	5,818
Middle school complete	28.5	1.0	25.6	32.8	11.1	1.1	100.0	2,935
High school complete and above	24.2	1.5	49.3	17.9	6.4	0.7	100.0	4,574
Religion								
Hindu	16.4	0.6	15.9	53.5	12.5	1.1	100.0	25,650
Muslim	14.1	0.9	16.5	55.7	11.8	1.0	100.0	5,120
Christian	19.8	2.6	32.0	35.0	10.2	0.4	100.0	753
Sikh	10.8	0.9	35.3	45.4	7.3	0.4	100.0	450
Jain	12.4	1.6	57.6	25.5	3.0	0.0	100.0	76
Buddhist/Neo-Buddhist	38.9	0.0	16.3	30.5	14.0	0.4	100.0	199
Other	24.2	2.5	5.2	57.6	6.3	4.2	100.0	87
No religion	7.9	0.0	11.1	78.5	2.6	0.0	100.0	24
Caste/tribe								
Scheduled caste	16.0	0.5	10.3	60.1	12.0	1.1	100.0	6,478
Scheduled tribe	10.7	0.7	5.7	70.4	11.4	1.1	100.0	3,080
Other backward class	16.3	0.8	19.0	49.8	13.0	1.1	100.0	10,404
Other	17.9	0.9	21.3	47.1	11.9	0.9	100.0	12,050
Standard of living index								
Low	11.9	0.4	6.2	66.1	14.2	1.2	100.0	11,804
Medium	18.1	0.8	16.0	51.8	12.3	1.0	100.0	15,080
High	20.3	1.1	43.2	27.6	7.0	0.7	100.0	5,112
Number of antenatal check-ups								
0	4.2	0.1	3.0	80.5	11.5	0.8	100.0	11,018
1	11.2	0.2	6.8	67.3	13.5	1.0	100.0	2,641
2	15.7	0.4	10.7	57.0	15.3	0.9	100.0	4,293
3	21.8	0.7	15.0	45.7	16.0	0.7	100.0	4,628
4+	29.2	1.7	39.0	20.2	9.5	0.5	100.0	9,571
Total	16.2	0.7	16.7	53.2	12.2	1.0	100.0	32,393

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 5, 33, 380, 397, and 242 births with missing information on mother's education, religion, caste/tribe, the standard of living index, and number of antenatal check-ups, respectively, which are not shown separately.
NGO: Nongovernmental organization
[1]Includes missing

Figure 8.4
Place of Delivery and Assistance During Delivery



Note: Percents for assistance during delivery add to less than 100 due to rounding

NFHS-2, India, 1998–99

tehsil/taluk, town, or municipal hospitals and Primary Health Centres). Only 1 percent of births took place in facilities operated by nongovernmental organizations or trusts. About two-thirds of deliveries in urban areas and one-quarter of deliveries in rural areas took place in health facilities. The Sample Registration System (SRS) estimated that a slightly lower percentage of births took place in institutions in 1997 (25 percent of total births, 60 percent of births in urban areas, and 18 percent of births in rural areas). Deliveries in health facilities in India rose from 26 percent at the time of NFHS-1 to 34 percent at the time of NFHS-2.

The proportion of births occurring in health facilities is higher for mothers under age 35 (32–35 percent) than for mothers age 35–49 (20 percent). Births to Hindu mothers (33 percent) and Muslim mothers (32 percent) are about equally likely to take place in a health facility; births to Jain mothers (72 percent), followed by births to Buddhist/Neo-Buddhist and Christian mothers (54–55 percent), are more likely than births to mothers of all other religions to take place in a health facility. Only 17 percent of births to scheduled-tribe mothers are institutional deliveries, compared with 40 percent of births to mothers who do not belong to a scheduled caste, scheduled tribe, or other backward class. The proportion of births that were delivered in a health facility decreases as birth order increases from order one (51 percent) to order six and over (12 percent). Institutional deliveries, particularly in private facilities, increase sharply with education and with the standard of living.

Institutional deliveries are about two to four times as common among births to mothers who had four or more antenatal check-ups (70 percent) than to mothers who had 1–3 antenatal check-ups (18–38 percent). Institutional deliveries are least prevalent (7 percent) among births to mothers who did not receive any antenatal check-ups. Several factors are likely to contribute to the positive relationship between antenatal check-ups and delivery in a health facility. Women who receive antenatal check-ups are more likely than other women to deliver in a health facility because their antenatal care providers are likely to have advised them to do so. Conversely, women who register with a health facility for delivery may be called for regular check-ups by the facility. Another important factor may be pregnancy complications, because women with

complications are more likely than other women to have antenatal check-ups and to deliver in a health facility. Another contributing factor may be the growing awareness of the benefits of professional medical care during both pregnancy and delivery, especially among urban, young, and educated women.

With regard to deliveries at home, the proportion of deliveries in a woman's own home increases and the proportion in her parents' home decreases with age and birth order. Mother's education and standard of living are both negatively associated with deliveries at home.

Assistance During Delivery

Table 8.9 and Figure 8.4 provide information on assistance during delivery by selected background characteristics. If more than one type of attendant assisted at delivery, only the most qualified attendant is shown. Forty-two percent of births in the three years before the survey were attended by a health professional, including 30 percent by a doctor and 11 percent by an ANM, nurse, midwife, or LHV. More than one-third of births (35 percent) were attended by a traditional birth attendant (TBA), and almost one-quarter (22 percent) were attended only by friends, relatives, and other persons. The proportion of deliveries attended by a health professional increased substantially from 33 percent in NFHS-1 to 42 percent in NFHS-2.

Eighty-seven percent of deliveries in private institutions were attended by a doctor compared with 71 percent of deliveries in public institutions. Among deliveries at home (the respondents' or their parents' homes), more than half were attended by a TBA and fewer than one in seven were attended by a health professional. The percentage of births attended by a doctor is lower for mothers age 35–49 than for younger mothers and decreases steadily by birth order. First-order births (46 percent) are more than four times as likely as births of order six or above (11 percent) to be attended by a doctor. Deliveries are much more likely to be attended by a doctor in urban areas (56 percent) than in rural areas (23 percent). The proportion of deliveries attended by doctors also increases sharply with mother's education and household standard of living. Seventy percent of births to mothers who have completed at least high school were attended by a doctor compared with only 16 percent of births to illiterate mothers. Among religious groups, Jain women (73 percent), followed by Christian women (50 percent), are most likely to have a delivery attended by a doctor. By contrast, only 29–30 percent of births to Muslim and Hindu women were attended by a doctor. Only 15 percent of births to women who belong to scheduled tribes and 24 percent to women who belong to scheduled castes were attended by a doctor compared with 37 percent of births to women who do not belong to a scheduled caste, scheduled tribe, or other backward class. As with deliveries in health facilities, the likelihood of having a birth attended by a doctor increases with the number of antenatal check-ups that the mother had during pregnancy. Only 8 percent of births to mothers who did not have any antenatal check-up were attended by a doctor; this proportion increases steadily to 33 percent for mothers who had three antenatal check-ups and 62 percent for mothers who had four or more antenatal check-ups. Among births to mothers who did not have any antenatal check-up, more than half (51 percent) were attended by a TBA and more than one-third (35 percent) only by friends, relatives, or others.

Table 8.9 Assistance during delivery

Percent distribution of births during the three years preceding the survey by attendant assisting during delivery, according to selected background characteristics, India, 1998–99

Background characteristic	Attendant assisting during delivery[1]						Total percent	Number of births
	Doctor	ANM/nurse/ midwife/ LHV	Other health profes-sional	*Dai* (TBA)	Other	Missing		
Mother's age at birth								
< 20	28.2	12.6	0.8	34.7	23.4	0.3	100.0	7,589
20–34	31.5	11.3	0.6	34.6	21.7	0.3	100.0	23,469
35–49	19.7	6.7	1.0	42.5	29.5	0.7	100.0	1,335
Birth order								
1	46.1	13.7	0.7	25.2	14.0	0.3	100.0	9,365
2–3	30.1	11.9	0.6	35.0	22.0	0.3	100.0	14,104
4–5	15.9	9.0	0.7	44.3	29.8	0.3	100.0	5,644
6+	10.5	6.8	0.6	46.7	35.0	0.4	100.0	3,279
Residence								
Urban	55.8	17.2	0.3	18.8	7.6	0.2	100.0	7,191
Rural	23.0	9.8	0.7	39.6	26.6	0.3	100.0	25,202
Mother's education								
Illiterate	15.6	9.0	0.8	44.7	29.6	0.4	100.0	19,061
Literate, < middle school complete	37.3	15.4	0.4	28.4	18.1	0.3	100.0	5,818
Middle school complete	49.5	17.1	0.3	21.0	11.7	0.3	100.0	2,935
High school complete and above	70.3	12.9	0.2	11.8	4.7	0.1	100.0	4,574
Religion								
Hindu	29.5	11.5	0.6	34.7	23.3	0.3	100.0	25,650
Muslim	29.0	9.6	0.6	40.0	20.5	0.2	100.0	5,120
Christian	50.4	12.2	1.3	18.7	17.1	0.3	100.0	753
Sikh	43.0	25.5	0.2	31.0	0.3	0.0	100.0	450
Jain	73.2	11.2	0.0	14.2	1.5	0.0	100.0	76
Buddhist/Neo-Buddhist	43.4	19.2	0.0	18.3	19.1	0.0	100.0	199
Other	30.0	6.1	0.0	22.1	37.5	4.2	100.0	87
No religion	10.6	10.9	0.0	50.8	27.6	0.0	100.0	24
Caste/tribe								
Scheduled caste	23.5	12.1	1.2	37.7	25.1	0.5	100.0	6,478
Scheduled tribe	14.5	8.3	0.2	44.4	32.2	0.5	100.0	3,080
Other backward class	31.8	12.3	0.8	34.9	19.9	0.3	100.0	10,404
Other	37.3	11.3	0.3	31.4	19.5	0.2	100.0	12,050
Standard of living index								
Low	15.8	8.5	1.1	43.5	30.7	0.5	100.0	11,804
Medium	31.1	12.8	0.4	34.3	21.1	0.3	100.0	15,080
High	60.9	14.5	0.3	17.5	6.8	0.1	100.0	5,112
Number of antenatal check-ups								
0	7.6	5.2	0.9	50.9	35.4	0.1	100.0	11,018
1	15.7	11.0	0.7	41.5	31.0	0.0	100.0	2,641
2	23.9	13.5	0.7	38.1	23.8	0.0	100.0	4,293
3	32.8	15.7	0.7	32.9	17.9	0.0	100.0	4,628
4+	62.3	15.9	0.3	14.7	6.8	0.0	100.0	9,571

Contd…

Table 8.9 Assistance during delivery (contd.)

Percent distribution of births during the three years preceding the survey by attendant assisting during delivery, according to selected background characteristics, India, 1998–99

Background characteristic	Attendant assisting during delivery[1]						Total percent	Number of births
	Doctor	ANM/nurse/ midwife/ LHV	Other health profes-sional	*Dai* (TBA)	Other	Missing		
Place of delivery								
Public health facility	70.6	28.6	0.1	0.3	0.4	0.0	100.0	5,247
NGO or trust hospital/clinic	82.7	17.3	0.0	0.0	0.0	0.0	100.0	234
Private health facility	87.2	12.3	0.1	0.2	0.2	0.0	100.0	5,409
Own home	4.7	6.3	0.8	53.4	34.7	0.0	100.0	17,224
Parents' home	9.3	9.4	1.4	50.7	29.3	0.0	100.0	3,945
Other[2]	6.3	10.5	0.0	27.6	25.3	30.3	100.0	333
Total	30.3	11.4	0.6	35.0	22.4	0.3	100.0	32,393

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 5, 33, 380, 397, and 242 births with missing information on mother's education, religion, caste/tribe, the standard of living index, and number of antenatal check-ups, respectively, which are not shown separately.
ANM: Auxiliary nurse midwife; LHV: Lady health visitor; TBA: Traditional birth attendant; NGO: Nongovernmental organization
[1]If the respondent mentioned more than one attendant, only the most qualified attendant is considered.
[2]Includes missing

Delivery Characteristics

Table 8.10 shows the percentage of births during the three years preceding the survey that were delivered by caesarian section and the percent distribution of births by weight and the mother's estimate of the baby's size at birth. Based on mothers' reports, 7 percent of children born in India in the past three years were delivered by caesarian section. The proportion of deliveries by caesarian section was three times as high in urban areas (15 percent) as in rural areas (5 percent). Among births delivered by health professionals, 20 percent in urban areas and 15 percent in rural areas were delivered by caesarian section. The proportion of all births delivered by caesarian section increased substantially from NFHS-1 to NFHS-2, from 3 percent to 7 percent for India as a whole. A rapid increase took place in both urban areas (from 6 percent to 15 percent) and rural areas (from 2 percent to 5 percent).

Low birth weight babies face substantially higher risks of dying than do babies of normal birth weight. For each birth that took place in the three years preceding the survey, respondents were asked the baby's birth weight. Since babies delivered at home are unlikely to be weighed, the survey also asked mothers about the size of each baby at birth (large, average, small, or very small). In India, 70 percent of babies born in the three years preceding the survey were not weighed at birth. The proportion not weighed is 40 percent in urban areas and 79 percent in rural areas. Even for babies that were weighed, some mothers did not remember the weight. Therefore, the resulting sample of births for which weights are reported is subject to a potentially large selection bias, and the results should be interpreted with caution. Among children for whom birth weights were reported, 23 percent weighed less than 2.5 kilograms. The proportion weighing less than 2.5 kilograms is slightly higher in rural areas (24 percent) than in urban areas (21 percent).

Table 8.10 Characteristics of births

Percentage of births during the three years preceding the survey that were delivered by caesarian section and percent distribution of births by birth weight and by the mother's estimate of the baby's size at birth, according to residence, India, 1998–99

Characteristic of births	Urban	Rural	Total
Percentage delivered by caesarian section	14.7	4.9	7.1
Birth weight			
< 2.5 kg	10.8	4.2	5.7
2.5 kg or more	40.3	13.4	19.4
Don't know/missing	8.7	3.7	4.8
Not weighed	40.2	78.6	70.1
Total percent	100.0	100.0	100.0
Size at birth			
Large	16.0	13.3	13.9
Average	61.2	61.4	61.4
Small	17.6	19.9	19.4
Very small	4.9	5.0	5.0
Don't know/missing	0.3	0.4	0.4
Total percent	100.0	100.0	100.0
Number of births	7,191	25,202	32,393

Note: Table includes only the two most recent births during the three years preceding the survey.

According to mothers' estimates, 61 percent of births in the three years preceding the survey were of average size, 14 percent were large, 19 percent were small, and 5 percent were very small. The proportion of babies reported as small or very small was similar in urban (23 percent) and rural (25 percent) areas.

8.3 Postnatal Care

The health of a mother and her newborn child depends not only on the health care she receives during her pregnancy and delivery, but also on the care she and the infant receive during the first few weeks after delivery. Postpartum check-ups within two months after the delivery are particularly important for births that take place in noninstitutional settings. Recognizing the importance of postpartum check-ups, the Reproductive and Child Health Programme recommends three postpartum visits (Ministry of Health and Family Welfare, 1998b).

Table 8.11 gives the percentage of noninstitutional births in the three years preceding the survey that were followed by a postpartum check-up within two months of delivery. Among births that were followed by a postpartum check-up, the table also shows the percentage with a check-up within two days of delivery (which is the most crucial period) and within one week of delivery, and the percentage whose mothers received specific recommended components of care during the check-up.

Table 8.11 Postpartum check-ups

Percentage of noninstitutional births during the three years preceding the survey for which a postpartum check-up was received within two months of birth and among those receiving a postpartum check-up, percentage seen within two days and one week of birth and percentage receiving specific components of check-ups by selected background characteristics, India, 1998–99

Background characteristic	Percentage with a postpartum check-up within two months of birth	Number of births	Among those with a postpartum check-up						Number of births followed by a post-partum check-up
			Percent-age seen within two days of birth	Percent-age seen within one week of birth	Components of postpartum check-up (%)				
					Abdominal examination	Family planning advice	Breast-feeding advice	Baby care advice	
Mother's age at birth									
< 20	18.1	5,148	14.7	30.3	34.8	19.3	43.2	47.8	930
20–34	16.4	15,184	13.7	30.6	38.7	30.4	42.6	45.8	2,491
35–49	10.5	1,059	22.5	38.9	32.8	25.5	36.3	33.1	112
Birth order									
1	19.9	4,590	16.1	31.5	35.8	14.0	49.0	50.0	915
2–3	18.0	9,283	13.1	30.5	41.2	32.3	43.3	48.1	1,669
4–5	14.3	4,643	14.5	29.9	36.0	35.1	37.0	39.9	662
6+	10.0	2,875	14.1	32.4	24.6	23.1	30.3	34.5	286
Residence									
Urban	19.6	2,495	14.3	32.3	42.1	31.8	44.9	47.9	489
Rural	16.1	18,896	14.2	30.5	36.7	26.6	42.2	45.6	3,042
Mother's education									
Illiterate	13.6	15,665	14.5	31.9	33.8	26.7	38.4	42.8	2,126
Literate, < middle school complete	24.0	3,276	12.8	28.9	37.4	25.7	43.9	47.1	788
Middle school complete	23.2	1,310	19.7	31.1	50.5	29.7	56.4	57.1	304
High school complete and above	27.4	1,135	10.0	26.7	50.3	33.1	53.9	53.0	311
Religion									
Hindu	16.4	17,111	13.2	29.6	37.9	28.0	42.8	46.7	2,807
Muslim	15.7	3,491	20.4	36.3	32.3	23.6	40.6	42.4	549
Christian	24.4	341	4.8	23.6	32.6	34.9	38.9	40.6	83
Sikh	19.8	239	30.5	49.7	81.4	28.8	57.0	51.9	47
Buddhist/Neo-Buddhist	20.5	89	3.3	41.9	54.4	26.1	66.0	71.9	18
Other	16.7	56	*	*	*	*	*	*	9
No religion	25.1	19	*	*	*	*	*	*	5
Caste/tribe									
Scheduled caste	17.0	4,709	15.5	32.5	32.8	27.7	42.6	45.3	800
Scheduled tribe	14.1	2,542	5.0	17.0	35.9	27.7	34.0	41.0	358
Other backward class	15.6	6,615	11.2	31.5	39.3	33.2	44.4	50.4	1,035
Other	18.3	7,185	18.4	32.9	39.1	22.6	43.4	44.1	1,314
Standard of living index									
Low	15.5	9,565	14.4	30.5	31.2	26.8	39.0	43.4	1,486
Medium	16.5	9,768	13.6	29.4	40.0	26.9	44.2	47.9	1,613
High	20.5	1,798	15.8	37.6	52.3	32.9	49.7	48.3	368

Contd…

Only 17 percent of noninstitutional births were followed by a check-up within two months of the delivery. Among births that were followed by a check-up, few check-ups took place shortly after birth (only 14 percent within two days and 31 percent within one week). Births to urban mothers were slightly more likely to be followed by a postpartum check-up than births to rural mothers. The likelihood of a birth being followed by a postpartum check-up was higher for literate mothers than illiterate mothers and for mothers in households with a high standard of

Table 8.11 Postpartum check-ups (contd.)

Percentage of noninstitutional births during the three years preceding the survey for which a postpartum check-up was received within two months of birth and among those receiving a postpartum check-up, percentage seen within two days and one week of birth and percentage receiving specific components of check-ups by selected background characteristics, India, 1998–99

Background characteristic	Percentage with a postpartum check-up within two months of birth	Number of births	Among those with a postpartum check-up						Number of births followed by a post-partum check-up
			Percent-age seen within two days of birth	Percent-age seen within one week of birth	Components of postpartum check-up (%)				
					Abdominal examination	Family planning advice	Breast-feeding advice	Baby care advice	
Number of antenatal check-ups									
0	7.1	10,213	19.6	34.0	23.2	12.9	28.7	39.4	724
1	13.1	2,159	18.8	34.0	30.1	16.7	28.2	35.1	282
2	21.1	3,138	9.9	26.3	39.1	30.5	41.0	43.5	663
3+	32.1	5,777	12.9	30.6	43.5	33.4	50.7	51.0	1,856
Assistance during delivery									
Doctor/nurse/midwife/LHV[1]	29.3	2,882	21.5	42.3	48.9	34.2	54.2	53.4	844
Dai (TBA)	15.3	11,295	10.9	27.7	36.4	26.4	42.3	45.5	1,724
Other	13.4	7,211	13.7	26.2	29.4	22.8	32.8	40.2	964
Total	16.5	21,391	14.2	30.8	37.5	27.3	42.6	45.9	3,532

Note: Table includes only the two most recent births during the 2–35 months preceding the survey. Total includes births to mothers belonging to the Jain religion and births with missing information on mother's education, religion, caste/tribe, the standard of living index, number of antenatal check-ups, and assistance during delivery, which are not shown separately.
*Percentage not shown; based on fewer than 25 unweighted cases
LHV: Lady health visitor; TBA: Traditional birth attendant
[1]Includes other health professionals

living than for mothers in households with a medium or low standard of living. This likelihood decreases by mother's age and birth order, and varies little by caste or tribe. Births to Hindu and Muslim women are equally likely to be followed by a postpartum check-up, whereas births to Christian women are more likely than births to women of other religions to be followed by a postpartum check-up. The likelihood that a birth was followed by a postpartum check-up increases steadily from 7 percent if the mother did not receive an antenatal check-up to 32 percent if the mother received three or more antenatal check-ups. Births delivered with the assistance of a health professional were more likely to be followed by a postpartum check-up (29 percent) than were births delivered with the assistance of a TBA (15 percent) or an other person (13 percent). These results clearly indicate that women are more likely to have a postpartum check-up if they have had continuous interaction with health providers through their pregnancy and delivery, even if they did not give birth in a health facility.

Mothers who did not deliver in a health facility but who received a postpartum check-up were asked whether they had received specific components of postpartum care, including an abdominal examination and advice on family planning, breastfeeding, and baby care. For 38 percent of births, mothers who received a postpartum check-up said that their abdomen was examined during the check-up, and for 27 percent mothers said that they received family planning advice. Advice on breastfeeding and baby care was considerably more common (given in 43 and 46 percent of cases, respectively). Urban mothers, mothers who had completed at least middle school, mothers belonging to households with a high standard of living, and mothers who had received two or more antenatal check-ups, as well as mothers whose births were assisted by a

health professional, were more likely to receive each of the components of a postpartum check-up. Older women (age 35–49) and women having births of order six and above were less likely than other women to have received an abdominal examination and advice on breastfeeding and baby care. Younger women (age less than 20), women having their first birth, and women with no or only one antenatal check-up were less likely than other women to receive advice on family planning. Notably, mothers received advice about family planning during postpartum check-ups for only 14 percent of first births, although these women are particularly likely to need advice on birth spacing and contraception. Even among births attended by health professionals, advice on family planning was given to only one-third of mothers who had a postpartum check-up. Women belonging to other backward classes were more likely than women in any other caste/tribe category to receive each component of postpartum care and Hindu women were more likely to receive each component of postpartum care than Muslim women.

Postpartum Complications

Every woman who had a birth in the three years preceding the survey was asked if she had massive vaginal bleeding or a very high fever—both symptoms of possible postpartum complications—at any time during the two months after delivery (Table 8.12). Mothers in India reported massive vaginal bleeding for 11 percent of births and a very high fever in the postpartum period for 13 percent of births. Both complications were slightly more common among rural than urban mothers. While the likelihood of massive vaginal bleeding did not vary much by mother's age and birth order, very high fever was somewhat more likely to be reported for births to older mothers (age 35–49) and for births at higher orders (four or above). The likelihood of having massive vaginal bleeding did not vary much by place of delivery and assistance during delivery. The only exceptions are in the case of the few deliveries that took place in NGO or trust hospitals/clinics (which had a relatively low likelihood of being followed by massive vaginal bleeding) and the few that were delivered by a health professional other than a doctor, auxiliary nurse midwife, nurse, midwife, or lady health visitor (which had a lower likelihood of being followed by massive vaginal bleeding). Mothers of births delivered in their own home or in their parents' home were more likely, however, to have had a very high fever in the postpartum period (14 percent) than were mothers of births delivered elsewhere (11 percent or less).

Table 8.12 Symptoms of postpartum complications

Among births during the three years preceding the survey, the percentage for which the mother had massive vaginal bleeding or very high fever within two months after the delivery by selected background characteristics, India, 1998–99

Background characteristic	Massive vaginal bleeding	Very high fever	Number of births
Residence			
Urban	9.3	10.0	6,888
Rural	11.4	13.4	24,014
Mother's age at birth			
< 20	12.2	13.3	7,311
20–34	10.5	12.3	22,329
35–49	11.2	15.9	1,262
Birth order			
1	11.8	11.4	8,952
2–3	10.5	11.8	13,434
4–5	10.9	14.6	5,395
6+	10.5	16.4	3,121
Place of delivery			
Public health facility	11.1	10.4	5,016
NGO or trust hospital/clinic	7.3	11.1	220
Private health facility	10.6	9.4	5,185
Own home	10.9	14.3	16,410
Parents' home	11.9	13.6	3,754
Other[1]	8.4	8.1	316
Assistance during delivery			
Doctor	11.5	10.3	9,365
ANM/nurse/midwife/LHV	9.5	11.3	3,534
Other health professional	18.1	21.5	188
Dai (TBA)	11.3	14.0	10,780
Other[1]	10.3	14.2	7,035
Total	11.0	12.6	30,902

Note: Table includes only the two most recent births during the 2–35 months preceding the survey.
NGO: Nongovernmental organization; ANM: Auxiliary nurse midwife; LHV: Lady health visitor; TBA: Traditional birth attendant
[1]Includes missing

8.4 Summary of Maternal Care Indicators by State

Table 8.13 shows five different maternal care indicators for births during the three years preceding the survey by state. These indicators together summarize the extent to which different states have progressed towards achieving safe motherhood goals at all three stages of the birth process: antenatal, delivery, and postnatal. The first indicator is a summary antenatal care indicator which shows the percentage of births whose mothers received all of the following: three or more antenatal check-ups (with the first check-up within the first trimester of pregnancy), two or more tetanus toxoid injections, and iron and folic acid tablets or syrup for three or more months. The next two indicators pertain to care during delivery and show the percentage of births delivered in medical institutions and deliveries assisted by a health professional. The last two

Table 8.13 Maternal care indicators by state

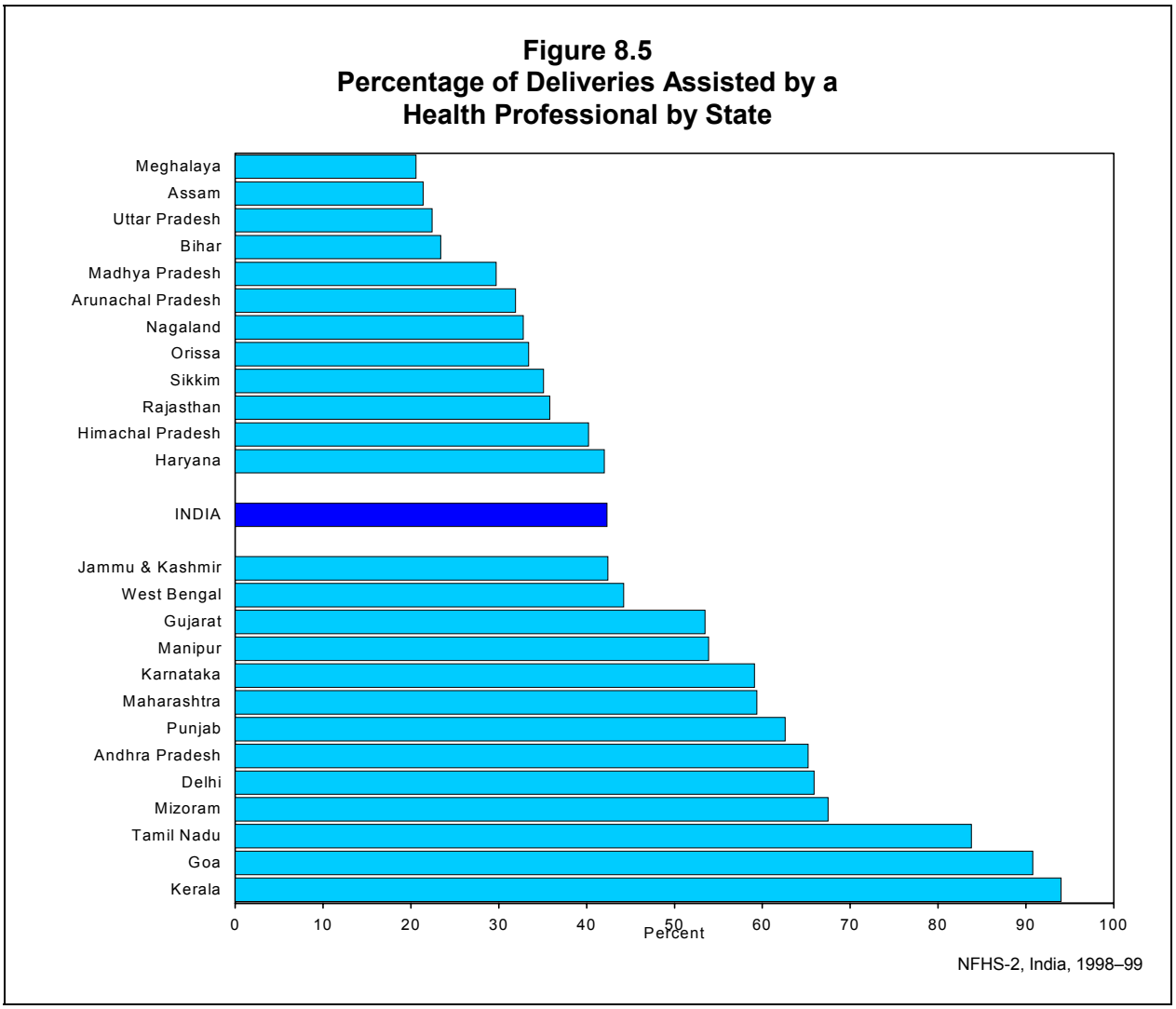
Maternal care indicators for births during the three years preceding the survey by state, India, 1998–99

State	Percentage who received all recommended types of antenatal care[1]	Percentage of births delivered in a medical institution	Percentage of deliveries assisted by a health professional[2]	Percentage of non-institutional deliveries with a postpartum check-up within two months of birth[3]	Percentage of non-institutional deliveries with a postpartum check-up within two days of birth[3]
India	20.0	33.6	42.3	16.5	2.3
North					
Delhi	32.8	59.1	65.9	19.5	2.1
Haryana	20.8	22.4	42.0	15.7	2.5
Himachal Pradesh	30.2	28.9	40.2	21.2	2.9
Jammu & Kashmir	30.7	35.6	42.4	27.6	1.1
Punjab	31.7	37.5	62.6	20.3	5.7
Rajasthan	8.3	21.5	35.8	6.4	0.5
Central					
Madhya Pradesh	10.9	20.1	29.7	10.0	0.5
Uttar Pradesh	4.4	15.5	22.4	7.2	1.5
East					
Bihar	6.4	14.6	23.4	10.0	1.4
Orissa	21.4	22.6	33.4	19.2	2.2
West Bengal	19.7	40.1	44.2	31.6	7.1
Northeast					
Arunachal Pradesh	17.3	31.2	31.9	10.5	0.3
Assam	15.8	17.6	21.4	25.5	0.5
Manipur	18.3	34.5	53.9	27.1	1.4
Meghalaya	10.4	17.3	20.6	20.8	0.0
Mizoram	13.5	57.7	67.5	20.9	0.9
Nagaland	8.9	12.1	32.8	4.3	0.0
Sikkim	15.3	31.5	35.1	38.0	0.7
West					
Goa	60.6	90.8	90.8	41.0	6.9
Gujarat	25.0	46.3	53.5	10.4	1.6
Maharashtra	31.0	52.6	59.4	29.8	6.9
South					
Andhra Pradesh	35.6	49.8	65.2	44.9	1.6
Karnataka	41.5	51.1	59.1	35.3	3.6
Kerala	64.9	93.0	94.0	27.4	7.5
Tamil Nadu	50.8	79.3	83.8	53.0	10.1

Note: Table includes only the two most recent births during the three years preceding the survey.
[1]Three or more antenatal check-ups (with the first check-up within the first trimester of pregnancy), two or more tetanus toxoid injections, and iron and folic acid tablets or syrup for three or more months
[2]Doctor, auxiliary nurse midwife, nurse, midwife, lady health visitor, or other health professional
[3]Based on births in the 2–35 months preceding the survey

indicators pertain to postnatal care and show the percentage of noninstitutional deliveries with a postpartum check-up within two months of birth and within two days of birth.

For India as a whole, mothers of only 20 percent of births received all of the required components of antenatal care. This indicator ranges from a high of 65 percent in Kerala and 61 percent in Goa to a low of only 4 percent in Uttar Pradesh. Other states that perform almost as poorly as Uttar Pradesh on this indicator include Bihar, Rajasthan, and Nagaland, where only 6–9



percent of women received the required components of antenatal care. Kerala, followed closely by Goa, also outperform all other states in terms of delivery care, with over 90 percent of deliveries taking place in medical institutions and a similarly high percentage of deliveries assisted by a health professional (Figure 8.5). Tamil Nadu, with 79 percent of births delivered in medical institutions and 84 percent of deliveries assisted by a health professional, ranks third among the states on these delivery care indicators. By contrast, in Nagaland, Bihar, and Uttar Pradesh, only 12–16 percent of births were delivered in medical institutions and in Meghalaya, Assam, Uttar Pradesh, and Bihar, only 21–23 percent of deliveries were assisted by a health professional.

Tamil Nadu, with 53 percent of noninstitutional deliveries with a postpartum check-up within two months of birth and 10 percent within two days, tops the list of states with regard to both of the postnatal care indicators. What is particularly notable, however, is the poor performance of almost all states on the two indicators of postpartum care, both in absolute terms as well as relative to their performance on the antenatal care and delivery care indicators. There is no state other than Tamil Nadu where more than half of the noninstitutional deliveries in the three years preceding the survey were followed by a postpartum check-up within two months, and there are only six states where this percentage was 30–45 percent. In 19 states, less than 5

percent of noninstitutional deliveries were followed by a postpartum check within two days, including 2 states where the percentage receiving such check-ups was zero.

An examination of the performance of each state on the different safe motherhood indicators shows that several states consistently perform well below the national average on each of the five indicators. This list includes Arunachal Pradesh, Bihar, Madhya Pradesh, Nagaland, Rajasthan, and Uttar Pradesh. Assam, Meghalaya, and Sikkim also perform poorly on the indicators although the percentage of noninstitutional deliveries with a postpartum check-up within two months after birth in these states is higher than the national average. Haryana, Himachal Pradesh, and Orissa perform poorly on one or both of the delivery care indicators, whereas Mizoram performs much better on the delivery care indicators than it does on the other indicators. Gujarat performs particularly poorly on the provision of postpartum care but performs above the national average on the other indicators. Nonetheless, in Gujarat, the mothers of only 25 percent of births received all the recommended components of antenatal care. Between NFHS–1 and NFHS–2, the percentage of births delivered in a health institution and the percentage of deliveries assisted by a health professional increased in every state except Meghalaya.

8.5 Reproductive Health Problems

Absence of reproductive tract infections (RTIs) is essential for the reproductive health of both women and men and is critical for their ability to meet their reproductive goals. There are three different types of reproductive tract infections for women: endogenous infections that are caused by the multiplying of organisms normally present in the vagina; iatrogenic infections caused by the introduction of bacteria or other infection-causing micro-organisms through medical procedures such as an IUD insertion; and sexually transmitted infections (STIs). Endogenous infections and several of the iatrogenic and sexually transmitted infections are often easily cured if detected early and given proper treatment. If left untreated, RTIs can cause pregnancy-related complications, congenital infections, infertility, and chronic pain. They are also a risk factor for pelvic inflammatory disease and HIV (Population Council, 1999).

A number of studies (Bang et al., 1989; Bang and Bang, 1991; Pachauri and Gittlesohn, 1994; Jeejeebhoy and Rama Rao, 1992) have shown that many Indian women suffer from RTIs. Several researchers have also shown that women in India often bear the symptoms of RTIs silently without seeking health care. RTIs and their sequellae are an important component of programmes for family planning, child survival, women's health, safe motherhood, and HIV prevention. RTIs have profound implications for the success of each of these initiatives, and conversely, these initiatives provide a critical opportunity for the prevention and control of RTIs (Germain et al., 1992). Studies have demonstrated that RTIs are an important reason for the poor acceptance and low continuation rates of contraceptive methods such as the IUD. Bhatia and Cleland (1995) found a higher incidence of gynaecological symptoms among women who had undergone a tubectomy than among other women. The Government of India recognized the importance of RTIs and STIs in undermining the health and welfare of individuals and couples in a policy statement on the Reproductive and Child Health Programme, which states that couples should be 'able to have sexual relations free of fear of pregnancy and contracting diseases' (Ministry of Health and Family Welfare, 1997:2). The Reproductive and Child Health Programme includes the following relevant interventions: establishment of RTI/STI clinics at district hospitals (where not already available), provision of technicians for laboratory diagnosis

of RTIs/STIs, and in selected districts, screening and treatment of RTIs/STIs (Ministry of Health and Family Welfare, 1997).

NFHS-2 collected information from women on some common symptoms of RTIs, namely problems with abnormal vaginal discharge or urinary tract infections in the three months preceding the survey, and intercourse-related pain (often) and bleeding (ever). Specifically, the prevalence of reproductive health problems among ever-married women is estimated from women's self-reported experience with each of the following problems: vaginal discharge accompanied by itching, by irritation around the vaginal area, by bad odour, by severe lower abdominal pain, by fever, or by any other problem; pain or burning while urinating or frequent or difficult urination; and (among currently married women only) painful intercourse or bleeding after intercourse. Women who experience one or more of these reproductive health problems could either have or be at risk of getting an RTI/STI. However, since information on health problems is based on self-reports rather than clinical tests or examinations, the results should be interpreted with caution.

Table 8.14 shows the prevalence of different reproductive health problems among women in India during the three months preceding the survey by background characteristics. Thirty percent of ever-married women report at least one type of problem related to vaginal discharge, and 18 percent report symptoms of a urinary tract infection. Overall, 36 percent of women report either problems with vaginal discharge or symptoms of a urinary tract infection. Among problems related to vaginal discharge, severe lower abdominal pain (19 percent) is mentioned most frequently, followed by itching or irritation (17 percent). Since a large majority of ever-married women are also currently married, there is almost no difference in the estimates of prevalence of problems related to vaginal discharge and symptoms of urinary tract infections for currently married women and ever-married women.

Table 8.14 and Figure 8.6 show that two out of five currently married women (39 percent) report that they have at least one reproductive health problem. Thirty-six percent have problems with vaginal discharge or urinary tract infections, 13 percent report painful intercourse, and 2 percent report bleeding after intercourse. The prevalence of reproductive health problems by age among currently married women first increases slightly from 38 percent for women age 15–19 to 42 percent for women age 25–34 and then declines to 30 percent for women age 45–49. The prevalence of reproductive health problems varies little between illiterate women (41 percent) and literate women who have completed at most middle school (39–40 percent) but it is lower for women who have completed at least high school (32 percent). Muslim women (49 percent), followed by Buddhist/Neo-Buddhist women (47 percent), are more likely than women of all other religions (with the exception of women who do not belong to any religion) to have reproductive health problems, and Sikh women (28 percent) and Jain women (33 percent) are least likely to have problems. The prevalence of reproductive health problems is slightly higher for scheduled-tribe women (42 percent) than for other women (38–40 percent), and women in households with a medium or low standard of living (40–41 percent) are more likely to have reproductive health problems than women in households with a high standard of living (34 percent). Women who are self-employed (44 percent) are more likely than nonworking women (38 percent), as well as other employed women (40 percent), to have reproductive health problems.

Table 8.14 Symptoms of reproductive health problems

Percentage of ever-married women reporting abnormal vaginal discharge or symptoms of a urinary tract infection during the three months preceding the survey and percentage of currently married women reporting painful intercourse or bleeding after intercourse by selected background characteristics, India, 1998–99

	Ever-married women									Currently married women			
		Vaginal discharge accompanied by:											
Background characteristic	Any abnormal vaginal discharge	Itching or irritation	Bad odour	Severe lower ab-dominal pain[1]	Fever	Other problem	Symptoms of a urinary tract infec-tion[2]	Any abnormal vaginal discharge or symptoms of a urinary tract infection[2]	Number of ever-married women	Painful inter-course (often)	Bleeding after inter-course (ever)[1]	Any repro-ductive health problem	Number of currently married women
Age													
15–19	26.2	14.4	10.2	17.3	7.1	5.8	16.1	32.1	8,182	16.9	3.7	37.9	8,014
20–24	29.3	16.7	11.0	18.1	7.4	7.3	17.1	35.0	16,389	15.1	3.0	39.7	15,930
25–29	32.5	18.6	12.5	20.5	8.5	9.1	18.3	38.0	17,745	14.0	2.1	41.6	17,055
30–34	33.2	18.8	12.8	20.8	9.0	9.8	18.6	38.9	15,094	12.9	2.0	41.9	14,286
35–39	32.2	18.9	12.3	20.0	9.5	8.9	18.1	37.5	13,089	10.9	2.2	40.5	12,052
40–44	27.3	16.3	10.5	17.0	8.0	7.4	18.0	33.5	10,521	8.4	1.4	35.7	9,363
45–49	20.7	12.3	7.5	12.6	5.7	5.6	15.5	27.8	8,179	5.9	1.3	30.3	6,948
Residence													
Urban	27.8	15.9	8.7	16.5	6.3	8.6	15.4	33.1	23,370	11.5	1.8	36.7	21,888
Rural	30.4	17.5	12.3	19.3	8.7	7.8	18.4	36.4	65,829	12.9	2.4	40.1	61,761
Education													
Illiterate	31.3	18.2	13.0	20.3	9.7	8.5	19.3	37.3	51,871	12.8	2.4	40.8	48,018
Literate, < middle school complete	30.3	16.9	10.2	18.7	7.5	8.4	17.4	36.2	17,270	13.1	2.2	39.9	16,257
Middle school complete	29.1	16.9	10.0	17.0	6.2	7.1	15.1	34.3	7,328	12.7	2.4	38.6	7,073
High school complete and above	22.8	13.2	6.7	12.6	3.5	6.1	12.6	28.0	12,719	10.7	1.9	32.4	12,291
Religion													
Hindu	28.7	16.6	10.9	17.6	7.7	7.8	16.9	34.3	72,903	11.7	2.2	37.9	68,443
Muslim	37.2	20.6	14.3	25.4	11.8	10.3	23.2	44.1	11,190	18.5	3.0	48.6	10,477
Christian	29.5	14.8	10.1	18.9	5.9	6.6	15.3	35.0	2,263	14.9	2.5	40.0	2,072
Sikh	22.4	14.7	11.0	13.3	2.0	3.4	9.5	25.7	1,427	7.5	1.5	28.3	1,365
Jain	26.2	13.2	6.5	13.2	4.1	6.4	11.4	30.4	331	8.7	0.2	33.1	316
Buddhist/Neo-Buddhist	34.6	20.7	11.6	20.5	8.6	11.0	24.5	41.6	676	14.3	2.4	46.8	601
Other	35.0	22.7	14.1	24.3	9.6	6.6	25.6	42.1	285	11.7	1.9	45.2	259
No religion	51.5	35.5	30.2	22.6	12.9	12.7	37.2	57.5	44	5.3	0.0	59.0	38

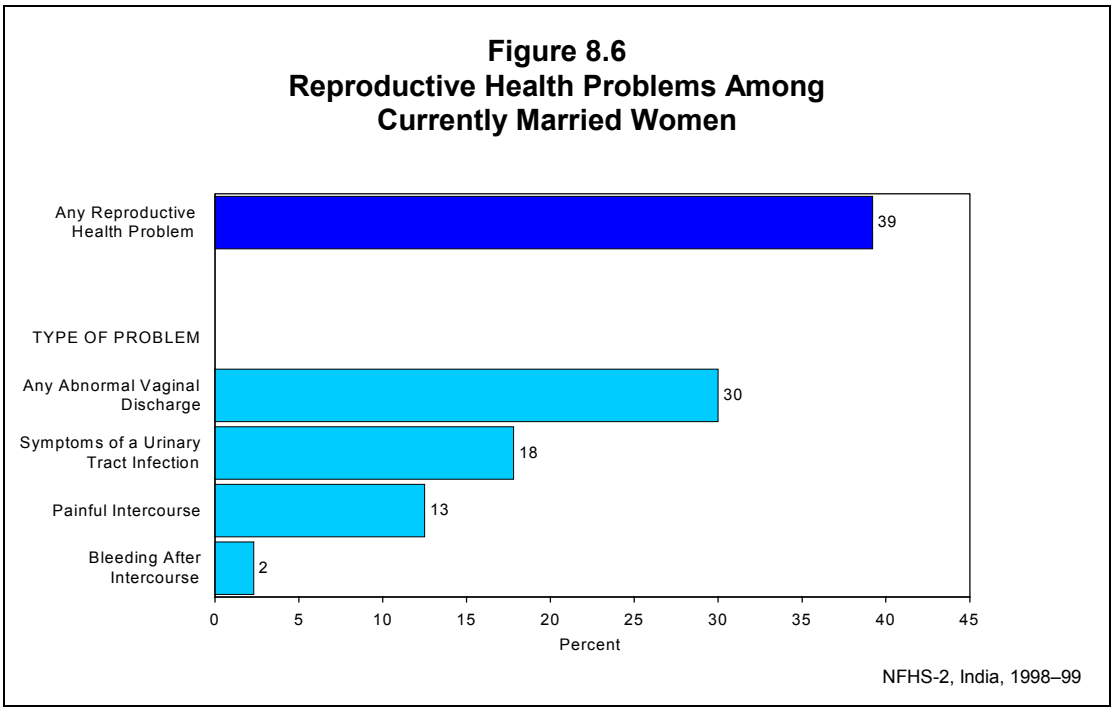
Contd…

Table 8.14 Symptoms of reproductive health problems (contd.)

Percentage of ever-married women reporting abnormal vaginal discharge or symptoms of a urinary tract infection during the three months preceding the survey and percentage of currently married women reporting painful intercourse or bleeding after intercourse by selected background characteristics, India, 1998–99

	Ever-married women									Currently married women			
		Vaginal discharge accompanied by:											
Background characteristic	Any abnormal vaginal discharge	Itching or irritation	Bad odour	Severe lower ab-dominal pain[1]	Fever	Other problem	Symptoms of a urinary tract infec-tion[2]	Any abnormal vaginal discharge or symptoms of a urinary tract infection[2]	Number of ever-married women	Painful inter-course (often)	Bleeding after inter-course (ever)[1]	Any repro-ductive health problem	Number of currently married women
Caste/tribe													
Scheduled caste	30.1	17.2	11.8	18.8	7.8	8.0	17.9	36.1	16,301	13.2	2.1	39.9	15,178
Scheduled tribe	33.4	18.9	14.8	22.3	10.3	7.3	20.4	39.2	7,750	12.6	3.4	42.0	7,176
Other backward class	27.8	16.0	9.9	17.6	7.8	7.7	17.4	33.8	29,383	11.9	2.3	37.7	27,529
Other	30.6	17.7	11.6	18.6	7.9	8.5	17.0	36.1	34,904	12.7	2.1	39.6	32,957
Standard of living index													
Low	31.2	17.3	12.8	20.7	9.6	8.1	19.5	37.4	29,033	13.5	2.5	41.3	26,505
Medium	30.5	17.7	11.5	18.9	8.4	8.3	18.0	36.3	41,289	13.0	2.3	40.1	38,999
High	25.6	15.3	8.7	14.5	5.0	7.0	13.7	30.6	17,845	10.1	1.7	34.0	17,173
Work status													
Working in family farm/ business	31.3	19.1	12.4	19.4	9.8	8.4	19.3	37.0	12,849	12.0	2.6	40.1	12,062
Employed by someone else	30.6	16.6	10.7	20.0	9.4	9.0	18.5	36.5	17,571	12.6	2.4	40.4	15,403
Self-employed	32.7	18.4	11.3	20.5	9.6	10.0	19.2	39.2	4,483	14.7	2.3	43.5	3,891
Not worked in past 12 months	28.8	16.7	11.3	17.8	7.1	7.4	16.8	34.5	54,271	12.5	2.1	38.3	52,269
Number of children ever born													
0	29.4	16.5	11.0	19.6	7.8	7.2	18.7	35.9	9,807	19.3	4.5	42.5	8,980
1	26.2	14.6	9.6	15.7	6.1	6.2	14.9	31.5	12,752	12.7	2.1	35.8	11,823
2–3	29.7	16.6	10.7	18.5	7.5	8.0	16.8	35.1	35,858	11.8	2.1	38.5	33,861
4–5	31.8	18.6	12.8	20.0	9.8	9.1	19.1	37.8	19,743	11.7	2.0	40.6	18,618
6+	30.5	19.5	12.9	18.9	9.6	8.9	19.7	37.2	11,039	10.6	1.7	39.6	10,368
All ever-married women	29.7	17.1	11.3	18.6	8.1	8.0	17.6	35.5	89,199	NA	NA	NA	NA
All currently married women	30.0	17.3	11.5	18.7	8.1	8.1	17.8	35.9	83,649	12.5	2.3	39.2	83,649

Note: Total includes women with missing information on education, religion, caste/tribe, the standard of living index, and work status, who are not shown separately.
NA: Not applicable
[1]Not related to menstruation
[2]Includes pain or burning while urinating or more frequent or difficult urination



Women with no children are slightly more likely than women with one or more children to have reproductive health problems. Among women with at least one child, women with two or more children are somewhat more likely to have reproductive health problems (39–41 percent) than are women with only one child (36 percent). Overall, however, the prevalence of reproductive health problems is very similar for women with almost all background characteristics. Notably, with the exception of the much larger variation by religion, prevalence ranges only between 30 percent and 44 percent for all other currently married women.

Among women who report any reproductive health problems, almost two-thirds have not seen anyone for advice or treatment (Table 8.15). The proportion of women who have not obtained advice or treatment is higher in rural areas (69 percent) than in urban areas (55 percent). Overall, more than three-quarters of women who have obtained advice or treatment were seen by someone in the private medical sector and less than one-third sought advice or treatment from someone in the public medical sector. Among women who sought advice or treatment, 64 percent saw a private doctor and 22 percent saw a government doctor. A private doctor was seen by 69 percent of these women in urban areas and 62 percent in rural areas, whereas a government doctor was seen by less than one-quarter of both urban women (23 percent) and rural women (21 percent).

Reproductive Health Problems by State

Table 8.16 shows the prevalence of any reproductive health problem, as well as the prevalence of different types of reproductive health problems, among currently married women by state. Since these prevalence rates are based on self-reports and because the willingness of women to talk about and report reproductive health problems may vary by state, considerable caution should be used in interpreting differences in prevalence between states. Overall, the percentage of currently married women with any reproductive health problem varies from 19 percent in Karnataka to 67 percent in Meghalaya. Other states where more than half of currently married women had at least

Table 8.15 Treatment of reproductive health problems

Among women with a reproductive health problem, the percentage who sought advice or treatment from specific providers by residence, India, 1998–99

Provider	Urban	Rural	Total
Public medical sector	12.0	10.0	10.5
Government doctor	10.2	6.7	7.5
Public health nurse	0.4	0.8	0.7
ANM/LHV	1.0	1.9	1.7
Male MPW/supervisior	0.0	0.1	0.1
Anganwadi worker	0.0	0.1	0.1
Village health guide	0.0	0.1	0.1
Other public medical sector	0.4	0.2	0.3
NGO worker	0.2	0.1	0.1
Private medical sector	35.6	24.1	26.9
Private doctor	30.9	19.3	22.2
Private nurse	1.4	1.1	1.2
Compounder/pharmacist	0.3	0.3	0.3
Vaid/hakim/homeopath	2.2	1.9	2.0
Dai (TBA)	0.3	0.5	0.5
Traditional healer	0.3	0.7	0.6
Other private medical sector	0.1	0.3	0.3
Other	0.9	1.2	1.1
None	55.3	68.8	65.5
Number of women	8,462	25,989	34,451

Note: Table includes currently married women who report abnormal vaginal discharge, symptoms of a urinary tract infection, painful intercourse or bleeding after intercourse and women who are ever married but not currently married who report abnormal vaginal discharge or symptoms of a urinary tract infection. Percentages add to more than 100.0 because women could report treatment from multiple providers.
ANM: Auxiliary nurse midwife; LHV: Lady health visitor; MPW: Multipurpose health worker; NGO: Nongovernmental organization; TBA: Traditional birth attendant

one reproductive health problem are Jammu and Kashmir, Manipur, Mizoram, and Assam. In all but five states, at least one-third of women report one or more reproductive health problems.

In all states, women are much more likely to report problems with vaginal discharge than to report symptoms of a urinary tract infection or problems related to intercourse. Nonetheless, there is substantial variation by state in the prevalence of each of these different reproductive health problems. The percentage of currently married women with any abnormal vaginal discharge ranges from 14 percent in Karnataka to 64 percent in Meghalaya; the percentage with symptoms of a urinary tract infection ranges from 7 percent in Karnataka to 31 percent in Jammu and Kashmir; the percentage who often experience painful intercourse ranges from 3 percent in Karnataka to 22 percent in Jammu and Kashmir; and the percentage who ever experienced bleeding after intercourse ranges from 0.3 percent in Karnataka to 5 percent in Nagaland. The states where the prevalence of all four kinds of reproductive health problems is consistently high are Jammu and Kashmir, Madhya Pradesh, Andhra Pradesh, and all the northeastern states except Arunachal Pradesh and Mizoram. Jammu and Kashmir has high levels of all the reproductive health problems except bleeding after intercourse. Prevalence of all of the different reproductive health problems is lowest in Karnataka. Other states where the reported prevalence of

Table 8.16 Symptoms of reproductive tract infections by state

Percentage of currently married women reporting various symptoms of reproductive tract infections by state, India, 1998–99

State	Percentage with any abnormal vaginal discharge	Percentage with symptoms of a urinary tract infection[1]	Percentage with any abnormal vaginal discharge or symptoms of a urinary tract infection[1]	Percentage with painful intercourse (often)	Percentage with bleeding after intercourse (ever)[2]	Percentage with any reproductive health problem
India	30.0	17.8	35.9	12.5	2.3	39.2
North						
Delhi	29.9	13.9	34.0	9.3	1.3	36.5
Haryana	32.2	12.6	35.9	8.3	1.0	38.2
Himachal Pradesh	26.5	14.3	30.8	8.6	0.7	33.7
Jammu & Kashmir	50.5	31.0	56.5	21.7	2.3	60.5
Punjab	23.9	8.5	26.3	5.6	0.9	28.3
Rajasthan	36.8	19.1	41.3	11.1	1.8	43.2
Central						
Madhya Pradesh	34.8	22.5	41.2	16.7	4.2	44.9
Uttar Pradesh	28.0	17.9	33.9	16.4	2.4	38.1
East						
Bihar	33.7	25.7	42.2	11.4	2.4	44.2
Orissa	18.2	11.0	22.9	11.0	1.9	27.5
West Bengal	35.8	18.4	41.8	14.6	1.9	45.3
Northeast						
Arunachal Pradesh	29.5	23.6	39.8	10.5	1.3	42.1
Assam	41.2	20.6	47.3	14.7	4.1	50.6
Manipur	41.3	29.5	51.7	19.8	3.2	56.0
Meghalaya	64.2	24.5	66.2	20.2	3.6	66.9
Mizoram	44.7	21.6	50.7	10.7	2.0	52.5
Nagaland	40.8	24.4	44.4	20.3	4.6	45.6
Sikkim	37.5	20.1	44.5	14.0	3.1	48.6
West						
Goa	26.2	17.4	35.3	11.3	1.0	40.2
Gujarat	23.0	10.3	26.3	6.9	1.6	28.6
Maharashtra	30.7	20.1	37.1	10.4	1.8	40.0
South						
Andhra Pradesh	38.2	18.8	44.0	16.9	2.9	48.5
Karnataka	13.5	7.2	17.7	2.7	0.3	18.8
Kerala	26.3	19.8	35.7	16.8	3.7	42.4
Tamil Nadu	18.6	12.3	24.2	8.5	2.2	27.8

[1]Includes pain or burning while urinating or more frequent or difficult urination
[2]Not related to menstruation

reproductive health problems is consistently low are Gujarat, Orissa, Punjab, Tamil Nadu, and Himachal Pradesh.

In summary, NFHS-2 results show that although more than one-third of ever-married women in India report at least one reproductive health problem related to vaginal discharge or urination, and two-fifths of currently married women report at least one reproductive health problem related to vaginal discharge, urination, or intercourse that could be symptomatic of a more serious reproductive tract infection, the majority of them bear the problems silently without

seeking advice or treatment. There does not appear to be any systematic variation in reports of reproductive health problems by the level of development of the state: women in both less developed and more developed states report a high prevalence of at least one reproductive health problem. Given the silence that surrounds reproductive health problems, this consistently high self-reported prevalence suggests that reproductive health problems are widespread among all groups of women and in almost all states. Moreover, women who seek advice or treatment for reproductive health problems do not usually go to government health professionals. These findings highlight the need to educate women regarding the symptoms and consequences of reproductive health problems and the urgent need to expand counselling and reproductive health services in both rural and urban areas, particularly through the public sector.

CHAPTER 9

QUALITY OF CARE

The historic International Conference on Population and Development in Cairo in 1994 brought about a paradigm shift in population-related policies. The conference helped focus the attention of governments on making programmes more client-oriented with an emphasis on the quality of services and care. In line with the conference recommendations, the Government of India acknowledged the need to abandon the use of targets for monitoring its family welfare programme. It recognized that the top-down target approach does not reflect user needs and preferences and de-emphasizes the quality of care provided (Ministry of Health and Family Welfare, 1998b). Recent research on the different aspects of service delivery, especially at the grass-roots level, including programme coverage, client-provider interactions, and informed choice, also endorses the need to take a different approach to meeting the reproductive and health needs of the Indian population (Koenig and Khan, 1999). This research suggests that inadequate attention to the quality of care has contributed to the inability of the government's family welfare programme to meet its goals.

In 1996, the existing family welfare programme was transformed into the new Reproductive and Child Health (RCH) Programme. This new programme integrates all family welfare and women and child health services with the explicit objective of providing beneficiaries with 'need based, client centred, demand driven, high quality integrated RCH services' (Ministry of Health and Family Welfare, 1998b:6). The strategy for the RCH Programme shifts the policy emphasis from achieving demographic targets to meeting the reproductive needs of individual clients (Ministry of Health and Family Welfare, 1996).

NFHS-2 included several questions on the quality of care of health and family welfare services provided in the public sector and the private sector. In this chapter, sources of health care for households are described first. The chapter then examines different aspects of home visits by health and family planning workers and visits by respondents to health facilities, including frequency, source, and quality for each state and for all-India. Finally, information is presented on state differentials in the quality of care for family planning services.

9.1 Source of Health Care for Households

To examine the role of different health providers in meeting the health-care needs of households, the NFHS-2 Household Questionnaire included the question, 'When members of your household get sick, where do they generally go for treatment?' Table 9.1 shows the use of services from various types of health providers. More than two-thirds of households (69 percent) normally use the private medical sector when a household member gets sick. Only 29 percent normally use public-sector medical services. Reliance on the private medical sector is higher in urban areas than in rural areas. In the public medical sector, hospitals are the most popular source of health care, whereas in the private medical sector, private doctors are visited slightly more often than hospitals for health care.

Use of health-care services is strongly influenced by the standard of living of the household. As the standard of living increases, use of private-sector services increases. Seventy-

Table 9.1 Source of health care

Percent distribution of households by main source of health care when household members get sick, according to residence and the standard of living index, India, 1998–99

	Residence		Standard of living index			
Source	Urban	Rural	Low	Medium	High	Total
Public medical sector	23.5	30.6	34.0	28.3	19.0	28.7
Government/municipal hospital	17.0	11.3	13.5	13.2	10.9	12.9
Government dispensary	1.3	1.4	1.1	1.5	1.5	1.3
UHC/UHP/UFWC	0.9	0.2	0.3	0.5	0.4	0.4
CHC/rural hospital/PHC	2.6	15.4	16.7	11.0	4.5	11.9
Sub-centre	0.1	1.9	2.0	1.4	0.4	1.4
Government mobile clinic	0.0	0.0	0.0	0.0	0.0	0.0
Government paramedic	0.0	0.1	0.1	0.1	0.0	0.1
Other public medical sector	1.5	0.3	0.3	0.7	1.3	0.6
NGO or trust	0.8	0.6	0.7	0.6	0.8	0.7
Hospital/clinic	0.8	0.6	0.6	0.6	0.8	0.6
NGO worker	0.0	0.0	0.1	0.0	0.0	0.0
Private medical sector	74.8	66.2	62.5	69.3	78.8	68.6
Private hospital/clinic	34.1	27.3	24.0	30.0	37.8	29.2
Private doctor	38.4	35.0	33.7	36.3	38.7	35.9
Private mobile clinic	0.2	0.2	0.2	0.1	0.2	0.2
Private paramedic	0.3	1.0	1.0	0.7	0.5	0.8
Vaidya/hakim /homeopath	1.1	1.1	1.2	0.9	1.1	1.1
Traditional healer	0.0	0.6	0.7	0.4	0.1	0.4
Pharmacy/drugstore	0.3	0.3	0.3	0.3	0.1	0.3
Dai (TBA)	0.0	0.0	0.0	0.0	0.0	0.0
Other private medical sector	0.5	0.9	1.3	0.5	0.3	0.8
Other source	1.0	2.5	2.8	1.7	1.3	2.1
Shop	0.3	0.3	0.5	0.3	0.2	0.3
Home treatment	0.5	0.4	0.4	0.3	0.7	0.4
Other	0.2	1.8	1.9	1.2	0.5	1.3
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of households	25,243	65,953	33,064	40,434	16,640	91,196

Note: Total includes 1,057 households with missing information on the standard of living index, which are not shown separately.
UHC: Urban health centre; UHP: Urban health post; UFWC: Urban family welfare centre; CHC: Community health centre; PHC: Primary Health Centre; NGO: Nongovernmental organization; TBA: Traditional birth attendant

nine percent of households with a high standard of living use the private medical sector compared with 63 percent of households with a low standard of living. Yet, even among households with a low standard of living, only one-third typically use public-sector services for their health care.

9.2 Contacts at Home with Health and Family Planning Workers

Under the family welfare programme, health or family planning workers are required to regularly visit each household in their assigned area. During these contacts the female health or family planning worker is required to monitor various aspects of the health of women and children, provide information related to health and family planning, counsel and motivate women to adopt appropriate health and family planning practices, and deliver other selected services. These contacts are also important for enhancing the credibility of services and establishing necessary rapport with the clients. Only 13 percent of women in India, however, report that they received a

home visit from a health or family planning worker during the 12 months preceding the survey (Table 9.2).

Differentials in home visits by background characteristics are generally small. In fact, among all the subgroups shown in Table 9.2, there is no group in which more than one-fifth of women received a home visit from a health or family planning worker in the 12 months preceding the survey. Younger women are slightly more likely to report a home visit than are older women. Rural women (14 percent) are more likely than urban women (10 percent) to have had a home visit from a health or family planning worker. Women who have a moderate level of education were more likely to have a home visit than women who are illiterate or have completed at least high school. The likelihood of a home visit from a health or family planning worker decreases as the standard of living of the household increases. Only 2 percent of Sikh women received a home visit, whereas between 11 to 19 percent of women belonging to all the other religions reported a home visit during the past 12 months. Home visits are more common among scheduled-tribe women than among scheduled-caste or other backward class women and least common among other women. Women without any children are least likely and women with one child are most likely to receive a home visit. As the number of children increases the likelihood of a home visit declines. Home visits are slightly less common for nonusers of contraception than for users.

Women who reported a home visit from a health or family planning worker during the 12 months preceding the survey were asked the frequency of the visits during the past 12 months and the number of months since the most recent visit. These women, on average, received three home visits during the year with the median duration since the last visit of 1.8 months (Table 9.2). The median number of home visits and the duration since the last visit do not vary substantially according to the background characteristics measured, except for religion. For example, the median number of home visits reported by Sikh women is less than two compared with five reported by women belonging to 'other' religions. Similarly, the median duration since the visit was 3.2 months for Sikh women and only 1.1 months for women belonging to 'other' religions. These results should be interpreted carefully because of the small sample size of these groups. Nevertheless, although some groups are much more likely to be visited by a health or family planning worker than others, among women who were visited the frequency of visits does not vary widely.

9.3 Quality of Home Visits

The quality of the care provided during home visits can be assessed in terms of client satisfaction with the services received during the visit. Each woman who reported that a health or family planning worker had visited her during the 12 months preceding the survey was asked about the quality of care received. Questions were asked with reference only to the most recent home visit. The questions covered how the worker talked to the woman during the visit and whether the worker spent enough time with her. Table 9.3 provides this information by the type of services received and whether the worker was from the private or public sector.

Public-sector health or family planning workers provided almost all recent home visits (96 percent). A large majority of women who were visited at home (82 percent) reported that they received services related to health; only 11 percent reported that they received family planning services.

Table 9.2 Home visits by a health or family planning worker

Percentage of ever-married women who had at least one home visit by a health or family planning worker in the 12 months preceding the survey and, among women who had home visits, median number of visits and median number of months since the most recent visit by selected background characteristics, India, 1998–99

Background characteristic	Percentage with at least one visit	Number of women	Median number of visits[1]	Median months since the most recent visit[1]	Number of women with home visit
Age					
15–24	16.5	24,571	2.6	1.7	4,054
25–34	14.0	32,839	2.7	1.8	4,599
35–49	9.1	31,789	3.0	1.8	2,909
Residence					
Urban	10.0	23,370	2.6	2.0	2,338
Rural	14.0	65,829	2.8	1.7	9,223
Education					
Illiterate	11.5	51,871	2.8	1.7	5,961
Literate, < middle school complete	15.9	17,270	2.7	1.8	2,747
Middle school complete	17.0	7,328	2.7	1.9	1,246
High school complete and above	12.6	12,719	2.4	1.9	1,606
Religion					
Hindu	13.3	72,903	2.8	1.7	9,709
Muslim	11.3	11,190	2.3	2.1	1,262
Christian	15.1	2,263	2.4	2.1	343
Sikh	1.7	1,427	(1.7)	(3.2)	24
Jain	12.0	331	(2.0)	(2.7)	40
Buddhist/Neo-Buddhist	17.4	676	2.3	1.9	118
Other	18.7	285	(4.5)	(1.1)	53
No religion	12.4	44	*	*	5
Caste/tribe					
Scheduled caste	13.4	16,301	2.8	1.6	2,189
Scheduled tribe	17.9	7,750	3.3	1.5	1,386
Other backward class	13.6	29,383	2.8	1.8	4,004
Other	11.3	34,904	2.5	1.9	3,931
Standard of living index					
Low	14.2	29,033	2.8	1.7	4,114
Medium	13.3	41,289	2.8	1.8	5,498
High	10.3	17,845	2.6	1.9	1,845
Number of children ever born					
0	7.0	9,807	2.4	1.6	686
1	17.3	12,752	2.6	1.8	2,211
2	15.8	18,720	2.6	1.8	2,955
3	14.0	17,139	2.9	1.8	2,401
4	12.1	12,116	2.8	1.8	1,469
5+	9.9	18,666	2.9	1.7	1,841
Family planning status					
Sterilized	14.1	30,167	3.0	1.7	4,251
Using method other than sterilization	14.2	10,160	2.6	1.8	1,439
Nonuser	12.0	48,872	2.6	1.8	5,872
Total	13.0	89,199	2.7	1.8	11,561

Note: Total includes women with missing information on education, religion, caste/tribe, and the standard of living index, who are not shown separately.
( ) Based on 25–49 unweighted cases
*Median not shown; based on fewer than 25 unweighted cases
[1]For women who received at least one visit

Table 9.3 Quality of home visits

Quality of care indicators for the most recent home visit by a health or family planning worker during the 12 months preceding the survey, according to type of worker and type of services received during the visit, India, 1998–99

Quality indicator	Type of worker and type of services received											
	Public-sector worker				Private-sector/NGO/trust worker				Total			
	Family planning	Health	Family planning or health	Neither family planning nor health	Family planning	Health	Family planning or health	Neither family planning nor health	Family planning	Health	Family planning or health	Neither family planning nor health
Percentage who said worker spent enough time with them	89.7	90.4	90.2	85.8	*	92.9	91.9	*	89.4	90.5	90.2	85.9
Percentage who said worker talked to them:												
Nicely	77.4	79.0	78.9	77.6	*	69.8	69.8	*	77.0	78.6	78.6	77.3
Somewhat nicely	21.4	19.3	19.4	18.8	*	27.6	27.2	*	21.7	19.7	19.7	19.2
Not nicely	1.2	1.6	1.6	3.6	*	2.0	2.4	*	1.3	1.6	1.6	3.6
Missing	0.0	0.1	0.0	0.0	*	0.6	0.6	*	0.0	0.1	0.1	0.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women visited at home	1,258	8,919	9,636	1,326	25	393	405	19	1,284	9,312	10,041	1,345

Note: Cases where the source of service was neither the public sector nor the private sector/NGO/trust are excluded from the table.
*Percentage not shown; based on fewer than 25 unweighted cases
NGO: Nongovernmental organization

Irrespective of the type of service received, 90 percent of the women who received health or family planning services at home were satisfied that the worker had spent enough time with them. The proportion of women satisfied with the time the worker spent with them was slightly lower for visits by a public-sector health or family planning worker (90 percent) than a private-sector worker (92 percent). In general, women had only a few complaints about the way that the worker talked to them. About four-fifths (79 percent) of the women who received family planning or health services reported that the worker talked to them nicely; and less than 2 percent said that the worker did not talk to them nicely. A higher proportion of women who received the services from the public sector (79 percent) than from the private sector (70 percent) reported that the worker talked to them nicely.

9.4 Matters Discussed during Home Visits or Visits to Health Facilities

Women who were visited at home by a health or family planning worker, as well as those who visited a health facility during the 12 months preceding the survey, were asked about the different topics discussed with the workers during any of these visits. Table 9.4 shows the percentage of women who discussed specific topics during all home visits or visits to a health facility during the past 12 months.

The major focus of home visits was immunization and treatment of health problems. In addition, 21 percent of women reported that childcare was discussed, 15 percent mentioned that family planning was discussed, 14 percent discussed disease prevention, and 11 percent reported having discussions about antenatal care during home visits. Although family planning is not often discussed during a home visit, discussions about family planning are more common for women who were pregnant or had children under age three years than for other women. Eighteen percent of these women mentioned having discussions about family planning during home visits. Women who were pregnant or women with children under age three were also much more likely than other women to have talked about immunizations and somewhat more likely to have talked about antenatal, delivery, postpartum, and childcare, but less likely to have discussed health problems or disease prevention.

Visits to health facilities are largely for treatment of health problems (66 percent) or for childcare (36 percent). Only 3 percent of the women said that they discussed family planning during the visits. Even among currently pregnant women or women with children under age three, only 4 percent reported having discussed family planning. Nearly half of these women (47 percent) discussed childcare, 44 percent discussed treatment of a health problem, 33 percent discussed immunization, 22 percent discussed antenatal care, and 11 percent discussed delivery care. These data suggest that delivery of health and family planning services in India is not well integrated. Indeed, health facilities and workers in the process of providing health and childcare services are missing the opportunity to discuss family planning with even the women who may be most in need of such services. It is also evident that many important health-related topics (feeding practices, nutrition, disease prevention, sanitation, and oral rehydration) are rarely discussed during either home visits or visits to a health facility.

India's family planning programme is applicable to all parts of the country, but implementation of the programme is not uniform in all the states. Substantial differentials by state are evident in all of the NFHS-2 measures of quality of care (Table 9.5). More than 98 percent of women did not receive any home visit from a health or family planning worker in the

Table 9.4 Matters discussed during contacts with a health or family planning worker

Among ever-married women who had at least one contact with a health or family planning worker in the 12 months preceding the survey, the percentage who discussed specific topics with the health or family planning worker, India, 1998–99

Topic discussed	Pregnant women or women with children under age 3	Other women: Current contraceptive users	Other women: Current nonusers	Total
During home visit				
Family planning	18.2	10.8	9.9	14.5
Breastfeeding	3.4	0.3	0.2	1.9
Supplementary feeding	0.9	0.2	0.5	0.6
Immunization	62.8	20.0	19.0	42.1
Nutrition	6.4	2.1	1.0	4.2
Disease prevention	8.2	20.7	17.0	13.6
Treatment of health problem	24.5	48.0	52.9	36.5
Antenatal care	18.9	0.9	3.5	10.7
Delivery care	8.4	0.8	1.2	4.8
Postpartum care	3.6	0.2	0.5	2.0
Childcare	24.3	18.2	15.4	20.9
Sanitation/cleanliness	1.6	4.4	3.8	2.8
Oral rehydration	0.4	0.4	0.5	0.4
Other	3.9	12.6	9.9	7.7
Number of women	6,028	3,657	1,876	11,561
During visit to health facility				
Family planning	4.4	1.4	0.6	2.5
Breastfeeding	1.3	0.0	0.1	0.6
Supplementary feeding	0.4	0.0	0.0	0.2
Immunization	33.4	2.9	2.8	15.6
Nutrition	2.4	0.3	0.4	1.2
Disease prevention	2.4	3.8	3.7	3.2
Treatment of health problem	43.6	81.0	83.1	65.8
Antenatal care	22.4	0.4	1.5	9.8
Delivery care	11.3	0.4	1.0	5.1
Postpartum care	4.7	0.2	0.3	2.1
Childcare	46.5	32.4	23.1	36.2
Sanitation/cleanliness	0.4	0.4	0.3	0.4
Oral rehydration	0.3	0.2	0.1	0.2
Other	0.3	1.1	1.0	0.7
Number of women	21,824	18,698	11,711	52,232

Note: Percentages add to more than 100.0 because of multiple responses.

12 months preceding the survey in six states (Jammu and Kashmir, Delhi, Nagaland, Punjab, Arunachal Pradesh, and Haryana). There are only four states in which about one-quarter or more of women received at least one home visit (Gujarat, Mizoram, Tamil Nadu, and Maharashtra). Among women who received a home visit, all the women in Punjab and almost all (more than 98 percent) in Mizoram and Haryana said that the worker spent enough time with them. On the other hand, only 65 percent women in West Bengal and about 70 percent in Sikkim and Goa reported that the worker spent enough time with them. The proportion of women who reported that the worker talked to them nicely varies from slightly more than 50 percent in Jammu and Kashmir and Delhi to 98 percent in Kerala.

Table 9.5 also shows the percentage of women who discussed family planning with the workers during their home visits. Although family planning was not discussed with more than one-third of the women in any state except Sikkim, the situation is worst in Karnataka, Mizoram,

Table 9.5 Quality of care indicators for home visits by state

Among ever-married women, quality of care indicators for the most recent home visit by a health or family planning worker during the 12 months preceding the survey, according to state, India, 1998–99

State	Quality of care indicators for home visits			
	Percentage with no home visit	Percentage who said worker spent enough time with them[1]	Percentage who said worker talked to them nicely[1]	Percentage who discussed family planning during a home visit[1]
India	87.0	89.5	78.4	14.5
North				
Delhi	98.8	83.6	52.7	23.1
Haryana	98.2	98.1	78.4	17.4
Himachal Pradesh	96.3	91.5	75.9	17.8
Jammu & Kashmir	99.0	76.7	51.3	8.0
Punjab	98.4	100.0	75.7	27.3
Rajasthan	88.2	95.5	56.0	22.0
Central				
Madhya Pradesh	91.1	88.9	65.7	26.5
Uttar Pradesh	96.8	85.0	56.7	25.4
East				
Bihar	97.6	85.3	68.2	20.8
Orissa	91.0	84.8	73.4	12.2
West Bengal	81.9	65.4	68.3	14.2
Northeast				
Arunachal Pradesh	98.3	93.7	59.5	20.9
Assam	96.3	81.1	81.7	11.0
Manipur	96.3	92.4	60.3	18.5
Meghalaya	94.9	85.5	85.0	23.3
Mizoram	69.0	99.1	82.0	6.9
Nagaland	98.8	88.8	76.9	32.4
Sikkim	95.6	69.6	66.5	33.9
West				
Goa	82.4	71.2	86.7	17.9
Gujarat	66.8	94.1	90.1	14.2
Maharashtra	76.6	92.4	83.4	10.2
South				
Andhra Pradesh	82.6	95.1	71.8	14.0
Karnataka	82.8	88.8	79.1	6.4
Kerala	82.0	97.3	97.8	12.2
Tamil Nadu	74.0	95.9	89.7	15.2

[1]For women who received at least one visit

and Jammu and Kashmir, where workers rarely discuss family planning with women during home visits.

9.5 Quality of Services Received at the Most Recent Visit to a Health Facility

NFHS-2 asked women who had visited a health facility in the 12 months preceding the survey a number of questions to ascertain their perception of the quality of care they received during their most recent visit. Specific dimensions covered were whether women received the service they went for, the waiting time before receiving the service (or before finding out that the service was not available), whether the staff at the health facility spent enough time with them, whether the

Table 9.6 Quality of care during most recent visit to a health facility

Among ever-married women, indicators of quality of care during the most recent visit to a health facility in the 12 months preceding the survey by sector of most recent visit and residence, India, 1998–99

	Public sector			Private sector/NGO/trust			Total		
Quality indicator	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Percentage who received the service they went for	98.9	98.8	98.9	99.7	99.7	99.7	99.5	99.4	99.4
Median waiting time (minutes)	29.4	29.3	29.3	19.1	29.1	29.0	19.8	29.2	29.1
Percentage who said the staff spent enough time with them	91.3	89.9	90.3	98.2	97.1	97.5	96.2	94.4	94.9
Percentage who said the staff talked to them:									
Nicely	65.9	61.6	62.7	84.7	75.3	78.4	79.1	70.1	72.9
Somewhat nicely	30.6	35.8	34.5	14.9	23.9	20.9	19.6	28.4	25.7
Not nicely	3.4	2.6	2.8	0.3	0.8	0.6	1.3	1.5	1.4
Missing	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Percentage who said the staff respected their need for privacy[1]	73.7	66.2	68.2	89.6	81.0	83.9	85.0	75.4	78.4
Percentage who rated facility as:									
Very clean	57.1	50.4	52.1	81.8	72.1	75.3	74.5	63.9	67.1
Somewhat clean	39.6	47.0	45.1	17.5	27.0	23.8	24.1	34.5	31.3
Not clean	3.2	2.4	2.6	0.5	0.8	0.7	1.3	1.4	1.3
Missing	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Number of women	4,686	13,621	18,306	11,085	22,426	33,511	15,771	36,046	51,817
Number of women who said they needed privacy	3,416	9,420	12,836	8,238	15,651	23,889	11,655	25,071	36,726

Note: Cases where the source of service was neither the public sector nor the private sector/NGO/trust are excluded from the table.
NGO: Nongovernmental organization
[1]Among women who said they needed privacy

staff talked nicely to them, and whether the staff respected their privacy, if they needed privacy. Women were also asked their opinion regarding the cleanliness of the facility.

Almost all respondents (99 percent) said that they received the services for which they had visited the facility (Table 9.6). The median waiting time to receive services was about 30 minutes. The waiting time did not differ between public and private facilities, or between urban and rural areas for the public sector. However, for the private sector, the median waiting time is 10 minutes longer for rural women than for urban women. Satisfaction with the amount of time the staff spent with the woman was generally high (95 percent), but was slightly lower for the public sector (90 percent) than for the private sector (98 percent).

The private sector was also rated higher than the public sector on all of the other indicators of quality. Seventy-eight percent of women who received services in a private-sector facility said that the staff talked to them nicely compared with 63 percent of women who

Table 9.7 Quality of care indicators for facility visits by state

Among ever-married women who visited a health facility in the 12 months preceding the survey, quality of care indicators during the most recent visit, by state, India, 1998–99

State	Quality of care indicators for facility visits				
	Median waiting time	Percentage who said staff spent enough time with them	Percentage who said staff talked to them nicely	Percentage who said staff respected their need for privacy[1]	Percentage who rated facility as very clean
India	29.1	94.9	72.9	78.4	67.1
North					
Delhi	14.9	95.3	71.3	81.8	62.2
Haryana	14.6	99.0	78.4	87.6	67.9
Himachal Pradesh	14.6	98.3	80.1	89.1	59.4
Jammu & Kashmir	29.4	94.9	66.3	69.8	56.8
Punjab	14.4	98.6	79.5	84.0	64.4
Rajasthan	9.5	96.0	45.9	85.8	39.3
Central					
Madhya Pradesh	19.4	94.7	65.9	71.4	57.1
Uttar Pradesh	24.9	95.5	54.6	69.9	51.3
East					
Bihar	29.1	90.6	70.5	76.7	66.4
Orissa	19.2	90.8	62.9	57.0	46.8
West Bengal	29.8	84.8	63.7	24.4	54.9
Northeast					
Arunachal Pradesh	29.2	90.5	48.0	62.4	19.1
Assam	29.7	91.3	65.8	84.4	50.0
Manipur	29.1	97.5	60.6	93.0	25.4
Meghalaya	59.3	96.1	90.9	87.7	78.5
Mizoram	29.8	96.0	72.4	98.3	55.9
Nagaland	30.0	96.8	49.5	86.9	34.0
Sikkim	29.4	85.4	57.5	28.0	38.1
West					
Goa	29.3	96.3	89.7	97.1	79.6
Gujarat	13.0	98.1	93.2	91.9	90.0
Maharashtra	14.9	97.7	84.6	94.2	83.2
South					
Andhra Pradesh	29.4	97.1	69.3	84.4	68.2
Karnataka	29.4	95.1	75.8	89.0	70.2
Kerala	29.8	98.1	95.2	96.5	88.1
Tamil Nadu	29.7	93.5	83.1	85.8	79.4

[1]Among women who said they needed privacy

received services in a public-sector facility. Consistent with this, only 1 percent of women who visited a private-sector facility said that the staff did not talk to them nicely compared with 3 percent of women who visited a public-sector facility. Urban women are more likely than rural women to report that the staff talked to them nicely both for public and private health facilities.

Among women who wanted privacy during their visit, 78 percent were satisfied that the staff respected their need for privacy. Eighty-five percent of urban women said that the staff respected their need for privacy compared with 75 percent of rural women. Satisfaction with the amount of privacy offered to the client was much higher for visits to private-sector facilities (84 percent) than public-sector facilities (68 percent).

Private-sector facilities are also perceived to be cleaner than public-sector facilities. Seventy-five percent of women who visited a private-sector facility said that the facility was very clean compared with 52 percent of women who visited a public-sector facility. Women in urban areas rated the facility as cleaner than did women in rural areas.

Table 9.7 shows state differentials in the quality of services provided to women during their most recent visit to a health facility in the past 12 months. In terms of waiting time at the facilities, services seem to be quite efficient in Rajasthan, where the median waiting time to receive the required services was less than 10 minutes, and poorest in Meghalaya, where it took nearly one hour. The median waiting time is 15 minutes or less in all the northern states except Jammu and Kashmir and all the western states except Goa. The median waiting time is about half an hour in almost all of the remaining states.

A large majority of women (85 percent or more) in every state feel that the staff spent enough time with them, however, there are large interstate variations in the behaviour of staff at the health facilities. In Kerala, Gujarat, Meghalaya, and Goa, at least 90 percent of women report that the staff talked to them nicely, whereas in Rajasthan, Arunachal Pradesh, and Nagaland not even half of the women feel that the staff talked to them nicely.

Among women who said they needed privacy during their visit to the health facility, a large majority in most parts of the country were satisfied that the staff respected their need for privacy. In West Bengal and Sikkim, however, about three out of four women said that the staff did not respect their need for privacy.

The perception of women about the cleanliness of health facilities varies from place to place. The proportion of women who rate the facility they went to as very clean ranges from only 19 percent in Arunachal Pradesh to 90 percent in Gujarat. The majority of women in Manipur, Nagaland, Sikkim, Rajasthan, and Orissa (in addition to Arunachal Pradesh) reported that the health facilities are not kept very clean.

9.6 Family Planning Information and Advice Received

To gain a better understanding of the information provided to women about different contraceptive methods, eligible women were asked to recollect all the specific methods that had ever been discussed during any of the contacts they had ever had with a health or family planning worker. Overall, 60 percent of women said that they had either no contact or no discussion about any method of family planning with health or family planning personnel (Table 9.8). By far the most frequently discussed method was female sterilization (32 percent). Ten percent of women mentioned ever discussing pills, 9 percent IUDs, and 7 percent condoms. Male sterilization was discussed with only 4 percent of women. Discussions about traditional methods such as rhythm or withdrawal were rare. The results for urban and rural areas are very similar, with a higher proportion of urban women reporting discussions about every method of family planning except for male sterilization.

To explore the difficulties faced in the procurement of the supply of pills or condoms, women using these methods were asked if they faced any problem in getting the supply of pills or condoms whenever needed. Only 3 percent of the women reported that they had some problems in getting pills and only 2 percent faced difficulty in procuring condoms (Table 9.9). Rural women had slightly more problems in getting condoms and pills than urban women.

Table 9.8 Family planning discussions with a health or family planning worker

Percentage of ever-married women who reported ever discussing specific contraceptive methods with health or family planning workers by residence, India, 1998–99

Method	Urban	Rural	Total
Pill	13.3	9.4	10.4
Condom	11.9	5.5	7.2
IUD	14.1	7.3	9.1
Female sterilization	34.2	31.0	31.8
Male sterilization	4.2	4.3	4.3
Rhythm/safe period	1.7	0.9	1.1
Withdrawal	0.9	0.4	0.5
Other method	0.7	0.3	0.4
No method/no contact	52.1	62.2	59.6
Number of women	23,370	65,829	89,199

Note: Percentages add to more than 100.0 because more than one method may have been discussed.

Table 9.9 Availability of regular supply of condoms/pills

Percentage of current condom or pill users who ever had a problem getting a supply of condoms/pills by residence, India, 1998–99

Method/residence	Percentage who had a problem getting supply	Number of users
Condom		
Urban	1.7	1,580
Rural	2.9	988
Total	2.2	2,568
Pill		
Urban	1.5	584
Rural	3.6	1,151
Total	2.9	1,735

9.7 Person Motivating Users of a Modern Contraceptive Method

To help understand the dynamics of adoption of contraceptive methods and the roles that different persons play, NFHS-2 asked current users of modern methods who motivated them to use their current method. More than two-fifths (43 percent) of the current users of a modern method in the country said that they were not motivated by anyone; rather they adopted the method on their own (Table 9.10 and Figure 9.1). Only 21 percent said that a government health worker was the one who mainly motivated them and 34 percent reported that the motivator was someone other than a government, private, or NGO worker. As expected, the role of government health workers was much more important for motivating users in rural areas than in urban areas, although even in rural areas only one in every four users was motivated by a government health worker. Users in urban areas are more likely than rural users to be self-motivated. It is noteworthy that among the acceptors of female sterilization, 45 percent said that it was their own decision to use the method, and no one else had motivated them. Among women whose husbands had accepted sterilization, 50 percent stated that no one had motivated them to get sterilized. Forty-two percent of IUD users reported that they were not motivated by anyone, whereas 63 percent of condom users and 42 percent of pill users reported that they were motivated by someone other than a government, private, or NGO worker to use that method.

Table 9.10 Motivation to use family planning

Percent distribution of current users of modern contraceptive methods by type of person who motivated them to use the method according to residence, India, 1998–99

Current method	Type of person who motivated the user to use current method						Total percent	Number of users
	Government health worker	Private-sector health worker	NGO worker	Other	No one	Missing		
URBAN								
Pill	17.0	19.4	0.1	34.5	28.8	0.1	100.0	584
Condom	6.7	5.7	0.0	64.1	23.4	0.1	100.0	1,580
IUD	14.2	9.8	0.3	31.1	44.6	0.0	100.0	765
Female sterilization	14.0	2.4	0.0	29.1	54.4	0.0	100.0	7,887
Male sterilization	13.0	3.3	0.0	28.7	54.8	0.1	100.0	398
All modern methods	13.1	4.3	0.1	34.5	48.0	0.1	100.0	11,213
RURAL								
Pill	20.8	10.2	0.2	45.5	23.1	0.2	100.0	1,151
Condom	17.6	3.6	0.2	62.4	16.2	0.0	100.0	988
IUD	22.1	6.9	0.2	31.8	39.0	0.0	100.0	606
Female sterilization	24.6	1.3	0.1	32.2	41.7	0.1	100.0	20,693
Male sterilization	24.1	1.2	0.3	26.4	47.7	0.4	100.0	1,189
All modern methods	24.0	2.0	0.1	33.7	40.1	0.1	100.0	24,628
TOTAL								
Pill	19.5	13.3	0.2	41.8	25.1	0.1	100.0	1,735
Condom	10.9	4.9	0.1	63.4	20.6	0.0	100.0	2,568
IUD	17.7	8.6	0.3	31.4	42.1	0.0	100.0	1,371
Female sterilization	21.7	1.6	0.1	31.3	45.2	0.1	100.0	28,580
Male sterilization	21.3	1.7	0.2	27.0	49.5	0.3	100.0	1,587
All modern methods	20.6	2.7	0.1	34.0	42.6	0.1	100.0	35,841

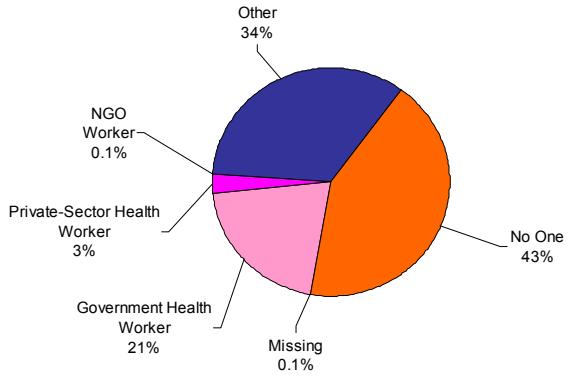
NGO: Nongovernmental organization

9.8 Quality of Care of Family Planning Services

NFHS-2 investigated several other aspects of quality of care. Each current user of a modern family planning method was asked whether the person who motivated her to use her current method informed her about alternative methods of family planning; whether she was told by a health or family planning worker about the possible side effects of the method at the time that she accepted the method; and whether she received any follow-up care either at home or in a health facility after she accepted the method. Tables 9.11 and 9.12 present the results of this investigation.

An important indication of the quality of family planning services is whether women are informed about a variety of methods and are allowed to make an informed choice about the method most suited to their family planning and reproductive health needs. Women who reported that someone had motivated them to use family planning were asked whether the motivator told them about alternate methods that they could use. Only 15 percent of users of modern contraceptive methods who were motivated by someone were informed about at least one

Figure 9.1
Motivator for Current Users of Modern Contraceptive Methods



Note: Percents add to more than 100 due to rounding

NFHS-2, India, 1998–99

Table 9.11 Discussions about alternative methods of family planning

Percentage of current users of modern contraceptive methods who were told about at least one other method by the person who motivated them to use the current method, according to the sector of the motivator and residence, India, 1998–99

Sector of motivator	Urban	Rural	Total	Number of users
Public health sector	26.5	17.3	19.1	7,388
Private health sector	37.3	18.8	28.0	967
NGO or trust	(45.7)	(23.7)	(27.4)	40
Other	15.1	9.0	10.9	12,169
Total	19.8	12.7	14.7	20,563

Note: Table excludes women who said that no one motivated them to use their current method.
NGO: Nongovernmental organization

alternative method (Table 9.11). Nineteen percent of users who were motivated by a worker in the public sector received such information compared with 28 percent of users who were motivated by a private-sector worker. Only 11 percent of the users who were motivated by a person not working in the public or private health sector or for an NGO or trust were told about alternative methods. Users in urban areas were more likely than users in rural areas to be told about other methods, especially if the person who motivated them was from the private health sector.

Another important element of informed contraceptive choice is being fully informed about any side effects associated with the method. Table 9.12 shows the percentage of current users of modern contraception who were told about side effects by a health or family planning

Table 9.12 Information on side effects and follow-up for current method

Percentage of current users of modern contraceptive methods who were told about side effects or other problems of the current method by a health or family planning worker at the time of accepting the method and percentage who received follow-up services after accepting the method by current method and residence, India, 1998–99

Information/follow-up	Urban	Rural	Total
Told about side effects			
Sterilization	22.0	21.9	21.9
Other modern method	21.0	20.1	20.6
Any modern method	21.8	21.7	21.7
Received follow-up			
Sterilization	77.0	73.8	74.6
Other modern method	40.1	39.7	39.9
Any modern method	67.4	70.0	69.1

worker at the time they accepted their current method. Women were also asked if they received follow-up services after they had accepted the method.

In India, only 22 percent of users of any modern method were informed about possible side effects of their current method by a health or family planning worker at the time of adopting the method. Twenty-two percent of acceptors of sterilization in both urban and rural areas reported that they were informed about side effects. Among users of modern methods other than sterilization, 21 percent of urban users and 20 percent of rural users were informed about side effects. It is clear that both public and private health and family planning workers in India are not providing couples with the information they need to make an informed choice about contraceptive methods.

The situation is much better with respect to follow-up services. Among sterilization users, 74 percent in rural areas and 77 percent in urban areas received follow-up services. Even so, this implies that one in four users of sterilization had no follow-up. Two-fifths of users of other modern methods received follow-up services. In all, 70 percent of the users of any modern method in rural areas and 67 percent in urban areas received follow-up services.

Table 9.13 shows interstate variations in the percentage of users of modern contraceptive methods who were told about alternative methods and about side effects or other problems related to the current method, and the percentage of users who received the follow-up services. The percentage of women who were told about other methods by the person who motivated them to use their current method is lowest in the Southern Region and highest in most states in the Northern Region. The gap between the public sector and the private sector in the information provided is widest in Punjab, where 73 percent of women who were motivated by private sector workers were told about other methods compared with 37 percent of women motivated by public sector workers. There are only seven states (Arunachal Pradesh, Meghalaya, Mizoram, Rajasthan, West Bengal, Bihar, and Kerala) in which motivators from the public sector are doing a better job than motivators from the private sector in giving clients information about alternative methods.

There are also large-scale interstate variations in the percentage of users of modern contraceptives that were told about the side effects of the method at the time of its acceptance. In the case of sterilization, the proportion varied from a low of 8 percent in Jammu and Kashmir to

Table 9.13 Quality of care indicators for contraceptive users by state

Among currently married women who are current users of modern contraceptive methods, quality of care indicators related to the use of their current contraceptive method by state, India, 1998–99

State	Percentage told about other methods by the person who motivated them[1]		Percentage told about side effects or other problems with method[2]		Percentage who received follow-up[3]	
	Motivator from public sector	Motivator from private sector	Sterilization	Other modern method	Sterilization	Other modern method
India	19.1	28.0	21.9	20.6	74.6	39.9
North						
Delhi	58.4	63.7	27.8	26.7	67.9	54.8
Haryana	51.6	54.2	61.9	40.0	99.8	33.7
Himachal Pradesh	43.9	71.6	35.8	23.0	97.8	25.2
Jammu & Kashmir	22.5	31.6	7.8	12.7	88.4	54.5
Punjab	36.8	72.7	55.6	30.9	99.4	29.6
Rajasthan	25.9	10.2	13.1	14.2	73.6	49.2
Central						
Madhya Pradesh	14.4	41.1	11.3	18.8	82.0	44.7
Uttar Pradesh	15.1	31.1	15.5	11.3	54.3	41.4
East						
Bihar	20.6	14.7	15.8	16.0	78.3	65.5
Orissa	18.2	38.5	35.7	28.9	62.9	34.3
West Bengal	25.0	14.9	10.1	9.9	38.8	12.6
Northeast						
Arunachal Pradesh	24.9	0.0	31.0	34.2	79.9	84.2
Assam	23.4	27.7	10.6	17.1	91.1	74.3
Manipur	40.9	51.2	41.0	47.4	63.8	36.5
Meghalaya	29.6	5.8	16.4	25.3	94.3	86.1
Mizoram	28.0	9.9	47.6	49.8	73.8	61.1
Nagaland	24.5	50.9	18.5	15.9	58.0	45.6
Sikkim	35.1	42.2	23.8	29.5	95.2	55.4
West						
Goa	23.0	45.3	16.3	16.5	83.0	26.5
Gujarat	13.9	31.5	9.5	9.9	78.5	27.7
Maharashtra	27.6	42.3	20.6	27.8	74.6	50.7
South						
Andhra Pradesh	10.4	18.1	13.2	16.7	80.7	55.9
Karnataka	8.9	19.5	35.9	47.3	83.8	62.3
Kerala	19.1	13.9	9.2	14.9	91.1	26.2
Tamil Nadu	7.4	21.5	54.8	43.7	73.3	50.4

[1]Excludes women who said that no one motivated them to use their current method
[2]By a health or family planning worker at the time of accepting the current method
[3]After accepting the current method

a high of 62 percent in Haryana. In most of the states less than one-fifth of sterilization acceptors were told about its side effects. For other modern contraceptive methods, a maximum of 50 percent of users in Mizoram and a minimum of 10 percent of users in West Bengal and Gujarat were told about the side effects of the method. These results clearly show that throughout India there is very little informed choice about contraceptive methods before they are accepted. Users are typically not given any information about either the side effects of the method accepted or the availability of alternative contraceptive methods.

Follow-up services are much better for sterilization than for other modern methods. In West Bengal, only 39 percent of sterilization acceptors received the follow-up services, but a majority of women in all other states received such services. Almost all of the sterilization acceptors in Haryana, Punjab and Himachal Pradesh (98 percent or more) received follow-up services. State differentials in follow-up services are much larger for other modern methods, varying from a low of 13 percent in West Bengal to a high of 86 percent in Meghalaya.

Overall, although the quality of care for family planning and health services is far from satisfactory in any of the states, some states need to work much more than other states to improve their health and family planning services, particularly services that are provided by the public sector. A review of all the quality of care indicators shown in Tables 9.5, 9.7, and 9.13 suggests that the quality of care is relatively poor in West Bengal, Uttar Pradesh, Orissa, and Arunachal Pradesh. The states with relatively good performance on the quality of care indicators overall are Haryana, Maharashtra, and Tamil Nadu, followed closely by Himachal Pradesh, Punjab, Meghalaya, and Mizoram.

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APPENDIX A

ORGANIZATIONS INVOLVED IN NFHS-2 FIELDWORK

Field Organization	State(s)
ACNielsen Research Services Pvt. Ltd. B–4/58, 2nd Floor, Safdarjung Enclave New Delhi–110 029	Assam Uttar Pradesh
Centre for Operations Research and Training 402, Woodland Apartments, Race Course Vadodara–390 007	Maharashtra Rajasthan
Centre for Population and Development Studies G–3, Shanthi Apartments Anand Nagar Colony, Khairatabad Hyderabad–500 004	Madhya Pradesh Orissa
Centre for Research in Rural and Industrial Development 2–A, Sector 19–A Madhya Marg, Chandigarh–160 019	Haryana Himachal Pradesh Punjab
Economic Information Technology S–4, Metropolitan Co-operative Housing Society Ltd. Sector A, Lane No. 8 Calcutta–700 039	Sikkim West Bengal
Indian Institute of Health and Family Welfare Vengalrao Nagar Hyderabad–500 038	Andhra Pradesh
ORG Centre for Social Research A Division of ORG-MARG Research Ltd. D-24, South Extension Part I New Delhi–110 049	Bihar Jammu and Kashmir Kerala
Population Research Centre Department of Statistics Faculty of Science M.S. University of Baroda Lokmanya Tilak Road, Vadodara–390 002	Gujarat
Population Research Centre Institute for Social and Economic Change Nagarbhavi P.O., Bangalore–560 072	Karnataka
Population Research Centre Institute of Economic Growth University Enclave Delhi–110 007	Delhi
Population Research Centre J.S.S. Institute of Economic Research Vidyagiri, Dharwad–580 004	Goa
Population Research Centre The Gandhigram Institute of Rural Health and Family Welfare Trust Ambathurai R.S., Dindigul District Tamil Nadu–624 302	Tamil Nadu
TNS Mode Research Private Limited 1796–A Kotla Mubarkpur Behind NDSE–I New Delhi–110 003	Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura

APPENDIX B

SAMPLE CHARACTERISTICS FOR STATES

The sample design for NFHS-2 is described in Chapter 1 and more detailed information about the sample design for each state is contained in the individual state reports for NFHS-2. Table B.1 summarizes the basic characteristics of the sample design in each state including the variables used for rural stratification and the number of primary sampling units (PSUs) selected in urban and rural areas. A total of 1,021 urban PSUs and 2,144 rural PSUs were selected for the sample. In rural areas, the sample was stratified according to a number of variables in each state, including regions (group of districts, *tehsils,* or *talukas*), subregions, village size, percent of males in the nonagricultural sector, percent of scheduled castes and scheduled tribes, and female literacy.

Table B.1 Sample characteristics

State	Population[1] (1991)	Variables for rural stratification	Number of primary sampling units		
			Urban	Rural	Total
Andhra Pradesh	66,508,008	Region (group of districts) Village size Percent of SC/ST population Female literacy (implicit)	36	97	133
Arunachal Pradesh	864,558	Region (group of *tehsils*) Village size Percent of SC/ST population Female literacy (implicit)	6	44	50
Assam	22,414,322	Region (group of districts) Village size Percent of SC/ST population Female literacy (implicit)	33	67	100
Bihar	86,374,465	Region (group of districts) Subregions Village size Percent of SC/ST population Female literacy (implicit)	31	202	233
Delhi	9,420,664	Village size Female literacy (implicit)	90	10	100
Goa	1,169,793	Region (group of *talukas*) Female literacy (implicit)	20	30	50
Gujarat	41,309,582	Region (group of districts) Village size Percent of SC/ST population Female literacy (implicit)	46	87	133
Haryana	16,463,648	Region (group of districts) Village size Percent of males in nonagricultural sector Female literacy (implicit)	33	67	100
Himachal Pradesh	5,170,877	Region (group of districts) Village size Percent of SC/ST population Female literacy (implicit)	33	67	100
Jammu & Kashmir	7,718,700	Region (group of districts) Village size Female literacy (implicit)	50	67	117
Karnataka	44,977,201	Region (group of districts) Village size Percent of SC/ST population Female literacy (implicit)	41	92	133
Kerala	29,098,518	Region (group of districts) Village size Female literacy Percent of males in nonagricultural sector (implicit)	33	67	100
Madhya Pradesh	66,181,170	Region (group of districts) Village size Percent of males in nonagricultural sector Percent of SC/ST population Female literacy (implicit)	56	177	233
Maharashtra	78,937,187	Region (group of districts) Village size Percent of SC/ST population Female literacy (implicit)	136	82	218

Table B.1 Sample characteristics (contd.)

State	Population[1] 1991	Variables for rural stratification	Number of primary sampling units		
			Urban	Rural	Total
Manipur	1,837,149	Region (group of *tehsils*) Village size Female literacy (implicit)	14	36	50
Meghalaya	1,774,778	Region (group of *tehsils*) Village size Female literacy (implicit)	9	41	50
Mizoram	689,756	Region (group of *tehsils*) Village size Female literacy (implicit)	23	27	50
Nagaland	1,209,546	Region (group of *tehsils*) Village size Female literacy (implicit)	9	41	50
Orissa	31,659,736	Region (group of districts) Village size Female literacy Percent of SC/ST population (implicit)	33	100	133
Punjab	20,281,969	Region (group of districts) Village size Percent of SC/ST population Female literacy (implicit)	33	67	100
Rajasthan	44,005,990	Region (group of districts) Village size Percent of SC/ST population Female literacy (implicit)	53	180	233
Sikkim	406,457	Region (group of districts) Village size Female literacy (implicit)	5	45	50
Tamil Nadu	55,858,946	Region (group of districts) Village size Percent of SC/ST population Female literacy (implicit)	70	88	158
Uttar Pradesh	139,112,287	Region (group of districts) Subregions Village size Percent of SC/ST population Percent of males in nonagricultural sector Female literacy (implicit)	67	266	333
West Bengal	68,077,965	Region (group of districts) Village size Percent of SC/ST population Female literacy (implicit)	61	97	158
India	841,523,272	--	1021	2144	3165

SC: Scheduled caste
ST: Scheduled tribe
[1]The population shown is the 1991 Census population, excluding persons living in villages with fewer than five households.

APPENDIX C

ESTIMATES OF SAMPLING ERRORS

Two types of errors affect the estimates from a sample survey: (1) nonsampling errors and (2) sampling errors. Nonsampling errors are the result of errors committed during data collection and data processing, such as failure to locate and interview the correct household, misunderstanding of the questions on the part of either the interviewer or the respondent, and data entry errors. Although numerous efforts were made during the implementation of NFHS-2 to minimize nonsampling errors, they are impossible to avoid and difficult to evaluate statistically.

Sampling errors, on the other hand, can be evaluated statistically. The sample of women selected in NFHS-2 is only one of many samples that could have been selected from the same population, using the same design and expected sample size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. The sampling error is a measure of the variability among all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

The sampling error is usually measured by the *standard error* for a particular statistic (for example, a mean or percentage), which is the square root of the variance. The standard error can be used to calculate confidence intervals within which the true value for the population can reasonably be assumed to fall. For example, for any given statistic calculated from a sample survey, the value of that statistic will fall within a range, calculated as the value of the statistic plus or minus two times the standard error of that statistic in 95 percent of all possible samples of identical size and design.

If the sample of women had been selected as a simple random sample, it would have been possible, for many statistics, to use straightforward formulas for calculating sampling errors. However, the NFHS-2 sample is the result of a multi-stage stratified sample design, and it is therefore necessary to use more complex formulas. The computer software used to calculate sampling errors for NFHS-2 is ISSA (the Integrated System for Survey Analysis). The linear Taylor series approximation method for variance estimation is used for estimates of means, proportions and ratios. The JACKKNIFE repeated replication method is used with ISSA for variance estimation for more complex statistics such as fertility and mortality rates.

The ISSA package treats any percentage or average as a ratio estimate, $r = y/x$, where y represents the sample value for variable y, and x represents the number of cases in the group or subgroup under consideration. The variance of r is computed using the formula given below, with the standard error being the square root of the variance:

$$\mathrm{var}(r) = \frac{1-f}{x^2} \sum_{h=1}^{H} \left[\frac{m_h}{m_h - 1} \left(\sum_{i=1}^{m_h} z_{hi}^2 - \frac{z_h^2}{m_h} \right) \right]$$

in which

$$z_{hi} = y_{hi} - rx_{hi}$$

$$z_h = y_h - rx_h$$

where

h = the stratum that varies from 1 to H,
m_h= the total number of PSUs selected in the hth stratum,
y_{hi}= the sum of the values of variable y in PSU i in the hth stratum,
x_{hi}= the sum of the number of cases in PSU i in the hth stratum,
f = the overall sampling fraction, which is so small that the program ignores it.

In addition to the standard error, ISSA computes the design effect (DEFT) for each estimate, which is defined as the ratio of the standard error using the given sample design to the standard error that would result if a simple random sample had been used. A DEFT value of 1.0 indicates that the sample design is as efficient as a simple random sample, while a value greater than 1.0 indicates the increase in the sampling error due to the use of a more complex and less statistically efficient design. ISSA also computes the relative standard error and confidence limits for the estimates.

Sampling errors for NFHS-2 are calculated for selected variables considered to be of primary interest. The results in this appendix are presented for the country as a whole and for urban and rural areas separately, except for the variable on salt iodization for which the results are shown separately for large cities, small cities, towns, and rural areas. For each variable, the type of statistic (mean, proportion, ratio, or rate) and the base population are given in Table C.1. Table C.2 presents the value of the statistic (R), its standard error (SE), the relative standard error (SE/R), and the 95 percent confidence limits (R±2SE), for each variable. In addition, for all variables except the fertility and mortality rates, the table shows the unweighted number of cases (N), the weighted number of cases (WN), the standard error assuming a simple random sample (SER), and the design effect (DEFT).

Table C.1 List of selected variables for sampling errors, India, 1998–99

Variable	Estimate	Base population
Sex ratio	Ratio	*De facto* household population
Illiterate	Proportion	*De facto* household population age 6 and above
Have tuberculosis	Rate	1,000 *de jure* household population
Salt iodized at 15 ppm or more	Proportion	Households
Illiterate	Proportion	Ever-married women 15–49
High school complete and above	Proportion	Ever-married women 15–49
Currently married	Proportion	Ever-married women 15–49
Number of children ever born	Mean	Currently married women 15-49
Number of children surviving	Mean	Currently married women 15-49
Have ever used any method	Proportion	Currently married women 15-49
Currently using any method	Proportion	Currently married women 15–49
Currently using any modern method	Proportion	Currently married women 15–49
Currently using pills	Proportion	Currently married women 15–49
Currently using IUD	Proportion	Currently married women 15–49
Currently using condoms	Proportion	Currently married women 15–49
Currently using female sterilization	Proportion	Currently married women 15–49
Currently using male sterilization	Proportion	Currently married women 15–49
Currently using rhythm/safe period	Proportion	Currently married women 15–49
Using public source for modern method	Proportion	Current users of modern methods
Do not want any more children	Proportion	Currently married women 15–49
Want to delay birth at least 2 years	Proportion	Currently married women 15–49
Ideal number of children	Mean	Ever-married women 15–49
Ideal number of sons	Mean	Ever-married women 15–49
Ideal number of daughters	Mean	Ever-married women 15–49
Visited by health/family planning worker	Proportion	Ever-married women 15–49
Received no antenatal check-up	Proportion	Births in the past 3 years
Received iron and folic acid tablets or syrup	Proportion	Births in the past 3 years
Received medical assistance during delivery	Proportion	Births in the past 3 years
Received postpartum check-up	Proportion	Noninstitutional births in the past 3 years
Had diarrhoea in the past 2 weeks	Proportion	Children under 3 years
Treated with ORS packets	Proportion	Children under 3 with diarrhoea in past 2 weeks
Taken to a health facility/provider for diarrhoea	Proportion	Children under 3 with diarrhoea in past 2 weeks
Showing a vaccination card	Proportion	Children 12–23 months
Received BCG vaccination	Proportion	Children 12–23 months
Received DPT vaccination (3 doses)	Proportion	Children 12–23 months
Received polio vaccination (3 doses)	Proportion	Children 12–23 months
Received measles vaccination	Proportion	Children 12–23 months
Fully vaccinated	Proportion	Children 12–23 months
Received Vitamin A	Proportion	Children 12–35 months
Had reproductive health problem	Proportion	Currently married women 15–49
Not involved in any decisionmaking	Proportion	Ever-married women 15–49
Ever beaten or physically mistreated	Proportion	Ever-married women 15–49
Not worked in past 12 months	Proportion	Ever-married women 15–49
Anaemic women	Proportion	Ever-married women 15–49
Anaemic children	Proportion	Children age 6–35 months
Fertility rates	Rate	All women, population
Mortality rates	Rate	Births, population

Table C.2 Sampling errors, India, 1998–99

Variable/ residence	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Standard error assuming SRS (SER)	Design effect (DEFT)	Relative standard error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
Sex ratio (*De facto* household population)									
Urban	936	5.626	79447	66790	3.687	1.526	0.006	925	947
Rural	968	3.517	169322	181223	2.649	1.327	0.004	961	975
Total	960	2.995	248769	248014	2.154	1.391	0.003	954	966
Illiterate (*De facto* household population age 6 and above)									
Urban	0.199	0.006	136015	113959	0.001	5.178	0.028	0.188	0.210
Rural	0.433	0.004	282860	303095	0.001	4.278	0.009	0.425	0.441
Total	0.369	0.004	418875	417055	0.001	5.262	0.011	0.361	0.377
Have tuberculosis (1,000 *de jure* household population)									
Urban	3.898	0.252	155344	130336	0.158	1.595	0.065	3.393	4.402
Rural	6.002	0.212	336709	360764	0.133	1.594	0.035	5.578	6.427
Total	5.444	0.171	492053	491100	0.105	1.632	0.031	5.101	5.786
Salt iodized at 15ppm or more (Households)									
Large city	0.768	0.014	11682	6745	0.004	3.527	0.018	0.740	0.795
Small city	0.677	0.022	5850	7393	0.006	3.559	0.032	0.633	0.720
Town	0.665	0.018	12903	11106	0.004	4.228	0.026	0.630	0.700
Rural	0.416	0.007	60761	65953	0.002	3.378	0.016	0.402	0.429
Total	0.493	0.006	91196	91196	0.002	3.812	0.013	0.481	0.506
Illiterate (Ever-married women age 15-49)									
Urban	0.332	0.010	27862	23370	0.003	3.391	0.029	0.313	0.351
Rural	0.670	0.005	61337	65829	0.002	2.896	0.008	0.659	0.681
Total	0.582	0.006	89199	89199	0.002	3.461	0.010	0.570	0.593
High school complete and above (Ever-married women age 15-49)									
Urban	0.328	0.010	27862	23370	0.003	3.383	0.029	0.309	0.347
Rural	0.077	0.003	61337	65829	0.001	2.332	0.033	0.072	0.082
Total	0.143	0.004	89199	89199	0.001	3.275	0.027	0.135	0.150
Currently married women (Ever-married women age 15-49)									
Urban	0.937	0.002	27862	23370	0.001	1.462	0.002	0.932	0.941
Rural	0.938	0.001	61337	65829	0.001	1.485	0.002	0.935	0.941
Total	0.938	0.001	89199	89199	0.001	1.486	0.001	0.935	0.940
Number of children ever born (Currently married women age 15–49)									
Urban	2.703	0.029	26132	21888	0.012	2.445	0.011	2.645	2.761
Rural	3.110	0.016	57700	61761	0.009	1.741	0.005	3.078	3.142
Total	3.004	0.014	83832	83649	0.007	1.947	0.005	2.975	3.032
Number of children surviving (Currently married women age 15–49)									
Urban	2.458	0.025	26132	21888	0.010	2.371	0.010	2.408	2.507
Rural	2.672	0.012	57700	61761	0.008	1.606	0.005	2.647	2.696
Total	2.616	0.011	83832	83649	0.006	1.806	0.004	2.593	2.638
Have ever used any method (Currently married women age 15–49)									
Urban	0.672	0.007	26132	21888	0.003	2.256	0.010	0.659	0.685
Rural	0.508	0.006	57700	61761	0.002	2.723	0.011	0.497	0.520
Total	0.551	0.005	83832	83649	0.002	2.757	0.009	0.542	0.561

Table C.2 Sampling errors, India, 1998–99 (contd.)

Variable/ residence	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Standard error assuming SRS (SER)	Design effect (DEFT)	Relative standard error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
Currently using any method (Currently married women age 15–49)									
Urban	0.582	0.007	26132	21888	0.003	2.138	0.011	0.569	0.595
Rural	0.447	0.006	57700	61761	0.002	2.662	0.012	0.436	0.458
Total	0.482	0.005	83832	83649	0.002	2.644	0.009	0.473	0.491
Currently using any modern method (Currently married women age 15–49)									
Urban	0.512	0.007	26132	21888	0.003	2.128	0.013	0.499	0.525
Rural	0.399	0.005	57700	61761	0.002	2.688	0.014	0.388	0.410
Total	0.428	0.005	83832	83649	0.002	2.644	0.011	0.419	0.438
Currently using pills (Currently married women age 15–49)									
Urban	0.027	0.002	26132	21888	0.001	1.583	0.059	0.024	0.030
Rural	0.019	0.001	57700	61761	0.001	1.975	0.060	0.016	0.021
Total	0.021	0.001	83832	83649	0.000	1.871	0.044	0.019	0.023
Currently using IUD (Currently married women age 15–49)									
Urban	0.035	0.002	26132	21888	0.001	1.597	0.052	0.031	0.039
Rural	0.010	0.001	57700	61761	0.000	1.342	0.056	0.009	0.011
Total	0.016	0.001	83832	83649	0.000	1.521	0.041	0.015	0.018
Currently using condoms (Currently married women age 15–49)									
Urban	0.072	0.003	26132	21888	0.002	1.906	0.042	0.066	0.078
Rural	0.016	0.001	57700	61761	0.001	1.485	0.048	0.014	0.018
Total	0.031	0.001	83832	83649	0.001	1.824	0.035	0.029	0.033
Currently using female sterilization (Currently married women age 15–49)									
Urban	0.360	0.007	26132	21888	0.003	2.485	0.020	0.346	0.375
Rural	0.335	0.005	57700	61761	0.002	2.641	0.015	0.325	0.345
Total	0.342	0.004	83832	83649	0.002	2.625	0.013	0.333	0.350
Currently using male sterilization (Currently married women age 15–49)									
Urban	0.018	0.001	26132	21888	0.001	1.672	0.076	0.015	0.021
Rural	0.019	0.001	57700	61761	0.001	2.124	0.063	0.017	0.022
Total	0.019	0.001	83832	83649	0.000	2.052	0.051	0.017	0.021
Currently using rhythm/safe period (Currently married women age 15–49)									
Urban	0.039	0.002	26132	21888	0.001	1.792	0.055	0.034	0.043
Rural	0.027	0.001	57700	61761	0.001	1.836	0.046	0.025	0.030
Total	0.030	0.001	83832	83649	0.001	1.821	0.036	0.028	0.032
Using public source for modern method (Current users of modern methods)									
Urban	0.601	0.010	13343	11213	0.004	2.342	0.017	0.581	0.621
Rural	0.832	0.005	22504	24628	0.002	2.066	0.006	0.822	0.843
Total	0.760	0.005	35847	35841	0.002	2.357	0.007	0.749	0.771
Do not want any more children (Currently married women age 15–49)									
Urban	0.322	0.007	26132	21888	0.003	2.468	0.022	0.307	0.336
Rural	0.259	0.004	57700	61761	0.002	2.100	0.015	0.251	0.267
Total	0.275	0.003	83832	83649	0.002	2.221	0.012	0.268	0.282
Want to delay birth at least two years (Currently married women age 15–49)									
Urban	0.115	0.003	26132	21888	0.002	1.449	0.025	0.109	0.120
Rural	0.139	0.002	57700	61761	0.001	1.5325	0.016	0.135	0.144
Total	0.133	0.002	83832	83649	0.001	1.540	0.014	0.129	0.137

Table C.2 Sampling errors, India, 1998–99 (contd.)

Variable/ residence	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Standard error assuming SRS (SER)	Design effect (DEFT)	Relative standard error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
Ideal number of children (Ever-married women age 15–49)									
Urban	2.317	0.017	26725	22041	0.005	3.265	0.007	2.282	2.351
Rural	2.771	0.014	57767	60956	0.005	3.176	0.005	2.742	2.800
Total	2.650	0.012	84492	82996	0.004	3.379	0.005	2.626	2.675
Ideal number of sons (Ever-married women age 15–49)									
Urban	1.063	0.017	26706	22027	0.005	3.458	0.016	1.030	1.096
Rural	1.469	0.012	57727	60911	0.004	3.278	0.008	1.445	1.494
Total	1.361	0.011	84433	82939	0.003	3.499	0.008	1.340	1.383
Ideal number of daughters (Ever-married women age 15–49)									
Urban	0.819	0.010	26706	22027	0.004	2.888	0.013	0.798	0.840
Rural	1.018	0.007	57727	60911	0.003	2.465	0.006	1.005	1.032
Total	0.965	0.006	84433	82939	0.002	2.696	0.006	0.954	0.977
Visited by health/family planning worker (Ever-married women age 15–49)									
Urban	0.100	0.006	27862	23370	0.002	3.535	0.064	0.087	0.113
Rural	0.140	0.004	61337	65829	0.001	2.838	0.028	0.132	0.148
Total	0.130	0.003	89199	89199	0.001	3.016	0.026	0.123	0.136
Received no antenatal check-up (Births in past 3 years)									
Urban	0.136	0.009	8498	7191	0.004	2.303	0.069	0.117	0.155
Rural	0.398	0.009	24224	25202	0.003	2.536	0.022	0.381	0.416
Total	0.340	0.008	32722	32393	0.003	2.665	0.022	0.325	0.355
Received iron and folic acid tablets or syrup (Births in past 3 years)									
Urban	0.757	0.011	8498	7191	0.005	2.412	0.015	0.734	0.779
Rural	0.525	0.008	24224	25202	0.003	2.578	0.016	0.508	0.541
Total	0.576	0.007	32722	32393	0.003	2.670	0.013	0.562	0.591
Received medical assistance during delivery (Births in past 3 years)									
Urban	0.733	0.012	8498	7191	0.005	2.278	0.016	0.709	0.757
Rural	0.335	0.007	24224	25202	0.003	2.198	0.022	0.321	0.350
Total	0.423	0.007	32722	32393	0.003	2.455	0.017	0.409	0.438
Received postpartum check-up (Noninstitutional births in past 3 years)									
Urban	0.196	0.013	2856	2495	0.007	1.730	0.066	0.170	0.222
Rural	0.161	0.005	18425	18896	0.003	1.923	0.032	0.151	0.171
Total	0.165	0.005	21281	21391	0.003	1.900	0.029	0.155	0.175
Had diarrhoea in the past 2 weeks (Children under 3 years)									
Urban	0.196	0.008	8007	6768	0.004	1.766	0.040	0.180	0.211
Rural	0.190	0.004	22227	23096	0.003	1.543	0.021	0.182	0.199
Total	0.192	0.004	30234	29864	0.002	1.594	0.019	0.184	0.199
Treated with ORS packets (Children under 3 with diarrhoea in past 2 weeks)									
Urban	0.327	0.017	1567	1324	0.012	1.398	0.051	0.294	0.361
Rural	0.250	0.009	4466	4397	0.007	1.293	0.036	0.233	0.268
Total	0.268	0.008	6033	5721	0.006	1.323	0.029	0.252	0.284
Taken to a health facility/provider for diarrhoea (Children under 3 with diarrhoea in past 2 weeks)									
Urban	0.752	0.013	1567	1324	0.011	1.175	0.017	0.726	0.778
Rural	0.599	0.010	4466	4397	0.008	1.282	0.017	0.579	0.619
Total	0.634	0.009	6033	5721	0.006	1.328	0.014	0.617	0.651

Table C.2 Sampling errors, India, 1998–99 (contd.)

Variable/ residence	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Standard error assuming SRS (SER)	Design effect (DEFT)	Relative standard error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
Showing a vaccination card (Children 12–23 months)									
Urban	0.459	0.014	2707	2282	0.010	1.478	0.031	0.431	0.488
Rural	0.301	0.008	7404	7795	0.005	1.561	0.028	0.284	0.318
Total	0.337	0.007	10111	10076	0.005	1.573	0.022	0.322	0.352
Received BCG vaccination (Children 12–23 months)									
Urban	0.868	0.010	2707	2282	0.007	1.553	0.012	0.847	0.888
Rural	0.671	0.009	7404	7795	0.006	1.702	0.014	0.652	0.690
Total	0.716	0.008	10111	10076	0.005	1.772	0.011	0.700	0.732
Received DPT vaccination (3 doses) (Children 12–23 months)									
Urban	0.734	0.015	2707	2282	0.009	1.733	0.020	0.704	0.763
Rural	0.498	0.010	7404	7795	0.006	1.761	0.021	0.477	0.519
Total	0.551	0.009	10111	10076	0.005	1.831	0.017	0.533	0.570
Received polio vaccination (3 doses) (Children 12–23 months)									
Urban	0.782	0.012	2707	2282	0.008	1.529	0.016	0.758	0.807
Rural	0.583	0.010	7404	7795	0.006	1.671	0.017	0.563	0.602
Total	0.628	0.008	10111	10076	0.005	1.730	0.013	0.611	0.645
Received measles vaccination (Children 12–23 months)									
Urban	0.692	0.015	2707	2282	0.009	1.683	0.022	0.662	0.722
Rural	0.453	0.010	7404	7795	0.006	1.744	0.023	0.432	0.473
Total	0.507	0.009	10111	10076	0.005	1.799	0.018	0.489	0.525
Fully vaccinated (Children 12–23 months)									
Urban	0.605	0.016	2707	2282	0.009	1.749	0.027	0.572	0.637
Rural	0.366	0.010	7404	7795	0.006	1.799	0.028	0.346	0.387
Total	0.420	0.009	10111	10076	0.005	1.850	0.022	0.402	0.439
Received Vitamin A (Children 12–35 months)									
Urban	0.387	0.013	5425	4559	0.007	1.840	0.032	0.365	0.413
Rural	0.270	0.007	14732	15331	0.004	1.976	0.028	0.255	0.285
Total	0.297	0.007	20157	19889	0.003	1.983	0.022	0.284	0.310
Had reproductive health problem (Currently married women 15–49)									
Urban	0.367	0.008	26132	21888	0.003	2.546	0.021	0.352	0.382
Rural	0.401	0.004	57700	61761	0.002	2.172	0.011	0.392	0.410
Total	0.392	0.004	83832	83649	0.002	2.278	0.010	0.384	0.400
Not involved in any decisionmaking (Ever-married women age 15–49)									
Urban	0.071	0.003	27862	23370	0.002	1.956	0.042	0.065	0.077
Rural	0.103	0.003	61337	65829	0.001	2.076	0.025	0.097	0.108
Total	0.094	0.002	89199	89199	0.001	2.107	0.022	0.090	0.098
Ever beaten or physically mistreated (Ever-married women age 15–49)									
Urban	0.168	0.005	27862	23370	0.002	2.364	0.031	0.158	0.179
Rural	0.225	0.003	61337	65829	0.002	2.049	0.015	0.218	0.232
Total	0.210	0.003	89199	89199	0.001	2.163	0.014	0.204	0.216
Not worked in past 12 months (Ever-married women age 15–49)									
Urban	0.744	0.007	27862	23370	0.003	2.726	0.010	0.730	0.758
Rural	0.560	0.007	61337	65829	0.002	3.573	0.013	0.546	0.575
Total	0.608	0.006	89199	89199	0.002	3.607	0.010	0.597	0.620

Table C.2 Sampling errors, India, 1998–99 (contd.)

Variable/ residence	Value (R)	Standard error (SE)	Number of cases		Standard error assuming SRS (SER)	Design effect (DEFT)	Relative standard error (SE/R)	Confidence limits	
			Unweighted (N)	Weighted (WN)				R-2SE	R+2SE
Anaemic women (Ever-married women age 15–49)									
Urban	0.457	0.007	24850	20872	0.003	2.067	0.014	0.444	0.470
Rural	0.539	0.005	54813	58791	0.002	2.220	0.009	0.530	0.549
Total	0.518	0.004	79663	79663	0.002	2.245	0.008	0.510	0.526
Anaemic children (Children age 6–35 months)									
Urban	0.708	0.010	5565	4642	0.006	1.571	0.014	0.689	0.727
Rural	0.753	0.006	14892	15374	0.004	1.633	0.008	0.742	0.765
Total	0.743	0.005	20457	20016	0.003	1.622	0.007	0.733	0.753

Table C.2 Sampling errors, India, 1998–99 (contd.)

Variable/ residence	Value (R)	Standard error (SE)	Relative standard error (SE/R)	Confidence limits	
				R-2SE	R+2SE
Total fertility rate (Women age 15–49)					
Urban	2.272	0.037	0.016	2.198	2.346
Rural	3.075	0.031	0.010	3.013	3.136
Total	2.849	0.024	0.009	2.800	2.897
Age-specific fertility rate (Women age 15–19)					
Urban	0.068	0.003	0.038	0.063	0.073
Rural	0.121	0.002	0.016	0.117	0.125
Total	0.107	0.002	0.015	0.104	0.110
Age-specific fertility rate (Women age 20–24)					
Urban	0.179	0.003	0.018	0.173	0.185
Rural	0.222	0.002	0.011	0.218	0.227
Total	0.210	0.002	0.009	0.207	0.214
Age-specific fertility rate (Women age 25–29)					
Urban	0.127	0.003	0.025	0.121	0.134
Rural	0.150	0.003	0.017	0.145	0.155
Total	0.143	0.002	0.014	0.139	0.147
Age-specific fertility rate (Women age 30–34)					
Urban	0.057	0.003	0.047	0.052	0.063
Rural	0.075	0.002	0.029	0.070	0.079
Total	0.069	0.002	0.025	0.066	0.073
Age-specific fertility rate (Women age 35–39)					
Urban	0.018	0.002	0.086	0.015	0.022
Rural	0.033	0.002	0.047	0.030	0.036
Total	0.028	0.001	0.041	0.026	0.031
Age-specific fertility rate (Women age 40–44)					
Urban	0.003	0.001	0.211	0.002	0.005
Rural	0.011	0.001	0.083	0.009	0.012
Total	0.008	0.001	0.078	0.007	0.010
Age-specific fertility rate (Women age 45–49)					
Urban	0.001	0.000	0.534	0.000	0.002
Rural	0.004	0.001	0.197	0.002	0.005
Total	0.003	0.001	0.186	0.002	0.004

Table C.2 Sampling errors, India, 1998–99 (contd.)

Variable/ residence	Value (R)	Standard error (SE)	Relative standard error (SE/R)	Confidence limits	
				R-2SE	R+2SE
Neonatal mortality (5-year period preceding survey)					
Urban	31.653	2.007	0.063	27.639	35.667
Rural	46.706	1.301	0.028	44.104	49.309
Total	43.397	1.114	0.026	41.168	45.626
Infant mortality ${}_1q_0$ (5-year period preceding survey)					
Urban	47.026	2.393	0.051	42.239	51.812
Rural	73.344	1.664	0.023	70.015	76.673
Total	67.569	1.421	0.021	64.727	70.411
Child mortality ${}_4q_1$ (5-year period preceding survey)					
Urban	16.896	1.383	0.082	14.130	19.662
Rural	32.759	1.123	0.034	30.513	35.005
Total	29.256	0.940	0.032	27.377	31.136
Under-five mortality ${}_5q_0$ (5-year period preceding survey)					
Urban	63.127	2.884	0.046	57.359	68.895
Rural	103.701	2.061	0.020	99.578	107.824
Total	94.848	1.771	0.019	91.307	98.390
Crude death rate (Based on household questionnaire)					
Urban	7.833	0.271	0.035	7.291	8.375
Rural	10.376	0.278	0.027	9.820	10.933
Total	9.698	0.250	0.026	9.198	10.197
Crude birth rate (Based on birth history)					
Urban	20.859	0.336	0.016	20.187	21.531
Rural	26.218	0.230	0.009	25.758	26.678
Total	24.799	0.191	0.008	24.417	25.181
Maternal Mortality Ratio (100,000 live births)					
Urban	267.154	78.934	0.295	109.287	425.021
Rural	618.814	68.492	0.111	481.830	755.798
Total	540.361	56.193	0.104	427.975	652.746

SRS: Simple random sample

APPENDIX D

DATA QUALITY TABLES

The purpose of this appendix is to provide the data user with an overview of the general quality of the NFHS-2 data. Whereas Appendix C is concerned with sampling errors and their effects on the survey results, the tables in this appendix refer to possible *nonsampling* errors: for example, rounding or heaping on certain ages or dates; omission of events occurring further in the past; deliberate distortion of information by some interviewers in an attempt to lighten their work load; noncooperation of the respondent in providing information; or refusal to have children measured for height and weight or tested for anaemia. A description of the likely magnitude of such nonsampling errors is provided in this appendix.

The distribution of the *de facto* household population by single years of age and sex is presented in Table D.1. In many (but not all) cases, the respondent was the head of the household. It is well documented that ages are poorly reported in most parts of India. Ages are of little relevance to much of the rural population in particular, and no amount of probing will ensure that ages are properly recorded. In interviewer training for NFHS-2, a great deal of emphasis was placed on obtaining as accurate information as possible on ages and dates of events. Nevertheless, it is clear that age reporting in NFHS-2 shares the same problems inherent in all Indian censuses and surveys. Heaping on ages ending in 0, 2, 5, and 8 is considerable and is particularly severe in the older age groups. However, the NFHS-2 age data are evidently of considerably better quality than age data from other sources. This can be seen, for example, by comparing the degree of age heaping in NFHS-2 with that in the 1991 Census. Age reporting appears to be better in NFHS-2 than in the 1991 Census, particularly at the young adult ages. Another measure of the quality of the NFHS-2 age data is the percentage of persons whose ages were recorded as not known or missing. In the country as a whole, information on age was missing for only 70 persons out of 486,011 persons listed on the household schedules.

Table D.2 examines the possibility that some eligible women (that is, ever-married women age 15–49) were not properly identified in NFHS-2. In some surveys, interviewers may try to reduce their workload by pushing women out of the eligible age range or recording ever-married women as never married so that they will not have to be interviewed. If such practices were being followed to a noticeable extent, Table D.2 would normally show (1) a shortage of ever-married women in the 45–49 age group and an excess in the 50–54 age group or (2) an unusually low proportion of ever-married women by age. Neither of these patterns is evident in the NFHS-2 data. It can, therefore, be concluded that there was no concerted effort to misidentify eligible women in NFHS-2.

One traditional measure of the quality of data is the extent to which information is missing on key variables. Although completeness of responses does not necessarily indicate that the results are accurate, the existence of missing information for a large number of cases would suggest that data collection was not carried out with sufficient care. In NFHS-2 for India as a whole, the extent of missing information is very low for age at death, age at first marriage, woman's education, and prevalence of diarrhoea in the two weeks preceding the survey (Table D.3). Month of birth only was missing for less than 4 percent of children; however, the year is reported in almost every case in which the month is missing. Data on height and weight of

Table D.1 Household age distribution

Single-year age distribution of *de facto* household population by sex (weighted), India, 1998–99

	Male		Female			Male		Female	
Age	Number	Percent	Number	Percent	Age	Number	Percent	Number	Percent
< 1	5,960	2.4	5,416	2.3	38	2,867	1.2	2,908	1.2
1	5,471	2.2	5,112	2.1	39	1,207	0.5	1,535	0.6
2	5,602	2.3	5,323	2.2	40	7,330	3.0	4,942	2.1
3	5,454	2.2	5,297	2.2	41	938	0.4	1,317	0.6
4	6,276	2.5	5,792	2.4	42	2,348	0.9	2,293	1.0
5	7,067	2.8	6,187	2.6	43	938	0.4	1,326	0.6
6	6,615	2.7	6,152	2.6	44	1,006	0.4	1,199	0.5
7	6,048	2.4	5,682	2.4	45	6,003	2.4	4,247	1.8
8	7,177	2.9	6,558	2.8	46	1,204	0.5	1,465	0.6
9	5,228	2.1	4,851	2.0	47	993	0.4	1,284	0.5
10	7,616	3.1	6,839	2.9	48	1,859	0.7	1,903	0.8
11	4,724	1.9	4,352	1.8	49	913	0.4	862	0.4
12	7,475	3.0	6,632	2.8	50	4,823	1.9	2,048	0.9
13	4,950	2.0	4,964	2.1	51	751	0.3	1,030	0.4
14	5,594	2.3	5,096	2.1	52	1,444	0.6	1,902	0.8
15	5,783	2.3	5,255	2.2	53	638	0.3	1,144	0.5
16	5,514	2.2	5,387	2.3	54	654	0.3	1,047	0.4
17	4,240	1.7	4,082	1.7	55	3,361	1.4	3,940	1.7
18	6,706	2.7	6,346	2.7	56	893	0.4	1,153	0.5
19	3,370	1.4	3,691	1.6	57	518	0.2	702	0.3
20	5,966	2.4	6,868	2.9	58	1,192	0.5	1,300	0.5
21	3,088	1.2	3,195	1.3	59	519	0.2	507	0.2
22	5,201	2.1	5,260	2.2	60	4,884	2.0	4,733	2.0
23	3,219	1.3	3,542	1.5	61	446	0.2	460	0.2
24	3,298	1.3	3,627	1.5	62	978	0.4	1,044	0.4
25	6,678	2.7	7,047	3.0	63	453	0.2	465	0.2
26	3,590	1.4	3,771	1.6	64	403	0.2	412	0.2
27	2,799	1.1	3,008	1.3	65	3,252	1.3	3,246	1.4
28	4,296	1.7	4,630	1.9	66	433	0.2	402	0.2
29	1,828	0.7	2,295	1.0	67	361	0.1	293	0.1
30	7,879	3.2	7,187	3.0	68	600	0.2	545	0.2
31	1,419	0.6	1,869	0.8	69	303	0.1	220	0.1
32	3,821	1.5	3,613	1.5	70+	8,054	3.2	6,581	2.8
33	1,573	0.6	1,944	0.8	Don't				
34	1,730	0.7	2,088	0.9	know/				
35	8,490	3.4	6,410	2.7	missing	33	0.0	37	0.0
36	2,252	0.9	2,468	1.0					
37	1,418	0.6	1,664	0.7	Total	248,014	100.0	237,997	100.0

Note: The *de facto* population includes residents and nonresidents who stayed in the household the night before the interview.

children and woman's haemoglobin level are available for more than 85 percent of the members of the respective reference groups. Missing information is highest (21 percent) for children's haemoglobin level. The response rates are acceptable for the height and weight and child's haemoglobin level since in any survey many children cannot be measured because they are not at home or they are ill at the time of the survey. In some cases when the child was at home, either the child refused to be measured or the mother refused to allow the child to be measured because of cultural beliefs. Before undertaking haemoglobin measurements, a separate 'informed consent' statement was read to the respondent explaining that participation in the haemoglobin testing was completely voluntary. At this point, some women declined to take part in the anaemia testing and/or to have their children participate.

Table D.2 Age distribution of eligible and interviewed women

Percent distribution of the *de facto* household population of women age 10–54 and of interviewed women age 15–49 and percentage of eligible women who were interviewed (weighted), India, 1998–99

Age	All women	Ever-married women	Interviewed women		Percent interviewed
			Number	Percent	
10–14	27,885	187	NA	NA	NA
15–19	24,762	7,436	7,044	7.6	94.7
20–24	22,491	17,564	16,762	18.2	95.4
25–29	20,752	19,582	18,834	20.4	96.2
30–34	16,700	16,353	15,763	17.1	96.4
35–39	14,986	14,792	14,240	15.4	96.3
40–44	11,078	10,955	10,508	11.4	95.9
45–49	9,762	9,683	9,167	9.9	94.7
50–54	7,171	7,127	NA	NA	NA
15–49	120,531	96,364	92,318	100.0	95.8

Note: The *de facto* population includes all residents and nonresidents who stayed in the household the night before the interview. For all columns, the age distribution is taken from ages reported on the Household Questionnaire. The total number of interviewed women in this table differs from the total number in earlier tables because this table uses household weights rather than women's weights for the calculations.
NA: Not applicable

Table D.3 Completeness of reporting

Percentage of observations with missing information for selected demographic and health questions (weighted), India, 1998–99

Subject	Reference group	Percentage missing information	Number of cases
Birth date	Births in past 15 years		
Month only		3.76	173,724
Month and year		0.12	173,724
Age at death	Deaths to births in past 15 years	0.87	18,457
Age at first marriage	Ever-married women age 15–49	0.30	89,199
Woman's education	Ever-married women age 15–49	0.04	89,199
Anthropometry	Living children age 0–35 months		
Height		13.05	30,372
Weight		13.12	30,372
Height or weight		13.58	30,372
Woman's haemoglobin level	Ever-married women age 15–49	11.65	89,199
Child's haemoglobin level	Living children age 6–35 months	20.92	24,846
Diarrhoea in past 2 weeks	Living children age 1–35 months	0.27	29,864

Another measure of data quality is the completeness and accuracy of information on births. Table D.4 examines the distribution of births by calendar year to identify any unusual patterns which may indicate that births have been omitted or that the ages of children have been displaced. Overall, 96 percent of living children listed in the birth history had complete birth dates recorded, as did 88 percent of children who had died. The completeness of data on birth dates for living children is good overall and is excellent in recent years. The completeness for nonsurviving children is less satisfactory, but again better in the past few years. The annual data on the number of births can be examined to see if there is an abnormally large decline in the number of births after January of the third calendar year before the survey. The cutoff point for the health questions and measurements made on young children was 1 January 1995 for surveys that began in 1998 and 1 January 1996 for surveys that began in 1999. It is typical for the annual number of births to fluctuate somewhat, so small annual fluctuations are to be expected. However, a drop in the annual number of births between the years just before the cutoff point and the years just after the cutoff point (particularly for nonsurviving children) suggests that there has been some omission of recent births or displacement of birth dates that could result in an underestimate of fertility rates for recent years.

Many surveys that include both demographic information and health information for children below a specified age have been subject to a substantial amount of age displacement. In particular, there is often a tendency for interviewers to 'age' children out of the eligible period for asking health questions. This problem was well known before NFHS-2 began; therefore, interviewer training stressed this issue to try to reduce the extent of biases due to age displacement. Apparently, the training was not entirely successful in avoiding this type of problem, however. The 14 percent decline in the number of births between 1994 and 1995 (and the much larger percent decline between those two years in the number of children who died by the time of the survey) must be partly due to the omission of births in 1995 and/or the displacement of births from 1995 to earlier years. This type of error is likely to result in some degree of underestimation in recent fertility and infant mortality rates.

Table D.5 presents information on the reporting of age at death in days. Results from the table suggest that early infant deaths have not been seriously underreported in NFHS-2, because the ratios of deaths under seven days to all neonatal deaths are quite high (a ratio of less than 25 percent is often used as a guideline to indicate underreporting of early neonatal deaths). The ratios decline slightly over time, from 74 in the period 0–4 years preceding the survey to 70 in the period 10-14 years preceding the survey. Although there was no severe underreporting of early neonatal deaths in NFHS-2, there was some misreporting of age at death due to a preference for reporting the age at death at 3, 5, 8, 10, 12, 15, 18, 20, 25, and 30 days (Table D.5).

Table D.6 shows the percentage of infant deaths that occurred during the neonatal period. These percentages are also quite high and nearly constant over time, suggesting that there is no major omission of neonatal deaths.

Table D.4 Births by calendar year

Number of births, percent with complete birth date, sex ratio at birth, and calendar year ratio for children still alive at the time of the survey (L), children who died by the time of the survey (D), and total children (T), by calendar year (weighted), India, 1998–99

	Number of births			Percent with complete birth date[1]			Sex ratio at birth[2]			Calendar year ratio[3]		
Calendar year	L	D	T	L	D	T	L	D	T	L	D	T
1999	1,741	60	1,801	100.0	99.2	100.0	905	520	889	NA	NA	NA
1998	10,647	665	11,312	99.7	98.1	99.6	898	961	901	NC	NC	NC
1997	9,913	696	10,609	99.2	97.3	99.0	958	879	952	NC	NC	NC
1996	9,732	809	10,541	98.9	95.6	98.7	945	1,044	953	97.9	102.6	98.2
1995	9,977	880	10,857	98.2	93.5	97.8	938	1,018	944	95.5	78.3	93.8
1994	11,169	1,440	12,609	97.5	93.4	97.0	922	1,118	942	103.0	130.0	105.6
1993	11,699	1,335	13,035	97.4	92.0	96.9	901	951	906	103.4	92.2	102.1
1992	11,471	1,458	12,929	96.9	92.8	96.5	930	994	937	103.6	112.8	104.6
1991	10,436	1,249	11,685	96.3	90.0	95.7	922	996	930	90.4	85.6	89.8
1990	11,625	1,461	13,086	96.3	90.3	95.6	935	1,032	945	116.0	112.1	115.6
1989	9,600	1,357	10,957	95.8	89.5	95.0	926	938	928	83.2	92.5	84.2
1988	11,465	1,475	12,940	95.6	89.5	94.9	900	1,049	916	124.6	107.9	122.4
1993–97	52,490	5,161	57,651	98.2	93.9	97.8	931	1,011	938	NA	NA	NA
1988–92	54,596	7,001	61,597	96.2	90.4	95.6	923	1,003	931	NA	NA	NA
1983–87	45,988	7,146	53,134	94.8	87.6	93.8	925	965	930	NA	NA	NA
1978–82	35,973	6,644	42,616	93.9	86.4	92.7	903	972	914	NA	NA	NA
1977 or earlier	30,280	8,492	38,772	91.8	82.0	89.6	876	877	876	NA	NA	NA
All	231,715	35,168	266,883	95.6	87.7	94.6	914	957	920	NA	NA	NA

NA: Not applicable
NC: Not calculated because full-year data were not collected for 1998 and 1999 (the survey began during 1998)
[1] Both year and month of birth given
[2] (B_f/B_m)x1000, where B_f and B_m are the numbers of female and male births, respectively
[3] $[2B_x/(B_{x-1}+B_{x+1})]$x100, where B_x is the number of births in calendar year x

Table D.5 Reporting of age at death in days

Distribution of reported deaths under 1 month of age by age at death in days and the percentage of neonatal deaths reported to occur at age 0–6 days, for births occurring during five-year periods preceding the survey (weighted), India, 1998–99

	Years preceding survey			
Age at death (days)	0–4	5–9	10–14	0–14
< 1	625	827	675	2,127
1	401	539	502	1,442
2	169	242	255	666
3	243	285	243	772
4	95	120	144	359
5	115	151	159	424
6	110	127	145	382
7	85	118	140	343
8	98	152	144	393
9	33	66	56	154
10	51	80	88	219
11	36	33	33	102
12	38	51	58	148
13	13	33	32	78
14	16	14	16	46
15	110	145	147	401
16	4	8	22	35
17	9	11	12	31
18	18	19	14	51
19	5	7	11	23
20	33	47	43	124
21	13	28	21	62
22	11	15	20	46
23	2	0	4	6
24	6	11	9	26
25	13	10	17	40
26	2	2	1	5
27	2	2	5	9
28	4	4	10	18
29	3	1	7	11
30	14	7	13	33
Missing	3	5	3	12
0–30	2,376	3,155	3,045	8,576
Percent early neonatal[1]	74.0	72.6	69.7	72.0

[1]Deaths during the first 6 days divided by deaths during the first 30 days

One problem that is inherent in most retrospective surveys is heaping of the age at death on certain digits, e.g., 6, 12, and 18 months. Misreporting of age at death will bias estimates of the age pattern of mortality if the net result of misreporting is the transference of deaths between age segments for which the rates are calculated. For example, an overestimate of child mortality relative to infant mortality may result if children dying during the first year of life are reported as having died at age one or older. Thus, heaping at 12 months can bias the mortality estimates because a certain fraction of these deaths, which are reported to have occurred after infancy (that is, at ages 12–23 months), may have actually occurred during infancy (that is, at ages 0–11 months). In this case, heaping would bias the infant mortality rate downward and the child mortality rate upward.

Examination of the distribution of deaths under age two years during the 15 years before the survey by month of death (Table D.6) indicates there is some heaping of deaths at 6, 12, and

Table D.6 Reporting of age at death in months

Distribution of reported deaths under two years of age by age at death in months and the percentage of infant deaths reported to occur at age under one month, for births occurring during five-year periods preceding the survey (weighted), India, 1998–99

	Years preceding survey			
Age at death (months)	0–4	5–9	10–14	0–14
< 1	2,379	3,160	3,048	8,588
1	237	343	375	956
2	161	223	244	627
3	148	181	213	542
4	95	112	99	306
5	68	109	114	290
6	140	195	183	518
7	81	102	106	290
8	89	87	91	268
9	66	99	130	294
10	57	66	90	213
11	45	73	74	191
12	181	288	333	802
13	28	41	44	114
14	20	37	45	103
15	26	39	35	101
16	11	18	15	44
17	7	8	10	25
18	51	144	127	322
19	2	5	3	11
20	10	7	6	24
21	5	4	6	15
22	3	4	8	15
23	7	9	8	24
Missing	4	3	0	7
1 year	54	95	145	294
0–11	3,566	4,750	4,767	13,082
Percent neonatal[1]	66.7	66.5	64.0	65.6

[1]Deaths during the first month divided by deaths during the first year

18 months of age. The heaping at 12 months is substantial despite the strong emphasis on this problem during the training of interviewers for the NFHS-2 fieldwork. Nevertheless, even if one-third of the deaths reported at age 12 months or age one year actually occurred at less than 12 months of age, the infant mortality rate for the five years before the survey would be underestimated by about 2 percent. Therefore, the degree of heaping on 12 months and one year might lead to a slight underestimate of the postneonatal and infant mortality rates and a somewhat more substantial overestimate of the child mortality rate.

APPENDIX E

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APPENDIX F

SURVEY INSTRUMENTS

The three standard core questionnaires (Household Questionnaire, Woman's Questionnaire, and Village Questionnaire) that were used in all states are presented in this appendix. However, there were a few questions that were included only in the questionnaires in Maharashtra, Delhi, and Tamil Nadu. The specific questions were:

For Maharashtra, on the coversheet of Household Questionnaire, two additional identifiers were added for use in Mumbai only: whether the area is a slum area and whether the household is a slum household (not shown on the questionnaire presented here).

Questions 907A, 907B, 913A, and 913B were included in the Woman's Questionnaire for use only in Mumbai and Delhi to test the level of lead in the blood of children born since January 1996 to eligible women. A form showing the results of the lead testing was also added. In addition, the informed consent statement in question 901 was modified in these states to include information on lead testing.

For Maharashtra, Delhi, and Tamil Nadu, question 914 was included in the Woman's Questionnaire to determine whether the respondent would agree to be interviewed again in the future for a follow-up study.

For all the Phase I states (in which fieldwork began in 1998), the reference date for household questions on deaths (questions 51 to 62) was 1996. The reference year was changed to 1997 for Phase II states (in which fieldwork began in 1999). Similarly, the reference date for question 224, section 4A, section 4B (through question 485), question 620, section 8, and section 9 was 1995 for Phase I states and 1996 for Phase II states.

NATIONAL FAMILY HEALTH SURVEY, 1998-99 (NFHS-2)
HOUSEHOLD QUESTIONNAIRE

INDIA

CONFIDENTIAL
For Research
Purposes Only

IDENTIFICATION

STATE_____

DISTRICT_____

TEHSIL/TALUK_____

CITY/TOWN/VILLAGE_____

URBAN/RURAL (urban=1, rural=2).....

LARGE CITY/SMALL CITY/TOWN/RURAL AREA.....
(large city=1, small city=2, town=3, rural area=4)

PSU NUMBER.....

HOUSEHOLD NUMBER.....

NAME OF HOUSEHOLD HEAD_____

ADDRESS OF HOUSEHOLD_____

_____

INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE	_____	_____	_____	DAY
				MONTH
				YEAR 1 9
INTERVIEWER'S NAME	_____	_____	_____	NAME CODE
RESULT*	_____	_____	_____	RESULT CODE
NEXT VISIT: DATE	_____	_____		TOTAL NUMBER OF VISITS
TIME	_____	_____		

*RESULT CODES:
1 COMPLETED
2 NO HOUSEHOLD MEMBER AT HOME OR NO COMPETENT RESPONDENT AT HOME AT THE TIME OF VISIT
3 ENTIRE HOUSEHOLD ABSENT FOR EXTENDED PERIOD
4 POSTPONED
5 REFUSED
6 DWELLING VACANT OR ADDRESS NOT A DWELLING
7 DWELLING DESTROYED
8 DWELLING NOT FOUND
9 OTHER _____
(SPECIFY)

TOTAL PERSONS IN HOUSEHOLD

TOTAL ELIGIBLE WOMEN

LINE NO. OF RESP. TO HOUSE-HOLD SCHEDULE

	SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
DATE	_____	_____	_____	_____
NAME	_____	_____	_____	_____

HOUSEHOLD SCHEDULE

1	RECORD THE TIME.	HOUR..... ☐☐ MINUTES..... ☐☐

Now I would like some information about the people who usually live in your household or who are staying with you now.

LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	RESIDENCE		SEX	AGE	IF AGE 6 YEARS OR OLDER									
							MARITAL STATUS	ELIGIBILITY	EDUCATION							
								CIRCLE LINE NUMBER OF EVER-MARRIED FEMALES AGE 15-49 (EXCLUDING AND NM)			IF NEVER ATTENDED SCHOOL	IF EVER ATTENDED SCHOOL	IF AGE LESS THAN 18 YEARS	IF NOT IN SCHOOL
(2)	Please give me the names of the persons who usually live in your household and guests of the household who stayed here last night, starting with the head of the household. (3)	What is the relationship of (NAME) to the head of the household?* (4)	Does (NAME) usually live here? (5)	Did (NAME) stay here last night? (6)	Is (NAME) male or female? (7)	How old is (NAME)?** (8)	What is the current marital status of (NAME)?*** (9)	(10)	Can (NAME) read and write? (11)	Has (NAME) ever been to school? (12)	What is the main reason (NAME) never went to school?**** (13)	What is the highest grade (NAME) has completed?***** (14)	Is (NAME) still in school? (15)	What is the main reason (NAME) is not going to school?****** (16)
			YES NO	YES NO	M F	IN YEARS	CM NG S DS D W NM		YES NO	YES NO	REASON	GRADE	YES NO	REASON
01		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5 6 7	01	1 2	1 2	☐☐	☐☐	1 2	☐☐
02		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5 6 7	02	1 2	1 2	☐☐	☐☐	1 2	☐☐
03		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5 6 7	03	1 2	1 2	☐☐	☐☐	1 2	☐☐
04		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5 6 7	04	1 2	1 2	☐☐	☐☐	1 2	☐☐
05		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5 6 7	05	1 2	1 2	☐☐	☐☐	1 2	☐☐
06		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5 6 7	06	1 2	1 2	☐☐	☐☐	1 2	☐☐
07		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5 6 7	07	1 2	1 2	☐☐	☐☐	1 2	☐☐
08		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5 6 7	08	1 2	1 2	☐☐	☐☐	1 2	☐☐

HOUSEHOLD SCHEDULE (CONTINUED)

(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
			YES NO	YES NO	M F	IN YEARS	CM NG S DS D W NM		YES NO	YES NO	REASON	GRADE	YES NO	REASON
09			1 2	1 2	1 2		1 2 3 4 5 6 7	09	1 2	1 2			1 2	
10			1 2	1 2	1 2		1 2 3 4 5 6 7	10	1 2	1 2			1 2	
11			1 2	1 2	1 2		1 2 3 4 5 6 7	11	1 2	1 2			1 2	
12			1 2	1 2	1 2		1 2 3 4 5 6 7	12	1 2	1 2			1 2	
13			1 2	1 2	1 2		1 2 3 4 5 6 7	13	1 2	1 2			1 2	
14			1 2	1 2	1 2		1 2 3 4 5 6 7	14	1 2	1 2			1 2	
15			1 2	1 2	1 2		1 2 3 4 5 6 7	15	1 2	1 2			1 2	
16			1 2	1 2	1 2		1 2 3 4 5 6 7	16	1 2	1 2			1 2	

TICK HERE IF CONTINUATION SHEET USED ☐ TOTAL NUMBER OF ELIGIBLE WOMEN ☐☐

* CODES FOR Q.4
RELATIONSHIP TO HEAD OF HOUSEHOLD:
01= HEAD
02= WIFE OR HUSBAND
03= SON OR DAUGHTER
04= SON-IN-LAW OR DAUGHTER-IN-LAW
05= GRANDCHILD
06= PARENT
07= PARENT-IN-LAW
08= BROTHER OR SISTER
09= BROTHER-IN-LAW OR SISTER-IN-LAW
10= NIECE OR NEPHEW
11= OTHER RELATIVE
12= ADOPTED/FOSTER CHILD
13= NOT RELATED

** CODES FOR Q.8
00= AGE LESS THAN ONE YEAR
95= AGE 95 YEARS OR MORE

*** CODES FOR Q.9
MARITAL STATUS:
1= CURRENTLY MARRIED
2= MARRIED,BUT GAUNA NOT PERFORMED
3= SEPARATED
4= DESERTED
5= DIVORCED
6= WIDOWED
7= NEVER MARRIED

****CODES FOR Q.13
01= SCHOOL TOO FAR AWAY
02= TRANSPORT NOT AVAILABLE
03= EDUCATION NOT CONSIDERED NECESSARY
04= REQUIRED FOR HOUSEHOLD WORK
05= REQUIRED FOR WORK ON FARM/FAMILY BUSINESS
06= REQUIRED FOR OUTSIDE WORK FOR PAYMENT IN CASH OR KIND
07= COST TOO MUCH
08= NO PROPER SCHOOL FACILITIES FOR GIRLS
09= REQUIRED FOR CARE OF SIBLINGS
10= NOT INTERESTED IN STUDIES
96= OTHER
98= DK

*****CODES FOR Q.14
GRADE:
00=LESS THAN 1 YEAR COMPLETED

******CODES FOR Q.16
01= SCHOOL TOO FAR AWAY
02= TRANSPORT NOT AVAILABLE
03= FURTHER EDUCATION NOT CONSIDERED NECESSARY
04= REQUIRED FOR HOUSEHOLD WORK
05= REQUIRED FOR WORK ON FARM/FAMILY BUSINESS
06= REQUIRED FOR OUTSIDE WORK FOR PAYMENT IN CASH OR KIND
07= COST TOO MUCH
08= NO PROPER SCHOOL FACILITIES FOR GIRLS
09= REQUIRED FOR CARE OF SIBLINGS
10= NOT INTERESTED IN STUDIES
11= REPEATED FAILURES
12= GOT MARRIED
96= OTHER
98= DK

PSU NO._____

HH NO. _____

LINE NO.	IF AGE 6 YEARS OR OLDER		AFTER COMPLETING COLUMNS 1-18 FOR ALL LISTED PERSONS, ASK:																								
	OCCUPATION		Does anyone listed suffer from:												Does anyone listed:												
		IF WORKING					IF SUFFERS FROM TUBERCULOSIS																				
	What kind of work does (NAME) do most of the time? (17)	Does (NAME) earn cash for this work? (18)	Asthma? RECORD FOR EACH PERSON (19)		Tuberculosis? RECORD FOR EACH PERSON (20)		Has (NAME) received medical treatment for tuberculosis? (21)		Did anyone listed suffer from malaria at any time during the last three months? RECORD FOR EACH PERSON (22)		Did anyone listed suffer from jaundice at any time during the last twelve months? RECORD FOR EACH PERSON (23)		Chew paan masala or tobacco? RECORD FOR EACH PERSON (24)		Drink alcohol? RECORD FOR EACH PERSON (25)		Smoke? RECORD FOR EACH PERSON (26)		Has any (other) person listed ever smoked regularly? RECORD FOR CURRENT NONSMOKERS ONLY (27)		
		YES NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	DK
01		1 2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
02		1 2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
03		1 2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
04		1 2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
05		1 2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
06		1 2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
07		1 2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
08		1 2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3

PSU NO._____

HH NO. _____

	(17)	(18)		(19)		(20)		(21)		(22)		(23)		(24)		(25)		(26)		(27)		
		YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	DK
09		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
10		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
11		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
12		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
13		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
14		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
15		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
16		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3

28 Just to make sure that I have a complete listing:

1) Are there any other persons such as small children or infants that we have not listed? YES ☐ ——> ENTER EACH IN TABLE NO ☐

2) In addition, are there any other people who may not be members of your family, such as domestic servants, lodgers or friends who usually live here? YES ☐ ——> ENTER EACH IN TABLE NO ☐

3) Do you have any guests or temporary visitors staying here, or anyone else who stayed here last night? YES ☐ ——> ENTER EACH IN TABLE NO ☐

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
29	When members of your household get sick, where do they generally go for treatment?	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSPITAL.....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSPITAL/PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 GOVT. PARAMEDIC.....17 OTHER PUBLIC SECTOR HEALTH FACILITY.....18 NGO/TRUST HOSPITAL/CLINIC.....21 NGO WORKER.....22 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 PVT. PARAMEDIC.....34 VAIDYA/HAKIM/HOMEOPATH.....35 TRADITIONAL HEALER.....36 PHARMACY/DRUGSTORE.....37 DAI(TBA).....38 OTHER PRIVATE SECTOR HEALTH FACILITY.....39 OTHER SHOP.....41 HOME TREATMENT.....42 OTHER _____96 (SPECIFY)	
30	What is the main source of drinking water for members of your household?	PIPED WATER PIPED INTO RESIDENCE/YARD/PLOT.....11 ——>32 PUBLIC TAP.....12 GROUND WATER HANDPUMP IN RESIDENCE/ YARD/PLOT.....21 ——>32 PUBLIC HANDPUMP.....22 WELL WATER WELL IN RESIDENCE/YARD/PLOT COVERED WELL.....31 OPEN WELL.....32 ——>32 PUBLIC WELL COVERED WELL.....33 OPEN WELL.....34 SURFACE WATER SPRING.....41 RIVER/STREAM.....42 POND/LAKE.....43 DAM.....44 RAINWATER.....51 TANKER TRUCK.....61 OTHER_____96 (SPECIFY)	
31	How long does it take to go there, get water, and come back in one trip?	MINUTES..... [ ][ ][ ]	
32	What do you do to purify drinking water, if anything? RECORD ALL MENTIONED.	STRAIN BY CLOTH.....A ALUM.....B WATER FILTER.....C BOILING.....D ELECTRONIC PURIFIER.....E NOTHING.....F OTHER_____X (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
33	What kind of toilet facility does your household have?	FLUSH TOILET OWN FLUSH TOILET.....11 SHARED FLUSH TOILET.....12 PUBLIC FLUSH TOILET.....13 PIT TOILET/LATRINE OWN PIT TOILET/LATRINE.....21 SHARED PIT TOILET/LATRINE.....22 PUBLIC PIT TOILET/LATRINE.....23 NO FACILITY/BUSH/FIELD.....31 OTHER _____96 (SPECIFY)	
34	What is the main source of lighting for your household?	ELECTRICITY.....1 KEROSENE.....2 GAS.....3 OIL.....4 OTHER_____6 (SPECIFY)	
35	How many rooms are there in your household?	ROOMS..... [ ][ ]	
36	Do you have a separate room which is used as a kitchen?	YES.....1 NO.....2	
37	What type of fuel does your household mainly use for cooking?	WOOD.....01 CROP RESIDUES.....02 DUNG CAKES.....03 COAL/COKE/LIGNITE.....04 CHARCOAL.....05 KEROSENE.....06 ELECTRICITY.....07 LIQUID PETROLEUM GAS.....08 BIO-GAS.....… 09 OTHER_____96 (SPECIFY)	
38	What other types of fuel does your household commonly use for cooking or heating? RECORD ALL MENTIONED.	WOOD.....A CROP RESIDUES.....B DUNG CAKES.....C COAL/COKE/LIGNITE.....D CHARCOAL.....E KEROSENE.....F ELECTRICITY.....G LIQUID PETROLEUM GAS.....H BIO-GAS..... I OTHER_____X (SPECIFY) NO OTHER TYPE.....Y	
39	What is the religion of the head of the household?	HINDU.....01 MUSLIM.....02 CHRISTIAN.....03 SIKH.....04 BUDDHIST/NEO BUDDHIST.....05 JAIN.....06 JEWISH.....07 ZOROASTRIAN/PARSI.....08 NO RELIGION.....09 OTHER_____96 (SPECIFY)	
40	What is the caste or tribe of the head of the household?	CASTE_____1 (SPECIFY) TRIBE_____2 (SPECIFY) NO CASTE/TRIBE.....3——>42	
41	Is this a scheduled caste, a scheduled tribe, other backward caste, or none of them?	SC.....1 ST.....2 OBC.....3 NONE OF THEM.....4	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
42	Does this household own this house or any other house?	YES.....1 NO.....2	
43	Does this household own any agricultural land?	YES.....1 NO.....2	>46
44	_____ (SIZE AND UNIT) How much agricultural land does this household own?	ACRES..... [ ][ ][ ] . [ ]	
45	_____ (SIZE AND UNIT) Out of this land, how much is irrigated?	ACRES..... [ ][ ][ ] . [ ] NONE.....9995	
46	Does this household own any livestock?	YES.....1 NO.....2	
47	Does the household own any of the following:	YES NO	
	A mattress?	MATTRESS.....1 2	
	A pressure cooker?	PRESSURE COOKER.....1 2	
	A chair?	CHAIR.....1 2	
	A cot or bed?	COT/BED.....1 2	
	A table?	TABLE.....1 2	
	A clock or watch?	CLOCK/WATCH.....1 2	
	An electric fan?	ELECTRIC FAN.....1 2	
	A bicycle?	BICYCLE.....1 2	
	A radio or transistor?	RADIO/TRANSISTOR.....1 2	
	A sewing machine?	SEWING MACHINE.....1 2	
	A telephone?	TELEPHONE.....1 2	
	A refrigerator?	REFRIGERATOR.....1 2	
	A black and white television?	TELEVISION(B&W).....1 2	
	A colour television?	TELEVISION(COLOUR).....1 2	
	A moped, scooter, or motorcycle?	MOPED/SCOOTER/MOTORCYCLE...1 2	
	A car?	CAR.....1 2	
	A water pump?	WATER PUMP.....1 2	
	A bullock cart?	BULLOCK CART.....1 2	
	A thresher?	THRESHER.....1 2	
	A tractor?	TRACTOR.....1 2	
48	What is the main type of kitchenware this household uses?	CLAY.....1 ALUMINIUM.....2 CAST IRON.....3 BRASS/COPPER.....4 STAINLESS STEEL.....5 OTHER_____6 (SPECIFY)	

49	TYPE OF HOUSE. RECORD OBSERVATION.	ROOF _____ WALLS_____ FLOOR_____	PUCCA.....1 SEMI-PUCCA.....2 KACHHA.....3
50A	TYPE OF SALT USED FOR COOKING:		REFINED SALT.....1 COARSE SALT.....2
50B	TEST COOKING SALT FOR IODINE:		0 PPM (NO IODINE).....1 7 PPM.....2 15 PPM.....3 30 PPM.....4

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
51	Did any usual resident of this household die since January 1996?	YES.....1 NO.....2	>63
52	How many persons died?	TOTAL DEATHS..... [ ]	

53	54	55	56	57	58	59	60	61	62
What (was/were) the name(s) of the person(s) who died?	Was (NAME) a male or a female?	How old was he/she when he/she died? RECORD DAYS IF LESS THAN ONE MONTH, MONTHS IF LESS THAN TWO YEARS, OR YEARS	In what month and year did (NAME) die?	What did (NAME) die of?	CHECK 54 AND 55: DECEASED WAS FEMALE AGED 15-49 AT THE TIME OF DEATH	Was (NAME) pregnant when she died?	Did (NAME) die during childbirth?	Did (NAME) die within two months after the end of a pregnancy or childbirth?	Was the death of (NAME) due to a complication of the pregnancy or childbirth?
01 _____ (NAME)	MALE.....1 FEMALE...2	DAYS....1 [ ] MONTHS..2 [ ] YEARS...3 [ ]	MONTH.. [ ] YEAR... [ ]	[ ] _____	YES.....1 NO.....2 (GO TO NEXT DEATH)	YES.....1 (GO TO 62) NO.....2	YES.....1 (GO TO NEXT DEATH) NO.....2	YES.....1 NO.....2 (GO TO NEXT DEATH)	YES.....1 NO.....2
02 _____ (NAME)	MALE.....1 FEMALE...2	DAYS....1 [ ] MONTHS..2 [ ] YEARS...3 [ ]	MONTH.. [ ] YEAR... [ ]	[ ] _____	YES.....1 NO.....2 (GO TO NEXT DEATH)	YES.....1 (GO TO 62) NO.....2	YES.....1 (GO TO NEXT DEATH) NO.....2	YES.....1 NO.....2 (GO TO NEXT DEATH)	YES.....1 NO.....2
03 _____ (NAME)	MALE.....1 FEMALE...2	DAYS....1 [ ] MONTHS..2 [ ] YEARS...3 [ ]	MONTH.. [ ] YEAR... [ ]	[ ] _____	YES.....1 NO.....2 (GO TO NEXT DEATH)	YES.....1 (GO TO 62) NO.....2	YES.....1 (GO TO NEXT DEATH) NO.....2	YES.....1 NO.....2 (GO TO NEXT DEATH)	YES.....1 NO.....2

63	RECORD THE TIME.	HOUR..... [ ] MINUTES..... [ ]

NATIONAL FAMILY HEALTH SURVEY, 1998-99 (NFHS-2)
WOMAN'S QUESTIONNAIRE

INDIA

CONFIDENTIAL
For Research
Purposes Only

IDENTIFICATION

STATE_____

DISTRICT_____

TEHSIL/TALUK_____

CITY/TOWN/VILLAGE_____

URBAN/RURAL (urban=1, rural=2).....

LARGE CITY/SMALL CITY/TOWN/RURAL AREA.....
(large city=1, small city=2, town=3, rural area=4)

PSU NUMBER.....

HOUSEHOLD NUMBER.....

NAME AND LINE NUMBER OF WOMAN_____

ADDRESS OF HOUSEHOLD_____

_____

INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE	_____	_____	_____	DAY MONTH YEAR 1 9
INTERVIEWER'S NAME	_____	_____	_____	NAME CODE
RESULT*	_____	_____	_____	RESULT CODE
NEXT VISIT: DATE TIME	_____ _____	_____ _____		TOTAL NUMBER OF VISITS

*RESULT CODES:
1 COMPLETED 3 POSTPONED 5 PARTLY COMPLETED
2 NOT AT HOME 4 REFUSED 6 OTHER (SPECIFY)_____

NATIVE LANGUAGE OF RESPONDENT**.....

**LANGUAGE CODES:

01 Assamese	05 Hindi	09 Manipuri	14 Konkani
02 Bengali	06 Kannada	10 Marathi	15 Sindhi
03 English	07 Kashmiri	11 Nepali	16 Tamil
04 Gujarati	08 Malayalam	12 Oriya	17 Telugu
19 Other (SPECIFY)_____		13 Punjabi	18 Urdu

	SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
DATE	_____	_____	_____	_____
NAME	_____	_____	_____	_____

SECTION 1. RESPONDENT'S BACKGROUND

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	RECORD THE TIME.	HOUR..... [ ][ ] MINUTES..... [ ][ ]	

Namaste. My name is _____ and I am working with (NAME OF THE ORGANISATION). We are conducting a national survey about the health of women and children. We would very much appreciate your participation in this survey.

I would like to ask you about your health (and the health of your children). This information will help the government to plan health services. The amount of time needed will be less than one hour. Participation in this survey is voluntary. If you decide to participate, you may stop answering questions at any time. Whatever information you provide will be kept strictly confidential and will not be shown to other persons.

We hope that you will participate in the survey since your views are important. Do you want to ask me anything about the survey at this time?

Signature of
Interviewer:_____ Date:_____

RESPONDENT AGREES FOR INTERVIEW.....1 | RESPONDENT DOES NOT AGREE FOR INTERVIEW.....2——> END

V

102	First I would like to ask some questions about you and your household. For most of the time until you were 12 years old, did you live in a city, a town, or a village?	CITY/TOWN.....1 VILLAGE.....2	
103	How long have you been living continuously in (NAME OF CURRENT PLACE OF RESIDENCE)?	YEARS..... [ ][ ] SINCE BIRTH.....95 VISITOR.....96——>105	
104	Just before you moved here, did you live in a city, a town, or a village?	CITY/TOWN.....1 VILLAGE.....2	
105	In what month and year were you born?	MONTH..... [ ][ ] DK MONTH.....98 YEAR..... [ ][ ][ ][ ] DK YEAR.....9998	
106	How old were you at your last birthday? COMPARE AND CORRECT 105 AND/OR 106 IF INCONSISTENT.	AGE IN COMPLETED YEARS..... [ ][ ]	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
107	What is your current marital status?	CURRENTLY MARRIED.....1 MARRIED BUT GAUNA NOT PERFORMED..2 SEPARATED.....3 DESERTED.....4 DIVORCED.....5 WIDOWED.....6 NEVER MARRIED.....7	 >END >110 >END
108	Are you living with your husband now or is he staying elsewhere?	LIVING WITH HUSBAND.....1 STAYING ELSEWHERE.....2	>110
109	For how long have you and your husband not been living together? IF LESS THAN 1 YEAR, RECORD MONTHS; OTHERWISE RECORD COMPLETED YEARS.	MONTHS.....1 [ ][ ] YEARS.....2 [ ][ ]	
110	Now I would like to ask you some questions about your marriage. Have you been married only once or more than once?	ONCE.....1 MORE THAN ONCE.....2	>114
111	How old were you at the time of your first marriage?	AGE IN COMPLETED YEARS..... [ ][ ]	
112	How old were you when you started living with your first husband?	AGE IN COMPLETED YEARS..... [ ][ ] GAUNA HAD NOT TAKEN PLACE..... 96	
113	How old were you when your first marriage dissolved?	AGE IN COMPLETED YEARS..... [ ][ ]	
114	How old were you at the time of your (current) marriage?	AGE IN COMPLETED YEARS..... [ ][ ]	
115	How old were you when you started living with your (current) husband?	AGE IN COMPLETED YEARS..... [ ][ ] GAUNA HAS NOT TAKEN PLACE.....96	 >END

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
116	Have you ever attended school?	YES.....1 NO.....2	>119
117	What is the highest grade you completed?	GRADE..... [ ][ ]	
118	CHECK 117: GRADE 0-5 [ ] v GRADE 6 AND ABOVE [ ]		>120
119	Can you read and write?	YES.....1 NO.....2	>121
120	Do you usually read a newspaper or a magazine at least once a week?	YES.....1 NO.....2	
121	Do you usually listen to a radio at least once a week?	YES.....1 NO.....2	
122	Do you usually watch television at least once a week?	YES.....1 NO.....2	
123	Do you usually go to a cinema hall or theatre to see a movie at least once a month?	YES.....1 NO.....2	

124 How often do you yourself consume the following items: daily, weekly, occasionally, or never:

		DAILY	WEEKLY	OCCASIONALLY	NEVER
Milk or Curd?	MILK OR CURD..	1	2	3	4
Pulses or beans?	PULSES/BEANS..	1	2	3	4
Green leafy vegetables?	GREEN LEAFY...	1	2	3	4
Other vegetables?	OTH. VEG.....	1	2	3	4
Fruits?	FRUITS.....	1	2	3	4
Eggs?	EGGS.....	1	2	3	4
Chicken, meat, or fish?	CHICKEN/MEAT/ FISH.....	1	2	3	4

SECTION 2. REPRODUCTION

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
201	Now I would like to ask about all the births you have had during your life. Have you ever given birth?	YES.....1 NO.....2	>206
202	Do you have any sons or daughters to whom you have given birth who are now living with you?	YES.....1 NO.....2	>204
203	How many sons live with you? And how many daughters live with you? IF NONE, RECORD '00'.	SONS AT HOME..... [ ][ ] DAUGHTERS AT HOME..... [ ][ ]	
204	Do you have any sons or daughters to whom you have given birth who are alive but do not live with you?	YES.....1 NO.....2	>206
205	How many sons are alive but do not live with you? And how many daughters are alive but do not live with you? IF NONE, RECORD '00'.	SONS ELSEWHERE..... [ ][ ] DAUGHTERS ELSEWHERE..... [ ][ ]	
206	Have you ever given birth to a boy or a girl who was born alive but later died? IF NO, PROBE: Any baby who cried or showed any sign of life but only survived a few hours or days?	YES.....1 NO.....2	>208
207	In all, how many boys have died? And how many girls have died? IF NONE, RECORD '00'.	BOYS DEAD..... [ ][ ] GIRLS DEAD..... [ ][ ]	
208	SUM ANSWERS TO 203, 205, AND 207, AND ENTER TOTAL. IF NONE RECORD '00'.	TOTAL..... [ ][ ]	
209	CHECK 208: Just to make sure that I have this right: you have had in TOTAL ____ births during your life. Is that correct? YES [ ] V NO [ ] > PROBE AND CORRECT 201-208 AS NECESSARY		
210	CHECK 208: ONE OR MORE BIRTHS [ ] V NO BIRTHS [ ]		>225

211

Now I would like to talk to you about all the births in your lifetime, whether currently alive or not, starting with the first one you had.
RECORD NAMES OF ALL THE LIVE BIRTHS IN 212. RECORD TWINS AND TRIPLETS ON SEPARATE LINES.

212	213	214	215	216	217	218	218A	219	220*
What name was given to your (first, next) baby?	Were any of these twins?	Is (NAME) a boy or a girl?	In what month and year was (NAME) born? PROBE: What is his/her birthday?	Is (NAME) still alive?	IF ALIVE: How old was (NAME) at his/her last birthday? RECORD AGE IN COMPLETED YEARS.	IF ALIVE: Is (NAME) living with you?	IF ALIVE: RECORD HOUSEHOLD LINE NUMBER OF CHILD (RECORD '00' IF CHILD NOT LISTED IN HOUSEHOLD)	IF DEAD: How old was (NAME) when he/she died? IF "1 YEAR", PROBE: How many months old was (NAME)? RECORD DAYS IF LESS THAN 1 MONTH, MONTHS IF LESS THAN TWO YEARS, OR YEARS.	Between (NAME OF PREVIOUS BIRTH) and (NAME OF THIS BIRTH) did you have any stillbirth, spontaneous abortion, or induced abortion? (* FOR FIRST CHILD ASK: Before (NAME), did you have any stillbirth, spontaneous abortion, or induced abortion?) IF NONE, RECORD '0'. FOR SECOND TWIN, RECORD '0' IN EACH BOX WITHOUT ASKING.
01 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
02 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
03 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
04 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....

212	213	214	215	216	217	218	218A	219	220*
05 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
06 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
07 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
08 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
09 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
10 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
11 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....

212	213	214	215	216	217	218	218A	219	220*
12 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... ☐☐ YEAR.. ☐☐☐☐	YES...1 NO....2 → 219	AGE IN YEARS ☐☐	YES.....1 NO.....2	LINE NUMBER ☐☐ → (GO TO 220)	DAYS....1 ☐☐ MONTHS..2 ☐☐ YEARS...3 ☐☐	NUMBER OF STILLBIRTHS..... ☐ NUMBER OF SPON. ABORTIONS..... ☐ NUMBER OF INDUCED ABORTIONS..... ☐

221 After the last birth, did you have any stillbirth, spontaneous abortion, or induced abortion?

IF NONE, RECORD '0'

NUMBER OF STILLBIRTHS..... ☐
NUMBER OF SPON. ABORTIONS..... ☐
NUMBER OF INDUCED ABORTIONS..... ☐

222 CHECK 220 AND 221:

Just to make sure that I have this right: you have had in TOTAL _____STILLBIRTHS, _____SPONTANEOUS ABORTIONS, and_____INDUCED ABORTIONS during your life: Is that correct?

YES, ☐ → NO ☐ > PROBE AND CORRECT 220 - 221 AS NECESSARY

223 COMPARE 208 WITH NUMBER OF BIRTHS IN HISTORY ABOVE AND MARK:

NUMBERS ARE SAME ☐ → NUMBERS ARE DIFFERENT ☐ > (PROBE AND RECONCILE)

CHECK: FOR EACH BIRTH: YEAR OF BIRTH IS RECORDED. ☐
FOR EACH LIVING CHILD: CURRENT AGE IS RECORDED. ☐
FOR EACH DEAD CHILD: AGE AT DEATH IS RECORDED. ☐
FOR AGE AT DEATH 12 MONTHS: PROBE TO DETERMINE EXACT NUMBER OF MONTHS. ☐
FOR EACH CALENDAR BIRTH INTERVAL 4 OR MORE YEARS: EXPLANATION IS GIVEN. ☐

224 CHECK 215 AND ENTER THE NUMBER OF BIRTHS SINCE JANUARY 1995.
IF NONE, RECORD '0'. ☐ >229

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
225	Have you ever had a stillbirth?	YES.....1 NO.....2	>227
226	How many stillbirths have you had?	NUMBER OF STILLBIRTHS..... [ ]	
227	Have you ever had an abortion? PROBE FOR SPONTANEOUS AND INDUCED ABORTIONS.	YES.....1 NO.....2	>229
228	How many abortions have you had? PROBE FOR NUMBER OF SPONTANEOUS AND INDUCED ABORTIONS. IF NONE, RECORD '0'.	NO. OF SPON. ABORTIONS..... [ ] NO. OF INDUCED ABORTIONS..... [ ]	
229	CHECK 107: CURRENTLY MARRIED [ ] v SEPARATED DESERTED DIVORCED [ ] WIDOWED		>301
230	Are you pregnant now?	YES.....1 NO.....2 UNSURE.....8	>233
231	How many months pregnant are you?	MONTHS..... [ ][ ]	
232	At the time you became pregnant, did you want to become pregnant then, did you want to wait until later, or did you want no (more) children at all?	THEN.....1 LATER.....2 NO MORE.....3	>301
233	When did your last menstrual period start? _____ (DATE,IF GIVEN)	DAYS AGO.....1 [ ][ ] WEEKS AGO.....2 [ ][ ] MONTHS AGO.....3 [ ][ ] YEARS AGO.....4 [ ][ ] IN MENOPAUSE/HYSTERECTOMY.....993 BEFORE LAST BIRTH.....994 NEVER MESTRUATED.....995	

SECTION 3A. QUALITY OF CARE

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
301	During the last 12 months, has a health or family planning worker visited you at home?	YES.....1 NO.....2	>308
302	How many times did a worker visit you in the last 12 months?	NUMBER OF TIMES..... [ ][ ]	
303	During these visits, what were the different matters talked about? Anything RECORD ALL MENTIONED.	FAMILY PLANNING.....A BREASTFEEDING.....B SUPPLEMENTARY FEEDING.....C IMMUNIZATION.....D NUTRITION.....E DISEASE PREVENTION.....F TREATMENT OF HEALTH PROBLEM....G ANTENATAL CARE.....H DELIVERY CARE.....I POSTPARTUM CARE.....J CHILD CARE.....K SANITATION/CLEANLINESS.....L ORAL REHYDRATION.....M OTHER_____X (SPECIFY)	
304	When was the last time a health or family planning worker visited you at home? IF LESS THAN ONE MONTH, RECORD '00' MONTHS.	MONTHS AGO..... [ ][ ]	
305	Who visited you at that time?	PUBLIC SECTOR WORKER GOVT. DOCTOR.....11 PUBLIC HEALTH NURSE.....12 ANM/LHV.....13 MALE MPW/SUPERVISOR.....14 ANGANWADI WORKER.....15 VILLAGE HEALTH GUIDE.....16 OTHER PUBLIC SECTOR HEALTH WORKER.....17 NGO DOCTOR.....21 NGO WORKER.....22 PRIVATE SECTOR WORKER PRIVATE DOCTOR.....31 PRIVATE NURSE.....32 COMPOUNDER.....33 TRADITIONAL HEALER.....34 DAI(TBA).....35 OTHER PRIVATE SECTOR HEALTH WORKER.....36 OTHER_____96 (SPECIFY)	
305A	What type of services did you receive during this visit? Any other service? RECORD ALL MENTIONED.	PILL SUPPLY.....A CONDOM SUPPLY.....B FOLLOW-UP FOR STERILIZATION.....C FOLLOW-UP FOR IUD INSERTION.....D FAMILY PLANNING ADVICE.....E OTHER FAMILY PLANNING SERVICE...F IMMUNIZATION.....G ANTENATAL CARE.....H DELIVERY CARE.....I POSTPARTUM CARE.....J DISEASE PREVENTION.....K MEDICAL TREATMENT FOR SELF.....L TREATMENT FOR SICK CHILD.....M TREATMENT FOR OTHER PERSON.....N OTHER_____X (SPECIFY)	
306	Did she/he spend enough time with you?	YES.....1 NO.....2	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
307	Did she/he talk to you nicely, somewhat nicely, or not nicely?	NICELY.....1 SOMEWHAT NICELY.....2 NOT NICELY.....3	
308	Have you visited a health facility or camp for any reason for yourself (or your children) in the last last 12 months?	YES.....1 NO.....2	——>317
309	During these visits in the last 12 months, what were the different matters talked about? Anything RECORD ALL MENTIONED.	FAMILY PLANNING.....A BREASTFEEDING.....B SUPPLEMENTARY FEEDING.....C IMMUNIZATION.....D NUTRITION.....E DISEASE PREVENTION.....F TREATMENT OF HEALTH PROBLEM....G ANTENATAL CARE.....H DELIVERY CARE.....I POSTPARTUM CARE.....J CHILD CARE.....K SANITATION/CLEANLINESS.....L ORAL REHYDRATION.....M OTHER_____X (SPECIFY)	
310	What type of health facility did you visit most recently for yourself (or your children)?	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSPITAL.....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSPITAL/PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 CAMP.....17 OTHER PUBLIC SECTOR HEALTH FACILITY.....18 NGO/TRUST HOSPITAL/CLINIC.....21 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....31 PVT. MOBILE CLINIC.....32 PHARMACY/DRUGSTORE.....33 OTHER PRIVATE SECTOR HEALTH FACILITY.....34 OTHER _____96 (SPECIFY)	
311	What service did you go for? Any other service? RECORD ALL MENTIONED.	PILL SUPPLY.....A CONDOM SUPPLY.....B IUD/LOOP INSERTION.....C STERILIZATION OPERATION.....D FOLLOW-UP FOR STERILIZATION.....E FOLLOW-UP FOR IUD INSERTION.....F FAMILY PLANNING ADVICE.....G OTHER FAMILY PLANNING SERVICE...H IMMUNIZATION.....I ANTENATAL CARE.....J DELIVERY CARE.....K POSTPARTUM CARE.....L DISEASE PREVENTION.....M MEDICAL TREATMENT FOR SELF.....N TREATMENT FOR SICK CHILD.....O TREATMENT FOR OTHER PERSON.....P OTHER_____X (SPECIFY)	
311A	Did you receive the service that you went for?	YES.....1 NO.....2	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
312	CHECK 311A: RECEIVED SERVICE ☐ v How long did you have to wait before being served? DID NOT RECEIVE SERVICE ☐ v How long did you have to wait before you learned that the service you went for would not be available?	MINUTES.....1 ☐☐ HOURS.....2 ☐☐ NO WAIT AT ALL.....995 OTHER_____996 (SPECIFY)	
313	During this visit did the staff spend enough time with you?	YES.....1 NO.....2	
314	Did the staff talk to you nicely, somewhat nicely, or not nicely?	NICELY.....1 SOMEWHAT NICELY.....2 NOT NICELY.....3	
315	Did the staff respect your need for privacy?	YES.....1 NO.....2 SAYS PRIVACY NOT NEEDED.....3	
316	Would you say the health facility was very clean, somewhat clean, or not clean?	VERY CLEAN.....1 SOMEWHAT CLEAN.....2 NOT CLEAN.....3	
317	Now I would like to ask about all the contacts you have had with health or family planning workers at home or anywhere else in the last 12 months or ever before. During any of these contacts, which methods of delaying or avoiding pregnancy were discussed, if any? PROBE: Any other methods discussed? RECORD ALL MENTIONED.	PILL.....A CONDOM/NIRODH.....B IUD/LOOP.....C FEMALE STERILIZATION.....D MALE STERILIZATION.....E RHYTHM/SAFE PERIOD.....F WITHDRAWAL.....G OTHER_____X (SPECIFY) NONE/NEVER DISCUSSED.....Y	

SECTION 3B. CONTRACEPTION

318.

Now I would like to talk about family planning - the various ways or methods that a couple can use to delay or avoid a pregnancy.

For each method I mention, please tell me if you have ever heard of the method and whether you have ever used the method at any time in your life?

01	Pill Women can take a pill daily or weekly.	HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3
02	Condom or Nirodh Men can use a rubber sheath during sexual intercourse.	HAS USED .....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3
03	IUD or Loop Women can have a loop or coil placed inside them by a doctor or a nurse.	HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3
04	Female sterilization Women can have an operation to avoid having any more children.	Have you ever heard of female sterilization? IF YES: Have you ever had an operation to avoid having any more children? HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3
05	Male sterilization Men can have an operation to avoid having any more children.	Have you ever heard of male sterilization? IF YES: Has your husband ever had an operation to avoid having any more children? HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3
06	Rhythm or safe period method Couples can avoid having sexual intercourse on certain days of the month when the woman is more likely to become pregnant.	HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3
07	Withdrawal Men can be careful and pull out before climax.	HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3
08	Have you ever heard of any other ways or methods that women or men can use to delay or avoid pregnancy? IF YES: Have you ever used this method? 1 _____ (SPECIFY) 2 _____ (SPECIFY)	HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3 HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
319	CHECK 318: NOT A SINGLE CODE '1' (NEVER USED) [ ] v	AT LESS ONE CODE '1' (EVER USED) [ ]	> SKIP TO 322
320	Have you ever used anything or tried in any way to delay or avoid getting pregnant?	YES.....1 NO.....2	>356
321	What have you used or done? CORRECT 318 AND 319.		
322	Now I would like to ask you about the time when you first did something or used a method to delay or avoid getting pregnant. How many living children did you have at that time, if any? IF NONE, RECORD '00'.	NUMBER OF CHILDREN..... [ ][ ]	
323	CHECK 107: CURRENTLY MARRIED [ ] v SEPARATED DESERTED DIVORCED WIDOWED [ ]		>364
324	CHECK 230: NOT PREGNANT OR UNSURE [ ] v PREGNANT [ ]		>358
325	CHECK 318: NEITHER STERILIZED [ ] v HE OR SHE STERILIZED [ ]		>327A
326	Are you or your husband currently doing something or using any method to delay or avoid getting pregnant?	YES.....1 NO.....2	>355
327 327A	Which method are you using? CIRCLE '04' FOR FEMALE STERILIZATION. CIRCLE '05' FOR MALE STERILIZATION.	PILL.....01 CONDOM/NIRODH.....02 IUD/LOOP.....03 FEMALE STERILIZATION.....04 MALE STERILIZATION.....05 RHYTHM/SAFE PERIOD.....06 WITHDRAWAL.....07 OTHER_____96 (SPECIFY)	>336 >339 >350

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
328	For how many months have you been using pills/condoms continuously? IF LESS THAN 1 MONTH, RECORD '00'.	MONTHS..... [ ][ ] 8 YEARS OR LONGER.....96	
329	Where did you obtain the pills/condoms the last time? IF SOURCE IS HOSPITAL OR CLINIC, WRITE THE NAME OF THE PLACE. PROBE TO IDENTIFY THE TYPE OF PLACE AND CIRCLE THE APPROPRIATE CODE. _____ (NAME OF PLACE IF HOSPITAL OR CLINIC)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSPITAL.....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSPITAL/PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 GOVT. PARAMEDIC.....17 CAMP.....18 OTHER PUBLIC SECTOR HEALTH FACILITY.....19 NGO/TRUST HOSPITAL/CLINIC.....21 NGO WORKER.....22 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 PVT. PARAMEDIC.....34 VAIDYA/HAKIM/HOMEOPATH.....35 TRADITIONAL HEALER.....36 PHARMACY/DRUGSTORE.....37 DAI(TBA).....38 OTHER PRIVATE SECTOR HEALTH FACILITY.....39 OTHER SOURCE SHOP.....41 HUSBAND.....42 FRIEND/OTHER RELATIVE.....43 OTHER _____96 (SPECIFY)	>331 >331
330	Do you know where this person obtained the pills/condoms the last time? IF SOURCE IS HOSPITAL OR CLINIC, WRITE THE NAME OF THE PLACE. PROBE TO IDENTIFY THE TYPE OF PLACE AND CIRCLE THE APPROPRIATE CODE. _____ (NAME OF PLACE IF HOSPITAL OR CLINIC)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSPITAL.....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSPITAL/PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 GOVT. PARAMEDIC.....17 CAMP.....18 OTHER PUBLIC SECTOR HEALTH FACILITY.....19 NGO/TRUST HOSPITAL/CLINIC.....21 NGO WORKER.....22 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 PVT. PARAMEDIC.....34 VAIDYA/HAKIM/HOMEOPATH.....35 TRADITIONAL HEALER.....36 PHARMACY/DRUGSTORE.....37 DAI(TBA).....38 OTHER PRIVATE SECTOR HEALTH FACILITY.....39 OTHER SOURCE SHOP.....41 OTHER _____96 (SPECIFY) DK.....98	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
331	May I see the packet of pills/condoms you are using now? IF PACKET SEEN, RECORD BRAND NAME.	PACKET SEEN.....1 BRAND NAME_____ [ ][ ][ ] PACKET NOT SEEN.....2	>333
332	Do you know the brand name of the pills/condoms you are using now?	BRAND NAME_____ [ ][ ][ ] DK.....998	
333	How much does one packet of pills/condoms cost you?	COST Rs:..... [ ][ ][ ] FREE.....995 DK.....998	>335
334	For that cost how many condoms/pill cycles do you get?	NUMBER..... [ ][ ]	
335	Have you been able to get the supply of pills/condoms whenever you need them?	YES.....1 NO.....2	>344
336	For how many months have you been using the IUD/LOOP continuously? IF LESS THAN 1 MONTH, RECORD '00'.	MONTHS..... [ ][ ] 8 YEARS OR LONGER.....96	
337	Who inserted the IUD/LOOP?	GOVERNMENT DOCTOR.....01 GOVERNMENT NURSE/PARAMEDIC.....02 NGO DOCTOR.....03 NGO NURSE/PARAMEDIC.....04 PRIVATE DOCTOR.....05 PRIVATE NURSE/PARAMEDIC.....06 OTHER_____96 (SPECIFY)	
338	Where did you go to get the IUD/LOOP inserted? _____ (NAME OF PLACE IF HOSPITAL OR CLINIC)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSPITAL.....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSPITAL/PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 CAMP.....17 OTHER PUBLIC SECTOR HEALTH FACILITY.....18 NGO/TRUST HOSPITAL/CLINIC.....21 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 OTHER PRIVATE SECTOR HEALTH FACILITY.....34 OTHER _____96 (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
338A	How much did the IUD/LOOP insertion cost you? IF NO CHARGE, RECORD `0000'.	COST Rs:..... [ ][ ][ ][ ] DK.....9998	>342
339	In what month and year was your/your husband's sterilization operation performed?	MONTH..... [ ][ ] YEAR..... [ ][ ][ ][ ]	
340	Where did you/your husband get sterilized? _____ (NAME OF PLACE IF HOSPITAL OR CLINIC)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSPITAL.....11 UHC/UHP/UFWC.....12 CHC/RURAL HOSPITAL/PHC.....13 GOVT. MOBILE CLINIC.....14 CAMP.....15 OTHER PUBLIC SECTOR HEALTH FACILITY.....16 NGO/TRUST HOSPITAL/CLINIC.....21 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 OTHER PRIVATE SECTOR HEALTH FACILITY.....34 OTHER _____96 (SPECIFY)	
341	How much did the operation cost you? IF NO CHARGE, RECORD '0000'.	COST Rs..... [ ][ ][ ][ ] DK.....9998	
342	How would you rate the care you/your husband received during or immediately after the operation/IUD insertion: very good, all right, not so good, or bad?	VERY GOOD.....1 ALL RIGHT.....2 NOT SO GOOD.....3 BAD.....4	
343	What improvements would you suggest in the care you/your husband received during or immediately after the operation/IUD insertion? Anything else? RECORD ALL MENTIONED.	MORE CLEANLINESS.....A MORE PRIVACY.....B BETTER CARE BY THE DOCTOR.....C BETTER CARE BY THE OTHER STAFF...D SHORTER WAITING TIME.....E LOWER COST.....F OTHER _____X (SPECIFY) NONE.....Y	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
344	Who mainly motivated you to use (CURRENT METHOD)?	GOVT. DOCTOR.....01 PUBLIC HEALTH NURSE.....02 ANM/LHV.....03 MALE MPW/SUPERVISOR.....04 ANGANWADI WORKER.....05 OTHER GOVT. HEALTH WORKER.....06 NGO WORKER.....07 PRIVATE DOCTOR.....08 PRIVATE PARAMEDIC.....09 DAI (TBA).....10 TEACHER.....11 RELIGIOUS LEADER.....12 POLITICAL LEADER.....13 HUSBAND.....14 MOTHER/MOTHER-IN-LAW.....15 OTHER RELATIVE/FRIEND.....16 NO ONE/SELF.....17 OTHER_____96 (SPECIFY)	>347
345	Did he/she tell you about any other methods that you might use?	YES.....1 NO.....2	>347
346	Which other methods were you told about? RECORD ALL MENTIONED.	PILL.....A CONDOM/NIRODH.....B IUD/LOOP.....C FEMALE STERILIZATION.....D MALE STERILIZATION.....E RHYTHM/SAFE PERIOD.....F WITHDRAWAL.....G OTHER_____X (SPECIFY)	
347	At the time when you accepted the (CURRENT METHOD) did any health or family planning worker tell you about side effects or other problems you might have using the (CURRENT METHOD)?	YES.....1 NO.....2	
348	Were you told what to do in case you experienced problems with the method?	YES.....1 NO.....2	
349	Did you receive any follow-up, either at home or in a health facility, after you accepted the (CURRENT METHOD)? PROBE FOR TYPE OF VISIT.	AT HOME ONLY.....1 IN A FACILITY ONLY.....2 BOTH.....3 NEITHER.....4	>351
350	For how long have you been using this method continuously? IF LESS THAN 1 MONTH, RECORD '00'.	MONTHS..... [ ][ ] 8 YEARS OR LONGER.....96	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
351	Have you had any problems related to the use of (CURRENT METHOD)?	YES.....1 NO.....2	——>362
352	What problems have you had related to the use of (CURRENT METHOD)? PROBE: Any other problems? RECORD ALL MENTIONED.	WEIGHT GAIN.....A WEIGHT LOSS.....B TOO MUCH BLEEDING.....C HYPERTENSION.....D HEADACHE/BODYACHE/BACKACHE.....E NAUSEA/VOMITING.....F NO MENSTRUATION.....G WEAKNESS/TIREDNESS.....H DIZZINESS.....I FEVER.....J CRAMPS.....K SPOTTING.....L INCONVENIENT TO USE.....M ABDOMINAL PAIN.....N WHITE DISCHARGE.....O IRREGULAR PERIODS.....P BREAST TENDERNESS.....Q ALLERGY.....R EXPULSION.....S REDUCED SEXUAL SATISFACTION.....T OTHER_____X (SPECIFY)	
353	When you first started having these problems, did you talk to anyone about these problems?	YES.....1 NO.....2	——>362
354	Who did you talk to about these problems? Any other person? RECORD ALL PERSONS TALKED TO.	GOVT. DOCTOR.....A PUBLIC HEALTH NURSE.....B ANM/LHV.....C ANGANWADI WORKER.....D OTHER GOVT. HEALTH WORKER.....E NGO DOCTOR.....F NGO WORKER.....G PRIVATE DOCTOR.....H PRIVATE PARAMEDIC.....I COMPOUNDER/PHARMACIST.....J TRADITIONAL HEALER.....K HUSBAND.....L FRIEND/OTHER RELATIVE.....M OTHER_____X (SPECIFY)	->362
355	What is the main reason you stopped using family planning?	METHOD FAILED/GOT PREGNANT.....01 LACK OF SEXUAL SATISFACTION.....02 CREATED MENSTRUAL PROBLEM.....03 CREATED HEALTH PROBLEM.....04 INCONVENIENT TO USE.....05 HARD TO GET METHOD.....06 PUT ON WEIGHT.....07 DID NOT LIKE THE METHOD.....08 WANTED TO HAVE A CHILD.....09 WANTED TO REPLACE DEAD CHILD....10 LACK OF PRIVACY FOR USE.....11 HUSBAND AWAY.....12 COST TOO MUCH.....13 OTHER_____96 (SPECIFY)	->358

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
356	CHECK 107: CURRENTLY MARRIED ☐ ↓	SEPARATED DESERTED DIVORCED WIDOWED ☐	>364
356A	CHECK 230: NOT PREGNANT OR UNSURE ☐ ↓	PREGNANT ☐	>358
357	What is the main reason you are not using a method of contraception to delay or avoid pregnancy?	HUSBAND AWAY.....11 FERTILITY-RELATED REASONS NOT HAVING SEX.....21 INFREQUENT SEX.....22 MENOPAUSAL/HAD HYSTERECTOMY..23 SUBFECUND/INFECUND.....24 POSTPARTUM/BREASTFEEDING.....25 WANTS MORE CHILDREN.....26 OPPOSITION TO USE OPPOSED TO FAMILY PLANNING...31 HUSBAND OPPOSED.....32 OTHER PEOPLE OPPOSED.....33 AGAINST RELIGION.....34 LACK OF KNOWLEDGE KNOWS NO METHOD.....41 KNOWS NO SOURCE.....42 METHOD-RELATED REASONS HEALTH CONCERNS.....51 WORRY ABOUT SIDE EFFECTS.....52 HARD TO GET METHOD.....53 COSTS TOO MUCH.....54 INCONVENIENT.....55 AFRAID OF STERILIZATION.....56 DON'T LIKE EXISTING METHODS..57 OTHER_____96 (SPECIFY) DK.....98	>362
358	Do you think you will use a method to delay or avoid pregnancy within the next 12 months?	YES.....1 NO.....2 DK.....8	>360
359	Do you think you will use a method to delay or avoid pregnancy at any time in the future?	YES.....1 NO.....2 DK.....8	>361
360	Which method would you prefer to use?	PILL.....01 CONDOM/NIRODH.....02 IUD/LOOP.....03 FEMALE STERILIZATION.....04 MALE STERILIZATION.....05 RHYTHM/SAFE PERIOD.....06 WITHDRAWAL.....07 OTHER_____96 (SPECIFY) DK/UNSURE.....98	>362

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
361	What is the main reason that you think you will not use a family planning method at any time in the future?	FERTILITY-RELATED REASONS NOT HAVING SEX.....11 INFREQUENT SEX.....12 MENOPAUSAL/HAD HYSTERECTOMY..13 SUBFECUND/INFECUND.....14 WANTS AS MANY CHILDREN AS POSSIBLE.....15 OPPOSITION TO USE OPPOSED TO FAMILY PLANNING...21 HUSBAND OPPOSED.....22 OTHER PEOPLE OPPOSED.....23 AGAINST RELIGION.....24 LACK OF KNOWLEDGE KNOWS NO METHOD.....31 KNOWS NO SOURCE.....32 METHOD-RELATED REASONS HEALTH CONCERNS.....41 WORRY ABOUT SIDE EFFECTS.....42 HARD TO GET METHOD.....43 COSTS TOO MUCH.....44 INCONVENIENT.....45 AFRAID OF STERILIZATION.....46 DON'T LIKE EXISTING METHODS..47 OTHER_____96 (SPECIFY) DK.....98	
362	In the last few months, have you discussed the practice of family planning with your husband, friends, neighbours, or relatives?	YES.....1 NO.....2	>364
363	With whom? Anyone else? RECORD ALL MENTIONED.	HUSBAND.....A MOTHER.....B SISTER(S).....C DAUGHTER.....D MOTHER-IN-LAW.....E SISTER-IN-LAW.....F FRIEND/NEIGHBOUR.....G OTHER_____X (SPECIFY)	
364	In the last few months, have you heard or seen any message about family planning:	YES NO	
	on radio?	RADIO..... 1 2	
	on television?	TELEVISION..... 1 2	
	in a cinema or film show?	CINEMA/FILM SHOW..... 1 2	
	in a newspaper or magazine?	NEWSPAPER/MAGAZINE..... 1 2	
	on a wall painting or hoarding?	WALL PAINTING/HOARDING... 1 2	
	in a drama, folk dance, or street play?	DRAMA/FOLK DANCE/STREET PLAY..... 1 2	

401	CHECK 224 ONE OR MORE BIRTHS SINCE JAN. 1995 ☐	NO BIRTHS SINCE JAN. 1995 ☐ → (SKIP TO 486)	
402	ENTER THE LINE NUMBER, NAME, AND SURVIVAL STATUS OF LAST TWO BIRTHS SINCE JANUARY 1995 IN THE TABLE. ASK THE QUESTIONS ABOUT THESE TWO BIRTHS. BEGIN WITH THE LAST BIRTH. (IF THERE ARE MORE THAN 2 BIRTHS, RECORD ONLY LAST TWO BIRTHS.) Now I would like to ask you some questions about the health of your children born since January 1995. (We will talk about one child at a time.)		
	LINE NUMBER FROM Q. 212	LAST BIRTH ☐☐	NEXT-TO-LAST BIRTH ☐☐
	FROM Q. 212 AND Q. 216	NAME _____ ALIVE ☐ DEAD ☐	NAME _____ ALIVE ☐ DEAD ☐
403	At the time you became pregnant with (NAME), did you want to become pregnant then, did you want to wait until later, or did you want no (more) children at all?	THEN.....1 (SKIP TO 405) LATER.....2 NO MORE.....3 (SKIP TO 405)	THEN.....1 (SKIP TO 405) LATER.....2 NO MORE.....3 (SKIP TO 405)
404	How much longer would you like to have waited?	MONTHS.....1 ☐☐ YEARS.....2 ☐☐ DK.....998	MONTHS.....1 ☐☐ YEARS.....2 ☐☐ DK.....998
405	When you were pregnant with (NAME), did you go for an antenatal check-up?	YES.....1 NO.....2 (SKIP TO 407)	YES.....1 NO.....2 (SKIP TO 407)
406	Whom did you see? Anyone RECORD ALL PERSONS SEEN.	HEALTH PROFESSIONAL DOCTOR.....A ANM/NURSE/MIDWIFE/LHV...B OTHER HEALTH PROFSSNL...C TRADITIONAL BIRTH ATTENDANT (DAI).....D OTHER_____X (SPECIFY)	HEALTH PROFESSIONAL DOCTOR.....A ANM/NURSE/MIDWIFE/LHV...B OTHER HEALTH PROFSSNL...C TRADITIONAL BIRTH ATTENDANT (DAI).....D OTHER_____X (SPECIFY)
407	When you were pregnant with (NAME), did any health worker visit you at home for an antenatal check-up?	YES.....1 NO.....2	YES.....1 NO.....2
408	CHECK 405 AND 407:	YES IN EITHER ☐ NO IN BOTH ☐ (SKIP TO 413)	YES IN EITHER ☐ NO IN BOTH ☐ (SKIP TO 413)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
409	How many months pregnant were you when you first received an antenatal check-up?	MONTHS..... [ ][ ]	MONTHS..... [ ][ ]
410	How many times did you receive antenatal check-ups during this pregnancy?	NO. OF TIMES..... [ ][ ]	NO. OF TIMES..... [ ][ ]
411	Did you have the following performed at least once during any of your antenatal check-ups for this pregnancy:	YES NO	YES NO
	Weight measured?	WEIGHT..... 1 2	WEIGHT..... 1 2
	Height measured?	HEIGHT..... 1 2	HEIGHT..... 1 2
	Blood pressure checked?	BLOOD PRESSURE.... 1 2	BLOOD PRESSURE.... 1 2
	Blood	BLOOD TEST..... 1 2	BLOOD TEST..... 1 2
	Urine	URINE TEST..... 1 2	URINE TEST..... 1 2
	Abdomen examined?	ABDOMEN EXAMINED.. 1 2	ABDOMEN EXAMINED.. 1 2
	Internal	INTERNAL EXAM..... 1 2	INTERNAL EXAM..... 1 2
	›	X-RAY..... 1 2	X-RAY..... 1 2
	Sonogram or ultrasound?	SONOGRAM/ULTRAS... 1 2	SONOGRAM/ULTRAS... 1 2
	Amniocentesis?	AMNIOCENTESIS..... 1 2	AMNIOCENTESIS..... 1 2
412	Did you receive advice on any of the following during at least one of your antenatal check-ups for this pregnancy:	YES NO	YES NO
	Diet?	DIET..... 1 2	DIET..... 1 2
	Danger signs of pregnancy?	DANGER SIGNS..... 1 2	DANGER SIGNS..... 1 2
	Delivery care?	DELIVERY CARE..... 1 2	DELIVERY CARE..... 1 2
	Newborn care?	NEWBORN CARE..... 1 2	NEWBORN CARE..... 1 2
	Family planning?	FAMILY PLANNING.... 1 2 (SKIP TO 414)<	FAMILY PLANNING.... 1 2 (SKIP TO 414)<
413	What is the main reason you did not receive an antenatal check-up?	NOT NECESSARY.....01 NOT CUSTOMARY.....02 COST TOO MUCH.....03 TOO FAR/NO TRANSPORT....04 POOR QUALITY SERVICE....05 NO TIME TO GO.....06 FAMILY DID NOT ALLOW....07 LACK OF KNOWLEDGE.....08 NO HEALTH WORKER VISITED.....09 OTHER_____96 (SPECIFY)	NOT NECESSARY.....01 NOT CUSTOMARY.....02 COST TOO MUCH.....03 TOO FAR/NO TRANSPORT....04 POOR QUALITY SERVICE....05 NO TIME TO GO.....06 FAMILY DID NOT ALLOW....07 LACK OF KNOWLEDGE.....08 NO HEALTH WORKER VISITED.....09 OTHER_____96 (SPECIFY)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
414	When you were pregnant with (NAME), did you experience any of the following problems at any time:	YES NO	YES NO
	Night blindness? (USE LOCAL TERM)	NIGHT BLINDNESS.... 1 2	NIGHT BLINDNESS.... 1 2
	Blurred vision?	BLURRED VISION..... 1 2	BLURRED VISION..... 1 2
	Convulsions not from fever?	CONVULSIONS..... 1 2	CONVULSIONS..... 1 2
	Swelling of the legs, body, or face?	SWELLING..... 1 2	SWELLING..... 1 2
	Excessive fatigue?	EXCESSIVE FATIGUE.. 1 2	EXCESSIVE FATIGUE.. 1 2
	Anaemia?	ANAEMIA..... 1 2	ANAEMIA..... 1 2
	Any vaginal bleeding?	VAGINAL BLEEDING... 1 2	VAGINAL BLEEDING... 1 2
415	When you were pregnant with (NAME), were you given any iron folic tablets or syrup?	YES.....1 NO.....2 (SKIP TO 418)<—	YES.....1 NO.....2 (SKIP TO 418)<—
416	Did you receive enough iron folic tablets or syrup to last about three months or longer?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
417	Did you consume all the iron folic tablets or syrup you were given ?	YES.....1 NO.....2	YES.....1 NO.....2
418	When you were pregnant with (NAME), were you given an injection in the arm to prevent you and the baby from getting tetanus (USE LOCAL TERM FOR TETANUS)?	YES.....1 NO.....2 (SKIP TO 420)<— DK.....8	YES.....1 NO.....2 (SKIP TO 420)<— DK.....8
419	During this pregnancy, how many times did you get this injection?	TIMES..... [ ] DK.....8	TIMES..... [ ] DK.....8

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
420	Where did you give birth to (NAME)?	HOME YOUR HOME.....11 PARENTS' HOME.....12 OTHER HOME.....13 PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP...21 GOVT. DISPENSARY.....22 UHC/UHP/UFWC.....23 CHC/RURAL HOSP./PHC....24 SUB-CENTRE.....25 OTHER PUBLIC SECTOR HEALTH FACILITY.....26 NGO/TRUST HOSP./CLINIC..31 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC/ MATERNITY HOME.....41 OTHER PRIVATE SECTOR HEALTH FACILITY.....42 OTHER _____96 (SPECIFY) (SKIP TO 422)<	HOME YOUR HOME.....11 PARENTS' HOME.....12 OTHER HOME.....13 PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP...21 GOVT. DISPENSARY.....22 UHC/UHP/UFWC.....23 CHC/RURAL HOSP./PHC....24 SUB-CENTRE.....25 OTHER PUBLIC SECTOR HEALTH FACILITY.....26 NGO/TRUST HOSP./CLINIC..31 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC/ MATERNITY HOME.....41 OTHER PRIVATE SECTOR HEALTH FACILITY.....42 OTHER _____96 (SPECIFY) (SKIP TO 422)<
421	What is the main reason you did not go to a health facility for delivery?	NOT NECESSARY.....01 NOT CUSTOMARY.....02 COST TOO MUCH.....03 TOO FAR/NO TRANSPORT....04 POOR QUALITY SERVICE....05 NO TIME TO GO.....06 FAMILY DID NOT ALLOW....07 BETTER CARE AT HOME.....08 LACK OF KNOWLEDGE.....09 OTHER_____96 (SPECIFY)	NOT NECESSARY.....01 NOT CUSTOMARY.....02 COST TOO MUCH.....03 TOO FAR/NO TRANSPORT....04 POOR QUALITY SERVICE....05 NO TIME TO GO.....06 FAMILY DID NOT ALLOW....07 BETTER CARE AT HOME.....08 LACK OF KNOWLEDGE.....09 OTHER_____96 (SPECIFY)
422	Who assisted with the delivery of (NAME)? Anyone else? PROBE FOR THE TYPE OF PERSON AND RECORD ALL PERSONS WHO ASSISTED.	HEALTH PROFESSIONAL DOCTOR.....A ANM/NURSE/MIDWIFE/LHV...B OTHER HEALTH PROFESSNL..C OTHER PERSON DAI(TBA).....D FRIEND/RELATIVE.....E OTHER_____X (SPECIFY) NO ONE.....Y	HEALTH PROFESSIONAL DOCTOR.....A ANM/NURSE/MIDWIFE/LHV...B OTHER HEALTH PROFESSNL..C OTHER PERSON DAI(TBA).....D FRIEND/RELATIVE.....E OTHER_____X (SPECIFY) NO ONE.....Y
423	CHECK 422:	ANY CODE A, B, OR C v (SKIP TO 425) NO CODE A, B, OR C	ANY CODE A, B, OR C v (SKIP TO 425) NO CODE A, B, OR C
424	What is the main reason you did not take the help of a health professional?	NOT NECESSARY.....01 NOT CUSTOMARY.....02 COST TOO MUCH.....03 TOO FAR/NO TRANSPORT...04 PROFES. NOT AVAI'BLE...05 NO CONFIDENCE IN AVAILABLE PROFESIONAL.06 NO TIME TO GET HELP....07 FAMILY DID NOT ALLOW...08 OTHER_____96 (SPECIFY) (SKIP TO 426)<	NOT NECESSARY.....01 NOT CUSTOMARY.....02 COST TOO MUCH.....03 TOO FAR/NO TRANSPORT...04 PROFES. NOT AVAI'BLE...05 NO CONFIDENCE IN AVAILABLE PROFESIONAL.06 NO TIME TO GET HELP....07 FAMILY DID NOT ALLOW...08 OTHER_____96 (SPECIFY) (SKIP TO 426)<

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
425	Was (NAME) delivered by caesarian section?	YES.....1 NO.....2	YES.....1 NO.....2
426	When (NAME) was born, was he/she: large, average, small, or very small?	LARGE.....1 AVERAGE.....2 SMALL .....3 VERY SMALL.....4	LARGE.....1 AVERAGE.....2 SMALL .....3 VERY SMALL.....4
427	Was (NAME) weighed at birth?	YES.....1 NO.....2 (SKIP TO 429)<-	YES.....1 NO.....2 (SKIP TO 429)<-
428	How much did (NAME) weigh?	GRAMS..... [ ][ ][ ][ ] DK.....9998	GRAMS..... [ ][ ][ ][ ] DK.....9998
429	Now I would like to ask you about the 2-month period after the delivery of (NAME). During that period, did a doctor or other health professional check your health or the health of your baby?	YES.....1 NO.....2 (SKIP TO 433)<-	YES.....1 NO.....2 (SKIP TO 433)<-
430	How soon after the birth of (NAME) did you first get a check-up?	DAYS.....1 [ ][ ] WEEKS.....2 [0][ ]	DAYS.....1 [ ][ ] WEEKS.....2 [0][ ]
431	Where did you get the check-up?	HOME VISIT.....11 PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP....21 GOVT. DISPENSARY.....22 UHC/UHP/UFWC.....23 CHC/RURAL HOSP./PHC.....24 SUB-CENTRE.....25 OTHER PUBLIC SECTOR HEALTH FACILITY.....26 NGO/TRUST HOSP./CLINIC...31 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC/ MATERNITY HOME.....41 OTHER PRIVATE SECTOR HEALTH FACILITY.....42 OTHER _____96 (SPECIFY)	HOME VISIT.....11 PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP....21 GOVT. DISPENSARY.....22 UHC/UHP/UFWC.....23 CHC/RURAL HOSP./PHC.....24 SUB-CENTRE.....25 OTHER PUBLIC SECTOR HEALTH FACILITY.....26 NGO/TRUST HOSP./CLINIC...31 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC/ MATERNITY HOME.....41 OTHER PRIVATE SECTOR HEALTH FACILITY.....42 OTHER _____96 (SPECIFY)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
432	Did any of the following happen when you had the check-up:	YES NO	YES NO
	Was your abdomen examined?	ABDOMEN EXAMINED... 1 2	ABDOMEN EXAMINED... 1 2
	Did you receive advice on family planning?	FAMILY PLANNING.... 1 2	FAMILY PLANNING.... 1 2
	Did you receive advice on breastfeeding?	BREASTFEEDING..... 1 2	BREASTFEEDING..... 1 2
	Did you receive advice on baby care?	BABY CARE..... 1 2	BABY CARE..... 1 2
433	At any time during the two months after the delivery of (NAME), did you have any of the following:	YES NO	YES NO
	Massive vaginal bleeding?	VAGINAL BLEEDING... 1 2	VAGINAL BLEEDING... 1 2
	Very high fever?	VERY HIGH FEVER.... 1 2	VERY HIGH FEVER.... 1 2
434	Has your period returned since the birth of (NAME)?	YES .....1 (SKIP TO 436) NO.....2 (SKIP TO 437)	
435	Did your period return between the birth of (NAME) and your next pregnancy?		YES .....1 NO.....2 (SKIP TO 439)
436	For how many months after the birth of (NAME) did you not have a period?	MONTHS..... [ ][ ] DK.....98	MONTHS..... [ ][ ] DK.....98
437	CHECK 230: RESPONDENT PREGNANT?	NOT PREGNANT OR Q230 NOT ASKED PREGNANT OR UNSURE (SKIP TO 439)	
438	Have you resumed sexual relations since the birth of (NAME)?	YES.....1 NO.....2 (SKIP TO 440)	

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
439	For how many months after the birth of (NAME) did you not have sexual relations?	MONTHS..... [ ][ ] DK.....98	MONTHS..... [ ][ ] DK.....98
440	Did you ever breastfeed (NAME)?	YES.....1 (SKIP TO 442) NO.....2	YES.....1 (SKIP TO 442) NO.....2
441	Why did you not breastfeed (NAME)?	MOTHER ILL/WEAK.....01 CHILD ILL/WEAK.....02 CHILD DIED.....03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.....05 MOTHER WORKING.....06 CHILD REFUSED.....07 OTHER_____96 (SPECIFY) (SKIP TO 448)	MOTHER ILL/WEAK.....01 CHILD ILL/WEAK.....02 CHILD DIED.....03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.....05 MOTHER WORKING.....06 CHILD REFUSED.....07 OTHER_____96 (SPECIFY) (SKIP TO 448)
442	How long after birth did you first put (NAME) to the breast? IF LESS THAN 1 HOUR, RECORD '00' HOURS. IF LESS THAN 24 HOURS, RECORD HOURS. OTHERWISE, RECORD DAYS.	IMMEDIATELY.....000 HOURS.....1 [ ][ ] DAYS.....2 [ ][ ]	IMMEDIATELY.....000 HOURS.....1 [ ][ ] DAYS.....2 [ ][ ]
443	Did you squeeze out the milk from the breast before you first put (NAME) to the breast?	YES.....1 NO.....2	YES.....1 NO.....2
444	CHECK 216: CHILD ALIVE?	ALIVE [ ] DEAD [ ] (SKIP TO 446)	ALIVE [ ] DEAD [ ] (SKIP TO 446)
445	Are you still breastfeeding (NAME)?	YES.....1 (SKIP TO 449) NO.....2	YES.....1 (SKIP TO 449) NO.....2
446	For how many months did you breastfeed (NAME)?	MONTHS..... [ ][ ] UNTIL DIED.....96 (SKIP TO 452)	MONTHS..... [ ][ ] UNTIL DIED.....96 (SKIP TO 452)
447	Why did you stop breastfeeding (NAME)?	MOTHER ILL/WEAK.....01 CHILD ILL/WEAK.....02 CHILD DIED.....03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.....05 MOTHER WORKING.....06 CHILD REFUSED.....07 WEANING AGE.....08 BECAME PREGNANT.....09 STARTED USING CONTRACEPTION.....10 OTHER_____96 (SPECIFY)	MOTHER ILL/WEAK.....01 CHILD ILL/WEAK.....02 CHILD DIED.....03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.....05 MOTHER WORKING.....06 CHILD REFUSED.....07 WEANING AGE.....08 BECAME PREGNANT.....09 STARTED USING CONTRACEPTION.....10 OTHER_____96 (SPECIFY)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
448	CHECK 216: CHILD ALIVE?	ALIVE ☐ ↓ DEAD ☐ ↓ (SKIP TO 452)	ALIVE ☐ ↓ DEAD ☐ ↓ (SKIP TO 452)
449	Did (NAME) drink anything from a bottle with a nipple yesterday or last night?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
450	At any time yesterday or last night, was (NAME) given any of the following:	YES NO DK	YES NO DK
	Plain water?	PLAIN WATER..... 1 2 8	PLAIN WATER..... 1 2 8
	Powdered milk?	POWDERED MILK.... 1 2 8	POWDERED MILK.... 1 2 8
	Any other milk (other than breast milk)?	OTHER MILK..... 1 2 8	OTHER MILK..... 1 2 8
	Any other liquid?	ANY OTHER LIQUID. 1 2 8	ANY OTHER LIQUID. 1 2 8
	Green, leafy vegetables?	GREEN/LEAFY VEG.. 1 2 8	GREEN/LEAFY VEG.. 1 2 8
	Fruits?	FRUITS..... 1 2 8	FRUITS..... 1 2 8
	Any other solid or mushy food?	SOLID/MUSHY FOOD. 1 2 8	SOLID/MUSHY FOOD. 1 2 8
451	How often during the last seven days was (NAME) given any of the following:	1 = EVERY DAY 2 = SOME DAYS 3 = NOT AT ALL 8 = DK	1 = EVERY DAY 2 = SOME DAYS 3 = NOT AT ALL 8 = DK
	Plain water?	PLAIN WATER..... ☐	PLAIN WATER..... ☐
	Powdered milk?	POWDERED MILK..... ☐	POWDERED MILK..... ☐
	Any other milk (other than breast milk)?	OTHER MILK..... ☐	OTHER MILK..... ☐
	Any other liquid?	OTHER LIQUID..... ☐	OTHER LIQUID..... ☐
	Green, leafy vegetables?	GREEN/LEAFY VEG..... ☐	GREEN/LEAFY VEG..... ☐
	Fruits?	FRUITS..... ☐	FRUITS..... ☐
	Any other solid or mushy food?	SOLID/MUSHY FOOD..... ☐	SOLID/MUSHY FOOD..... ☐
452	——————————>	GO BACK TO 403 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 453	GO TO 453

453 ENTER THE LINE NUMBER AND NAME OF LAST TWO BIRTHS SINCE JANUARY 1995 IN THE TABLE. ASK THE QUESTIONS ABOUT THESE TWO BIRTHS. BEGIN WITH THE LAST BIRTH. (IF THERE ARE MORE THAN 2 BIRTHS, RECORD ONLY LAST TWO BIRTHS.)

	LAST BIRTH	NEXT-TO-LAST BIRTH
LINE NUMBER FROM Q. 212	[ ][ ]	[ ][ ]
FROM Q. 212 AND Q. 216	NAME _____ ALIVE [ ] DEAD [ ] v (GO TO NEXT COLUMN, OR IF NO MORE BIRTHS, GO TO 481)	NAME _____ ALIVE [ ] DEAD [ ] v (GO TO 481)
454 Do you have a card where (NAME'S) vaccinations are written down? IF YES: May I see it, please?	YES, SEEN.....1 (SKIP TO 456) YES, NOT SEEN.....2 (SKIP TO 458) NO CARD.....3	YES, SEEN.....1 (SKIP TO 456) YES, NOT SEEN.....2 (SKIP TO 458) NO CARD.....3
455 Did you ever have a vaccination card for (NAME)?	YES.....1 (SKIP TO 458) NO.....2	YES.....1 (SKIP TO 458) NO.....2
456 (1) COPY VACCINATION DATES FOR EACH VACCINE FROM THE CARD. (2) WRITE '44' IN 'DAY' COLUMN IF CARD SHOWS THAT A VACCINATION WAS GIVEN, BUT NO DATE IS RECORDED.	DAY MO YEAR	DAY MO YEAR
BCG	BCG [ ][ ][ ][ ][ ][ ][ ][ ]	BCG [ ][ ][ ][ ][ ][ ][ ][ ]
POLIO 0	P0 [ ][ ][ ][ ][ ][ ][ ][ ]	P0 [ ][ ][ ][ ][ ][ ][ ][ ]
DPT 1	D1 [ ][ ][ ][ ][ ][ ][ ][ ]	D1 [ ][ ][ ][ ][ ][ ][ ][ ]
DPT 2	D2 [ ][ ][ ][ ][ ][ ][ ][ ]	D2 [ ][ ][ ][ ][ ][ ][ ][ ]
DPT 3	D3 [ ][ ][ ][ ][ ][ ][ ][ ]	D3 [ ][ ][ ][ ][ ][ ][ ][ ]
POLIO 1	P1 [ ][ ][ ][ ][ ][ ][ ][ ]	P1 [ ][ ][ ][ ][ ][ ][ ][ ]
POLIO 2	P2 [ ][ ][ ][ ][ ][ ][ ][ ]	P2 [ ][ ][ ][ ][ ][ ][ ][ ]
POLIO 3	P3 [ ][ ][ ][ ][ ][ ][ ][ ]	P3 [ ][ ][ ][ ][ ][ ][ ][ ]
MEASLES	MEA [ ][ ][ ][ ][ ][ ][ ][ ]	MEA [ ][ ][ ][ ][ ][ ][ ][ ]
457 Has (NAME) received any vaccinations that are not recorded on this card? RECORD 'YES' ONLY IF RESPONDENT MENTIONS BCG, DPT 1-3, POLIO 0-3 AND/OR MEASLES VACCINE(S).	YES.....1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 456) (SKIP TO 460) NO.....2 DK.....8 (SKIP TO 460)	YES.....1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 456) (SKIP TO 460) NO.....2 DK.....8 (SKIP TO 460)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
458	Did (NAME) ever receive any vaccinations to prevent him/her from getting diseases?	YES.....1 NO.....2 (SKIP TO 462) DK.....8	YES.....1 NO.....2 (SKIP TO 462) DK.....8
459	Please tell me if (NAME) has received any of the following vaccinations:		
459A	A BCG vaccination against tuberculosis, that is, an injection in the left shoulder that caused a scar?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
459B	A DPT vaccination against diphtheria, whooping cough, and tetanus given as an injection?	YES.....1 NO.....2 (SKIP TO 459D) DK.....8	YES.....1 NO.....2 (SKIP TO 459D) DK.....8
459C	How many times?	NUMBER OF TIMES.....	NUMBER OF TIMES.....
459D	Polio vaccine, that is, drops in the mouth?	YES.....1 NO.....2 (SKIP TO 459G) DK.....8	YES.....1 NO.....2 (SKIP TO 459G) DK.....8
459E	How many times?	NUMBER OF TIMES.....	NUMBER OF TIMES.....
459F	When was the first polio vaccine given -- just after birth or later?	JUST AFTER BIRTH.....1 LATER.....2	JUST AFTER BIRTH.....1 LATER.....2
459G	An injection against measles?	YES.....1 NO.....2 DK.....8 (SKIP TO 461)	YES.....1 NO.....2 DK.....8 (SKIP TO 461)
460	CHECK 456: ANY VACCINATIONS RECEIVED?	YES NO (SKIP TO 462)	YES NO (SKIP TO 462)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
461	Where did (NAME) receive most of his/her vaccinations?	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSP./PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 CAMP.....17 PULSE POLIO LOCATION....18 OTHER PUBLIC SECTOR HEALTH FACILITY.....19 NGO/TRUST HOSP./CLINIC...21 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 VAIDYA/HAKIM/HOMEOPATH..34 PHARMACY/DRUGSTORE.....35 OTHER PRIVATE SECTOR HEALTH FACILITY.....36 OTHER _____96 (SPECIFY)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSP./PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 CAMP.....17 PULSE POLIO LOCATION....18 OTHER PUBLIC SECTOR HEALTH FACILITY.....19 NGO/TRUST HOSP./CLINIC...21 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 VAIDYA/HAKIM/HOMEOPATH..34 PHARMACY/DRUGSTORE.....35 OTHER PRIVATE SECTOR HEALTH FACILITY.....36 OTHER _____96 (SPECIFY)
462	Was a dose of vitamin A liquid or capsule ever given to (NAME) to protect him/her from night blindness (USE LOCAL TERM)?	YES.....1 NO.....2 (SKIP TO 464) DK.....8	YES.....1 NO.....2 (SKIP TO 464) DK.....8
463	How many months ago did (NAME) receive the last dose of Vitamin A?	MONTHS AGO..... [ ][ ]	MONTHS AGO..... [ ][ ]
464	Has (NAME) been ill with a fever at any time in the last 2 weeks?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
465	Has (NAME) been ill with a cough at any time in the last 2 weeks?	YES.....1 NO.....2 (SKIP TO 469) DK.....8	YES.....1 NO.....2 (SKIP TO 469) DK.....8
466	When (NAME) was ill with a cough, did he/she breathe faster than usual with short, rapid breaths?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
467	Did you seek advice or treatment for the cough?	YES.....1 NO.....2 (SKIP TO 469)	YES.....1 NO.....2 (SKIP TO 469)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
468	Where did you seek advice or treatment? Anywhere else? RECORD ALL MENTIONED.	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP.....A GOVT. DISPENSARY.....B UHC/UHP/UFWC.....C CHC/RURAL HOSP./PHC.....D SUB-CENTRE.....E GOVT. MOBILE CLINIC.....F GOVT. PARAMEDIC..... G CAMP.....H OTHER PUBLIC SECTOR HEALTH FACILITY.....I NGO/TRUST HOSP./CLINIC....J NGO WORKER.....K PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....L PVT. DOCTOR.....M PVT. MOBILE CLINIC.....N PVT. PARAMEDIC.....O VAIDYA/HAKIM/HOMEOPATH...P TRADITIONAL HEALER.....Q PHARMACY/DRUGSTORE.....R OTHER PRIVATE SECTOR HEALTH FACILITY.....S OTHER SOURCE SHOP.....T FRIEND/RELATIVE.....U OTHER _____X (SPECIFY)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP.....A GOVT. DISPENSARY.....B UHC/UHP/UFWC.....C CHC/RURAL HOSP./PHC.....D SUB-CENTRE.....E GOVT. MOBILE CLINIC.....F GOVT. PARAMEDIC..... G CAMP.....H OTHER PUBLIC SECTOR HEALTH FACILITY.....I NGO/TRUST HOSP./CLINIC....J NGO WORKER.....K PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....L PVT. DOCTOR.....M PVT. MOBILE CLINIC.....N PVT. PARAMEDIC.....O VAIDYA/HAKIM/HOMEOPATH...P TRADITIONAL HEALER.....Q PHARMACY/DRUGSTORE.....R OTHER PRIVATE SECTOR HEALTH FACILITY.....S OTHER SOURCE SHOP.....T FRIEND/RELATIVE.....U OTHER _____X (SPECIFY)
469	Has (NAME) had diarrhoea in the last two weeks?	YES.....1 NO.....2 (SKIP TO 480) DK.....8	YES.....1 NO.....2 (SKIP TO 480) DK.....8
470	Was there any blood in the stools?	YES.....1 NO.....2	YES.....1 NO.....2
471	(Including breast milk) Was he/she given the same amount to drink as before the diarrhoea, or more, or less?	SAME.....1 MORE.....2 LESS.....3 DK.....8	SAME.....1 MORE.....2 LESS.....3 DK.....8
472	Was he/she given the same amount of food as before the diarrhoea, or more, or less?	SAME.....1 MORE.....2 LESS.....3 STOPPED COMPLETELY.....4 DK.....8	SAME.....1 MORE.....2 LESS.....3 STOPPED COMPLETELY.....4 DK.....8
473	Did you seek advice or treatment for the diarrhoea?	YES.....1 NO.....2 (SKIP TO 475)	YES.....1 NO.....2 (SKIP TO 475)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
474	Where did you seek advice or treatment? Anywhere else? RECORD ALL MENTIONED.	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP.....A GOVT. DISPENSARY.....B UHC/UHP/UFWC.....C CHC/RURAL HOSP./PHC.....D SUB-CENTRE.....E GOVT. MOBILE CLINIC.....F GOVT. PARAMEDIC..... G CAMP.....H OTHER PUBLIC SECTOR HEALTH FACILITY.....I NGO/TRUST HOSP./CLINIC....J NGO WORKER.....K PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....L PVT. DOCTOR.....M PVT. MOBILE CLINIC.....N PVT. PARAMEDIC.....O VAIDYA/HAKIM/HOMEOPATH...P TRADITIONAL HEALER.....Q PHARMACY/DRUGSTORE.....R OTHER PRIVATE SECTOR HEALTH FACILITY.....S OTHER SOURCE SHOP.....T FRIEND/RELATIVE.....U OTHER _____X (SPECIFY)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP.....A GOVT. DISPENSARY.....B UHC/UHP/UFWC.....C CHC/RURAL HOSP./PHC.....D SUB-CENTRE.....E GOVT. MOBILE CLINIC.....F GOVT. PARAMEDIC.....G CAMP.....H OTHER PUBLIC SECTOR HEALTH FACILITY.....I NGO/TRUST HOSP./CLINIC....J NGO WORKER.....K PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....L PVT. DOCTOR.....M PVT. MOBILE CLINIC.....N PVT. PARAMEDIC.....O VAIDYA/HAKIM/HOMEOPATH...P TRADITIONAL HEALER.....Q PHARMACY/DRUGSTORE.....R OTHER PRIVATE SECTOR HEALTH FACILITY.....S OTHER SOURCE SHOP.....T FRIEND/RELATIVE.....U OTHER _____X (SPECIFY)
475	When (NAME) had diarrhoea, was he/she given any of the following to drink:	YES NO DK	YES NO DK
	A fluid made from a special packet called [LOCAL NAME]?	FLUID FROM ORS PACKET..... 1 2 8	FLUID FROM ORS PACKET..... 1 2 8
	Gruel made from rice [OR OTHER LOCAL GRAIN, TUBER, OR PLANTAIN]?	GRUEL..... 1 2 8	GRUEL..... 1 2 8
476	CHECK 475: FLUID FROM ORS PACKET GIVEN?	YES ☐ NO OR DK ☐ (SKIP TO 478)	YES ☐ NO OR DK ☐ (SKIP TO 478)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
477	Where did you obtain the ORS packet?	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSP./PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 GOVT. PARAMEDIC.....17 OTHER PUBLIC SECTOR HEALTH FACILITY.....18 NGO/TRUST HOSP./CLINIC...21 NGO WORKER.....22 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 PVT. PARAMEDIC.....35 VAIDYA/HAKIM/HOMEOPATH..34 PHARMACY/DRUGSTORE.....36 DAI(TBA).....37 OTHER PRIVATE SECTOR HEALTH FACILITY.....38 OTHER SOURCE SHOP.....41 HUSBAND.....42 FRIEND/OTHER RELATIVE...43 OTHER _____96 (SPECIFY)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSP./PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 GOVT. PARAMEDIC.....17 OTHER PUBLIC SECTOR HEALTH FACILITY.....18 NGO/TRUST HOSP./CLINIC...21 NGO WORKER.....22 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 PVT. PARAMEDIC.....35 VAIDYA/HAKIM/HOMEOPATH..34 PHARMACY/DRUGSTORE.....36 DAI(TBA).....37 OTHER PRIVATE SECTOR HEALTH FACILITY.....38 OTHER SOURCE SHOP.....41 HUSBAND.....42 FRIEND/OTHER RELATIVE...43 OTHER _____96 (SPECIFY)
478	Was anything (else) given to treat the diarrhoea?	YES.....1 NO.....2 (SKIP TO 480) DK.....8	YES.....1 NO.....2 (SKIP TO 480) DK.....8
479	What was given to treat the diarrhoea? Anything else? RECORD ALL MENTIONED.	PILL OR SYRUP.....A INJECTION.....B INTRAVENOUS (I.V./DRIP/ BOTTLE).....C HOMEMADE SUGAR-SALT- WATER SOLUTION.....D HOME REMEDY/ HERBAL MEDICINE.....E OTHER_____X (SPECIFY)	PILL OR SYRUP.....A INJECTION.....B INTRAVENOUS (I.V./DRIP/ BOTTLE).....C HOMEMADE SUGAR-SALT- WATER SOLUTION.....D HOME REMEDY/ HERBAL MEDICINE.....E OTHER_____X (SPECIFY)
480	——————————>	GO BACK TO 454 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 481	GO TO 481

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
481	CHECK 475 ALL COLUMNS: ORS FLUID FROM PACKET GIVEN TO ANY CHILD [ ] ——>483 ORS FLUID FROM PACKET NOT GIVEN TO ANY CHILD OR 475 NOT ASKED [ ] v		
482	Have you ever heard of a special product called [LOCAL TERM FOR ORS] you can get for the treatment of diarrhoea? IF SHE NEVER HEARD OF ORS, SHOW GOVERNMENT AND COMMERCIAL ORS PACKETS AND ASK: Have you ever seen a packet like one of these before?	YES, WITHOUT SHOWING PACKETS....1 YES, AFTER SHOWING PACKETS.....2 NO.....3	
483	When a child has diarrhoea, should he/she be given less to drink than usual, about the same amount, or more than usual?	LESS TO DRINK.....1 ABOUT SAME AMOUNT TO DRINK.....2 MORE TO DRINK.....3 DK.....8	
484	When a child is sick with diarrhoea, what signs of illness would tell you that he or she should be taken to a health facility or health worker? Any other signs? RECORD ALL MENTIONED.	REPEATED WATERY STOOLS.....A ANY WATERY STOOLS.....B REPEATED VOMITING.....C ANY VOMITING.....D BLOOD IN STOOLS.....E FEVER.....F MARKED THIRST.....G NOT EATING/NOT DRINKING WELL.....H GETTING SICKER/VERY SICK.....I NOT GETTING BETTER.....J OTHER_____X (SPECIFY) DK.....Z	
485	When a child is sick with a cough, what signs of illness would tell you that he or she should be taken to a health facility or health worker? Any other : RECORD ALL MENTIONED.	RAPID BREATHING.....A DIFFICULT BREATHING.....B NOISY BREATHING.....C FEVER.....D UNABLE TO DRINK.....E NOT EATING/NOT DRINKING WELL.....F GETTING SICKER/VERY SICK.....G NOT GETTING BETTER.....H OTHER_____X (SPECIFY) DK.....Z	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
486	Now I would like to ask you about some health symptoms you yourself may have. During the past three months, have you had any of the following problems with your vaginal discharge:	YES NO	
	Any itching or irritation in vaginal area with the discharge?	ITCHING/IRRITATION... 1 2	
	A bad odour along with the discharge?	BAD ODOUR..... 1 2	
	Severe lower abdominal pain with the discharge, not related with menstruation?	ABDOMINAL PAIN..... 1 2	
	A fever along with the discharge?	FEVER..... 1 2	
	Any other problem with the discharge?	OTHER PROBLEM..... 1 2	
487	During the past three months have you had a problem with pain or burning while urinating, or have you had more frequent or difficult urination?	YES.....1 NO.....2	
488	CHECK 107: CURRENTLY MARRIED ☐ v SEPARATED DESERTED DIVORCED WIDOWED ☐		>491
489	Another problem some women have is feeling pain in their abdomen or vagina during intercourse. Do you often experience this kind of pain?	YES.....1 NO.....2	
490	Do you ever see blood after having sex, at times when you are not menstruating?	YES.....1 NO.....2	
491	CHECK 486, 487, 489 and 490: YES TO ANY ☐ v OTHER ☐		>501
492	Have you seen anyone for advice or treatment to help you with (this problem/these problems)? IF YES, ASK: Whom did you see? Anyone else? RECORD ALL PERSONS SEEN.	PUBLIC MEDICAL SECTOR GOVT. DOCTOR.....A PUBLIC HEALTH NURSE.....B ANM/LHV.....C MALE MPW/SUPERVISOR.....D ANGANWADI WORKER.....E VILLAGE HEALTH GUIDE.....F OTHER PUBLIC SECTOR HEALTH WORKER.....G NGO WORKER.....H PRIVATE MEDICAL SECTOR PRIVATE DOCTOR.....I PRIVATE NURSE.....J COMPOUNDER/PHARMACIST.....K VAID/HAKIM/HOMEOPATH.....L DAI(TBA).....M TRADITIONAL HEALER.....N OTHER PRIVATE SECTOR HEALTH WORKER.....O OTHER_____X (SPECIFY) NO, NOBODY SEEN.....Y	

SECTION 5A. FERTILITY PREFERENCES

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
501	CHECK 107: CURRENTLY MARRIED [ ] v SEPARATED DESERTED DIVORCED WIDOWED [ ]		>507
502	CHECK 327/327A: NEITHER STERILIZED [ ] v HE OR SHE STERILIZED [ ]		>507
503	CHECK 230: NOT PREGNANT OR UNSURE [ ] v PREGNANT [ ] v Now I have some questions about the future. Would you like to have (a/another) child or would you prefer not to have any (more) children? Now I have some questions about the future. After the child you are expecting, would you like to have another child or would you prefer not to have any more children?	HAVE A (ANOTHER) CHILD.....1 NO MORE/NONE.....2 SAYS SHE CAN'T GET PREGNANT.....3 UP TO GOD.....4 UNDECIDED/DK.....8	 >506 >507 >506
504	Would you prefer your next child to be a boy or a girl or doesn't it matter?	BOY.....1 GIRL.....2 DOESN'T MATTER.....3 UP TO GOD.....4	
505	CHECK 230: NOT PREGNANT OR UNSURE [ ] v PREGNANT [ ] v How long would you like to wait from now before the birth of (a/another) child? How long would you like to wait after the birth of the child you are expecting before the birth of another child?	MONTHS.....1 [ ][ ] YEARS.....2 [ ][ ] SOON/NOW.....993 SAYS SHE CAN'T GET PREGNANT...994 OTHER_____996 (SPECIFY) DK.....998	 >507

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
506	CHECK 230: NOT PREGNANT OR UNSURE ☐ → v PREGNANT ☐ → v Do you think your husband would like to have (a/another) child or do you think he would prefer not have any (more) children? After the child you are expecting, do you think your husband would like to have another child or do you think he would prefer not have any more children?	HAVE A (ANOTHER) CHILD.....1 NO MORE/NONE.....2 UP TO GOD.....3 UNDECIDED.....4 DK.....8	
507	CHECK 216: HAS LIVING CHILD(REN) ☐ → v NO LIVING CHILDREN ☐ → v If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be? If you could choose exactly the number of children to have in your whole life, how many would that be? RECORD SINGLE NUMBER OR OTHER ANSWER.	NUMBER..... ☐☐ OTHER ANSWER_____96 (SPECIFY)	>509
508	How many of these children would you like to be boys, how many would you like to be girls, and for how many would the sex not matter?	BOYS GIRLS EITHER NUMBER... ☐☐ ☐☐ ☐☐ OTHER_____999996 (SPECIFY)	
509	In your opinion, how much education should be given to girls these days?	NO EDUCATION.....01 LESS THAN PRIMARY.....02 PRIMARY.....03 MIDDLE.....04 HIGH SCHOOL.....05 HIGHER SECONDARY.....06 GRADUATE AND ABOVE.....07 PROFESSIONAL DEGREE.....08 AS MUCH AS SHE DESIRES.....09 DEPENDS.....10 DK.....98	
510	In your opinion, how much education should be given to boys these days?	NO EDUCATION.....01 LESS THAN PRIMARY.....02 PRIMARY.....03 MIDDLE.....04 HIGH SCHOOL.....05 HIGHER SECONDARY.....06 GRADUATE AND ABOVE.....07 PROFESSIONAL DEGREE.....08 AS MUCH AS HE DESIRES.....09 DEPENDS.....10 DK.....98	

SECTION 5B. STATUS OF WOMAN

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
511		1 = RESPONDENT 2 = HUSBAND 3 = JOINTLY WITH HUSBAND 4 = OTHERS IN HOUSEHOLD 5 = JOINTLY WITH OTHERS IN HOUSEHOLD	
	Who makes the following decisions in your household:		
	What items to cook?	1 2 3 4 5	
	Obtaining health care for yourself?	1 2 3 4 5	
	Purchasing jewellery or other major household items?	1 2 3 4 5	
	Your going and staying with parents or siblings?	1 2 3 4 5	
512	Do you need permission to:	YES NO NOT ALLOWED TO GO	
	go to the market?	GO TO THE MARKET....1 2 3	
	visit relatives or friends?	VISIT RELATIVES/ FRIENDS.....1 2 3	
513	Are you allowed to have some money set aside that you can use as you wish?	YES.....1 NO.....2	
514	Sometimes a wife can do things that bother her husband. Please tell me if you think that a husband is justified in beating his wife in each of the following situations:	YES NO DK	
	If he suspects her of being unfaithful?	UNFAITHFUL.....1 2 8	
	If her natal family does not give expected money, jewellery, or other items?	MONEY/JEWELLERY/ OTHER ITEMS.....1 2 8	
	If she shows disrespect for in-laws?	DISRESPECT.....1 2 8	
	If she goes out without telling him?	GOING WITHOUT TELLING.1 2 8	
	If she neglects the house or children?	NEGLECT.....1 2 8	
	If she doesn't cook food properly?	NOT COOK PROPERLY.....1 2 8	
515	Since you completed 15 years of age, have you been beaten or mistreated physically by any person?	YES.....1 NO.....2——>601	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
516	Who has beaten you or mistreated you physically? Anyone else? RECORD ALL PERSONS MENTIONED.	MOTHER.....A FATHER.....B STEP MOTHER.....C STEP FATHER.....D SON.....E DAUGHTER.....F BROTHER/SISTER.....G BOYFRIEND.....H HUSBAND.....I EX-HUSBAND.....J SON-IN-LAW.....K DAUGHTER-IN-LAW.....L MOTHER-IN-LAW.....M FATHER-IN-LAW.....N BROTHER-IN-LAW.....O SISTER-IN-LAW.....P OTHER RELATIVE.....Q FRIEND/ACQUAINTANCE.....R TEACHER.....S EMPLOYER.....T STRANGER.....U OTHER_____X (SPECIFY)	
517	How often have you been beaten or mistreated physically in the last 12 months: once, a few times, many times, or not at all?	ONCE.....1 A FEW TIMES.....2 MANY TIMES.....3 NOT BEATEN.....4	

SECTION 6. HUSBAND'S BACKGROUND AND WOMAN'S WORK

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
601	CHECK 107: CURRENTLY MARRIED [ ] v SEPARATED DESERTED DIVORCED WIDOWED [ ]		>603
602	How old was your husband on his last birthday?	AGE IN COMPLETED YEARS..... [ ][ ]	
603	Did your (last) husband ever attend school?	YES.....1 NO.....2	>606
604	What is the highest grade he completed?	GRADE..... [ ][ ]	
605	CHECK 604: GRADE 0-5 [ ] v GRADE 6 AND ABOVE [ ]		>607
606	(Can/Could) he read and write?	YES.....1 NO.....2	
607	What kind of work (does/did) your (last) husband mainly do?	[ ][ ] _____ _____ _____	
608	CHECK 607: WORKS (WORKED) ON FARM [ ] v DOES (DID) NOT WORK ON FARM [ ]		>610
609	(Does/did) your husband work mainly on his own land or family land, or (does/did) he rent land, or (does/did) he work on someone else's land?	HIS LAND.....1 FAMILY LAND.....2 RENTED LAND.....3 SOMEONE ELSE'S LAND.....4	
610	Aside from your own housework, are you currently working?	YES.....1 NO.....2	>613
611	As you know, some women take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the family business. Are you currently doing any of these things or any other work?	YES.....1 NO.....2	>613

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
612	Have you done any work in the last 12 months?	YES.....1 NO.....2	>701
613	What is your occupation, that is, what kind of work do/did you mainly do?	_____ ☐☐ _____ _____	
614	Do you do this work for your family's farm or business, for someone else, or are you self-employed?	FAMILY FARM/BUSINESS.....1 SOMEONE ELSE.....2 SELF-EMPLOYED.....3	
615	Do you usually work throughout the year, or do you work seasonally, or only once in a while?	THROUGHOUT THE YEAR.....1 SEASONALLY/PART OF THE YEAR.....2 ONCE IN A WHILE.....3	
616	Are you paid in cash or kind for this work, or are you not paid at all?	CASH ONLY.....1 CASH AND KIND.....2 KIND ONLY.....3 NOT PAID.....4	>619
617	Generally, how much do your earnings contribute to the total family earnings: almost none, less than half, about half, more than half, or all?	ALMOST NONE.....1 LESS THAN HALF.....2 ABOUT HALF.....3 MORE THAN HALF.....4 ALL.....5	
618	Who mainly decides how the money you earn will be used?	RESPONDENT DECIDES.....1 HUSBAND DECIDES.....2 JOINTLY WITH HUSBAND.....3 SOMEONE ELSE DECIDES.....4 JOINTLY WITH SOMEONE ELSE.....5	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
619	Do you usually work at home or away from home?	HOME.....1 AWAY.....2	>701
620	CHECK 215/218: HAS CHILD BORN SINCE JAN. 1995 AND LIVING AT HOME? YES ☐ NO ☐		>701
621	While you are working, do you usually have (NAME OF YOUNGEST CHILD AT HOME) with you, sometimes have him/her with you, or never have him/her with you?	USUALLY.....1 SOMETIMES.....2 NEVER.....3	>701
622	Who usually takes care of (NAME OF YOUNGEST CHILD AT HOME) while you are working?	HUSBAND.....01 OLDER BOYS.....02 OLDER GIRLS.....03 OTHER RELATIVES.....04 NEIGHBOURS.....05 FRIENDS.....06 SERVANTS/HIRED HELP.....07 CHILD IS IN SCHOOL.....08 INSTITUTIONAL CHILDCARE.....09 OTHER_____96 (SPECIFY)	

SECTION 7 - AIDS

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	TO
701	Have you ever heard of an illness called AIDS?	YES.....1 NO.....2	>705
702	From which sources of information have you learned about AIDS? Any other source? RECORD ALL MENTIONED.	RADIO.....A TELEVISION.....B CINEMA.....C NEWSPAPERS/MAGAZINES.....D POSTERS/HOARDINGS.....E EXHIBITION/MELA.....F HEALTH WORKERS.....G ADULT EDUCATION PROGRAMME.....H RELIGIOUS LEADERS.....I POLITICAL LEADERS.....J SCHOOLS/TEACHERS.....K COMMUNITY MEETINGS.....L FRIENDS/RELATIVES.....M WORK PLACE.....N OTHER_____X (SPECIFY)	
703	Is there anything a person can do to avoid getting AIDS?	YES.....1 NO.....2 DK.....8	>705
704	What can a person do? Any other ways? RECORD ALL MENTIONED.	ABSTAIN FROM SEX.....A USE CONDOMS.....B HAVE ONLY ONE SEX PARTNER.....C AVOID SEX WITH COMMERCIAL SEX WORKERS.....D AVOID SEX WITH HOMOSEXUALS.....E AVOID BLOOD TRANSFUSIONS.....F AVOID INJECTIONS/USE CLEAN NEEDLES.....G AVOID I.V. DRUG USE.....H AVOID KISSING.....I AVOID HUGGING.....J AVOID HAND SHAKING.....K AVOID SHARING CLOTHES.....L AVOID SHARING UTENSILS.....M AVOID SHARING SHAVING KITS/RAZORS.....N AVOID STEPPING ON URINE/STOOL...O AVOID MOSQUITO BITES.....P OTHER_____X (SPECIFY) DK.....Z	
705	RECORD THE TIME	HOUR..... [ ][ ] MINUTES..... [ ][ ]	
706	PRESENCE OF OTHERS DURING MOST OF THE INTERVIEW TIME.	YES NO CHILDREN UNDER 10.....1 2 HUSBAND.....1 2 MOTHER-IN-LAW.....1 2 OTHER MALES.....1 2 OTHER FEMALES.....1 2	

HEALTH INVESTIGATOR VISITS				
	1	2	3	FINAL VISIT
DATE	_____	_____	_____	DAY [ ][ ] MONTH [ ][ ] YEAR [1][9][ ][ ]
INVESTIGATOR'S NAME	_____	_____	_____	NAME CODE [ ][ ]
RESULT*	_____	_____	_____	RESULT CODE [ ]
NEXT VISIT: DATE TIME	_____ _____	_____ _____		TOTAL NUMBER OF VISITS [ ]

*RESULT CODES:
1 COMPLETED 3 POSTPONED 5 PARTLY COMPLETED
2 NOT AT HOME 4 REFUSED 6 OTHER (SPECIFY)_____

SECTION 8: HEIGHT AND WEIGHT

INTERVIEWER: IN 801 (COLUMNS 2-3) RECORD THE LINE NUMBER FOR EACH CHILD BORN SINCE JANUARY 1995 AND STILL ALIVE.
IN 802 AND 803 RECORD THE NAME OF THE RESPONDENT AND ALL HER LIVING CHILDREN BORN SINCE JANUARY 1995, AND THE DATE OF BIRTH OF THE CHILDREN.
IN 804 AND 806 RECORD THE HEIGHT AND WEIGHT OF THE RESPONDENT AND LIVING CHILDREN.

(NOTE:IF THERE ARE MORE THAN 2 LIVING CHILDREN BORN SINCE JANUARY 1995, CHECK BOX ☐ AND USE ADDITIONAL QUESTIONNAIRE)

	1 RESPONDENT	2 YOUNGEST LIVING CHILD	3 NEXT-TO-YOUNGEST LIVING CHILD
801 LINE NO. FROM Q.212		☐☐	☐☐
802 NAME FROM Q.212 FOR CHILDREN	(NAME) _____	(NAME) _____	(NAME) _____
803 DATE OF BIRTH FROM Q.215 FOR CHILDREN, COPY MONTH AND YEAR OF BIRTH AND ASK FOR DAY OF BIRTH		DAY..... ☐☐ MONTH..... ☐☐ YEAR. ☐☐☐☐	DAY..... ☐☐ MONTH..... ☐☐ YEAR. ☐☐☐☐
804 HEIGHT (in centimetres)	☐☐☐.☐	☐☐☐.☐	☐☐☐.☐
805 WAS HEIGHT/LENGTH OF CHILD MEASURED LYING DOWN OR STANDING UP?		LYING.....1 STANDING.....2	LYING.....1 STANDING.....2
806 WEIGHT (in kilograms)	☐☐☐.☐	0☐☐.☐	0☐☐.☐
807 DATE WEIGHED AND MEASURED	DAY..... ☐☐ MONTH..... ☐☐ YEAR. ☐☐☐☐	DAY..... ☐☐ MONTH..... ☐☐ YEAR. ☐☐☐☐	DAY..... ☐☐ MONTH..... ☐☐ YEAR. ☐☐☐☐
808 RESULT	COMPLETED.....1 NOT PRESENT....2 REFUSED.....3 OTHER.....6 _____ (SPECIFY)	COMPLETED.....1 CHILD SICK.....2 CHILD NOT PRESENT.....3 CHILD DID NOT ALLOW..... 4 MOTHER REFUSED.5 OTHER.....6 _____ (SPECIFY)	COMPLETED.....1 CHILD SICK.....2 CHILD NOT PRESENT.....3 CHILD DID NOT ALLOW.....4 MOTHER REFUSED.5 OTHER.....6 _____ (SPECIFY)

809
NAME OF MEASURER: _____ ☐☐ NAME OF ASSISTANT: _____ ☐☐

901

As a part of this survey, we are studying anaemia among women and children. We request your co-operation in this regard. This will assist the Government of India to develop programmes to prevent and treat anaemia.

Anaemia is a serious health problem in India, which results from poor nutrition. However, if a person is found to have anaemia, the person can be given iron folic tablets to cure the disease.

[We are also doing research on lead poisoning among children and we request your co-operation in this regard. This will assist the Government of India to develop programmes to prevent and treat lead poisoning. The benefit to you is that you will learn whether your child has a high lead exposure that needs to be addressed. If children are exposed to too much lead from the environment around them, it can harm their intelligence, growth and hearing and can contribute to anaemia. However, it is possible to take steps to decrease the amount of lead that a child is exposed to. Children with severe lead poisoning can get medical treatment.]

If you decide to be tested for anaemia, we will request that you give a drop of blood from your finger for the test. (Also, if you have a child under 3 years old, please allow me to take a(few)drop(s)of blood from him/her for anaemia [and lead] testing). We will use disposable sterile instruments that are clean and completely safe. Your child will feel a slight pinch when the blood is drawn. There is essentially no risk to your child from this procedure. The blood will be analyzed with new equipment provided by the United Nations. The result(s) of the test(s) will be given to you right after the blood is taken. The results of the tests will be kept confidential and will not be shown to other persons. Are there any questions about the blood testing that you would like to ask me now?

May I ask you now to give your consent to have the test(s) done. If you decide not to have the test(s), it is your right, and we will respect your decision. Now please tell me whether you agree to have the test(s)(and allow me to test your child).

AFTER EXPLAINING THE ABOVE, I HAVE FOUND THAT _____ AGREED TO GIVE
(NAME OF RESPONDENT)

A (FEW) DROP(S) OF BLOOD FOR HERSELF [AND FOR HER CHILD(REN) NAMED_____
_____] (NAME OF CHILD(REN))

Signature of
Interviewer:_____ Date :_____

RESPONDENT AGREES TO TESTING OF HERSELF AND/OR HER CHILD(REN)...1

RESPONDENT DOES NOT AGREE TO TESTING.....2 ——>SKIP TO 914

Signature of
Witness:_____ Date :_____

v

902

RESPONDENT'S HAEMOGLOBIN LEVEL (G/DL) [ ][ ].[ ]

(Statements above in square brackets were added only for use in Delhi and Mumbai)

903	RESULT	MEASURED.....1 REFUSED.....2 OTHER_____6 (SPECIFY)

904	CHECK 215/216:	
	ONE OR MORE LIVING CHILDREN BORN SINCE JANUARY 1995 ☐	NO LIVING CHILDREN BORN SINCE JANUARY 1995 ☐ >910

IN 905 RECORD THE LINE NUMBER FOR EACH CHILD BORN SINCE JANUARY 1995 AND STILL ALIVE.
IN 906 RECORD THE NAMES OF THE LIVING CHILDREN.
IN 907 RECORD THE HAEMOGLOBIN LEVEL IN THE BLOOD OF THE LIVING CHILDREN.

(NOTE:IF THERE ARE MORE THAN 2 LIVING CHILDREN BORN SINCE JANUARY 1995, CHECK BOX ☐ AND USE ADDITIONAL QUESTIONNAIRE)

		YOUNGEST LIVING CHILD	NEXT-TO-YOUNGEST LIVING CHILD
905	LINE NUMBER FROM Q. 212	☐☐	☐☐
906	NAME FROM Q.212	NAME_____	NAME_____
907	HAEMOGLOBIN LEVEL IN THE BLOOD (G/DL)	☐☐.☐	☐☐.☐
907A	(DELHI AND MAHARASHTRA ONLY) CHECK SAMPLE: IS PSU IN LEAD TESTING SAMPLE?	YES.....1 NO.....2—> SKIP TO 908	
907B	(DELHI AND MAHARASHTRA ONLY) LEAD LEVEL IN THE BLOOD (µg/DL)	☐☐.☐	☐☐.☐
908	RESULT	MEASURED.....1 CHILD SICK.....2 CHILD NOT PRESENT.....3 CHILD DID NOT ALLOW.....4 MOTHER REFUSED.....5 OTHER_____6 (SPECIFY)	MEASURED.....1 CHILD SICK.....2 CHILD NOT PRESENT.....3 CHILD DID NOT ALLOW.....4 MOTHER REFUSED.....5 OTHER_____6 (SPECIFY)

909	NAME OF MEASURER _____	☐☐

910	CHECK 902 AND 907:	
	NO VALUES BELOW 7 G/DL	☐ > GIVE MOTHER RESULT OF HAEMOGLOBIN MEASUREMENT AND SKIP TO 913A
	ANY VALUE BELOW 7 G/DL FOR MOTHER AND/OR CHILD(REN)	☐ > GIVE MOTHER RESULT OF HAEMOGLOBIN MEASUREMENT AND CONTINUE WITH 911.

911 CHECK COLUMN (5) OF HOUSEHOLD SCHEDULE:

RESPONDENT IS USUAL RESIDENT → V

RESPONDENT IS VISITOR → END

912

We detected a low level of haemoglobin in your (your child's) blood. This indicates you (your child) have developed severe anaemia, which is a serious health problem. We would like to inform the doctor at _____ about your (your child's) condition. This will assist you to obtain appropriate treatment of your (your child's) condition.

Do you agree that the information about the level of haemoglobin in your (your child's) blood may be given to the doctor.

AFTER EXPLAINING THE ABOVE, I HAVE FOUND THAT _____ AGREED FOR
(NAME OF RESPONDENT)

REFERRAL FOR HERSELF [AND FOR HER CHILD(REN) NAMED_____
_____] (NAME OF CHILD(REN))

Signature of Interviewer:_____ Date :_____

RESPONDENT AGREES FOR REFERRAL FOR HERSELF AND/OR HER CHILD(REN)....1 → V

RESPONDENT DOES NOT AGREE FOR REFERRAL.....2 —>SKIP TO 913A

913 RECORD NAMES OF WOMAN AND CHILD(REN) WITH HAEMOGLOBIN LEVEL LESS THAN 7 G/DL ON REFERRAL FORM.

913A (DELHI AND MAHARASHTRA ONLY)
CHECK 907B:

907B BLANK IN EVERY COLUMN —> SKIP TO 914

NO VALUES OF 45 µg/dL OR ABOVE —> GIVE MOTHER RESULT OF LEAD MEASUREMENT AND SKIP TO 914

ANY VALUE OF 45 µg/dL OR ABOVE —> GIVE MOTHER RESULT OF LEAD MEASUREMENT AND CONTINUE WITH 913B

913B (DELHI AND MAHARASHTRA ONLY)

We detected a high level of lead in your child's blood. This indicates your child has developed lead poisoning, which is a serious health problem. We would like to inform the doctor at_____about your child's condition. This will assist you to obtain appropriate treatment of your child's condition.

Do you agree that the information about the level of lead in your child's blood may be given to the doctor ?

AFTER EXPLAINING THE ABOVE, I HAVE FOUND THAT_____
(NAME OF RESPONDENT)

AGREED TO REFERRAL FOR HER CHILD(REN) NAMED_____
(NAME OF CHILD(REN))

Signature of the Investigator:_____ Date:_____

RESPONDENT AGREES TO REFERRAL FOR HER CHILD(REN)....1

RESPONDENT DOES NOT AGREE TO REFERRAL.....2

Signature of the Witness:_____ Date:_____

914 (DELHI, MAHARASHTRA, AND TAMIL NADU ONLY)

Would you mind if we come again for a similar study at some future date after a year or so?

AGREES TO REVISIT.....1

DOES NOT AGREE TO REVISIT.....2

INTERVIEWER'S OBSERVATIONS
(To be filled in after completing interview)

Comments About Respondent: _____

_____

_____

Comments on Specific Questions: _____

_____

_____

Any Other Comments: _____

_____

SUPERVISOR'S OBSERVATIONS/COMMENTS

_____

_____

_____

Name of Supervisor: _____ Date: _____

EDITOR'S OBSERVATIONS/COMMENTS

_____

_____

_____

Name of Editor: _____ Date: _____

NATIONAL FAMILY HEALTH SURVEY, 1998-99 (NFHS-2)

INTERNATIONAL INSTITUTE FOR POPULATION SCIENCES, MUMBAI

RESULTS OF HAEMOGLOBIN MEASUREMENT IN THE BLOOD:

Date:_____

	Woman	**Child**	**Child**
Haemoglobin level in the blood (G/DL)	NAME_____ ☐☐.☐ You have	NAME_____ ☐☐.☐ Your child has	NAME_____ ☐☐.☐ Your child has
WHO CLASSIFICATION OF ANAEMIA			
NORMAL LEVEL HB LEVEL ABOVE 11 G/DL	NORMAL LEVEL	NORMAL LEVEL	NORMAL LEVEL
MILD ANAEMIA HB (10-10.9 G/DL)	MILD ANAEMIA	MILD ANAEMIA	MILD ANAEMIA
MODERATE ANAEMIA HB (7-9.9 G/DL)	MODERATE ANAEMIA	MODERATE ANAEMIA	MODERATE ANAEMIA
SEVERE ANAEMIA HB (LESS THAN 7 G/DL)	SEVERE ANAEMIA	SEVERE ANAEMIA	SEVERE ANAEMIA

In case of severe anaemia (Hb less than 7 G/DL), we recommend that you immediately contact your doctor.

....

(DELHI AND MAHARASHTRA ONLY)

NATIONAL FAMILY HEALTH SURVEY, 1998-99 (NFHS-2)

INTERNATIONAL INSTITUTE FOR POPULATION SCIENCES, MUMBAI

RESULTS OF LEAD MEASUREMENT IN THE BLOOD: Date:_____

	Child	**Child**
Lead level in the blood (µg/dL)	NAME_____ ☐☐.☐ You child has	NAME_____ ☐☐.☐ Your child has
CLASSIFICATION OF LEAD LEVELS*		
CLASS I PB LEVEL BELOW 10 µg/DL	CLASS I	CLASS I
CLASS II PB LEVEL 10-19 µg/DL	CLASS II	CLASS II
CLASS III PB LEVEL 20-44 µg/DL	CLASS III	CLASS III
CLASS IV PB LEVEL 45-65 µg/DL	CLASS IV	CLASS IV
CLASS V PB LEVEL ABOVE 65 µg/DL	CLASS V	CLASS V

CLASS I indicates no exposure to lead or exposure below the level of concern.
CLASS II and CLASS III indicate some exposure to lead has occurred. Families should attempt to minimize exposure to lead.
CLASS IV and CLASS V indicate children should be referred to a clinician for confirmation of blood lead level, medical evaluation and treatment.

In case of severe lead poisoning (Pb above 65 µg/DL, CLASS V), we recommend that you contact your doctor for immediate treatment.

* Based on classification system of Centre for Disease Control and Prevention of the United States.

NATIONAL FAMILY HEALTH SURVEY, 1998-99 (NFHS-2)
VILLAGE QUESTIONNAIRE

INDIA

CONFIDENTIAL
For Research
Purpose only

IDENTIFICATION

STATE_____

DISTRICT_____

TEHSIL/TALUK_____

VILLAGE_____

PSU NUMBER.....

TOTAL POPULATION OF THE VILLAGE
ACCORDING TO THE 1991 CENSUS.....

INTERVIEWER'S NAME _____

DATE OF INTERVIEW _____ DATE.....

MONTH.....

YEAR.....

RESULT:

BOTH VILLAGE SCHEDULE AND VILLAGE HEAD SCHEDULE COMPLETED.....1

ONLY VILLAGE SCHEDULE COMPLETED.....2

OTHER_____6
(SPECIFY)

	SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
DATE	_____	_____	_____	_____
NAME	_____	_____	_____	_____

VILLAGE SCHEDULE

NO.	QUESTIONS	CODING CATEGORIES
1	Current population of the village:	☐☐☐☐☐
2	Area of the village (in Hectares):	☐☐☐
3	Total number of households in the village:	☐☐☐☐
4	Total arable land in the village (in Hectares):	IRRIGATED LAND..... ☐☐☐ NON-IRRIGATED LAND..... ☐☐☐
5	Main source of irrigation in the village:	RAIN WATER.....01 TANK/POND.....02 STREAM/RIVER.....03 CANAL.....04 WELL.....05 TUBE WELL.....06 OTHER_____96 (SPECIFY)
6	Major crops grown in the village:	1 _____ ☐☐ 2 _____ ☐☐ 3 _____ ☐☐
7	Distance to the nearest town (in kilometres):	☐☐
8	Distance to the District Headquarters (in kilometres):	☐☐
9	Distance to the nearest railway station (in kilometres):	☐☐
10	Distance to available transport service to other place (in kilometres):	☐☐
11	Distance of the village from all-weather road in connection to other place (in kilometres):	☐☐
12	Village Electrification:	NOT ELECTRIFIED..... 1 ELECTRIFIED, BUT IRREGULAR SUPPLY..... 2 ELECTRIFIED AND REGULAR SUPPLY..... 3

NO.	QUESTIONS	CODING CATEGORIES
13	Educational Facilities:	DISTANCE TO THE NEAREST FACILITY AVAILABLE (IN KILOMETRES):
	Primary School	PRIMARY SCHOOL..... [ ][ ]
	Middle School	MIDDLE SCHOOL..... [ ][ ]
	Secondary School	SECONDARY SCHOOL..... [ ][ ]
	Higher Secondary School	HIGHER SECONDARY SCHOOL..... [ ][ ]
	College	COLLEGE..... [ ][ ]
	IF DISTANCE MORE THAN 90 KILOMETRES, RECORD 90; IF FACILITY IS AVAILABLE IN THE VILLAGE, RECORD 95	
14	Health Facilities:	DISTANCE TO THE NEAREST FACILITY AVAILABLE (IN KILOMETRES):
	Sub-Centre	SUB-CENTRE..... [ ][ ]
	Primary Health Centre	PRIMARY HEALTH CENTRE..... [ ][ ]
	Community Health Centre/Rural Hospital	COMMUNITY HEALTH CENTRE/RURAL HOSPITAL..... [ ][ ]
	Government Dispensary	GOVERNMENT DISPENSARY..... [ ][ ]
	Government Hospital	GOVERNMENT HOSPITAL..... [ ][ ]
	Private Clinic	PRIVATE CLINIC..... [ ][ ]
	Private Hospital	PRIVATE HOSPITAL..... [ ][ ]
	IF DISTANCE MORE THAN 90 KILOMETRES, RECORD 90; IF FACILITY IS AVAILABLE IN THE VILLAGE, RECORD 95	
15	Other facilities:	DISTANCE TO THE NEAREST FACILITY AVAILABLE (IN KILOMETRES):
	Post Office	POST OFFICE..... [ ][ ]
	Telegraph Office	TELEGRAPH OFFICE..... [ ][ ]
	STD Booth	STD BOOTH..... [ ][ ]
	Bank	BANK..... [ ][ ]
	IF DISTANCE MORE THAN 90 KILOMETRES, RECORD 90; IF FACILITY IS AVAILABLE IN THE VILLAGE, RECORD 95	

NO.	QUESTIONS	CODING CATEGORIES		
16	Availability of health provider in the village:		YES	NO
	Private doctor	PRIVATE DOCTOR.....	1	2
	Visiting doctor	VISITING DOCTOR.....	1	2
	Village health guide (VHG)	VHG.....	1	2
	Traditional birth attendant (dai)	TBA (DAI).....	1	2
	Mobile health unit/visit	MOBILE HEALTH UNIT.....	1	2
17	Other facilities:	AVAILABLE IN THE VILLAGE		
			YES	NO
	Mills/small scale industries (M/SSI)	M/SSI.....	1	2
	Credit cooperative society (CCS)	CCS.....	1	2
	Agricultural cooperative society (ACS)	ACS.....	1	2
	Fishermen's cooperative society (FCS)	FCS.....	1	2
	Milk cooperative society (MCS)	MCS.....	1	2
	Kirana/General Market Shop (K/GMS)	K/GMS.....	1	2
	Weekly market	WEEKLY MARKET.....	1	2
	Fair price shop	FAIR PRICE SHOP.....	1	2
	Paan shop	PAAN SHOP.....	1	2
	Pharmacy/Medical shop	PHARMACY/MEDICAL SHOP....	1	2
	Mahila Mandal	MAHILA MANDAL.....	1	2
	Youth club	YOUTH CLUB.....	1	2
	Anganwadi centre	ANGANWADI CENTRE.....	1	2
	Community centre	COMMUNITY CENTRE.....	1	2
	Adult education centre	ADULT EDUCATION CENTRE...	1	2
	Community television set	COMMUNITY TV SET.....	1	2
	Cable connection	CABLE CONNECTION.....	1	2
18	Total number of television sets in the village:			
19	Total number of households having telephone connection:			
20	The type of drainage facility in the village:	UNDERGROUND DRAINAGE.....1 OPEN DRAINAGE.....2 NO.....3		

NO.	QUESTIONS	CODING CATEGORIES
21	Any epidemic in the village during the last one year:	1. _____ [ ][ ] 2. _____ [ ][ ]
22	Number of health or family welfare camps in the last one year?	[ ][ ]
23	Any beneficiaries in the village from the following programmes:	BENEFICIARIES
	Integrated Rural Development Programme (IRDP)	IRDP..... [ ][ ]
	National Rural Employment Programme (NREP)	NREP..... [ ][ ]
	Training Rural Youth for Self Employment (TRYSEM)	TRYSEM..... [ ][ ]
	Employment Guarantee Scheme (EGS)	EGS..... [ ][ ]
	Development of Women and Children of Rural Areas (DWARCA)	DWACRA..... [ ][ ]
	Indira Awas Yojana (IAY)	IAY..... [ ][ ]
	Sanjay Gandhi Niradhar Yojana (SGNY)	SGNY..... [ ][ ]
24	Community level IEC activities for health and family welfare during the last one year:	YES NO
	Film show	FILM SHOW..... 1 2
	Exhibition	EXHIBITION..... 1 2
	Drama/song/dance performance	DRAMA/SONG/DANCE PERFORM. 1 2
	Puppet show	PUPPET SHOW..... 1 2
	Group meeting	GROUP MEETING..... 1 2
25	Persons providing information for the village schedule: RECORD ALL THE SOURCES.	SARPANCH.....A PATWARI.....B GRAM SEVAK.....C SCHOOL TEACHER.....D HEALTH PERSONNEL.....E OTHERS_____X (SPECIFY)

VILLAGE HEAD SCHEDULE
(SARPANCH/PRADHAN/MUKHIYA)

1. Age : ☐☐

2. Sex : Male....1
Female..2

3. Religion : Hindu...1
Muslim..2
Other...6

4. Caste : SC....1
ST....2
OBC...3
Other.6

5. Education : ☐☐

6. No. of Children : ☐☐

NO.	QUESTIONS	SKIP
7	In your opinion what are the two most important problems in this village? 1. _____ _____ 2. _____	
8	What are the two most important health problems in this village? 1. _____ _____ 2. _____	
9	What are the two most important health problems faced by women and children in this village? 1. _____ _____ 2. _____	
10	Do you feel that it is necessary to encourage couples in this village to have a small number of children?	YES..... 1 NO ..... 2 ———>12
11	If you are asked to prepare a plan to achieve this objective, what are the two most important actions you would suggest? 1. _____ _____ 2. _____	
12	If you are asked to prepare a health plan for this village, what are the two most important actions you would recommend? 1. _____ _____ 2. _____	

NFHS-2 FACT SHEET

STATES

NFHS-2 FACT SHEET - STATES

State	Population, 1 July, 2000 (in millions)[1]	Percent of females illiterate (age 6+)	Percent of females age 6–14 attending school	Percent of ever-married women age 15–49 who are: Urban	Percent of ever-married women age 15–49 who are: Not regularly exposed to any media	Percent of households: With electricity	Percent of households: With drinking water piped or from hand pump	Percent of households: With no toilet/latrine facility	Percent of households: Using adequately iodized salt[2]	Percent of women involved in decisions about own health care	Percent of women age 20–24 married by exact age 18
India[#]	1002.1	48.6	73.7	26.2	40.3	60.1	77.9	64.0	49.3	51.6	50.0
North											
Delhi	14.1	21.7	90.8	92.1	7.3	97.7	98.7	5.6	89.2	68.7	19.8
Haryana	19.9	42.7	85.5	28.8	33.1	89.1	88.0	60.9	71.0	67.2	41.5
Himachal Pradesh	6.7	31.3	97.3	9.1	16.3	97.2	77.4	73.0	90.5	80.8	10.7
Jammu & Kashmir	10.0	55.3	77.5	21.5	25.6	90.1	70.6	49.0	52.9	55.5	22.1
Punjab	23.6	35.1	90.0	30.8	18.0	95.5	98.9	48.6	75.3	78.5	11.6
Rajasthan	53.9	62.9	63.2	24.2	63.1	64.4	69.8	71.8	46.3	40.6	68.3
Central											
Madhya Pradesh	80.2	55.5	70.8	25.3	45.2	68.1	63.5	77.8	56.7	36.6	64.7
Uttar Pradesh	171.5	57.3	69.4	20.0	54.7	36.6	85.6	73.3	48.8	44.8	62.4
East											
Bihar	100.6	65.2	54.1	10.2	72.7	18.2	75.4	83.2	46.9	47.6	71.0
Orissa	36.0	48.7	75.1	11.0	55.7	33.8	65.3	86.5	35.0	38.6	37.6
West Bengal	79.3	42.6	76.7	23.8	38.6	36.7	89.3	54.9	61.7	45.1	45.9
Northeast											
Arunachal Pradesh	1.2	43.0	77.3	15.9	36.7	68.9	80.7	26.1	84.1	70.0	27.6
Assam	26.3	40.9	75.0	8.5	47.4	26.4	60.1	36.8	79.6	65.1	40.7
Manipur	2.5	41.3	87.8	33.7	16.2	75.3	48.9	8.0	87.9	43.3	9.9
Meghalaya	2.5	33.2	85.2	20.0	37.3	41.2	42.1	48.0	63.0	78.9	25.5
Mizoram	1.0	10.6	90.8	52.9	16.9	84.1	63.2	2.3	91.3	73.2	11.6
Nagaland	1.7	31.7	83.5	20.3	35.7	56.3	40.5	25.6	67.2	69.4	22.9
Sikkim	0.6	35.6	88.5	14.2	21.5	80.7	84.6	27.3	79.1	60.2	22.3
West											
Goa	1.6	25.2	93.2	41.6	11.6	93.5	61.8	41.1	41.9	61.6	10.1
Gujarat	48.5	46.4	72.8	42.5	33.8	84.3	84.5	54.9	56.1	71.4	40.7
Maharashtra	91.4	38.6	86.9	41.3	29.6	82.1	81.9	54.0	60.1	49.9	47.7
South											
Andhra Pradesh	75.9	54.0	70.5	24.9	23.7	74.4	78.5	72.7	27.4	56.1	64.3
Karnataka	52.3	44.5	77.6	34.8	21.4	80.9	87.0	61.4	43.4	49.3	46.3
Kerala	32.4	14.9	97.4	23.1	11.5	71.8	19.9	14.8	39.3	72.6	17.0
Tamil Nadu	61.9	41.7	88.5	34.6	20.3	78.8	85.0	65.9	21.2	61.1	24.9

[1]Registrar General of India
[2]Cooking salt that has an iodine content of at least 15 parts per million (ppm)

[#]Excludes Tripura

NFHS-2 FACT SHEET - STATES (Contd.)

State	Total fertility rate[3]	Wanted total fertility rate[4]	Percent of currently married women using		Unmet need for family planning[5]			Percent of users of modern contraceptive methods who were told about side effects or other problems with method[7]		Percent of currently married women who received follow-up[8] for:	
			Any contraceptive method	Sterilization[6]	For spacing	For limiting	Total	Sterilization	Other modern method	Sterilization	Other modern method
India	2.85	2.13	48.2	36.0	8.3	7.5	15.8	21.9	20.6	74.6	39.9
North											
Delhi	2.40	1.72	63.8	28.6	5.9	7.5	13.4	27.8	26.7	67.9	54.8
Haryana	2.88	2.10	62.4	40.8	2.9	4.7	7.6	61.9	40.0	99.8	33.7
Himachal Pradesh	2.14	1.50	67.7	52.4	3.6	4.9	8.6	35.8	23.0	97.8	25.2
Jammu & Kashmir	2.71	1.74	49.1	30.7	7.4	12.6	20.0	7.8	12.7	88.4	54.5
Punjab	2.21	1.55	66.7	30.8	2.8	4.5	7.3	55.6	30.9	99.4	29.6
Rajasthan	3.78	2.57	40.3	32.3	8.7	8.9	17.6	13.1	14.2	73.6	49.2
Central											
Madhya Pradesh	3.31	2.40	44.3	38.0	8.9	7.3	16.2	11.3	18.8	82.0	44.7
Uttar Pradesh	3.99	2.83	28.1	15.6	11.8	13.4	25.1	15.5	11.3	54.3	41.4
East											
Bihar	3.49	2.58	24.5	20.2	12.6	11.9	24.5	15.8	16.0	78.3	65.5
Orissa	2.46	1.90	46.8	35.6	8.7	6.8	15.5	35.7	28.9	62.9	34.3
West Bengal	2.29	1.78	66.6	33.8	6.3	5.5	11.8	10.1	9.9	38.8	12.6
Northeast											
Arunachal Pradesh	2.52	1.74	35.4	20.7	17.2	9.3	26.5	31.0	34.2	79.9	84.2
Assam	2.31	1.75	43.3	16.6	7.0	10.0	17.0	10.6	17.1	91.1	74.3
Manipur	3.04	2.50	38.7	15.5	13.6	10.0	23.6	41.0	47.4	63.8	36.5
Meghalaya	4.57	3.83	20.2	6.5	23.4	12.1	35.5	16.4	25.3	94.3	86.1
Mizoram	2.89	2.66	57.7	45.4	11.7	3.7	15.5	47.6	49.8	73.8	61.1
Nagaland	3.77	2.98	30.3	12.2	18.3	11.9	30.2	18.5	15.9	58.0	45.6
Sikkim	2.75	1.65	53.8	24.8	9.9	13.2	23.1	23.8	29.5	95.2	55.4
West											
Goa	1.77	1.47	47.5	28.2	7.3	9.8	17.1	16.3	16.5	83.0	26.5
Gujarat	2.72	2.08	59.0	45.2	4.8	3.7	8.5	9.5	9.9	78.5	27.7
Maharashtra	2.52	1.87	60.9	52.2	8.1	4.9	13.0	20.6	27.8	74.6	50.7
South											
Andhra Pradesh	2.25	1.88	59.6	57.0	5.2	2.5	7.7	13.2	16.7	80.7	55.9
Karnataka	2.13	1.56	58.3	52.1	8.3	3.2	11.5	35.9	47.3	83.8	62.3
Kerala	1.96	1.81	63.7	51.0	6.9	4.9	11.7	9.2	14.9	91.1	26.2
Tamil Nadu	2.19	1.71	52.1	46.0	6.6	6.4	13.0	54.8	43.7	73.3	50.4

[3]Based on births to women age 15–49 during the three years preceding the survey
[4]Calculated in the same way as the TFR, except that unwanted births are excluded from the numerators of the age-specific fertility rates on which the TFR is based.
[5]Among currently married women age 15–49
[6]Female or male sterilization
[7]By a health or family planning worker at the time of accepting the method
[8]After accepting the current method

NFHS-2 FACT SHEET - STATES (Contd.)

State	Infant mortality rate[9]	Under-five mortality rate[9]	For births in the three years preceding the survey[10], percent of: Mothers receiving at least one antenatal check-up	Mothers receiving two or more tetanus toxoid injections	Mothers receiving iron and folic acid tablets or syrup	Deliveries in medical institutions	Deliveries assisted by a health profes-sional	Percent of children: Age 12–23 months who have received all vaccinations[11]	Age 12–35 months who have received at least one dose of Vitamin A	Age 0–3 months exclusively breastfed
India	67.6	94.9	65.4	66.8	57.6	33.6	42.3	42.0	29.7	55.2
North										
Delhi	46.8	55.4	83.5	84.9	77.8	59.1	65.9	69.8	32.7	13.2
Haryana	56.8	76.8	58.1	79.7	67.0	22.4	42.0	62.7	45.2	47.2
Himachal Pradesh	34.4	42.4	86.8	66.2	85.6	28.9	40.2	83.4	71.1	17.5
Jammu & Kashmir	65.0	80.1	83.2	77.7	70.8	35.6	42.4	56.7	36.0	41.5
Punjab	57.1	72.1	74.0	89.9	79.6	37.5	62.6	72.1	56.5	36.3
Rajasthan	80.4	114.9	47.5	52.1	39.3	21.5	35.8	17.3	17.6	53.7
Central										
Madhya Pradesh	86.1	137.6	61.0	55.0	48.9	20.1	29.7	22.4	24.4	64.2
Uttar Pradesh	86.7	122.5	34.6	51.4	32.4	15.5	22.4	21.2	13.9	56.9
East										
Bihar	72.9	105.1	36.3	57.8	24.1	14.6	23.4	11.0	10.2	55.2
Orissa	81.0	104.4	79.5	74.3	67.6	22.6	33.4	43.7	42.0	58.0
West Bengal	48.7	67.6	90.0	82.4	71.6	40.1	44.2	43.8	43.4	48.8
Northeast										
Arunachal Pradesh	63.1	98.1	61.6	45.6	56.3	31.2	31.9	20.5	20.9	(33.9)
Assam	69.5	89.5	60.1	51.7	55.0	17.6	21.4	17.0	15.4	42.5
Manipur	37.0	56.1	80.2	64.2	50.0	34.5	53.9	42.3	38.4	69.7
Meghalaya	89.0	122.0	53.6	30.8	49.5	17.3	20.6	14.3	24.7	16.1
Mizoram	37.0	54.7	91.8	37.8	72.7	57.7	67.5	59.6	70.6	40.7
Nagaland	42.1	63.8	60.4	50.9	42.5	12.1	32.8	14.1	6.8	43.9
Sikkim	43.9	71.0	69.9	52.7	62.4	31.5	35.1	47.4	45.8	16.3
West										
Goa	36.7	46.8	99.0	86.1	94.7	90.8	90.8	82.6	78.0	*
Gujarat	62.6	85.1	86.4	72.7	78.0	46.3	53.5	53.0	51.9	65.2
Maharashtra	43.7	58.1	90.4	74.9	84.8	52.6	59.4	78.4	64.7	38.5
South										
Andhra Pradesh	65.8	85.5	92.7	81.5	81.2	49.8	65.2	58.7	24.8	74.6
Karnataka	51.5	69.8	86.3	74.9	78.0	51.1	59.1	60.0	48.4	66.5
Kerala	16.3	18.8	98.8	86.4	95.2	93.0	94.0	79.7	43.6	68.5
Tamil Nadu	48.2	63.3	98.5	95.4	93.2	79.3	83.8	88.8	16.2	48.3

( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases
[9]Per 1,000 live births for the five years preceding the survey (1994–98)
[10]Includes only the two most recent births
[11]BCG, measles, and three doses each of DPT and polio vaccines

NFHS-2 FACT SHEET - STATES (Contd.)

State	Percent of children: Age 6–9 months receiving breast milk and solid/mushy food	Percent of children: Age 1–35 months with diarrhoea who received ORS[12]	Percent of children: Age 6–35 months with any anaemia	Percent of children under age three years[13]: Underweight	Percent of children under age three years[13]: Stunted	Percent of children under age three years[13]: Wasted	Percent of women with BMI[14] below 18.5 kg/m^2	Percent of women age 15–49 with any anaemia	Percent of women reporting a reproductive health problem[15]	Percent of women age 15–49 who have heard of AIDS
India	33.5	26.8	74.3	47.0	45.5	15.5	35.8	51.8	39.2	40.3
North										
Delhi	37.0	39.1	69.0	34.7	36.8	12.5	12.0	40.5	36.5	79.2
Haryana	41.8	25.7	83.9	34.6	50.0	5.3	25.9	47.0	38.2	44.3
Himachal Pradesh	61.3	45.6	69.9	43.6	41.3	16.9	29.7	40.5	33.7	60.9
Jammu & Kashmir	38.9	47.5	71.1	34.5	38.8	11.8	26.4	58.7	60.5	31.9
Punjab	38.7	42.3	80.0	28.7	39.2	7.1	16.9	41.4	28.3	54.6
Rajasthan	17.5	20.3	82.3	50.6	52.0	11.7	36.1	48.5	43.2	20.8
Central										
Madhya Pradesh	27.3	29.8	75.0	55.1	51.0	19.8	38.2	54.3	44.9	22.7
Uttar Pradesh	17.3	15.8	73.9	51.7	55.5	11.1	35.8	48.7	38.1	20.2
East										
Bihar	15.0	15.4	81.3	54.4	53.7	21.0	39.3	63.4	44.2	11.7
Orissa	30.1	35.1	72.3	54.4	44.0	24.3	48.0	63.0	27.5	39.0
West Bengal	46.3	40.5	78.3	48.7	41.5	13.6	43.7	62.7	45.3	26.4
Northeast										
Arunachal Pradesh	(60.2)	40.2	54.5	24.3	26.5	7.9	10.7	62.5	42.1	60.4
Assam	58.5	37.1	63.2	36.0	50.2	13.3	27.1	69.7	50.6	33.7
Manipur	86.8	50.7	45.2	27.5	31.3	8.2	18.8	28.9	56.0	92.9
Meghalaya	77.1	22.4	67.6	37.9	44.9	13.3	25.8	63.3	66.9	44.2
Mizoram	(74.2)	44.7	57.2	27.7	34.6	10.2	22.6	48.0	52.5	93.2
Nagaland	81.3	29.7	43.7	24.1	33.0	10.4	18.4	38.4	45.6	72.4
Sikkim	87.3	27.0	76.5	20.6	31.7	4.8	11.2	61.1	48.6	53.6
West										
Goa	(65.4)	55.6	53.4	28.6	18.1	13.1	27.1	36.4	40.2	76.3
Gujarat	46.5	28.9	74.5	45.1	43.6	16.2	37.0	46.3	28.6	29.8
Maharashtra	30.8	33.2	76.0	49.6	39.9	21.2	39.7	48.5	40.0	61.1
South										
Andhra Pradesh	59.4	39.6	72.3	37.7	38.6	9.1	37.4	49.8	48.5	55.3
Karnataka	38.4	34.3	70.6	43.9	36.6	20.0	38.8	42.4	18.8	58.1
Kerala	72.9	47.9	43.9	26.9	21.9	11.1	18.7	22.7	42.4	86.9
Tamil Nadu	55.4	27.9	69.0	36.7	29.4	19.9	29.0	56.5	27.8	87.3

( ) Based on 25–49 unweighted cases

[12]Oral rehydration salts

[13]Underweight assessed by weight-for-age, stunting assessed by height-for-age, wasting assessed by weight-for-height; undernourished children are those more than two standard deviations below the median of the International Reference Population, recommended by the World Health Organization.

[14]Body mass index

[15]Currently married women with abnormal vaginal discharge, symptoms of a urinary tract infection, painful intercourse, or bleeding after intercourse

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