National Family Health Survey
(MCH and Family Planning)

India
1992-93

International Institute for Population Sciences
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FOREWORD

The National Family Health Survey (NFHS) is an important component of the Project to Strengthen the Survey Research Capabilities of the Population Research Centres in India, launched by the Ministry of Health and Family Welfare (MOHFW), New Delhi, in 1991. It was undertaken with the principal objective of providing state-level and national-level estimates of fertility, infant and child mortality, the practice of family planning, maternal and child health care and the utilization of services provided for mothers and children. Another important objective of the NFHS was to provide high quality data to academicians and researchers for undertaking analytical research on various population and health topics.

The MOHFW designated the International Institute for Population Sciences (IIPS), Bombay, as the nodal agency for providing coordination and technical guidance to the NFHS. The data collection for the NFHS was undertaken by various Consulting Organizations (COs) in collaboration with the concerned Population Research Centres (PRCs) in each state. The East-West Center/Macro International provided technical assistance for all of the survey operations. Funding for the NFHS was provided by the United States Agency for International Development (USAID), New Delhi.

The NFHS covered 24 states and the National Capital Territory of Delhi (the erstwhile Union Territory of Delhi, which recently attained statehood), which comprise 99 percent of the total population of India. In all, 89,777 ever-married women age 13-49 and 88,562 households were covered, using uniform questionnaires, sample designs and field procedures. The data collection was carried out on a state-by-state basis from April 1992 to September 1993. Preliminary reports with selected results were prepared for each state by the end of 1993 and presented to policymakers and programme administrators responsible for improving family welfare programmes in most states. The final state-level reports were prepared jointly by representatives from the concerned PRC for each state, faculty members from IIPS and demographers from the East-West Center/Macro International.

The contents and tabulation plan for this national report were discussed and finalized at a workshop held at IIPS on 19-20 September 1994. The tables and graphs for this report were finalized and produced at IIPS based on the recommendations of the workshop. The report has been written jointly by IIPS and the East-West Center/Macro International. The report contains detailed information on household and individual respondent characteristics, marriage, fertility, knowledge and practice of family planning, fertility preferences, infant and child mortality, utilization of antenatal services, vaccination, child feeding practices, nutritional status of children, and knowledge of AIDS. Interstate variations on key indicators are also presented in this report.

With the release of this report, the data collected under the NFHS are being made available to researchers all over the world. I hope that there will be many further analyses of the NFHS data by researchers in India as well as outside India. As a part of the further analysis of the NFHS data, a series of subject reports is planned as a collaborative effort of IIPS, the East-West Center, the PRCs and MOHFW, covering various topics including the determinants of fertility, contraceptive use and infant and child mortality. The publication of a series of NFHS Research Bulletins, highlighting the findings of these analyses, is also being planned with

a view to achieving wider dissemination of the findings.

Never before in India has such a large population and health survey been undertaken and completed in the stipulated time period. I am, therefore, very happy to present the national report based on the NFHS data. I do hope that it will contribute to the knowledge of researchers and analysts in India and that programme administrators and policymakers will find it useful for policy development and implementation of the family welfare programme.

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SUMMARY OF FINDINGS

The National Family Health Survey (NFHS) was carried out as the principal activity of a collaborative project to strengthen the research capabilities of the Population Research Centres (PRCs) in India, initiated by the Ministry of Health and Family Welfare (MOHFW), Government of India, and coordinated by the International Institute for Population Sciences (IIPS), Bombay. Interviews were conducted with a nationally representative sample of 89,777 ever-married women in the age group 13-49, from 24 states and the National Capital Territory of Delhi. The main objective of the survey was to collect reliable and up-to-date information on fertility, family planning, mortality, and maternal and child health. Data collection was carried out in three phases from April 1992 to September 1993. The NFHS is one of the most complete surveys of its kind ever conducted in India.

The households covered in the survey included 500,492 residents. The young age structure of the population highlights the momentum of the future population growth of the country; 38 percent of household residents are under age 15, with their reproductive years still in the future. Persons age 60 or older constitute 8 percent of the population. The population sex ratio of the *de jure* residents is 944 females per 1,000 males, which is slightly higher than the sex ratio of 927 observed in the 1991 Census.

In the survey households, 57 percent of all females age 6 and above are illiterate, and only 9 percent have a high school education or higher. Literacy and educational levels are much higher in urban than in rural areas: 67 percent of women in cities and towns are literate, compared with only 34 percent in villages. Female literacy also varies widely among the states, ranging from more than 80 percent in Kerala and Mizoram to less than 30 percent in Rajasthan and Bihar. Despite the rapid gains that have been made in literacy and educational attainment over time in India, universal education is still far from a reality. Only 59 percent of school-age females (age 6-14) attend school. The lowest levels of school attendance are found in Bihar and Rajasthan where only about 40 percent of school-age females go to school.

Marriage is nearly universal in India. At the time of the survey, 39 percent of women age 15-19 were married and 95 percent of women age 25-29 were married. The singulate mean age at marriage has risen steadily over the last several decades to a current level of 25 years for males and 20 years for females. The median age at marriage for women age 25-49 is highest in Goa at 21.7 years and is around 15 years in Madhya Pradesh, Rajasthan, Uttar Pradesh, Bihar and Andhra Pradesh. There has also been a dramatic decline in the proportion of women in India marrying at young ages. The proportion of women marrying before age 13 declined from 27 percent of those currently age 45-49 to 7 percent of those age 15-19, and the proportion marrying before age 15 declined from 45 percent of women age 45-49 to 17 percent of those age 15-19. Nevertheless, the legal minimum age at marriage of 18 for females is widely ignored. Fifty-four percent of women age 20-24 married before age 18. In fact, a large majority of women (two-thirds) do not even know what the legal minimum age at marriage is.

Fertility in India has been declining over time. The NFHS estimated a crude birth rate of 28.7 per 1,000 population for the period 1990-92. The total fertility rate (TFR), which represents the average number of children a woman would bear if she experienced current fertility rates throughout her reproductive years, is 3.4 children per woman. According to this

measure, fertility in India is similar to that in Bangladesh, lower than in any other South Asian country except Sri Lanka and nearly one child lower than the TFR for all less developed countries combined (excluding China). The NFHS TFR is slightly lower than the TFR of 3.7 for 1990-92 estimated from the Sample Registration System maintained by the Office of the Registrar General, India.

The NFHS rural TFR (3.7 children per woman) is 36 percent higher than the urban TFR (2.7 children per woman). In other words, according to the present schedule of fertility, rural women will have, on average, one child more in their reproductive years than urban women. Women with at least a high school education have a TFR of 2.2 children per woman (which is almost as low as the replacement level), whereas illiterate women have a TFR of 4.0, which is 87 percent higher.

Childbearing in India is concentrated in the age group 15-29, which contributes more than three-fourths of total fertility. Current fertility is characterized by a substantial amount of early childbearing: 17 percent of total fertility is accounted for by births to women age 15-19. The fertility level declines sharply beyond age 30 and childbearing is negligible for women in their forties.

There are wide variations in fertility levels among the states. Fertility is considerably below the national average in South India (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu) and West India (Goa, Gujarat and Maharashtra), where two states (Kerala and Goa) have already reached below-replacement fertility. Goa has a unique pattern of childbearing, with very low fertility before age 25 as a result of a high average age at marriage and the late initiation of childbearing. At the other end of the spectrum, fertility is four children per woman or higher in Uttar Pradesh, Bihar, Haryana and Arunachal Pradesh, and the TFR also exceeds the national average in Madhya Pradesh, Meghalaya, Rajasthan and Assam. With a TFR of 4.8, Uttar Pradesh stands out as having especially high fertility (more than 40 percent higher than the national average).

The NFHS also collected data on cohort fertility, as measured by the number of children ever born to women of different ages. Women age 45-49 at the time of the survey had borne an average of 5.1 children per woman. This is much higher than current fertility as measured by the total fertility rate of 3.4, because most of the fertility experienced by these older women occurred considerably further back in time when fertility rates were much higher. In other words, fertility levels in India have fallen substantially in the recent past.

Contraceptive knowledge is nearly universal in India, with 96 percent of currently married women having heard of at least one modern family planning method (most commonly female sterilization). Contraceptive use is much less widespread than knowledge, however. Nearly half of currently married women age 15-49 have ever used a method and 41 percent are currently using any method. Modern methods (female and male sterilizations, the pill, the IUD, injections and the condom) are used by 36 percent of couples and traditional methods (primarily periodic abstinence and withdrawal) are used by 4 percent of couples. The most widely used method of family planning is female sterilization, which is the method accepted by 67 percent of current users. Other modern methods are used by only a small proportion of couples (male sterilization by 3 percent, the condom and the IUD by 2 percent each, and the pill by 1 percent).

Contraceptive use is appreciably higher in urban areas (51 percent) than in rural areas (37 percent) and is also higher among literate women (52 percent) than among illiterate women (34 percent). Contraceptive use is higher among Buddhists, Jains and Sikhs (51-63 percent) than among Hindus and Christians (42-48 percent) and the use rate is lowest among Muslims (28 percent). Current use of contraceptives is also lower among women from scheduled castes (35 percent) and scheduled tribes (33 percent) than among other women (42 percent). Current use is positively related to the number of living children a woman has, increasing from 4 percent for women with no children to a high of 59 percent for women with three children. Furthermore, contraceptive use in India reflects a preference for sons, with current use at each parity lowest for women with no sons and highest for women with two or more sons. The sterilization rate is highest (around 60 percent) for women with either 2 sons and 1 daughter or 3 sons. Despite the preference for sons, a substantial minority of higher parity women with no living sons use contraception.

There are large interstate variations in contraceptive use. A majority of all currently married women are current users of modern contraceptives in Kerala, Delhi, Himachal Pradesh, Maharashtra, Punjab and Mizoram. At the other extreme, current use rates for modern methods are less than 25 percent in Uttar Pradesh and Bihar (the two most populous states), as well as Assam and most of the other northeastern states.

The public sector, predominantly Primary Health Centres and government and municipal hospitals, is the most important source of contraception, supplying 79 percent of the current users of modern methods. In contrast, the private medical sector provides contraception to 15 percent of current users. Only 6 percent of current users obtain their contraceptives from other sources such as shops, friends or relatives. The source of modern contraceptives varies dramatically according to the method used. Over 85 percent of all sterilizations are done at a public health facility. The government is also the source of supply for 63 percent of IUD users but only 31 percent of pill users and 15 percent of condom users.

Nearly three out of five currently married nonusers of contraception say they do not intend to use contraception at any time in the future. The lack of intentions to use contraception presents a major challenge to the family welfare programme. Among women who intend to use contraception in the future, there is a strong preference for using female sterilization, which is preferred by 59 percent of potential users. Even though only 6 percent of current contraceptive users are using modern spacing methods, these methods are preferred by 31 percent of women who intend to use contraception in the future. Hence, there appears to be a substantial latent demand for temporary methods of contraception.

Information on the fertility preferences of currently married women was also collected in the NFHS. Slightly more than one-quarter of women say they do not want any more children, and 31 percent of women (or their husbands) are sterilized so that they cannot have any more children. These two groups together constitute 57 percent of all currently married women. Moreover, the majority of women who want another child say they would like to wait at least two years before their next birth. Among women who want an additional child, far more express a preference that the next child be a son than a daughter. The preference for a son is widespread, but it is stronger in rural areas than urban areas.

Twenty percent of currently married women in India have an unmet need for family planning, that is, they are not using contraception even though they do not want any more children or want to wait at least two years before having their next child. This finding suggests that approximately 30 million women have a need for family planning which is not being satisfied by current programmes. The unmet need for spacing is slightly higher than the unmet need for limiting, 11 percent compared with 9 percent. Current programmes, which emphasize limiting methods, are least effective in meeting the needs of young married women who would like to space their births. If the family welfare programmes were to make spacing methods more widely available, the use of these methods would undoubtedly increase.

The substantial unmet need for family planning suggests that the potential for increased contraceptive use in India is high if improvements are made in the accessibility and quality of services. If all of the women with an unmet need were to use contraception, the contraceptive prevalence rate would rise from 41 to 60 percent. Although there is considerable unmet need for family planning in the country, the ideal number of children is moderate, an average of three children among currently married women who give a numeric response to the question on ideal family size. Further attempts to promote the national goal of two children per couple are thus needed.

The NFHS also provides information on maternal and child health and the prevalence of specific medical problems (malaria, blindness, tuberculosis, leprosy and physical impairment of the limbs) among all members of the household. Of the five specific medical problems studied, malaria has the highest prevalence, afflicting, 3,324 per 100,000 population during the three months prior to the survey. Substantial numbers of household members suffered from partial or complete blindness (3,001 per 100,000), physical impairment of the limbs (639 per 100,000) and tuberculosis (467 per 100,000). The reported prevalence of leprosy is only 120 per 100,000 population.

During the two weeks preceding the survey, 7 percent of children under age four had symptoms of acute respiratory infection (cough accompanied by fast breathing), 20 percent were sick with a fever, and 10 percent had diarrhoea. For each medical condition, 61-66 percent of children were taken to a health facility or provider.

Knowledge and use of Oral Rehydration Salt (ORS) packets for the treatment of diarrhoea are not widespread. Overall, 57 percent of mothers are not familiar with ORS, and 74 percent have never used it. Moreover, only 31 percent of young children with recent episodes of diarrhoea were treated with ORS or with a recommended home oral rehydration fluid.

The infant mortality rate declined slowly during the 15 years prior to the survey, from 101 per 1,000 live births in 1978-82 to 79 per 1,000 live births in 1988-92. Despite this decline, 1 in 13 children still dies within the first year of life, and 1 in 9 dies before reaching age five. The infant mortality rate is 52 percent higher in rural areas than in urban areas, and is two and a half times higher for children of illiterate mothers than for children of mothers with at least a high school education. Children born shortly after the birth of a previous child have an especially high risk of dying in infancy. The infant mortality rate is three times as high for children with short birth intervals (less than 24 months) than for those with long birth intervals (48 months or more), 130 deaths per 1,000 live births compared to 42 deaths per 1,000 live

births. Twenty-seven percent of second and higher order births in the five years preceding the survey occurred within 24 months of the previous birth.

Orissa has the highest infant mortality rate of 112 per 1,000 live births. Other states with infant mortality rates above the national average are Uttar Pradesh (100), Bihar and Assam (89 each), and Madhya Pradesh (85). The infant mortality rate is relatively low in Kerala (24) and Goa (32), the two states with the lowest levels of fertility.

The NFHS provides the first direct national estimate of maternal mortality in India. The maternal mortality rate is estimated to be 437 maternal deaths per 100,000 live births. According to this estimate, over 100,000 women in India die every year from causes related to pregnancy and childbirth.

Both antenatal care and delivery services in India are inadequate. For births in the last four years, 37 percent of mothers did not receive any antenatal care, either at home or elsewhere. Only 54 percent received two doses of tetanus toxoid vaccine, and 51 percent received iron and folic acid tablets. Seventy-four percent of deliveries took place at home, and only 34 percent were attended by a doctor or nurse/midwife. The proportion of births whose mothers received antenatal care from an allopathic doctor increases steadily with education, from 25 percent for illiterate mothers to 84 percent for mothers who have completed high school. Antenatal care is nearly universal in Kerala (97 percent), Goa (95 percent) and Tamil Nadu (94 percent). On the contrary, mothers received antenatal care for only 31 percent of births in Rajasthan and 37 percent in Bihar. The percentage of births delivered in medical institutions ranges from a high of 87-88 percent in Goa and Kerala to a low of 12 percent or less in Nagaland, Assam, Uttar Pradesh, Rajasthan and Bihar.

The Universal Immunization Programme has met with only limited success in India. Thirty percent of young children (age 12-23 months) have not been vaccinated against any of six serious but preventable childhood diseases (tuberculosis, diphtheria, pertussis, tetanus, polio and measles). Only 35 percent have been fully vaccinated and another 35 percent have been partly vaccinated. The proportion of children fully vaccinated increases from 24 percent of children of illiterate mothers to 70 percent of children of mothers with at least a high school education. The immunization programme has been most successful in Goa, Jammu, Tamil Nadu, Maharashtra, Himachal Pradesh and Punjab, where more than 60 percent of children age 12-23 months have received all the recommended vaccinations. On the other hand, only between 11 and 21 percent of children in Bihar, Uttar Pradesh, and Rajasthan have been fully vaccinated.

The NFHS obtained fairly detailed information on infant feeding and child nutrition. Breastfeeding is nearly universal in India, with 95 percent of all children born in the four years preceding the survey having been breastfed. On average, children are breastfed for slightly over two years. Breastfeeding immediately after birth is uncommon, however. Among the most recent births, only 10 percent were breastfed within one hour of birth, and only 26 percent were breastfed within 24 hours of birth. Although it is recommended that the first breast milk should be given to children because it contains colostrum, which provides the baby with natural immunities, the majority of women (64 percent) squeeze the first milk from their breast before breastfeeding their children. Although it is also recommended that children should be exclusively breastfed through age 4-6 months, almost half of babies 0-3 age months are fed

water and other supplements, thus jeopardizing their nutritional status and increasing the risk of infection. Solid and semi-solid foods are generally not added to the diet at an early enough stage in the child's development. Less than one-third of infants are given solid or semi-solid food in addition to breast milk at the recommended age of 6-9 months.

Chronic and acute undernutrition are high in India. More than half (53 percent) of all children under age four are underweight and a similar proportion (52 percent) are stunted. Moreover, 21-29 percent of children are *severely* undernourished according to the weight-for-age and height-for-age measures. One in every six children is excessively thin (wasted). Undernutrition varies substantially by the age of the child, being lowest in the first six months of life when the majority of children are fully breastfed. Variation by the child's sex, length of previous birth interval, and other demographic characteristics is very modest. Variation in nutritional status by mother's education and place of residence is substantial. For instance, children whose mothers are illiterate are twice as likely to be underweight or stunted as children whose mothers have completed high school.

Undernutrition among young children is relatively low in Kerala (29 percent are underweight and 27 percent are stunted). Other states with relatively low levels of undernutrition are Manipur, Mizoram, Nagaland and Goa. Undernutrition is particularly high in Bihar and Uttar Pradesh. The problem of wasting is most evident in Bihar and Orissa, which also have among the highest infant mortality rates in the country.

Questions on the knowledge of AIDS, asked in 13 of the 25 NFHS states, indicate that in most states a large majority of ever-married women have never heard of the disease. The level of knowledge is particularly low in West Bengal and Assam, where fewer than 10 percent of women have heard of AIDS. Even in Delhi, where considerable media attention has been focused on AIDS, only 36 percent of women have heard of the disease. In addition, women who have heard of AIDS harbour a large number of misconceptions about how the disease is transmitted. These findings provide a clear indication of the challenges ahead for the National AIDS Control Organization and other agencies in providing even the most basic information about AIDS and ways of preventing the spread of the disease.

FACT SHEET-INDIA

1991 Population Data
Office of the Registrar General and Census Commissioner

Total population (millions)	846.3
Percent urban	26.1
Percent scheduled caste	16.7
Percent scheduled tribe	8.0
Decadal population growth rate (1981-91)	23.9
Crude birth rate (per 1,000 population)	29.5
Crude death rate (per 1,000 population)	9.8
Life expectancy at birth (years)[1]	
Male	57.7
Female	58.1

National Family Health Survey, 1992-93

Sample Population

Ever-married women age 13-49	89,777

Background Characteristics of Women Interviewed

Percent urban	26.1
Percent illiterate	63.1
Percent attended seconda·y school or higher	11.3
Percent Hindu	82.0
Percent Muslim	12.0
Percent Christian	2.4
Percent working	31.5

Marriage and Other Fertility Determinants

Percent of women age 15-49 currently married	77.4
Percent of women age 15-49 ever married	82.1
Singulate mean age at marriage for females (in years)	20.0
Singulate mean age at marriage for males (in years)	25.0
Percent of women married to first cousin[2]	10.1
Median age at marriage among women age 25-49	16.1
Median months of breastfeeding[3]	24.4
Median months of postpartum amenorrhoea[3]	9.0
Median months of postpartum abstinence[3]	3.4

Fertility

Total fertility rate[4]	3.4
Mean number of children ever born to women age 40-49	4.8

Desire for Children

Percent of currently married women who:	
Want no more children or are sterilized	56.7
Want to delay their next birth at least 2 years	19.6
Mean ideal number of children[5]	2.9
Percent of births in the last 4 years which were:	
Unwanted	8.8
Mistimed	13.8

Knowledge and Use of Family Planning

Percent of currently married women:	
Knowing any method	95.8
Knowing a modern method	95.5
Knowing a source for a modern method	88.8
Ever used any method	46.9
Currently using any method	40.6

Percent of currently married women currently using:	
Pill	1.2
IUD	1.9
Injection	0.0
Condom	2.4
Female sterilization	27.3
Male sterilization	3.4
Periodic abstinence	2.6
Withdrawal	1.4
Other method	0.2

Mortality and Health

Infant mortality rate[6]	78.5
Under-five mortality rate[6]	109.3
Maternal mortality rate[7]	437
Percent of births[8] whose mothers:	
Received antenatal care from a doctor or other health professional	49.1
Received 2 or more tetanus toxoid injections	53.8
Percent of births[8] whose mothers were assisted at delivery by:	
Doctor	21.6
Nurse/midwife	12.6
Traditional birth attendant	35.2
Percent of children 0-1 month who are breastfeeding	97.8
Percent of children 12-13 months who are breastfeeding	89.2
Percent of children 12-23 months who received[9]:	
BCG	62.2
DPT (three doses)	51.7
Polio (three doses)	53.4
Measles	42.2
All vaccinations	35.4
Percent of children under 4 years[10] who:	
Had diarrhoea in the 2 weeks preceding the survey	10.0
Had a cough accompanied by rapid breathing in the 2 weeks preceding the survey	6.5
Had a fever in the 2 weeks preceding the survey	20.2
Are acutely undernourished (underweight)[11]	53.4
Are chronically undernourished (stunted)[11]	52.0
Are acutely undernourished (wasted)[11]	17.5

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[1] 1986-90

[2] Based on ever-married women

[3] Current status estimate based on births during the 36 months preceding the survey (48 months for breastfeeding)

[4] Based on births to women age 15-49 during the 3 years preceding the survey

[5] Based on ever-married women age 13-49, excluding women giving non-numeric responses

[6] For the 5 years preceding the survey (1988-92)

[7] For the 2 years preceding the survey (1991-92), expressed per 100,000 live births

[8] For births in the period 1-47 months preceding the survey

[9] Based on information from vaccination cards and mothers' reports

[10] Children born 1-47 months preceding the survey

[11] Underweight assessed by weight-for-age, stunting assessed by height-for-age, wasting assessed by weight-for-height; undernourished children are those more than 2 standard deviations below the median of the International Reference Population, recommended by the World Health Organization. Measures of stunting and wasting exclude Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Tamil Nadu and West Bengal.

FACT SHEET - STATE FINDINGS

State	Percent illiterate (females age 6+)	Percent attending school (females age 6-14)	Percent of households with drinking water from pump/pipe	Percent of households with no toilet facility	Percent of women age 20-24 married before age 18	Crude birth rate[1]	Total fertility rate[1]	Percent of women[2] using Any contraceptive method	Sterilization[3]	Unmet need for family planning[4]	Infant mortality rate[5]	Under-five mortality[6]
India	56.7	58.9	68.2	69.7	54.2	28.7	3.39	40.6	30.8	19.5	78.5	109.3
North												
Delhi	29.2	86.3	99.5	15.9	28.7	26.6	3.02	60.3	23.3	15.4	65.4	83.1
Haryana	54.1	74.7	73.0	73.1	57.3	32.9	3.99	49.7	34.8	16.4	73.3	98.7
Himachal Pradesh	42.6	87.6	57.6	87.4	24.2	28.2	2.97	58.4	45.8	14.9	55.8	69.1
Jammu Region of J & K	48.2	79.6	57.3	80.9	20.5	27.9	3.13	49.4	29.7	17.5	45.4	59.1
Punjab	48.0	77.8	98.6	63.3	14.9	25.0	2.92	58.7	34.0	13.0	53.7	68.0
Rajasthan	74.6	40.6	57.3	80.2	69.5	27.0	3.63	31.8	27.7	19.8	72.6	102.6
Central												
Madhya Pradesh	65.7	54.8	55.8	78.7	73.3	31.6	3.90	36.5	31.5	20.5	85.2	130.3
Uttar Pradesh	68.5	48.2	74.3	77.1	63.9	35.9	4.82	19.8	13.1	30.1	99.9	141.3
East												
Bihar	71.4	38.3	63.6	83.5	69.1	32.1	4.00	23.1	18.6	25.1	89.2	127.5
Orissa	58.6	62.0	50.9	87.8	45.5	26.5	2.92	36.3	31.6	22.4	112.1	131.0
West Bengal	44.8	62.9	84.9	59.6	56.4	25.5	2.92	57.4	30.6	17.4	75.3	99.3
Northeast												
Arunachal Pradesh	57.9	65.3	75.8	26.4	43.9	34.6	4.25	23.6	10.7	20.4	40.0	72.0
Assam	49.3	66.0	43.2	50.4	44.4	30.4	3.53	42.8	14.4	21.7	88.7	142.2
Manipur	37.0	86.8	47.0	16.9	14.3	24.4	2.76	34.9	13.8	21.7	42.4	61.7
Meghalaya	39.8	75.7	47.6	45.7	28.1	31.9	3.73	20.7	10.0	25.1	64.2	86.9
Mizoram	11.1	88.5	40.1	1.7	13.3	20.8	2.30	53.8	44.6	11.9	14.6	29.3
Nagaland	28.2	89.0	72.1	20.7	16.4	31.3	3.26	13.0	6.4	26.7	17.2	20.7
Tripura	35.6	76.7	44.1	20.6	41.1	23.1	2.67	56.1	19.1	13.5	75.8	104.6
West												
Goa	26.9	92.5	56.5	52.0	7.2	17.2	1.90	47.8	30.5	15.7	31.9	38.9
Gujarat	48.7	68.4	75.1	64.2	33.4	27.2	2.99	49.3	41.0	13.1	68.7	104.0
Maharashtra	44.1	76.6	78.5	59.2	53.9	26.3	2.86	53.7	46.1	14.1	50.5	70.3
South												
Andhra Pradesh	61.5	54.8	63.4	75.6	68.6	24.2	2.59	47.0	44.8	10.4	70.4	91.2
Karnataka	53.5	64.4	75.6	68.8	51.2	25.9	2.85	49.1	42.5	18.2	65.4	87.3
Kerala	17.6	94.8	21.0	29.1	19.3	19.6	2.00	63.3	48.3	11.7	23.8	32.0
Tamil Nadu	43.9	78.7	74.6	70.6	36.1	23.5	2.48	49.8	39.5	14.6	67.7	86.5

[1]Based on births to women age 15-49 during the three years preceding the survey
[2]Currently married women age 13-49
[3]Female or male sterilization
[4]Percent of currently married women who are not using family planning, even though they either do not want any more children or want to wait at least two years before having another child
[5]Per 1,000 live births for the five years preceding the survey

FACT SHEET - STATE FINDINGS (Contd.)

	For births in the last four years, percent of:					Percent of children			Percent of living children[9] under four years of age		
State	Mothers receiving antenatal care	Mothers receiving two doses of tetanus toxoid vaccine	Births delivered in a health facility	Deliveries assisted by health profes-sional[6]	Children who received either ORS of RHS for diarrhoea[7]	Fully immunized (age 12-23 months)[8]	Exclusive-ly breast-feeding (age 0-3 months)	Receiving breast milk and solid/mushy food (age 6-9 months)	Under-weight	Stunted	Wasted
India	62.3	53.8	25.5	34.2	30.6	35.4	51.0	31.4	53.4	52.0	17.5
North											
Delhi	82.4	72.5	44.3	53.0	39.4	57.8	20.0	25.1	41.6	43.2	11.9
Haryana	72.7	63.3	16.7	30.3	19.5	53.5	37.5	38.5	37.9	46.7	5.9
Himachal Pradesh	76.0	47.4	16.0	25.6	44.9	62.9	36.4	39.9	47.0	U	U
Jammu Region of J & K	79.5	68.9	21.9	31.2	44.4	65.7	16.9	44.8	44.5	40.8	14.8
Punjab	87.9	82.7	24.8	48.3	32.7	61.9	3.3	37.3	45.9	40.0	19.9
Rajasthan	31.2	28.3	11.6	21.8	22.7	21.1	65.9	9.4	41.6	43.1	19.5
Central											
Madhya Pradesh	52.1	42.8	15.9	30.0	33.0	29.2	31.4	27.7	57.4	U	U
Uttar Pradesh	44.7	37.4	11.2	17.2	22.7	19.8	60.3	19.4	59.0	59.5	16.1
East											
Bihar	36.8	30.7	12.1	19.0	23.0	10.7	51.6	18.1	62.6	60.9	21.8
Orissa	61.6	53.8	14.1	20.5	41.1	36.1	45.7	30.2	53.3	48.2	21.3
West Bengal	75.3	70.4	31.5	33.0	74.7	34.2	40.0	53.6	56.8	U	U
Northeast											
Arunachal Pradesh	48.9	31.9	19.9	21.3	33.3	22.5	73.9	35.8	39.7	53.9	11.2
Assam	49.3	34.9	11.1	17.9	35.2	19.4	65.0	39.2	50.4	52.2	10.8
Manipur	63.4	48.0	23.0	40.4	63.1	29.1	70.4	50.0	30.1	33.6	8.8
Meghalaya	51.8	30.0	29.6	36.9	40.7	9.7	18.0	56.3	45.5	50.8	18.9
Mizoram	88.9	42.5	48.9	61.5	24.5	56.4	45.5	64.3	28.1	41.3	2.2
Nagaland	39.3	33.0	6.0	22.2	24.6	3.8	61.1	43.5	28.7	32.4	12.7
Tripura	64.9	58.7	30.7	33.5	*	19.0	47.9	65.0	48.8	46.0	17.5
West											
Goa	95.4	83.4	86.8	88.4	41.4	74.9	10.8	33.9	35.0	32.5	15.3
Gujarat	75.7	62.7	35.6	42.5	20.7	49.8	36.3	22.9	50.1	48.2	18.9
Maharashtra	82.7	71.0	43.9	53.2	41.7	64.1	37.1	25.0	54.2	48.5	20.2
South											
Andhra Pradesh	86.3	74.8	32.8	49.3	32.5	45.0	70.5	47.8	49.1	U	U
Karnataka	83.5	69.8	37.5	50.9	34.0	52.2	65.6	38.2	54.3	47.6	17.4
Kerala	97.3	89.8	87.8	89.7	37.8	54.4	59.2	69.3	28.5	27.4	11.6
Tamil Nadu	94.2	90.1	63.4	71.2	27.1	64.9	55.8	56.5	48.2	U	U

U: Not available   * Percentage not shown; based on fewer than 25 children

[6]Allopathic doctor or nurse/midwife

[7]For children who had diarrhoea in the past two weeks, percent receiving a solution made from an Oral Rehydration Salt (ORS) packet or a Recommended Home Solution (RHS) made from sugar, salt and water

[8]Percent who have received BCG, measles and three doses of DPT and polio vaccines

[9]Underweight assessed by weight-for-age, stunting assessed by height-for-age, wasting assessed by weight-for-height; undernourished children are those more than 2 standard deviations below the median of the International Reference Population, recommended by the World Health Organization

CHAPTER 1

INTRODUCTION

1.1 Background of the Survey

The Ministry of Health and Family Welfare (MOHFW), Government of India, has sponsored the development of 18 Population Research Centres (PRCs) located in universities and institutes of national repute throughout India. In 1991, the MOHFW initiated the Project to Strengthen the Survey Research Capabilities of the PRCs (PRC Project) with financial support from the United States Agency for International Development (USAID). The National Family Health Survey (NFHS) was undertaken as one important component of the PRC Project.

The NFHS covers the population in 24 states and the National Capital Territory of Delhi (the erstwhile Union Territory of Delhi, which recently attained statehood), containing 99 percent of the population of India. The NFHS is a household survey with an overall sample size of 89,777 ever-married women in the age group 13-49. Because of the scale of this undertaking, the data collection under the NFHS was carried out in three phases in 1992 and 1993 (see Table 2.1 in Chapter 2 for a list of fieldwork dates in each state). Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Tamil Nadu and West Bengal were covered during the first phase. Assam, Goa, Haryana, Karnataka, Kerala, Maharashtra, Rajasthan and Uttar Pradesh were covered during the second phase. Arunachal Pradesh, Bihar, Gujarat, the Jammu Region of Jammu and Kashmir, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Punjab, Tripura and the National Capital Territory of Delhi were covered during the third phase.

The NFHS is a collaborative project of the International Institute for Population Sciences (IIPS), Bombay; all the PRCs; several Consulting Organizations (COs); and the East-West Center/Macro International, United States of America. The MOHFW designated IIPS, Bombay, as the nodal organization, responsible for providing coordination and technical guidance for the NFHS. The PRCs participated in all stages of survey implementation for the states in which they are located. IIPS and the PRCs collaborated with a number of COs in India for survey implementation. Each CO was responsible for facilitating survey activities in one or more states covered by the NFHS (see Appendix A for a complete list of the PRCs and COs involved in the fieldwork in each state). Technical assistance for the NFHS was provided by the East-West Center/Macro International.

1.2 India's Historical Background

India is one of the oldest civilizations with a kaleidoscopic variety of people and a rich cultural heritage. The river Sindhu gave India its name. In the language of the Aryans who invaded India from the northwest 2,000-3,000 years ago, the word "Indus" (which was given to the river Sindhu) meant "river" or "flood". It was first applied to the river, then to the land drained by the river, and finally to the whole country. Although it is impossible to give a full account of Indian history in a few paragraphs, an attempt is made here to briefly sum up the most important historical events that occurred both before and after India became an independent nation in 1947.

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Early India

A dark-skinned people, known as the Dravidians, are regarded as the aborigines of India, although the great variety of racial types found among the peoples is due to the many migrations into the sub-continent that have taken place during the past 5,000 or 6,000 years. In 1921, excavations in the Indus Valley at the sites of Harappa and Mohenjo Daro have shown that as early as 3000 B.C., India was the home of a civilized people, who lived in well-planned towns, practised agriculture, and were skilled craftsmen. Between about 1500 and 200 B.C., Aryan-speaking tribes from Central Asia streamed into India through the Khyber and other northwest passes. These groups eventually controlled the whole of northern India as far as the Vindhya belt of hills, pushing the original inhabitants further south in the process. They imposed their culture on the civilization they found there, and from the combined cultures arose the philosophy, religion, art, and letters that were the glory of ancient India. The Vedic texts reveal that the Aryans, in their efforts to maintain themselves in the rich plains of the Land of the Seven Rivers, waged incessant warfare on the non-Aryan tribes (the latter called *Dasa* or *Dasyu*), and extended their dominion as far as the Ganges delta to the east and along the coasts which flank the central plateau to the south. These events occupy the centuries of the growth of Vedic literature. Vedic texts refer to different tribes who achieved supremacy, the most important being the Bharatas and their descendants the Kuru-Panchalas, who later made Kurukshetra (Rohilkhand) the centre of the Brahmanic culture, and the clans of Videhas in north Bihar whose power came to an end only shortly before the rise of Buddhism (Renou, 1959).

The Buddhist texts mark a new shift of the centre of gravity toward the east, with the establishment of the kingdom of Magadha (south Bihar). Two of its rulers, Bimbisara and his son Ajatashatru, are contemporaries of the Buddha (whose Nirvana took place in 543 B.C.) and also of Mahavira. On the death of Ajatashatru, the dynasty relapsed into obscurity. The subsequent dynasty of the Nandas was overthrown by Chandragupta, who founded the first great Indian empire (of the Mauryas) around 320 B.C.

During the period when the Aryans were consolidating their hold on northern India, the heartland narrowly missed two other invasions from the northwest. The first was by the Persian king, Darius (521-486 B.C.), who annexed Punjab and Sindh to his empire. Not long afterwards (in 326 B.C.), Alexander the Great reached India in his epic march from Greece. However, his troops refused to march further than the Beas river, the easternmost extent of the Persian Empire he had conquered, and he turned back without extending his power into India itself.

It was Chandragupta who put an end to Greek rule, at least on the left bank of the Indus. At the same time, he overthrew the last of the Nandas and seized the throne at Pataliputra (Patna), consolidating his power over the whole of northern India. With his grandson Asoka (around 260-227 B.C.), the Mauryan empire attained its greatest height. Asoka conquered Kalinga (Orissa) in a sanguinary war, and extended his power over a territory which eventually included all of India, except the extreme south and part of Afghanistan. Disillusioned by the bloodshed accompanying the war, Asoka embraced Buddhism and propagated the religion in many other Asian countries. Following the death of Asoka, the empire rapidly disintegrated and finally collapsed in 184 B.C.

A number of empires rose and fell following the collapse of the Mauryas. The successors of Alexander's kingdoms in the northwest expanded their power into the Punjab and this later developed into the Gandhara kingdom. During the first century of the Christian era, the Kushana empire was established. The frontiers of this kingdom reached as far as the cities of Ayodhya, Banaras and Pataliputra. Kanishka, one of the Kushana kings, who set up his capital at Purushapura (Peshawar), is celebrated especially for having convened an important Buddhist council.

From 318 A.D., the great Gupta dynasty established itself in the region of Pataliputra. It assumed importance first with Chandragupta I, and later with his successor Samudragupta. Samudragupta reigned up to 380 A.D. and subdued almost the whole of India, either by direct annexation of principalities or by maintaining vassal states. His reign and those of his immediate successors saw the golden age of Indian civilization. Chandragupta II, surnamed Vikramaditya (380-413 A.D.), extended his domain still further by wars and alliances. His name has been made legendary by the memory of a magnificent court and the "nine jewels" which adorned it, among whom the poet Kalidasa is included. The Gupta empire disintegrated when the Huns invaded from Central Asia. Harsha Vardhana succeeded in establishing a stable empire at Kanyakubja (Kanauj), from 607 to 648 A.D., the last in pre-Muslim India. As a result of successful campaigns, he won recognition from the princes of north India. On the death of Harsha, disintegration proceeded still further.

The southern parts of India were not very much affected by the kingdoms that rose and fell in the north of the country, and the historical developments in this region took place more or less independently from the developments in the north. The south's prosperity was based upon its long-established trading links with other civilizations. The Egyptians and later the Romans traded by sea with the south of India and, later still, strong links were formed with Southeast Asia. Other outside influences which came to the south of India in this period included St. Thomas the Apostle who is said to have arrived in Kerala in 52 A.D. To this day, there is a strong Christian influence in that region.

The great empires that rose in the south included the Cholas, Pandyas, Cheras, Chalukyas and Pallavas. The Chalukyas ruled mainly over the Deccan region of central India, although at times their power extended further north. With a capital at Badami in Karnataka, they ruled from 550 to 753 A.D. before they were defeated by Rashtrakutas - only to rise again in 972 and continue their rule through to 1190. Further south, the Pallavas pioneered Dravidian architecture with its exuberant, almost baroque, style. In 850 A.D., the Cholas rose to power and gradually superseded the Pallavas. They too were great builders, and they carried their power overseas. Under the reign of Raja Raja (985-1014 A.D.), they controlled almost the whole of southern India, the Deccan, Sri Lanka and parts of the Malay peninsula and the Sumatran-based Srivijaya kingdom.

India Under the Muslims

While the Hindu kingdoms ruled in the south and Buddhism was fading in the north, Muslim power was approaching India from the Middle East. Less than a century after the death of Prophet Mohammed, there were raids into the Sindh and even Gujarat by Arabs. Muslim power made itself strongly felt in the subcontinent with the arrival of Mahamud of Ghazni in

Afghanistan. He raided northern India through the province of Lahore 15 times between A.D. 997 and 1026. It was not until 1192 that Muslim power arrived on a permanent basis. In that year, Mohammad of Ghori, who had been expanding his powers across the Punjab, moved into India and took control of Ajmer. The following year, his general, Qutb-ud-din, captured Varanasi and Delhi. After Mohammad Ghori was killed in 1206, Qutb-ud-din became the first of the Sultans of Delhi. Within 20 years the whole of the Ganges basin was under the control of the Delhi Sultanate.

Once again events took a different path in the south than in the north. The Aryan invasions never reached the south and the early Muslim invasions also failed to permanently affect events there. Between 1000 and 1300 A.D., the Hoysala Empire, with centres at Belur, Halebid and Somanathapur, was at its peak. This empire fell to a predatory raid by Mohammed Tughlaq in 1328, and then to the combined opposition of other Hindu kingdoms. Two other great kingdoms developed in the north of modern-day Karnataka - one Muslim and one Hindu. With its capital at Hampi, the Hindu kingdom of Vijayanagar was founded in 1336. It was probably the strongest Hindu kingdom in India during the time the Muslim Sultans of Delhi were dominating the north of the country. Meanwhile, the Bahmani Muslim kingdom also developed, but in 1489 it split into five separate kingdoms at Ahamadnagar, Bijapur, Golconda, Bidar, and Berar. In 1520, Vijayanagar took Bijapur, but in 1565 the kingdom's Muslim opponents combined to destroy Vijayanagar in the epic battle of Talikota. Later the Bahamani kingdoms were to fall to the Mughals.

In the sixteenth century, a new conqueror, Babur the Mughal, overthrew the other Muslim powers of northern India. Originally from Turkestan, Babur led four expeditions through northwestern passes. In his fifth expedition, he defeated Sultan Ibrahim, the last Lodi king of Delhi, on the field of Panipat in 1526 and founded the Mughal Empire. His dominions extended over part of northern India. Akbar (1556-1605), the grandson of Babur, was the greatest of Mughal emperors. Up to this time the Mughal sway in India had been little more than a military occupation, but Akbar left to his son Jahangir (1605-27) a strong and well administered empire. For about a hundred years from the accession of Jahangir, the Mughal Empire was governed by a line of able and powerful rulers. In the reign of Shah Jahan (1627-58) the southern Muslim kingdoms of Bijapur and Golconda acknowledged the sovereignty of Delhi. In the reign of Aurangzeb (1658-1707), there was a gradual rise of the Marathas led by Sivaji (1627-80), who successfully resisted Mughal efforts to crush him and gradually extended his sway over southern India. The descendants of Sivaji in the second generation reigned only as pageant kings at Satara, and the real sovereignty passed to their Brahmin minister or Peshva, Balaji Vishvanath, who founded a dynasty seated at Poona. The Maratha power still grew, and by the middle of eighteenth century threatened every settled government from Cape Comorin to Bengal and Rajputana. In 1776, a terrible defeat on the field of Panipat by the Afghan invader of India, Ahmad Shah Durrani, drove them back, but the conqueror returned to his own country and the Marathas soon recovered their position.

India Under the British

The British were not the first European power to arrive in India, nor were they the last to leave. In 1498, Vasco da Gama from Portugal arrived on the coast of modern-day Kerala, having sailed around the Cape of Good Hope. Pioneering this route gave the Portuguese a

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century of uninterrupted monopoly over Indian and Far Eastern trade with Europe. In 1510 they captured Goa, the Indian enclave they controlled until 1961, 14 years after the British had left India.

In 1612, the British made their first permanent inroad into India when they established a trading post at Surat in Gujarat. In 1600, Queen Elizabeth I granted a charter to a London based trading company giving them a monopoly on British trade with India. For 250 years British power was exercised in India not by the government but by the East India Company which developed from this initial charter. British trading posts were later established at Madras, Bombay and Calcutta.

The British and Portuguese were not the only Europeans in India. The Danes and Dutch also had trading posts. In 1672 the French established themselves at Pondicherry, an enclave that they, like the Portuguese in Goa, held even after the British had finally departed.

The stage was set for over a century of rivalry and violent contest between the British and French for control of Indian trade. In 1756, Siraj-ud-daula, the Nawab of Bengal, attacked Calcutta and outraged the British. A year later, Robert Clive retook Calcutta. In the Battle of Plassey, he defeated Siraj-ud-daula and his French supporters, thus not only extending British power but also curtailing French influence. The victory ushered in a long period of unbridled profiteering by members of the East India Company until its powers were taken over by the British Government in the nineteenth century.

India at this time was in a state of flux due to the power vacuum created by the disintegration of the Mughal Empire. The Marathas were the only power to step into this gap. In the south where the Mughal influence had never been so great, the picture was confused by the strong British-French rivalries, with one ruler consistently played off against another. Tipu Sultan of Mysore fought a series of wars with the British. In the fourth Mysore war in 1799, Tipu was killed at Srirangapatnam and the British power took another step forward. The long running British struggle with the Marathas was finally concluded in 1803.

By the early nineteenth century, India was effectively under British control. The British followed a policy of divide and rule with great success and negotiated distinctly one-sided treaties giving them the right to intervene in local states if they were "inefficiently" run. Even under the British, India remained a patchwork of states, many of them nominally independent but actually under strong British influence. This policy of maintaining "princely states" continued right through to independence. The British interest in trade and profit resulted in the expansion of iron and coal mining; the development of tea, coffee and cotton growing; the construction of the basis of today's vast Indian railway network; the commencement of irrigation projects which revolutionized agriculture; the establishment of a post and telegraph network; and a well-developed and smoothly functioning government and civil service structure (Roberts, 1967).

There was, however, a price to pay for these achievements. Cheap textiles from the new manufacturing industry of Britain flooded into India, virtually crippling the local cottage industries. The British outlawed *sati*, the Hindu custom of a wife burning herself on her husband's funeral pyre, but they encouraged the system of *zamindars*. These absentee landlords

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eased the burden of administrative and tax collection for the British, but contributed to an impoverished and landless peasantry in parts of India. The British also established English as the local language of administration. While this may have been useful in a country with so many different languages and still fulfils an important function in nationwide communication, it did keep the new rulers, to varying degrees, at arm's length from the Indians.

In 1857, less than half a century after Britain had taken firm control of India, they had a serious setback, because of the "Indian Mutiny". The Mutiny was never really coordinated and soon died out. It was following this Mutiny that the East India Company was wound up and administration of the country was handed over to the British government.

Two parallel developments during the latter part of the nineteenth century paved the way for the independent India of today. First, the British slowly began to hand over power and bring more people into the decision making process. At the same time, Hinduism underwent a resurgence under reformers like Raja Ram Mohan Roy, Ramakrishna Paramahamsa, Swami Vivekananda and Sri Aurobindo. With the turn of the century, opposition to British rule began to take on a new light. The Indian National Congress, which had been established to give India a degree of self-rule, began to push for independence, under the leadership of Mahatma Gandhi. Mahatma Gandhi adopted a policy of passive resistance, or *satyagraha*, to British rule. The central pillar of his achievement was to broaden the scope of the independence struggle from the middle classes to the peasants and villagers. After the Second World War, when the Labour Party won the British elections, the drive for India's independence was strengthened. However, there was a divide within India along purely religious lines with the Muslim League, led by Muhammad Ali Jinnah, seeking a separate Muslim nation. Nevertheless, India finally achieved independence with a declaration by Lord Louis Mountbatten, the then viceroy, at midnight on 15 August 1947.

Independent India

With India's independence, the country was divided into two parts: India and Pakistan. Pakistan had an eastern and western region divided by India. Following partition, the greatest exodus in human history took place east and west across the Punjab. Trainloads of Muslims, fleeing westward, were held up and slaughtered by Hindu and Sikh mobs. Hindus and Sikhs fleeing to the east suffered the same fate. By the time the Punjab chaos had run its course, over 10 million people had changed sides and at least 250,000 people had been killed. An additional million people changed sides in Bengal. The final stages of Independence witnessed one last tragedy on 30 January, 1948, with the assassination of Mahatma Gandhi, who was deeply disheartened by Partition and the subsequent bloodshed.

The first Indian government, headed by Prime Minister Jawaharlal Nehru, had to face a number of other problems the country had inherited from the British apart from the partition of India. One of these was the princely states, large and small, numbering about 362. The British had renounced their treaty rights and had advised all to join one or the other of the two new states. By independence, all but Hyderabad, Kashmir, Junagadh and Travancore had joined either India or Pakistan. Sardar Vallabhbhai Patel, who is known as the Iron Man of India, was largely instrumental in persuading these princely states to join the Indian Union.

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Nehru's prescription against poverty was industrialization, and he established the National Planning Commission with himself as the first chairman. The Planning Commission drew up a succession of five-year plans for national development. Another major development during Nehru's time was the reorganization of state boundaries on linguistic lines in 1956. However, Bombay remained a single state with both Marathi and Gujarati speaking populations and Punjab had both Sikhs and Hindus. Within four years, however, Bombay was split into Gujarat and Maharashtra. Six years later, Punjab was divided into Punjab and Haryana.

A border war was also fought with China in 1962 in the North-East Frontier Agency (NEFA) and Ladhakh, which resulted in the loss of Aksai Chin and smaller areas in the NEFA. Following the death on Nehru in 1964, Lal Bahadur Shastri was elected as the Prime Minister of India. During his 19 months in office three issues arose: the first was a food shortage caused by a bad harvest and the growing population; the second was the Hindi crisis of early 1965, stemming from the proclamation of Hindi as the sole national language; and the third came from Pakistan. In 1965, there were clashes with Pakistan over Kashmir.

Indira Gandhi, daughter of Jawaharlal Nehru, won the election in 1966, and she led India to victory in a war against Pakistan in 1971, which culminated in the emergence of Bangladesh as an independent democratic country. She faced serious opposition and unrest in 1975 which she countered by declaring a state of emergency. In the 1977 general election, Indira Gandhi and the Congress Party were defeated by the Janata Party. The new government fell apart in late 1979 and the 1980 election brought Indira Gandhi back to power with a larger majority than ever. In 1984, Mrs. Gandhi was assassinated. Rajiv Gandhi, Indira's son, was soon swept into power with an overwhelming majority and enormous popular support.

Despite his initial lack of interest in politics, Rajiv Gandhi ushered in new and pragmatic policies. Foreign investments and the use of modern technology were encouraged, import restrictions were eased and many new industries were set up. Following the November 1989 elections, Rajiv Gandhi's Congress Party, although the largest single party in Parliament, was unable to form a government in its own right. A new National Front Government, made up of five parties, headed by V.P. Singh, formed the next government. However, the new government did not last long, and fresh elections were announced.

During the election campaign tour of Tamil Nadu, Rajiv Gandhi was assassinated in a bomb blast by a supporter of the Tamil Tigers active in Sri Lanka. P.V. Narasimha Rao assumed the leadership of the Congress Party and led it to victory at the polls. With the new government, the economy was given a new boost in 1992 when the finance minister, Manmohan Singh, introduced many reforms as part of an economic liberalization policy.

Throughout history, even the mightiest of India's ancient civilizations did not encompass all of modern India, and today India is still as much a country of diversity as unity. Yet a national consciousness has developed, and ever since Independence, India has remained the world's largest democracy.

1.3   Geographic Features

Physical Characteristics

India lies between 8° 4' 28" and 37° 17' 53" north latitude and 68° 7' 53" and 97° 24' 47" east longitude. With an area of 3,287,263 square kilometres, India accounts for 2.4 percent of total world area. India is bounded by China, Nepal and Bhutan in the north; Afghanistan, Pakistan and the Arabian Sea in the west; Sri Lanka and the Indian Ocean in the south; and the Bay of Bengal, Bangladesh and Myanmar (Burma) in the east. India presents contrasting landscapes of mountains, hills, plateaus and plains which are at different stages of evolution. The country can be divided physiographically into regions of the Himalayas, the Great Plains, the Central Highlands, the Peninsular Plateau and the Coastal Plains (Office of the Registrar General and Census Commissioner, 1988).

The Himalayas are the highest mountain system in the world and are the youngest in age, extending over 2,500 km from east to west and from 150 km to 400 km in width. From the foothills, the Himalayas rise rapidly northward to over 8,000 metres, with snow clad peaks which give rise to several perennial rivers. From north to south, the Himalaya region can be divided into three sections: the Great Himalaya, the Lesser Himalaya and the Outer Himalaya (the Siwaliks). The Great Himalaya consists of the highest mountain peaks, which are generally capped with snow. Mount Everest (8,848 m), Kanchenjunga (8,598 m), Nanga Parbat (8,126 m), Nanda Devi (7,817 m), Kamet (7,756 m) and Chomo Lhari (7,314 m) are some of the highest peaks in this section. The Lesser Himalaya mountains, south of the Great Himalaya, have heights of 2,000 to 3,000 metres. The zone of the Siwalik range lies between the Lesser Himalaya in the north and the Great Plains in the south. It extends for more than 2,400 km from the Indus Gorge in the northwest to the river Brahmaputra in the northeast, almost parallel to the Himalayan arc. The height of the mountains rarely exceeds 1,300 metres. Some flat valleys known as Duns are found between the Siwaliks and the Himalayas. These valleys are filled with deep deposits of silt and rocks brought by the swift-flowing rivers from the Himalayas. Dehra Dun is one of the major examples of such Duns.

The Great Plains, one of the most productive and densely populated lowlands in the world, extend from the Ganga delta and the Brahmaputra valley in the east to the semi-arid plains of Rajasthan in the west. These plains occupy an area of 652,000 square kilometres and are filled with alluvium of varying thickness. This vast depression, an arm of the sea that has been filled up with sediment brought down by the Indus, Ganges and Brahmaputra, and their tributaries, is constantly being replenished by silt transported by rivers and spread over the land during floods. The Great Plains are bordered in the north by two narrow belts: (i) a piedmont plain, known in Punjab as *Bhabar*, composed of coarse pebbles mixed with finer and extremely pervious detritus, where the smaller Himalayan rivers disappear underground, and (ii) a marshy tract, *terai*, where the hidden rivers reappear on the surface and cause floods. The Great Plains can further be divided into the Arid Plains of Rajasthan, the Punjab Plain and the Ganga Plain. The arid plains of Rajasthan are drained by the only river in the region, the Luni. There are a number of salt lakes in this region, such as Sambhar, Didwana, Pachpadra, and Lunkaransar Tal. The Punjab Plain, which extends from the west of Yamuna in the southeast to Ravi in the northwest, is buried under alluvium brought by the Satluj, Beas and Ravi rivers. This plain is flat and has an elevation between 200 and 240 metres above sea level. A considerable part of

the Ganga Plain is occupied by the states of Uttar Pradesh, Bihar and West Bengal. The Yamuna forms the western boundary of this plain and joins the Ganga at Allahabad in Uttar Pradesh. To the north of the Ganga, the alluvial tract is subdivided into Rohilkhand in the west and Avadh in the east. Further east in Bihar, the plain is divided into two distinct sections - the north and the south.

The Central Highlands lie between the Great Plains and the Deccan Plateau. About half of Madhya Pradesh, one-third of Rajasthan and a small portion of Uttar Pradesh lie in this zone. It forms a compact block of mountains, hills and plateaus with valleys and basins of major and minor rivers. A major part of this region is forested. To the north of the Narmada Valley extends the Malwa Plateau which is bordered by the Aravalli Hills to the west and northwest. The Aravallis are crossed by several seasonal rivers and streams. Toward the south, the Malwa Plateau is bounded by the Vindhyas.

South of Narmada is the *Peninsular Plateau*, the largest physiographic unit, which faces the Bay of Bengal in the east and Arabian sea in the west. The maximum height of the plateau is 1,000 metres in the south but it hardly exceeds 500 metres in the north. The western Ghats (Sahyadri Hills) stand majestically along the Arabian Sea. The western Ghats are continuous, running north to south, occasionally intercepted by a few gaps or passes, such as Bhorghat, Thalghat and Palghat. There are many rivers which originate from the western slope and many others from the eastern slope. The Eastern Ghats form the eastern boundary of the Deccan tableland. There are a series of hillocks of various heights separated from one another by big gaps usually occupied by rivers from the Western Ghats and Satpuras. The whole tableland is drained by a number of rivers, the most important of which are the Godavari, Bhima, Krishna, Koyna, Tungabhandra, Cauvery, Mahanadi and Damodar.

The Deccan Plateau is surrounded by low lying *Coastal Plains* to the west and the east known as the western and eastern coasts, respectively. The eastern coastal plain may be divided into two sections, upper and lower. The lower section consists of deltas of rivers while the upper section consists mostly of plains lying in the upper reaches of the rivers.

The entire subcontinent is drained by numerous rivers which generally fall into two broad groups: the rivers of Himalayan origin and those flowing in the peninsula. The rivers which originate from the snow clad peaks and mountain ranges of the Himalayas are perennial whereas those originating in the peninsula at relatively lower altitudes are mostly rainfed. The most important river systems and basins in the country are: the Sindhu System, the Ganga System, the Mahanadi System, the Godavari System, the Krishna System, the Cauvery System, the Sabarmati System, the Sahyadri River System, the Pennar-Palar Basin, the Tapi-Purna Basin and the Narmada Basin.

Climate, Rainfall and Seasons

Nowhere else in the world is the monsoon climate so well marked as in the Indian sub-continent, and in no other region of similar size do so many people depend for their prosperity on climatic conditions (Stembridge, 1963). In most parts of India there are three seasons: the cold season (winter) from October to March; the hot season (summer) from April to mid-June; and the rainy season from mid-June to October. However, the country as a whole has no real

winter, and the term 'cold' is a relative one. From October to January temperatures decrease, while air pressures increase from the south to the northwest of India, which is the centre of a high-pressure system. Toward the end of October, the winter monsoon winds start blowing over India from the high-pressure areas over the land toward the areas of low pressure over the sea. Except where they have crossed the sea, they are dry winds. The northeast winds, which gather moisture as they pass over the Bay of Bengal, bring rain to the southeast of India during the winter. Most parts of India receive little rain during the cold season. As the sun moves northward toward the Tropic of Cancer, temperatures rise and pressures diminish. During the hot season, the heat is intense and by the beginning of June it is almost unbearable in the plains. The southwest of India receives some rain in April and May, as does Assam, where it is of great importance for the tea crop; but with these exceptions the rainfall throughout India during the hot season is negligible.

Toward the end of May winds blowing from the south and west cause violent storms, with heavy showers, which are repeated every few days. These storms herald the southwest monsoon - the rain-giver of India - which arrives about the middle of June, when rain descends in torrential downpours accompanied by thunder and lightning. The southwest monsoon owes its origin to the very high summer temperatures over northwest India. Here the heated air rises and winds from the Indian Ocean are drawn in. The rotation of the earth causes these winds to circulate in a counter-clockwise direction, so that the winds come from the southwest over the Western Ghats, from the south in Bengal, and from the southeast in the Ganges Basin. During the monsoon season, heavy rain is experienced all over India except in the northwest. Exceptionally heavy rain is experienced in those areas in which the monsoon winds, blowing directly from the sea, rise suddenly over the mountain ranges, e.g., the Western Ghats, the Himalayas, and the Khasi Hills. The southwest winds, blowing across the Arabian sea, cause heavy rain on the windward slopes of the Western Ghats and the strip of the Malabar Coast at their base, both of which have over 2,000 mm of rain per annum. But the Deccan Plateau, on the leeward side of the Western Ghats, receives only moderate rainfall (about 1,000 mm per annum), while the belt near the eastern foot of the Ghats, lying in the rain shadow of the mountains, has 800 mm or less a year. Southwest monsoon winds blowing across the Bay of Bengal cause extremely heavy rainfall (over 2,000 mm per annum) on the windward slopes of the mountains in Assam and other northeastern states. Cherrapunji, in the Khasi Hills, and nearby areas have the heaviest recorded rainfall in the world, an average of more than 11,000 mm.

Thornthwaite (1933) has divided the country into six microclimatic regions, namely Perhumid, Humid, Subhumid, Dry, Semi-arid and Arid. According to the criteria developed in 1972 by the Irrigation Commission and the Central Water Commission, 122 districts are identified as drought-affected. It is also estimated that an area of about 1.3 million square kilometres is affected by inadequate and erratic rainfall which accelerate drought conditions. These areas cover 41 percent of the total geographical area of the country, directly affecting one-third of the population, especially in 13 major states (Office of the Registrar General and Census Commissioner, 1988).

Western India, covering Rajasthan and the Rann of Kachch in Gujarat, is generally arid. This part of the country experiences a severe deficiency of water throughout the year. Rainfall evaporates as fast as it comes with the result that there is no retention of any moisture in the soil

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at any time of the year. The low ground water table results in a relatively scanty vegetation, mostly scrub. Another important area liable to frequent drought lies in the states of Punjab, Haryana, semi-arid Rajasthan, western Uttar Pradesh and Maharashtra, Karnataka, Andhra Pradesh and Tamil Nadu. Subsistence in these areas is based on irrigation. To the immediate east of this semi-arid belt, a large dry area spreads over large parts of Uttar Pradesh, Bihar and some parts of northern Madhya Pradesh, Maharashtra, Andhra Pradesh, Karnataka and the Tamil Nadu coast. Due to the nature of the soil surface, the water-holding capacity is marginally favourable for good cropping. A similar type of climatic region occurs in a narrow belt in the rain-shadow area of Sahyadri.

Sub-humid conditions are experienced over large parts of the country covering the states of Madhya Pradesh, Bihar, West Bengal and Orissa. The major rainfall occurs in the period from June to October due to the southwest monsoon while the winter rains supply moisture for winter crops. Within this belt, some areas in Kalahandi and Phulabani districts in Orissa have a scarcity of water due to the rough topography. The drought in West Bengal is caused mostly by inadequate irrigation and untimely rainfall.

In the humid climatic regions of the country, water deficiency is either negligible or quite small. The perhumid regions lie along the west coast of India, south of Goa and over the northeastern states excluding Arunachal Pradesh and the Brahmaputra valley. This type of climate also prevails over the hilly parts of Himachal Pradesh, Jammu and Kashmir and Uttar Pradesh.

1.4 Area and People

Area and Administrative Divisions

India, a union of states, is a Sovereign Socialist Secular Democratic Republic with a parliamentary system of government. The Republic is governed by the Constitution, which was adopted by the Constituent Assembly on 26 November 1949. The Constitution, which envisages a parliamentary form of government, is federal in structure with unitary features. The President of India is the constitutional head and executive of the Union. Real executive power rests in the Council of Ministers with the Prime Minister as the head. The Council of Ministers is collectively responsible to the House of the People (Lok Sabha). Similarly, in the states, the Governor is head of the executive branch, but principal decision making power lies with the Council of Ministers headed by the Chief Minister. The Council of Ministers of a state is collectively responsible to the state legislative assembly. Union Territories are administered by the President acting through an Administrator appointed by him. There is a strict division between the activities handled by the states and by the national government. The police force, education, agriculture and industry are reserved for the state governments. Certain other areas, including health and family welfare, are jointly administered by the two levels of government.

For administrative purposes, India is divided into 32 units including 25 states, 6 Union Territories, and the National Capital Territory of Delhi, which are further divided into 466 districts. The administrative units below the district level are generally known as *tahsils* in northern states, *taluks* in southern states and sub-divisions/Community Development Blocks/Police Stations in the eastern states and Union Territories.

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Geographically, Madhya Pradesh is the biggest state accounting for 13.5 percent of the total area of the country. Other large states, in order of sizes are Rajasthan, Maharashtra, Uttar Pradesh and Andhra Pradesh. The smallest state is Sikkim (which is the only state where the NFHS was not conducted), preceded by Tripura, Nagaland, Manipur and Meghalaya. Uttar Pradesh, which is fourth in land area, stands first in the country in population size accounting for 16 percent of the total population of India. The next largest states in terms of population size are Bihar, Maharashtra, West Bengal, Andhra Pradesh and Madhya Pradesh.

People, Culture, Religion and Language

Many countries are heterogeneous with respect to ethnic origins, languages, religions, geography and traditions, but none can match the vast scale and diversity to be found in India. The country has been called an "ethnological museum"; it is a land with a huge variety of races, religions and languages. Looking at India's cultural scene, one is generally struck by two contradictory features: the existence of diversity and unity at the same time. The endless variety is striking and often incongruous. There are wide variations in modes of dress, speech, physical appearance of the people, customs, standards of living, food, climate, and geographical features. There is no one spoken language or alphabet; more than a dozen languages and scripts appear on Indian currency notes. There is no typical Indian diet or type of dress. It is quite easy to tell the difference between the shorter Bengalis of the east, the taller and lighter-skinned people of the centre and north, the Kashmiris with their distinctly central Asian appearance, the Tibetan people of Ladakh, Sikkim and the north of Himachal Pradesh, and the dark-skinned Tamils of the south. Cultural differences between Indians even in the same state, district or city are as wide as the physical differences between the various parts of the country (Kosambi, 1981). Despite these regional variations, the government has managed to successfully establish an Indian ethos and national consciousness.

Change is inevitably taking place as modern technology reaches further and further into the fabric of society, yet it is often said that village India remains essentially the same as it has for thousands of years. So resilient are its social and religious institutions, that India has either absorbed or rebuffed attempts to radically change them. Even in fast-paced modern cities like Bombay, Madras, Calcutta, Bangalore and Delhi, what appears to be a complete change of attitude and lifestyle is only surface gloss. Underneath, the age-old verities, loyalties and obligations still strongly influence people's lives.

Hindi in the Devanagari script is the official language of the Union. About 225 languages are spoken on the subcontinent, but there are only about 15 major languages. The main languages are either derived from Sanskrit or belong to the Dravidian family. The former include Hindi, widely spoken in north India, Bengali used in West Bengal, Urdu, Punjabi, Marathi and Gujarati. The Dravidian languages (Tamil, Telugu, Kannada and Malayalam) are common in the south of India. English is understood by many educated people.

Religion is inextricably intertwined with every aspect of life in India. There are large numbers of Buddhists, Jains, Muslims, Christians, and Sikhs but the dominant religion of the people is Hinduism. India was the birthplace of two of the world's greatest religions (Hinduism and Buddhism), and of the Jain and Sikh religions. It is also home to one of the world's few remaining communities of Parsis, adherents of the faith of Zoroastrianism. In 1991, there were

about 102 million Muslims in India, making India one of the largest Muslim countries in the world, much larger than any of the Arab Middle East nations. Christians number about 20 million, Sikhs 16 million, Buddhists 6 million, and Jains 3 million (Office of the Registrar General and Census Commissioner, 1995).

Hinduism has a number of holy books, the most important of which are the four *Vedas* (Divine Knowledge) which are the foundations of Hindu philosophy. The *Upanishads* delve into the metaphysical nature of the universe and the soul. The *Mahabharata* (Great War of the Bharatas), an epic poem containing 100,000 stanzas, tells the story of the warrior princes called the Kauravas and the Pandavas, two branches of the royal clan of Kurus who lived in northern India thousands of years ago. No one is quite certain when the epic was composed, but scholars, who give various estimates between 3000 and 1500 B.C., all agree that the *Mahabharata* is one of the oldest literary works known to mankind. The *Bhagavad Gita* is a famous episode of the *Mahabharata* where Krishna related his philosophies to Arjuna. The *Ramayana*, another great epic that is the mark of India's culture, consists of 24,000 verses, divided into seven cantos. It tells in the bardic style of epic lore, the story of Rama, prince and later king of Kosala. For centuries, both the *Ramayana* and the *Mahabharata* have been known throughout the length and breadth of India as an inexhaustible treasure-house of anecdotes, proverbs and sayings that have formed a continuous oral tradition. They have provided a powerful and universally identifiable source for themes in Indian literature, art, drama, dance, and song.

The caste system is one of Indian society's unique characteristic features. Historically, Indian society has been under the grip of the caste system, segregating the population into thousands of non-associating groups parted from each other by traditional barriers, which forbid common social interaction and intermarriage. The origin of the caste system is uncertain but basically it seems to have been developed by the Brahmins or priest class in order to make their own superior position more permanent. Later it was probably extended by the invading Aryans who felt themselves superior to the indigenous pre-Aryan Indians. Eventually the caste system became formalized into four distinct castes, each with distinct rules of conduct and behaviour. At the top are the Brahmins who are the priests and the traditional arbiters of what is right and wrong in matters of religion and caste. Next come the Kshatriyas, who are soldiers and administrators. The Vaisyas are the artisan and commercial class and the Sudras are the farmers and the peasant class. These four castes are said to have come from Brahma's mouth (Brahmins), arms (Kshatriyas), thighs (Vaisyas) and feet (Sudras). Beneath the four major castes is a fifth group, the untouchables. Today the caste system has been considerably weakened but it still has considerable power, particularly among the less educated and in rural areas.

More than 50 million Indians belong to tribal communities which are distinct from Hindu caste society. These *Adivasis*, as they are known in India, have origins which precede the Vedic Aryans and even the Dravidians of the south. For thousands of years they have lived more or less undisturbed in the hills and densely wooded regions which were regarded by others as unattractive areas for habitation. Many still speak tribal languages and follow ancient customs which are foreign to both Hindus and Muslims.

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1.5 Economy

Since Independence, India has made enormous strides but faced enormous problems. The mere fact that India has not, like many Third World countries, succumbed to dictatorships, military rule or wholesale foreign invasion is a testament to the basic strength of the country's government and institutions. The British left the Indian economy with deep marks of stagnation. A very large proportion of the national income (around 60 percent) originated in agriculture, and a much smaller proportion (around 15 percent) in mining, manufacturing and the construction sector (Agrawal, 1991). The national government responded to the situation with a concerted and coordinated attack, in the form of Five Year Plans, starting in 1951. While short-term problems were surmounted during the 5-year period of the First Plan, the long-term problem of overcoming lost economic growth continued to be tackled by successive plans. In this process, quite a few advances have been made. The face of the Indian economy as it is today is not only much changed, but it is qualitatively a lot different from that in 1951. The presence of large stocks of foodgrains, a high investment rate, and sizeable foreign reserves are symbolic of these achievements. Despite periodic setbacks, the process of economic liberalization is well underway. There is a considerable (but inadequate) amount of capital stock, which can be of great help in rapidly adding to the productive capacity of the economy. An industrial class is quickly growing, and industries have expanded to the stage where India is one of the world's top 10 industrial powers. India has important heavy industries, such as iron, steel and textiles, as well as a large manufacturing base and a growing reputation for computer software development. All these were nonexistent some 40 years ago.

A paradox of the Indian situation is that despite overall economic growth, a large proportion of the population continues to live a miserable life, often falling far short of even minimum calorie needs. According to the estimates of the Planning Commission, 29.9 percent of the population in 1987-88 (33.4 percent in rural areas and 20.1 percent in urban areas) lived below the poverty line[1]. However, the Expert Group[2] estimated that 39.3 percent of the country's population (39.1 percent in rural areas and 40.1 percent in urban areas) was below the poverty line in 1987-88 (Government of India, 1994). The average per capita income is Rs. 5,529 per annum for 1991-92 (Central Statistical Organization, 1993). The majority of the poor live in rural areas and belong to the categories of landless labourers, small and marginal farmers, fishermen, rural artisans and backward classes and backward tribes. These people have either no assets or assets with very low productivity, few relevant skills and either no regular full-time jobs or very low paid jobs. The Indian economy also suffers from large inequalities.

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[1] The Task Force on "Minimum Needs and Effective Consumption Demand" constituted by the Planning Commission in 1979 defined the poverty line as per capita monthly expenditure of Rs. 49.09 in rural areas and Rs. 56.64 in urban areas at 1973-74 prices, corresponding to the per capita daily calorie requirement of 2,400 in rural areas and 2,100 in urban areas. For subsequent years, the poverty line has been adjusted because of price changes, using the price indices which are implicit in the private consumption expenditure series reported in the National Accounts Statistics. The corresponding levels at 1987-88 price levels are Rs. 131.80 in rural areas and Rs. 152.13 in urban areas.

[2] The Planning Commission constituted an Expert Group in 1989 to consider the methodology and computational aspects of the proportion and number of poor in the country. The Expert Group, while retaining the concept of the poverty line as recommended by the Task Force, suggested a change in the price deflator to update the poverty line in later years.

In rural areas, land continues to be highly inequitably distributed. Small and marginal farmers (with operational holdings of less than 2 hectares) constitute over three-quarters of the landholders, but own only 29 percent of the land. Large farmers (with operational holdings of over 10 hectares) constitute only 2 percent of the landholders, but own more than 20 percent of the land (Agarwal, 1991). In the urban areas, the distribution picture is less fully known, but inequalities are perpetuated by large-scale tax evasion and the generation of "black money". Underemployment and unemployment are another standard feature of urban economic life.

India is rich in natural and human resources. These resources have, however, not been exploited fully and are capable of greater utilization. India's economy is still predominantly agricultural, but since Independence, a concerted effort has been made to diversify the economy.

Agriculture

Agriculture is the largest and most important sector of the Indian economy. Agriculture contributed 51 percent of the country's Gross Domestic Product in 1950-51 but in 1992-93 its contribution was 26 percent (Centre for Monitoring Indian Economy, 1994). Yet agriculture is the source of livelihood for over 70 percent of the population in the country. For some time after Independence, India depended on foreign aid to meet its food needs, but in the last 30 years production has risen steadily, mainly due to the expansion of irrigated land and the increasing use of high-yield seeds, fertilisers and pesticides. India now has large grain stockpiles and is a net exporter of food grains.

The main crops are rice (with an annual yield of 75 million tonnes) and wheat (55 million tonnes), but cash crops such as cotton, tea and coffee dominate the export market. Rice, which occupies one-third of the cultivated area of India, is grown on the lowlands which have abundant supplies of water. Because rice produces large yields per acre, and because two crops of rice can often be produced annually along with one other crop on the same plot of ground, the density of population in the rice-growing districts is very high. Wheat is grown chiefly in the drier districts of the centre and the northwest. Millet is the chief food crop in those parts of India which are not wet enough for the cultivation of rice or fertile enough for the cultivation of wheat. Oil seeds, such as groundnuts and linseed, are widely cultivated on the Deccan Plateau and on the eastern coastal plain. Cotton is cultivated on irrigated land in Punjab and on the so-called "black-cotton soil" of the Deccan. India is the world's largest producer of tea with an annual production of around 700 million kg, of which over 200 million kg is exported. Virtually all Indian tea is grown in Assam, West Bengal, Kerala and Tamil Nadu.

There are three main crop seasons: *Kharif, rabi* and summer. Major *kharif* crops are rice, *jawar, bajra,* maize, cotton, sugarcane, sesame and groundnuts. Major *rabi* crops are wheat, *jawar,* barley, gram, linseed, rapeseed and mustard. Rice, maize and groundnuts are also grown in summer season.

The average annual per capita food grain production in the country in 1988-91 was 204 kilograms. The compound annual rate of growth of food grain production from 1970-73 to 1988-91 was 2.7 percent (Centre for Monitoring Indian Economy, 1992).

Industry

The progress of industrialization since Independence has been a striking feature of India's economic development. The process of industrialization, launched as a deliberate policy under the Industrial Policy Resolution of 1956 and vigorously implemented under the Five Year Plans, involved heavy investments in building up capacity over a wide spectrum of industries. As a result, industrial production multiplied by about five times over the last 40 years. The industrial structure has been widely diversified covering broadly the entire range of consumer, intermediate and capital goods. The progress India has made in the field of industrialization is clearly reflected in the commodity composition of India's foreign trade in which the share of imports of manufactured goods has steadily declined. On the other hand, industrial products, particularly engineering goods, have become a growing component of India's exports. The rapid strides in industrialization have been accompanied by a corresponding growth in technological and managerial skills for efficient operation of sophisticated industries and also for planning, designing and constructing such industries. India's major industries include iron and steel, cotton textiles, jute, sugar, cement, paper and petrochemicals. Major iron and steel plants are located in Jamshedpur, Rourkela, Bhilai and Durgapur.

India has ample supplies of coal and more than enough iron ore and manganese to supply her growing iron and steel industries. The chief iron mining areas lie along the Bihar-Orissa border, where manganese is also mined. The major coal fields are found in the Damodar Valley of Bihar and West Bengal. Bauxite is mined along the Bihar-Madhya Pradesh border, gold in the Kolar gold mines in Karnataka, and mica in northern Bihar and Tamil Nadu.

Traditional handicrafts, made in the villages, provide employment for large numbers of people. Of these cottage industries, cotton-spinning and weaving are the most important. Silk and wool are also manufactured. Other handicrafts include pottery, leather goods, and metal goods.

In 1990, there were nearly 22 million enterprises employing more than 60 million people. About three-fourths of these enterprises were run entirely by family members without engaging any hired labour. Of the remaining six million establishments, only about a quarter or 1.5 million were industrial enterprises (Centre for Monitoring Indian Economy, 1994).

The public sector has played an important role in Indian industry. Expansion of the public sector was undertaken as an integral part of the Industrial Policy in 1956. Government industrial operations extend from basic capital goods like steel, coal, copper, zinc and other minerals to heavy machinery, drugs and chemicals, fertilisers, and consumer goods such as textiles, hotel services, and watches. The privatization wave that swept the world in the late 1980s has not bypassed India. The Industrial Policy of 1991 limited the role of the public sector to essential infrastructure and defence and opened up more areas to the private sector. To provide a larger scope to the private sector, a number of changes in policy have been introduced with regard to industrial licensing, export-import policy, technology upgradation, fiscal policy, foreign equity capital, removal of controls and restrictions, and rationalization and simplification of fiscal and administrative regulations. A more congenial environment has also been established for foreign capital to seek avenues of direct foreign investment (Datt and Sundharam, 1995).

1.6 Basic Demographic Indicators

Trends in basic demographic indicators for India are presented in Table 1.1. According to the 1991 Census, India's population is 846.3 million, including the projected population of 7.7 million for Jammu and Kashmir, where the 1991 Census was not held. India is the second most populous country in the world, accounting for 16 percent of the world's population.

Table 1.1 Trends in basic demographic indicators

Trends in basic demographic indicators, India, 1971-91

Index	1971	1981	1991
Population	548,159,652	683,329,097	846,302,688
Percent population increase (previous decade)	24.8	24.7	23.9
Density (Population/km²)	177	230ª	273ª
Percent urban	19.9	23.7	26.1
Sex ratio	930	934	927
Percent 0-14 years old	42.0	39.6ᵇ	36.0ᶜ
Percent 65+ years old	3.3	3.8ᵇ	3.9ᶜ
Percent Hindu	82.7	83.1ª	82.0ᵈ
Percent Muslim	11.2	10.9ª	12.1ᵈ
Percent Christian	2.6	2.5ª	2.3ᵈ
Percent Sikh	1.9	2.0ª	1.9ᵈ
Percent scheduled caste	14.6	15.8ª	16.7ª
Percent scheduled tribe	6.9	7.8ª	8.0ª
Percent literate*			
Male	45.9	53.5	64.1
Female	22.2	28.5	39.3
Total	34.4	41.4	52.2
Crude birth rate	36.9	33.9	29.2ᶜ
Crude death rate	14.9	12.5	10.1ᶜ
Exponential growth rate	2.22	2.20	2.14
Total fertility rate	5.2	4.5	3.6ᶜ
Infant mortality rate	129	110	79ᶜ
Life expectancy			
Male	50.5ᶠ	52.5ᵍ	57.7ʰ
Female	49.0ᶠ	52.1ᵍ	58.1ʰ
Couple protection rate	10.4	22.8	43.5ⁱ

ªExcludes Assam and Jammu and Kashmir
ᵇExcludes Assam
ᶜ1992, SRS
ᵈExcludes Jammu and Kashmir
*Based on the population age 5 and above for 1971 and 1981 and the population age 7 and above for 1991.
ᶠ1970-75
ᵍ1981-85
ʰ1986-90
ⁱ1992, provisional
Source: Office of the Registrar General (1982, 1995, 1992, 1993a, 1994), Office of the Registrar General and Census Commissioner (1972, 1974, 1976, 1984b, 1987, 1995), Ministry of Health and Family Welfare (1982, 1991, 1992a)

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Between 1981 and 1991 the population increased by 23.9 percent. In absolute terms, the population of India increased by 163 million during the same period, which is more than the total population of Japan. The percent increase in population during 1981-91 was slightly lower than the percent increase during 1971-81, which was 24.7 percent. The average annual exponential growth rate also decreased from 2.22 percent during 1961-71 to 2.14 percent during 1981-91.

Population density (per km^2) increased from 177 in 1971 to 230 in 1981 and further to 273 in 1991. Nearly three-fourths (74 percent) of the population live in rural areas. In 1991, the sex ratio of the population (number of females per 1,000 males) was 927, which is slightly lower than the sex ratio in 1981. According to the Sample Registration System (SRS) for 1992, 36 percent of the population are children under age 15 and 4 percent are elderly (age 65 and above). The proportion of the population age 0-14 years declined from 42 percent in 1971 to 36 percent in 1992, indicating a decline in fertility during the period.

The religious composition of the population has not changed much during 1971-91, although there has been a slight increase in the proportion Muslim during this period. Persons from scheduled castes and scheduled tribes[3] constituted 17 and 8 percent of the population, respectively, in 1991.

According to the 1991 Census, the literacy rate in India for persons age 7 years and above was 52 percent (64 percent for males and 39 percent for females). The literacy rate increased one and a half times from 34 percent in 1971 to 52 percent in 1991, but it is still very low, especially for females. Although the improvement in literacy has been more pronounced for females than males in relative terms, the absolute gap in literacy between males and females remained almost the same during the period 1971-91.

According to estimates derived from the SRS in 1992, India has a crude birth rate of 29.2 per 1,000 population, a crude death rate of 10.1 per 1,000 population, a total fertility rate of 3.6 per woman, and an infant mortality rate of 79 per 1,000 live births. The crude birth rate has declined slowly but steadily, from 36.9 per 1,000 population in 1971 to 29.2 per 1,000 in 1992. The total fertility rate fell from 5.2 to 3.6 children per woman between 1971 and 1992, a decline over 30 percent. The crude death rate also declined, from 14.9 per 1,000 population in 1971 to 10.1 per 1,000 in 1992. The infant mortality rate showed a substantial decline (39 percent) from 129 per 1,000 live births in 1971 to 79 per 1,000 in 1992. Estimates of life expectancy shows that female life expectancy increased by about 9 years from 49 years in 1970-75 to 58 years in 1986-90. The increase in male life expectancy during this period was 7 years. During the last two decades, the sex differential in life expectancy has reversed; females in India now

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[3] The Government of India has identified certain castes as socially and economically backward and, recognizing the need to protect them from social injustice and all forms of exploitation, the Constitution of India has conferred on them special protection. Scheduled castes refer to such castes, races or tribes or parts of groups within such castes, races or tribes as are declared to be scheduled castes by the President of India by public notification. Scheduled tribes refer to such tribes or tribal communities or parts of or groups within such tribes or tribal communities as are declared to be scheduled tribes by the President of India by public notification (Office of the Registrar General and Census Commissioner, 1984b). A total of 1,090 castes and 573 tribes have been declared as scheduled in 1991 (Office of the Registrar and Census Commissioner, 1992).

live slightly longer than males, the pattern observed in most populations.

The couple protection rate (defined as the percentage of eligible couples effectively protected against pregnancy) is 43.5, based on 1992 estimates prepared by the Department of Family Welfare, Government of India. The percentage of couples effectively protected against pregnancy increased steadily from 10 percent in 1971 to 44 percent in 1992.

1.7 Health and Family Welfare Policies and Programmes

The general health condition of the people of India was very poor before Independence with a crude death rate of 22.4 per 1,000, an infant mortality rate of 162 per 1,000 live births, and an expectation of life at birth around 26 years. Nearly half the total number of deaths were among children under 10 years. India was a reservoir of smallpox and endemic diseases such as leprosy, filariasis, guinea worms and hookworms. Sanitary conditions in both urban and rural areas were very poor. The provision of protected water supplies and drainage, and preventive and curative services was totally inadequate (Government of India, 1946). The health services and programmes were based on the recommendations of several committees convened by the government from time to time. The first such committee, the Health Survey and Development Committee (popularly known as the Bhore Committee), was set up in 1943 and submitted its recommendations in 1946. After Independence, the Health Survey and Planning Committee (the Mudaliar Committee), set up in 1959, worked within the broad framework provided by the Bhore Committee. Subsequently, three other committees were set up to review the various aspects of health care services in India: the Multipurpose Workers Committee (the Kartar Singh Committee) in 1972, the Committee on Health Services and Medical Education (the Srivastava Committee) in 1974, and the Krishnan Committee in 1984.

An important development took place when the country adopted the National Health Policy in June 1981. This development may be viewed as an outcome of the Declaration of Health Issues at the International Conference on Primary Health, jointly sponsored by the World Health Organization and UNICEF at Alma Ata in 1978 (World Health Organization and UNICEF, 1978). Delivery of health services is mainly governed by the National Health Policy, which was approved by Parliament in 1983. Although the National Health Policy places a major emphasis on ensuring primary health care to all by the year 2000, it nevertheless identifies certain areas which need special attention. These areas are: (1) nutrition for all segments of the population, (2) the immunization programme, (3) maternal and child health care, (4) the prevention of food adulteration and maintenance of the quality of drugs, (5) water supply and sanitation, (6) environmental protection, (7) school health programmes, (8) occupational health services, and (9) prevention and control of locally endemic diseases. Active community participation has been considered to be one of the most important supportive activities for the successful implementation of the health programmes.

After India became a signatory to the Alma Ata Declaration of 1978, thereby committing the country to the goal of "Health for All" by 2000 A.D., the government started to concentrate on the development of the rural health infrastructure. This was done to provide health care services to the rural population, which had, by and large, been neglected. Family welfare services, including maternal and child health schemes, are offered though the existing network of Primary Health Centres (PHCs), sub-centres, and referral centres called Community Health

Centres (CHCs), and also through Village Health Guides and Traditional Birth Attendants at the village level. According to the present infrastructure plan, there is one sub-centre for every 5,000 population, one PHC for every 30,000 population and one CHC for every 100,000 to 120,000 population. In tribal and hilly areas, one sub-centre is planned for every 3,000 population and one PHC for every 20,000 population. As of March, 1992, there were 20,719 Primary Health Centres and 131,464 sub-centres, providing health and family welfare services to the rural population (Government of India, 1994). In cities and towns, the health and family welfare services are provided through a network of government or municipal hospitals and dispensaries, and urban family welfare centres. Private hospitals, clinics and dispensaries also play a major role in providing these services in urban areas.

India was the first country to have an official family planning programme, which was initiated in 1952. However, even during the preindependence period, a birth control movement was started by a number of social activists including R.D. Karve, Dr. A.P. Pillai, Lady Cowasji Jehangir, Shakuntala Paranjape and others. A review of the eight development plans adopted since 1951 indicates that family planning as a measure of population control has been given a high priority in each five year plan (Bhende and Kanitkar, 1994). However, greater emphasis was given to family planning only after the Third Five Year Plan. Only Rs. 6.5 million were allocated to family planning in the First Five Year Plan, compared with Rs. 50 million in the Second Plan, and Rs. 250 million in the Third Plan. Planned expenditures increased more than ten-fold during the Fourth Plan (to about Rs. 2,777 million).

Since its inception, the programme has been the responsibility of the Ministry of Health. It is a centrally sponsored and financed programme implemented by the states. The programme began with the creation of a Family Planning Cell in the Planning and Development Section of the Director General of Health Services in 1952. In 1966, a full-fledged Department of Family Planning was established within the Ministry, which was redesignated as the Ministry of Health and Family Planning, and a minister of cabinet rank was placed in charge.

The national family planning programme at first adopted a clinical approach. The extension approach was introduced in 1963. This involved educating the population to bring about changes in the knowledge, attitude and behaviour of the people with regard to family planning. The approach identified several conditions needed for accelerating the adoption of family planning by the people: group acceptance of a small family norm, knowledge about different methods of family planning, and easy availability of family planning supplies and services. However, before giving a fair trial to the extension approach, the integrated approach was adopted in 1966. With this, the family planning programme formed an integral part of maternal and child health and nutrition services. It was expected that the change in policy would find wider acceptance.

The Indian family planning programme emphasized the rhythm method during its initial stages. Diaphragms and contraceptive jelly and later on foam tablets were also promoted as methods of family planning. The intra-uterine contraceptive device (IUD) was introduced into the programme as a method of family planning in 1965. In 1968, the Social Marketing Programme for condoms was introduced, under which condoms or Nirodhs are made available at a highly subsidized price. The camp approach was adopted to promote surgical methods of birth control during the early 1970s. In this same period, a community-oriented service network

was developed, in which family planning services were offered as a part of the overall package of health services. The mother and child care approach, which commenced in 1977-78, is still continuing. A Programme of Social Marketing of Oral Pills was started in 1987. In 1992, the National Child Survival and Safe Motherhood (CSSM) Programme was introduced to implement a package of services combining immunization with mother and child health care interventions (Ministry of Health and Family Welfare, 1992b).

The national family planning programme has had several ups and downs. The biggest setback to the programme was during 1975-77, the period of the National Emergency. There was a sudden increase in the number of sterilizations carried out, from 2.67 million in 1975-76 to 8.26 million in 1976-77. With the change in government in 1977, a new National Population Policy was adopted and the welfare approach to the population issue was reemphasized. The family planning programme was redesignated as the family welfare programme, and the Community Health Volunteer (CHV) Scheme was introduced.

The programme promotes responsible parenthood with a two-child family norm (regardless of the sex of the children), through the voluntary use of contraceptive methods and a variety of maternal and child health schemes (Ministry of Health and Family Welfare, 1991). Messages on the small family norm are conveyed to the masses through motivational and educational means. Imaginative use of mass media and interpersonal communication are used to increase the awareness and remove sociocultural barriers to family planning (Ministry of Health and Family Welfare, 1992a).

The long-term national demographic goal is to achieve replacement-level fertility (Net Reproduction Rate of 1.0) by 2016. As a part of this goal, the country aims to reduce the crude birth rate to 21 per 1,000, the crude death rate to 9 per 1,000, and the infant mortality rate to below 60 per 1,000 live births, and to increase the effective couple protection rate (the percentage of eligible couples effectively protected through any family planning method) to 60 percent. In addition, the recently introduced National Child Survival and Safe Motherhood Programme accelerates the goal for infant mortality and introduces additional health goals. The programme aims to reduce infant mortality from 80 to 75 by 1995 and 50 by 2000, reduce the child mortality rate (at ages 1-4) from 41 to less than 10 by 2000, reduce the maternal mortality rate from 400 to 200 per 100,000 live births by 2000, eliminate tetanus among neonates by 1995, prevent 95 percent of deaths due to measles and reduce measles cases by 90 percent, prevent 70 percent of deaths due to diarrhoea and reduce diarrhoea cases by 25 percent and prevent 40 percent of deaths due to acute respiratory infection by 2000 (Ministry of Health and Family Welfare, 1992b).

CHAPTER 2

SURVEY DESIGN AND IMPLEMENTATION

2.1 Objectives of the NFHS

The primary objective of the NFHS is to provide national-level and state-level data on fertility, nuptiality, family size preferences, knowledge and practice of family planning, the potential demand for contraception, the level of unwanted fertility, utilization of antenatal services, breastfeeding and food supplementation practices, child nutrition and health, immunizations, and infant and child mortality. The NFHS is also designed to explore the demographic and socioeconomic determinants of fertility, family planning, and maternal and child health. This information is intended to assist policymakers, administrators and researchers in assessing and evaluating population and family welfare programmes and strategies. The NFHS used uniform questionnaires and uniform methods of sampling, data collection and analysis with the primary objective of providing a source of demographic and health data for interstate comparisons. The data collected in the NFHS are also comparable with those of the Demographic and Health Surveys (DHS) conducted in many other countries[1].

2.2 Questionnaires

Three types of questionnaires were used in the NFHS: the Household Questionnaire, the Woman's Questionnaire, and the Village Questionnaire (see Appendix F). The overall content and format of the questionnaires were determined in a Questionnaire Design Workshop held in Pune in September, 1991. The workshop was attended by representatives from all the PRCs, the Consulting Organizations, MOHFW', IIPS, other Indian organizations, USAID, and the East-West Center/Macro International. The contents and design of the questionnaires were based broadly on the DHS Model B Questionnaire, which is designed primarily for use in countries with low contraceptive prevalence. Keeping in view the Indian sociocultural milieu and the objectives of the NFHS, additions and modifications were made to the model questionnaire after extensive deliberations at the workshop. In addition to a standard set of questions in all the states of the NFHS, it was decided at the workshop that individual states could recommend a number of state-specific questions which would be formulated after considering the issues of importance in each state. Based on the recommendations of this workshop, the questionnaires were finalized at IIPS, Bombay. The questionnaires are largely precoded, with fixed response categories.

A pretest of the questionnaires was carried out by IIPS with the help of the PRC, Bhopal, in October, 1991. A 10-day training session for the interviewers and supervisors was conducted at the PRC. For the pretesting of the questionnaire, a total of 150 pretest interviews were completed in two villages near Bhopal and a few urban blocks within Bhopal city. After the pretest, appropriate changes were made in the questionnaires, based on the experience of the pretest. Questionnaires used in each state were bilingual, consisting of questions in both the

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[1] The Demographic and Health Surveys (DHS) programme is an international project designed to collect comparable survey data across countries on fertility, family planning, and maternal and child health.

state language and English. In each state, the entire content of the questionnaires was translated to the state language and then independently translated back to English. Appropriate changes were made in the translation of questions for which the back-translated version did not compare well with the original English version. The PRCs in these states undertook the responsibility of translating the questionnaires into the state language and pretesting the translated version of the questionnaires.

The Household Questionnaire was used to list all usual residents of each sample household, plus all visitors who slept in the household the night before the interview. Some basic information was collected on the characteristics of each person listed, including age, sex, marital status, education, occupation, and relationship to the head of the household, as well as health status. The main purpose of this section of the Household Questionnaire was to identify women who were eligible to respond to the Woman's Questionnaire (ever-married women age 13-49 years). In addition, the Household Questionnaire collected information on household conditions, such as the source of water, type of toilet facilities, materials used in the construction of the house, source of lighting, cooking fuel, ownership of agricultural land and livestock, ownership of various consumer durable goods, and characteristics of the head of the household such as religion, caste or tribe. The Household Questionnaire also included household birth and death records wherein all the live births and deaths that took place within the last two years in the household were recorded.

The Woman's Questionnaire was used to collect information from eligible women -- that is, all ever-married women, usual residents as well as visitors, age 13-49 years. The Woman's Questionnaire consisted of seven sections:

Section 1. Respondent's Background: Questions on age, marital status, age at marriage, and education of the eligible woman are included. If the respondent is a visitor, information about her own household is also collected.

Section 2. Reproduction: In this section, information is collected about the births that a woman had during her life. The information collected includes the total number of sons and daughters that a woman has given birth to, information about stillbirths and abortions, a complete birth history (including month and year of birth, current age, sex, survival status, and if dead, age at death for each of the live births), and information about current pregnancy and menstruation status.

Section 3. Contraception: This section collects information on the knowledge, ever use and current use of various family planning methods, intentions for future use, attitudes about family planning, exposure to family planning messages, and for current users, the duration of use, source of the method, and problems experienced with use.

Section 4. Health of Children: The questions in this section relate to births in the year of the survey as well as to all the births in the previous four calendar years. The objective of this section is to obtain information related to the health of children. The topics include antenatal care, breastfeeding, vaccinations and recent illnesses of young children. The questions are organized into two subsections: Section 4A containing questions on pregnancy and breastfeeding and Section 4B containing questions on immunization and

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health of children.

Section 5. Fertility Preferences: This section gathers information on the desire for additional children, ideal family size and sex composition of children, preferred and ideal birth intervals, and husband's attitude about family size.

Section 6. Husband's Background and Woman's Work: Questions related to age, education and work status of the husband as well as questions on the work status of the woman herself are included.

Section 7. Height and Weight: The nutritional status of children was measured using both weight and height/length of children under age 4 in most of the states The results were recorded in this section of the Woman's Questionnaire. However, due to the nonavailability of measuring instruments during the first phase of data collection, the height/length of children was not measured in the first phase states. In these states, only the weight of children was taken as a measure of their nutritional status. The NFHS is the first national survey that collected demographic, health and anthropometric data simultaneously. The measurement of height and weight was a separate operation that was conducted after the individual interview was completed. All interviewers, editors and supervisors were trained in taking anthropometric measurements. For the measurement of the weight of the children, standard spring balance weighing machines (Salter scales) were used. The height/length of the child was measured using adjustable boards made of acrylic and other synthetic materials with a metal frame providing strength, suitable for measuring either the length or the height of children.

The Village Questionnaire was used to collect information on all villages covered in the NFHS. The Village Questionnaire included information on various amenities available in the villages such as electricity, water, transportation, and educational and health facilities.

In addition to the above standard questions used in all the states of the NFHS, a set of state-specific questions was added in most of the states on issues of importance in those states. Accordingly, a set of questions on knowledge of AIDS was added to the NFHS in Arunachal Pradesh, Assam, Delhi, Goa, Gujarat, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Tamil Nadu, Tripura, and West Bengal. The topics covered by state-specific questions in the other states are: dowry in Bihar, age at marriage in Rajasthan, sex preference for children in Uttar Pradesh, international migration in Kerala, Green Cards in Madhya Pradesh, benefits received from antipoverty programmes in Karnataka, and sex preselection and international migration in Punjab.

2.3 Sample Design

The sample design for the NFHS was discussed during a Sample Design Workshop held in Madurai in October, 1991. The workshop was attended by representatives from the PRCs; the COs; the Office of the Registrar General, India; IIPS and the East-West Center/Macro International. A uniform sample design was adopted in all the NFHS states (see Table B.1 in Appendix B for a summary of the sample characteristics). The sample design adopted in each state is a systematic, stratified sample of households, with two stages in rural areas and three

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stages in urban areas. Detailed descriptions of the state sample designs can be found in the state reports.

Sample Size and Allocation

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 time and resources available for the survey and the need for separate estimates for urban and rural areas of the state. The initial target sample size was 3,000 completed interviews with eligible women for states having a population of 25 million or less in 1991; 4,000 completed interviews for large states with more than 25 million population; 8,000 for Uttar Pradesh, the largest state; and 1,000 each for the six small northeastern states (Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura). In states with a substantial number of backward districts[2] (Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh), the initial target samples were increased so as to allow separate estimates to be made for groups of backward districts.

The urban and rural samples within states were drawn separately and, to the extent possible, sample allocation was proportional to the size of the urban-rural populations (to facilitate the selection of a self-weighting sample for each state). In states where the 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 the six small northeastern states).

The Rural Sample: The Frame, Stratification and Selection

A two-stage stratified sampling design was adopted for the rural areas: selection of villages followed by selection of households. Because the 1991 Census data were not available at the time of sample selection in most states, the 1981 Census list of villages served as the sampling frame in all the states with the exception of Assam, Delhi and Punjab. In these three states the 1991 Census data were used as the sampling frame.

Villages were stratified prior to selection on the basis of a number of variables. The first level of stratification in all the states was geographic, with districts subdivided into regions according to their geophysical characteristics. Within each of these regions, villages were further stratified using some of the following variables: village size, distance from the nearest town, proportion of nonagricultural workers, proportion of the population belonging to scheduled castes/scheduled tribes, and female literacy. However, not all variables were used in every state. Each state was examined individually and two or three variables were selected for stratification, with the aim of creating not more than 12 strata for small states and not more than 15 strata for large states. Female literacy was often used for implicit stratification (i.e., the villages were ordered prior to selection according to the proportion of females who were literate). Primary Sampling Units (PSUs) were selected systematically, with probability proportional to size (PPS). In some cases, adjacent villages with small population sizes were combined into a single PSU for the purpose of sample selection. On average, 30 households

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[2] The Ministry of Health and Family Welfare, Government of India, has defined backward districts as those having a crude birth rate of 39 per 1,000 population or higher, estimated on the basis of data from the 1981 Population Census.

were selected for interviewing in each selected PSU.

In every state, all the households in the selected PSUs were listed about two weeks prior to the survey. This listing provided the necessary frame for selecting households at the second sampling stage. The household listing operation consisted of preparing up-to-date notional and layout sketch maps of each selected PSU, assigning numbers to structures, recording addresses (or locations) of these structures, identifying the residential structures, and listing the names of the heads of all the households in the residential structures in the selected PSU. Each household listing team consisted of a lister and a mapper. The listing operation was supervised by the senior field staff of the concerned CO and the PRC in each state. Special efforts were made not to miss any household in the selected PSU during the listing operation. In PSUs with fewer than 500 households, a complete household listing was done. In PSUs with 500 or more households, segmentation of the PSU was done on the basis of existing wards in the PSU, and two segments were selected using either systematic sampling or PPS sampling[3]. The household listing in such PSUs was carried out in the selected segments. The households to be interviewed were selected from the household lists using systematic sampling with equal probability. Each team supervisor was provided with the original household listing, layout sketch map and the household sample selected for each PSU. All the selected households were approached during the data collection, and no substitution of a household was allowed under any circumstances.

The Urban Sample: The Frame, Stratification and Selection

A three-stage sample design was adopted for the urban areas in each state: selection of cities/towns, followed by urban blocks, and finally households. Cities and towns were selected using the 1991 population figures while urban blocks were selected using the 1991 list of census enumeration blocks in all the states with the exception of the first phase states. For the first phase states, the list of urban blocks provided by the National Sample Survey Organization (NSSO) served as the sampling frame.

All cities and towns were subdivided into three strata: (1) self-selecting cities (i.e., cities with a population large enough to be selected with certainty), (2) towns that are district headquarters, and (3) other towns. Within each stratum, the cities/towns were arranged according to the same kind of geographic stratification used in the rural areas. In self-selecting cities, the sample was selected according to a two-stage sample design: selection of the required number of urban blocks, followed by selection of households in each of the selected blocks. For district headquarters and other towns, a three-stage sample design was used: selection of towns with PPS, followed by selection of two census blocks per selected town, followed by selection of households from each selected block. As in rural areas, a household listing was carried out in the selected blocks, and an average of 20 households per block was selected systematically.

Sample Weights

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 calculation of the design weights at the state level is described in each state report.

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[3] In some states, an alternative cut-off point of 300 or 500 households was used.

The state weights are defined below.

Let P_i be the projected population of the ith state[4]. Let P be the projected population for all India. Then the state weight is calculated as follows:

$$w_i = \frac{\dfrac{P_i}{P}}{\sum_i (\dfrac{P_i}{P})}, \quad i = 1, 2, \ldots, 25$$

Let N_{Hi} be the number of households with completed interviews in the ith state. Then ΣN_{Hi} is the total number of households with completed interviews in the NFHS. The normalized state weight for the households is calculated as follows:

$$W_{Hi} = \frac{N'_{Hi}}{N_{Hi}} = \frac{w_i \times \sum_i N_{Hi}}{N_{Hi}}$$

Similarly, the normalized state weight for women is calculated as follows:

$$W_{wi} = \frac{N'_{wi}}{N_{wi}} = \frac{w_i \times \sum_i N_{wi}}{N_{wi}}$$

where N_{wi} is the number of women with completed interviews in the ith state.

2.4   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 at IIPS. The *Interviewer's Manual* consists of instructions to the interviewers regarding interviewing techniques, field procedures, and instructions on the method of asking each question 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* was meant for household listing teams, and contains procedures to be adopted for household listing. The guidelines for the training of the field staff are described in the manual entitled *Training Guidelines*.

The representatives of each of the COs and the PRCs were trained in a series of Training of the 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. Persons who were trained in each workshop subsequently trained the field staff

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[4] The population was projected to November 1992, the midpoint of the fieldwork dates for all the states except Punjab.

in each state according to the standard procedures discussed in the Training of Trainers Workshops. In these workshops, detailed discussions were held on the objectives of the NFHS, 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.

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

Training of the entire field staff lasted for a minimum of 20 days in each state. The training course consisted of instruction in interviewing techniques and field procedures for the survey, a detailed review of each item in the questionnaire, instruction and practice in weighing and measuring children, mock interviews between participants in the classroom and practice interviews in the field. In addition 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.

Assignment of Primary Sampling Units (PSUs) to the teams and various logistical decisions were made by the staff of each CO, who were designated as coordinators. In most cases, each team was allowed a fixed period of time to complete fieldwork in a PSU before moving to the next PSU. 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 the problems were major, such as discrepancies between the birth history and the health section, the interviewers were required to revisit the respondent to correct the errors. If a return visit was not possible, the editor tried to establish, with the interviewer's assistance, the correct response. If either of these options was not possible, the editor designated the response as either "missing" or "inconsistent". 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 correctly.

The field supervisor collected information on the village using the Village Questionnaire. In addition, the field supervisor conducted spot-checks to verify the accuracy of information

collected on the eligibility of respondents. During the period of data collection, IIPS assigned one Research Officer to the survey in most states for ensuring the use of correct survey procedures and maintaining the quality of the data. Throughout the survey, the staff from the CO, the PRC, and IIPS maintained close contact with all the teams through direct communication and spot-checking. The objective was to provide support and advice to staff in the field and to enhance data quality and the efficiency of interviewers. This objective was accomplished by communicating data problems and possible solutions to the interviewing teams, reminding interviewers about proper probing techniques, and examining the work of the supervisors. In addition, data from the field were simultaneously entered into microcomputers, and field check tables were produced during the fieldwork to assess the quality of the data and to identify problem areas. These tables were discussed with the interviewing teams and supervisors during the fieldwork so that they could improve their performance if needed.

2.5 Field Problems

Every survey is subject to a variety of field problems that cannot be fully anticipated. Especially a survey like the NFHS, which was conducted in 25 different states of India with the coordination of more than 30 different organizations, can not be free of problems during the data collection. In some states the NFHS data collection went on smoothly without any significant problems. The major problems encountered in the NFHS in other states are highlighted below.

Transportation

All the data collection teams in most of the states were provided with vehicles in the field to visit the selected PSUs. However, teams in certain states, including Uttar Pradesh, Himachal Pradesh, Jammu, Assam, and other Northeastern states, experienced difficulty in reaching PSUs located in hilly regions due to the absence of proper approachable roads. These PSUs were covered by foot or by the use of local means of transportation.

Security of Teams

In many of the states covered during the second phase of data collection, fieldwork had to be suspended for about 15 days during the communal riots in December, 1992. In Uttar Pradesh, some selected PSUs had to be replaced because of the presence of dacoits (bandits) in a village within that PSU. In Madhya Pradesh, the good offices of some local saints popular in dacoit-infested areas in Chambal were utilized to complete the data collection in PSUs situated in this area.

Household Identification

In hilly regions and in Goa, houses are not as densely packed as in other parts of India, but are scattered throughout the village. Consequently good village maps were required to identify the sample households. Perhaps because of inadequate training, maps drawn during household listing in some states were not very satisfactory. Field teams were sometimes forced to abandon the map and take the help of knowledgeable local people to trace the sample households.

Drop-out of Members of Interviewing Teams

The drop-out of *ad hoc* staff recruited for the fieldwork is common to all surveys. In some states the NFHS experienced problems with the drop-out of members of interviewing teams in the middle of fieldwork for various reasons. To maintain the quality of data, field staff who dropped out were usually not replaced at any stage, because new recruits would require extensive training which would be difficult to provide, particularly at the later stages of data collection.

Temporary Absenteeism of Households

In a few states, noncontact with some households and eligible women for individual interviews was high in certain PSUs because of temporary absenteeism. These absent households and eligible women had to be revisited at a later date so as to keep the nonresponse to a minimum.

Unseasonal Rains

Due to unseasonal heavy rains, data collection was interrupted in a few states including Karnataka, Kerala, and the Northeastern states.

Funds

Fieldwork in some states was delayed because of delays in the receipt of funds by the interviewing teams.

2.6 Data Processing

All completed questionnaires for the NFHS were sent for data processing to the office of the concerned CO. This process consisted of office editing, coding, data entry, and machine editing. Although field editors examined the completed questionnaires in the field, the questionnaires were re-edited at the CO by specially trained office editors. The office editors checked all skip sequences, all circled response codes, and information recorded in the 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 the information on occupation, caste, and cause of death, and commonly mentioned "other" responses were added to the coding scheme. One supervisor and four data entry operators were typically responsible for data entry and computer editing operations. For each state, the data were processed with four 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, starting within one week of the receipt of the first set of completed questionnaires. All data entry and editing operations were 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 current age, age at first marriage, age of the woman when she started living with her husband, and the ages of all children were imputed for those cases in which information was missing or incorrect entries were detected.

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Preliminary reports with selected results were prepared for each state by the end of 1993 and presented to policymakers and programme administrators responsible for improving family welfare programmes. The NFHS report for each state was prepared by IIPS, in collaboration with the concerned PRCs and the East-West Center/Macro International, on the basis of the tabulation plan discussed at a workshop held at Vadodara in December, 1992. Each state-level report contains detailed information pertaining to that state on the survey design and implementation, household and respondent background characteristics, marriage patterns, fertility, family planning, fertility preferences, mortality, maternal and child health, infant feeding and child nutrition, village profile, and detailed findings on the state-specific questions, if any.

The preliminary findings of the NFHS relating to the country as a whole were published in October, 1994. The contents and tabulation plan for the detailed national report were decided in a workshop held at Bombay in September, 1994. Based on this tabulation plan, tables for this national report were prepared at IIPS.

2.7   Presentation of Survey Results

In this report, survey results are reported separately for urban areas, rural areas and total India. A comparison across the 25 states covered in the survey is also presented. For a better understanding of the state differentials, the states are grouped into six regions of the country (north, central, east, northeast, west, and south), but aggregate estimates are not shown for these regions. In the text, reference is sometimes made to "major states". In this report, the major states refer to the 17 states with a 1991 population of more than 5 million[5]. Although both usual residents and visitors were eligible for the individual interviews, the standard tables for women and children are based only on *de facto* women (those who slept in the household the night before the interview) to avoid double counting. All tables in the report are weighted according to the sample design except for Tables 2.1 and 2.2, which summarize the basic characteristics of sample households and eligible women.

2.8   Sample Implementation

Tables 2.1 and 2.2 show the month and year of fieldwork, the number of households and eligible women interviewed and the household and individual response rates. As noted earlier, the data collection for the NFHS was carried out in three phases. The first phase started in Andhra Pradesh in April, 1992 and the third phase was completed in all states except Punjab by June, 1993. The fieldwork in Punjab was completed in September, 1993. Because most of the data collection for the NFHS was done within the span of about one year, adjustments for the different timing of data collection in different states are not necessary for the all-India estimates of demographic and health parameters.

A total of 88,562 households were interviewed, two-thirds of which were rural. The overall household response rate -- the number of households interviewed per 100 occupied households -- is 96 percent. The household response rate is slightly lower in urban areas (94

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[5] The major states are Andhra Pradesh, Assam, Bihar, Delhi, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

Table 2.1 Number of households and women interviewed

Month and year of fieldwork, and number of households and women interviewed, by residence and state (unweighted), India, 1992-93

State	Month and year of fieldwork From	To	Number of households interviewed Urban	Rural	Total	Number of women interviewed Urban	Rural	Total
India	4/92	9/93	28822	59740	88562	27534	62243	89777
North								
Delhi	2/93	5/93	3377	300	3677	3189	268	3457
Haryana	1/93	4/93	1033	1702	2735	1002	1844	2846
Himachal Pradesh	6/92	10/92	1036	2083	3119	930	203	2962
Jammu Region of J & K	5/93	7/93	988	1851	2839	945	1821	2766
Punjab	7/93	9/93	937	2276	3213	836	2159	2995
Rajasthan	12/92	5/93	1103	3911	5014	1019	4192	5211
Central								
Madhya Pradesh	4/92	8/92	1459	4398	5857	1476	4778	6254
Uttar Pradesh	10/92	2/93	2315	7795	10110	2337	9101	11438
East								
Bihar	3/93	6/93	1088	3660	4748	1267	4682	5949
Orissa	3/93	6/93	1296	3306	4602	1143	3114	4257
West Bengal	4/92	7/92	1086	3152	4238	898	3424	4322
Northeast								
Arunachal Pradesh	5/93	6/93	144	817	961	130	752	882
Assam	12/92	3/93	1230	2025	3255	1107	1899	3006
Manipur	3/93	5/93	346	740	1086	307	646	953
Meghalaya	4/93	6/93	202	790	992	221	916	1137
Mizoram	5/93	6/93	561	526	1087	517	528	1045
Nagaland	5/93	6/93	228	832	1060	240	909	1149
Tripura	2/93	4/93	231	908	1139	221	879	1100
West								
Goa	12/92	2/93	1834	1907	3741	1559	1582	3141
Gujarat	2/93	6/93	1360	2515	3875	1344	2488	3832
Maharashtra	11/92	3/93	1754	2309	4063	1699	2407	4106
South								
Andhra Pradesh	4/92	7/92	1096	3112	4208	1116	3160	4276
Karnataka	11/92	2/93	1449	2820	4269	1442	2971	4413
Kerala	10/92	2/93	1220	3167	4387	1218	3114	4332
Tamil Nadu	4/92	7/92	1449	2838	4287	1371	2577	3948

Note: The table is based on the number of households with completed interviews and the number of *de facto* women with completed interviews.

percent) than in rural areas (96 percent). The household response rate ranged between 92 and 98 percent in every state except Arunachal Pradesh, where the household response rate was 88 percent. In all, interviews were completed with 89,777 eligible women who slept 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 household -- was 96 percent in both urban and rural areas. The individual response rate ranged from 91 percent in Arunachal Pradesh to nearly 100 percent in Nagaland. Most of the larger states had an individual response rate of more than 95 percent.

Table 2.2   Household and individual response rates

Household and individual response rates, by residence and state (unweighted), India, 1992-93

State	Household response rate			Individual response rate		
	Urban	Rural	Total	Urban	Rural	Total
India	94.4	96.1	95.6	96.2	96.0	96.1
North						
Delhi	96.7	98.0	96.8	98.1	98.2	98.1
Haryana	94.2	95.4	94.9	94.2	92.5	93.1
Himachal Pradesh	91.7	96.8	95.0	96.6	94.8	95.3
Jammu Region of J & K	96.2	97.0	96.7	93.1	93.2	93.2
Punjab	93.9	96.1	95.4	91.1	93.0	92.5
Rajasthan	94.8	95.1	95.0	97.2	94.3	94.8
Central						
Madhya Pradesh	91.5	94.7	93.9	95.4	95.8	95.7
Uttar Pradesh	95.7	97.8	97.3	97.1	97.5	97.4
East						
Bihar	93.9	96.0	95.5	96.6	98.3	97.9
Orissa	93.6	96.9	95.9	94.6	96.1	95.7
West Bengal	92.6	97.3	96.0	93.2	97.0	96.2
Northeast						
Arunachal Pradesh	88.3	88.2	88.2	97.7	89.7	90.8
Assam	94.1	96.4	95.5	98.0	97.3	97.5
Manipur	97.7	95.4	96.1	95.0	94.9	94.9
Meghalaya	96.7	93.6	94.2	98.7	99.2	99.1
Mizoram	92.6	93.6	93.1	94.5	98.5	96.5
Nagaland	100.0	96.9	97.5	100.0	99.9	99.9
Tripura	96.3	91.0	92.0	97.8	94.5	95.2
West						
Goa	97.5	96.6	97.0	97.9	95.6	96.7
Gujarat	92.5	95.8	94.7	97.5	96.7	97.0
Maharashtra	89.9	96.4	93.5	94.5	94.5	94.5
South						
Andhra Pradesh	93.4	95.6	95.0	97.5	96.0	96.3
Karnataka	94.0	96.5	95.6	94.6	95.5	95.2
Kerala	97.1	97.5	97.4	96.7	96.1	96.3
Tamil Nadu	95.6	96.4	96.1	97.2	97.9	97.7

Note: The household response rate is defined as the number of households interviewed per 100 occupied households. The individual response rate is defined as the number of eligible women interviewed per 100 eligible women identified in the selected households.

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CHAPTER 3

HOUSEHOLD AND RESPONDENT BACKGROUND CHARACTERISTICS

This chapter presents a profile of the demographic and socioeconomic characteristics of households and individual respondents in the NFHS for all India as well as for the 25 states covered in the survey. After examining the age-sex distribution, marital status, literacy and educational attainment of the household population, the household composition and housing characteristics, the chapter discusses the characteristics of the primary respondents in the survey (ever-married women age 13-49). Information on the household population, household composition, and housing characteristics was collected in the NFHS Household Questionnaire, and information on eligible women was collected in the NFHS Woman's Questionnaire. The chapter also includes some comparisons of the NFHS results with the results of the 1991 Census and the Sample Registration System (SRS).

All usual residents of each sample household, plus all visitors who slept in that household the night before the interview, were listed in the Household Questionnaire. Some basic information was collected on each person listed including age, sex, marital status, and education. In addition, information was collected for each person on whether the person is a usual resident of the household or a visitor, and whether the person slept in the household the night prior to the survey interview. Based on this information, the NFHS household population can be defined in two ways: *de facto* or *de jure*. The *de facto* population refers to all usual residents and visitors who slept in the sample household the night prior to the survey interview, and the *de jure* population refers to all usual residents of the sample household including those who did not sleep in the household the night prior to the survey interview. The *de facto* and *de jure* populations may differ because of temporary population movements. Tables in this and the following chapters are based on the *de facto* sample, unless otherwise specified. It is expected that the *de facto* sample is more representative of women in the country as a whole because it includes all women wherever they were staying the night before the survey. A *de jure* sample, on the other hand, would miss usual residents who were temporarily staying elsewhere at the time of the survey.

Table 3.1 presents the percentage distributions of the *de facto* and *de jure* populations, according to their residence status in the household. The information is provided separately for males and females by age and place of residence. In the sample households, fewer males are visitors (3 percent) than usual residents temporarily absent (5 percent). Some of this difference may reflect the prevalence of temporary labour migration outside of India, as well as the tendency of men to stay temporarily in group living quarters within India (such as military barracks, hostels and hotels, which are not included in the survey). Almost the same proportion (6 percent) of females are visitors or usual residents temporarily absent. Visiting (in both the *de facto* and *de jure* populations) is more common among women in the prime childbearing ages (15-29) and among young children. This pattern is likely to result from the common practice of women returning to their parents' house to give birth (particularly for the first delivery), where they typically remain throughout the postpartum period. Thus, the survey estimates would be biased if they were based on only the usual residents of the sample households who were present at the time of the survey, because they would not fully represent the underlying population. Fertility would be particularly affected because visiting is more common among

Table 3.1 Usual residents and visitors

Percent distribution of the *de facto* and *de jure* household populations by resident status in the household according to age, residence and sex, India, 1992-93

Characteristic	*De facto* household population				*De jure* household population			
	Usual resident	Visitor	Total percent	Number	Usual resident present	Usual resident absent	Total percent	Number
MALE								
Age								
< 1	87.8	12.2	100.0	6645	90.2	9.8	100.0	6467
1 - 4	92.7	7.3	100.0	25021	92.9	7.1	100.0	24966
5 -14	97.3	2.7	100.0	65780	96.6	3.4	100.0	66222
15-19	97.6	2.4	100.0	24954	95.5	4.5	100.0	25515
20-24	96.7	3.3	100.0	21414	93.1	6.9	100.0	22234
25-29	96.2	3.8	100.0	19838	93.3	6.7	100.0	20439
30-34	96.8	3.2	100.0	16204	94.0	6.0	100.0	16680
35-39	97.4	2.6	100.0	15542	94.8	5.2	100.0	15969
40-44	97.8	2.2	100.0	11910	95.1	4.9	100.0	12248
45-49	98.1	1.9	100.0	10206	95.3	4.7	100.0	10509
50+	98.5	1.5	100.0	35313	96.1	3.9	100.0	36188
Residence								
Urban	96.7	3.3	100.0	67822	95.6	4.4	100.0	68595
Rural	96.7	3.3	100.0	185005	94.7	5.3	100.0	188842
Total	96.7	3.3	100.0	252827	94.9	5.1	100.0	257437
FEMALE								
Age								
< 1	87.3	12.7	100.0	6541	90.8	9.2	100.0	6285
1 - 4	92.0	8.0	100.0	23497	92.2	7.8	100.0	23453
5 -14	96.6	3.4	100.0	60726	96.0	4.0	100.0	61035
15-19	90.0	10.0	100.0	25891	91.9	8.1	100.0	24316
20-24	87.8	12.2	100.0	23780	88.7	11.3	100.0	23182
25-29	91.8	8.2	100.0	19724	91.1	8.9	100.0	20500
30-34	95.7	4.3	100.0	15930	93.8	6.2	100.0	16214
35-39	97.2	2.8	100.0	13467	95.5	4.5	100.0	14144
40-44	97.6	2.4	100.0	10575	95.4	4.6	100.0	10718
45-49	97.9	2.1	100.0	8735	94.8	5.2	100.0	9554
50+	97.0	3.0	100.0	33105	95.4	4.6	100.0	33654
Residence								
Urban	94.4	5.6	100.0	63225	94.0	6.0	100.0	63456
Rural	94.0	6.0	100.0	178745	93.5	6.5	100.0	179599
Total	94.1	5.9	100.0	241970	93.6	6.4	100.0	243055
TOTAL								
Age								
< 1	87.6	12.4	100.0	13186	90.5	9.5	100.0	12752
1 - 4	92.4	7.6	100.0	48518	92.5	7.5	100.0	48419
5 -14	97.0	3.0	100.0	126506	96.3	3.7	100.0	127257
15-19	93.8	6.2	100.0	50845	93.7	6.3	100.0	49830
20-24	92.0	8.0	100.0	45194	90.8	9.2	100.0	45415
25-29	94.0	6.0	100.0	39562	92.2	7.8	100.0	40939
30-34	96.3	3.7	100.0	32135	93.9	6.1	100.0	32894
35-39	97.3	2.7	100.0	29008	95.1	4.9	100.0	30113
40-44	97.7	2.3	100.0	22485	95.2	4.8	100.0	22966
45-49	98.0	2.0	100.0	18941	95.0	5.0	100.0	20063
50+	97.8	2.2	100.0	68418	95.8	4.2	100.0	69843
Residence								
Urban	95.6	4.4	100.0	131047	94.9	5.1	100.0	132051
Rural	95.3	4.7	100.0	363750	94.1	5.9	100.0	368441
Total	95.4	4.6	100.0	494797	94.3	5.7	100.0	500492

Note: Table excludes persons with missing information on sex.

children and women in the prime reproductive ages.

3.1 Age-Sex Distribution of the Household Population

Table 3.2 shows the *de facto* population in the NFHS household sample, classified by age, sex and residence. The total *de facto* sample population is 494,939 and the sample is 26 percent urban. The proportion urban in the NFHS sample is the same as that observed for all India in the 1991 Census (see Table 1.1).

The age distribution is typical of populations with moderately high fertility, with a high proportion of the population in the younger age groups. Thirty-eight percent of the population is below 15 years of age and 8 percent is age 60 or more. The NFHS child population (below age 15) is proportionately larger in rural areas (39 percent) than in urban areas (35 percent), which is consistent with the higher levels of fertility in rural areas.

Age reporting in developing countries is typically prone to errors due to age misstatements and preferences for ages ending in particular digits. An examination of the single-year age distributions from the NFHS (see Appendix Table D.1 and Figure 3.1) indicates distortions of the data due to misreporting of age and preference for particular digits. One of

Table 3.2 Household population by age and sex

Percent distribution of the *de facto* household population by age, according to sex and residence, India, 1992-93

Age	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
< 1	2.2	2.4	2.3	2.8	2.8	2.8	2.6	2.7	2.7
1 - 4	8.4	8.5	8.5	10.4	10.1	10.3	9.9	9.7	9.8
5 - 9	12.1	11.7	11.9	14.3	13.7	14.0	13.7	13.2	13.4
10-14	11.9	11.8	11.8	12.5	11.9	12.2	12.3	11.9	12.1
15-19	10.1	10.9	10.5	9.8	10.6	10.2	9.9	10.7	10.3
20-24	9.6	10.4	10.0	8.1	9.6	8.8	8.5	9.8	9.1
25-29	8.6	8.7	8.6	7.6	8.0	7.8	7.8	8.1	8.0
30-34	7.3	7.3	7.3	6.1	6.3	6.2	6.4	6.6	6.5
35-39	6.8	6.3	6.6	5.9	5.3	5.6	6.1	5.6	5.9
40-44	5.5	5.0	5.2	4.4	4.2	4.3	4.7	4.4	4.5
45-49	4.6	3.7	4.2	3.8	3.6	3.7	4.0	3.6	3.8
50-54	3.6	3.0	3.3	3.1	2.8	3.0	3.3	2.9	3.1
55-59	2.8	3.2	3.0	2.7	3.5	3.1	2.7	3.4	3.1
60-64	2.4	2.8	2.6	3.1	3.0	3.1	2.9	3.0	2.9
65-69	1.7	1.7	1.7	2.1	1.8	2.0	2.0	1.8	1.9
70-74	1.3	1.2	1.3	1.7	1.4	1.6	1.6	1.3	1.5
75-79	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
80+	0.7	0.7	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	67833	63251	131083	185052	178804	363856	252885	242055	494939
Sex ratio[1]	NA	NA	932	NA	NA	966	NA	NA	957

NA: Not applicable
[1]Sex ratio is the number of females per 1,000 males.

Figure 3.1
Number of Persons Reported at Each Age
by Sex

Number of Persons (Thousands)

Age

✳ Male — Female
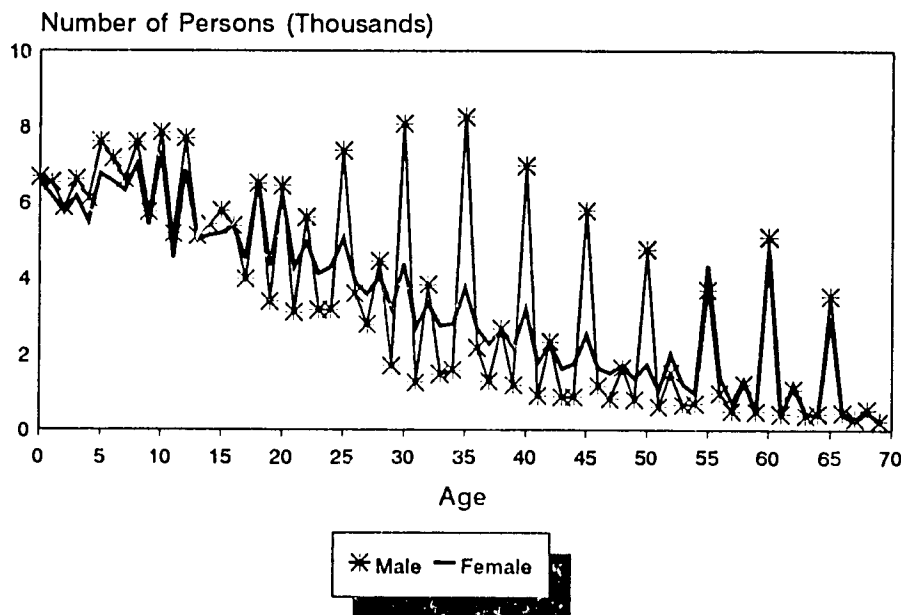
NFHS, India, 1992-93

the most commonly used measures of digit preference in age reporting is the Myers' Index (United Nations, 1955). This index provides an overall summary measure of preferences for, or avoidance of, each of the ten digits, from 0 to 9. Myers' Indices computed from the survey population are 48.4 and 20.2 for males and females, respectively. The corresponding indices for males and females from the 1981 Census are 64.5 and 68.0, respectively (Office of the Registrar General and Census Commissioner, 1984c). Although the method of collecting information on the age of household members was almost the same in the Census and the NFHS, age reporting in the NFHS seems to be considerably better, particularly for females. In the NFHS, as in the Census, the interviewer collected information on the age of household members from the head of the household or any responsible adult household member. Myers' Indices for males and females in the NFHS indicate that age reporting is much better for females than for males. Figure 3.1 also indicates that the age distribution is smoother for women in the age group 13-49 than for other females.

The better age reporting for females in the age group 13-49 in the NFHS is mainly due to the difference in the method of collecting age information for males and females in the reproductive ages. In the Household Questionnaire, the ages of all males and females are reported by the head of the household or another household respondent. No extensive probing techniques were adopted for obtaining age information in the household listing. For eligible women, who were interviewed using the Woman's Questionnaire, the age reported by the woman herself replaces the age reported in the Household Questionnaire if there is a discrepancy. Her age in the Woman's Questionnaire is based on month and year of her birth,

if known, or on her reported age otherwise. A variety of probing techniques were used to elicit accurate age information from the respondent to the Woman's Questionnaire.

The age of the woman is one of the most important items of information collected in any demographic survey, because many demographic statistics, and especially fertility estimates, depend on accurate reporting of women's ages. Recognizing the difficulties of obtaining accurate age data in India, the NFHS made special efforts to minimize age reporting errors. The training of interviewers placed great emphasis on procedures for obtaining as accurate information as possible on women's ages. For women who did not know their age or date of birth (74 percent of ever-married women age 13-49 in the NFHS sample did not know either the month or the year of their birth, see Table D.3 in Appendix D), several procedures for probing age were used. One method was based on the age of the woman at different significant events in her life, such as the birth of her first child, her age at marriage, her age at menarche, and on the time gap between these events. Reference calendars were also used to try to locate the woman's birth in relation to the dates of major national or local events. Although age errors cannot be totally eliminated, the comparisons with the Census suggest that probing and other elaborate measures used for arriving at the age of the eligible women have helped in reducing the biases in age reporting due to digit preference.

The distribution by five-year age groups is shown in the population pyramid in Figure 3.2. The irregular dip in the proportion of women at age 50-54 is indicative of a possible shifting of women's ages from the 50-54 age group to the 45-49 and 55-59 age groups. This is unusual, because in Demographic and Health Surveys there is usually a slight tendency to increase the age of women from age group 45-49 to 50-54, presumably to move women out of the eligible age range and reduce the workload of the interviewer (Rutstein and Bicego, 1990). Perhaps interviewers in the NFHS were overcompensating because of warnings that questionnaires would be carefully scrutinized for this kind of bias. However, the impact of the apparent shifting on the quality of data on fertility and contraception is minimal because of the small number of older women involved.

Table 3.3 compares the age distributions by sex and residence from the NFHS *de jure* sample with the 1992 Sample Registration System. By and large, the age distributions by sex are quite similar for the 1992 SRS and the NFHS. Only 5 percent of males and 4 percent of females would have to be placed in a different age group for the two age distributions to be identical. Table 3.3 also provides information on sex ratios by age for the NFHS. No sex ratios by age can be computed from the SRS published results because only percent age distributions for the sample registration areas are given and information is not available on absolute numbers of population.

The sex ratio (number of females per 1,000 males) is an important measure that indicates the balance of the sexes in the population. The *de facto* population sex ratio, as shown in Table 3.2, is 932 in urban areas, 966 in rural areas and 957 for the country as a whole. Roughly comparable figures from the 1991 Census are 894 for urban areas, 939 for rural areas and 927 for the country as a whole (Office of the Registrar General and Census Commissioner, 1992). The sex ratios are consistently higher in the NFHS. The discrepancy between the two sources is 4 percentage points (38 per 1,000) in urban areas and 3 percentage points (27 per 1,000) in rural areas. The population sex ratio is 944 in the NFHS *de jure* sample, 925 in urban areas

Figure 3.2
Population Pyramid of India
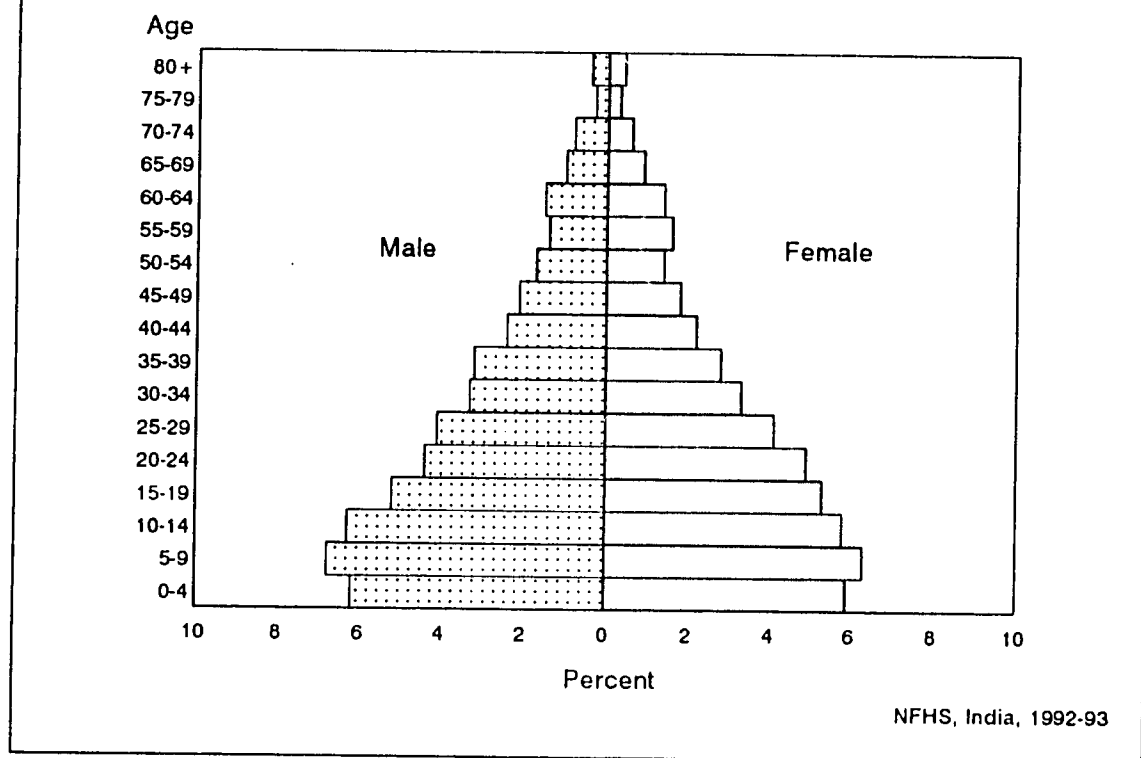
and 951 in rural areas (Table 3.3). The NFHS *de jure* sex ratio is higher than the Census value by 2 percentage points (17 per 1,000) and the NFHS *de facto* sex ratio is higher than the Census value by 3 percentage points (30 per 1,000). Since the 1991 Census and the NFHS were conducted only about a year apart, the sex ratios from the two sources should be about the same. Possible reasons for the differences observed are discussed below.

Table 3.4 compares the sex ratios of the *de jure* population computed from the NFHS and the 1991 Census population for India as well as the states covered in the survey. The states vary considerably with regard to the sex ratio. Tamil Nadu has a balanced sex ratio of 1,000, and the sex ratio is more favourable to females only in Himachal Pradesh (1,070), Kerala (1,068) and Goa (1,019). The sex ratio is lowest in Delhi (824), followed by Rajasthan (880) and Haryana (888).

The overall sex ratio from the NFHS is the same as the 1991 Census value for Meghalaya, 1-3 percentage points lower than the 1991 Census value for Orissa, Rajasthan, and Madhya Pradesh, and higher than the Census value for the remaining states (by less than one percentage point in Andhra Pradesh to more than 11 percentage points in Arunachal Pradesh). It should be noted that in both the NFHS and the 1991 Census, Kerala and Himachal Pradesh have the highest sex ratio and Delhi has the lowest sex ratio. These extreme values are probably due to the selective out-migration of males from Kerala and Himachal Pradesh and the selective in-migration of males to Delhi. Sampling error in the NFHS does not account for the observed difference in sex ratios between the two sources, because the NFHS sample is fairly large. In

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Table 3.3 Population by age and sex from the NFHS and SRS

Percent distribution of the *de jure* population by age and sex from NFHS and Sample Registration System (SRS), India, 1992-93

Age	NFHS (1992-93) Male	NFHS (1992-93) Female	NFHS (1992-93) Sex ratio	SRS (1992) Male	SRS (1992) Female
URBAN					
0 - 4	10.4	10.7	952	11.1	11.3
5 - 9	11.9	11.8	914	11.2	11.2
10-14	11.8	11.7	917	10.6	10.6
15-19	10.1	10.5	960	10.3	10.2
20-24	9.6	10.1	975	9.9	10.7
25-29	8.5	8.9	967	9.1	9.2
30-34	7.3	7.3	931	8.2	7.9
35-39	6.9	6.6	886	6.9	6.5
40-44	5.6	4.9	815	5.7	5.4
45-49	4.7	4.0	802	4.7	4.4
50-54	3.6	3.1	793	3.9	3.5
55-59	2.9	3.2	1040	2.9	2.9
60-64	2.4	2.8	1058	2.1	2.2
65-69	1.7	1.7	937	1.4	1.7
70+	2.5	2.5	914	1.8	2.3
Total	100.0	100.0	925	100.0	100.0
Median age	22.7	22.3	NA	U	U
RURAL					
0 - 4	12.9	12.8	944	13.8	13.5
5 - 9	14.0	13.7	930	12.1	11.9
10-14	12.4	12.0	917	11.4	11.1
15-19	9.8	9.8	950	11.0	10.2
20-24	8.3	9.3	1071	9.6	9.7
25-29	7.7	8.3	1017	7.7	7.8
30-34	6.2	6.4	990	6.7	6.8
35-39	6.0	5.5	886	5.8	5.9
40-44	4.5	4.2	902	4.9	5.0
45-49	3.9	3.9	956	4.3	4.5
50-54	3.2	2.9	864	3.6	3.7
55-59	2.7	3.5	1253	3.2	3.2
60-64	3.1	3.0	922	2.3	2.4
65-69	2.1	1.8	826	1.8	2.0
70+	3.3	2.7	791	2.0	2.3
Total	100.0	100.0	951	100.0	100.0
Median age	20.3	20.6	NA	U	U
TOTAL					
0 - 4	12.2	12.2	946	13.2	13.0
5 - 9	13.5	13.2	926	11.9	11.8
10-14	12.2	11.9	917	11.2	11.0
15-19	9.9	10.0	953	10.9	10.2
20-24	8.6	9.5	1043	9.7	9.9
25-29	7.9	8.4	1003	8.1	8.1
30-34	6.5	6.7	972	7.0	7.1
35-39	6.2	5.8	882	6.0	6.1
40-44	4.8	4.4	875	5.0	5.0
45-49	4.1	3.9	909	4.4	4.5
50-54	3.3	2.9	844	3.7	3.7
55-59	2.7	3.5	1193	3.1	3.1
60-64	2.9	3.0	952	2.2	2.3
65-69	2.0	1.8	851	1.7	1.9
70+	3.1	2.7	818	1.9	2.3
Total	100.0	100.0	944	100.0	100.0
Median age	20.8	20.9	NA	U	U

NA: Not applicable
U: Not available
Source for SRS: Office of the Registrar General (1994)

Table 3.4 Sex ratio

Sex ratio of the *de jure* NFHS household population and the 1991 Census population, by residence and state, India, 1991-93

State	NFHS (1992-93)			Census (1991)		
	Urban	Rural	Total	Urban	Rural	Total
India	925	951	944	894	939	927
North						
Delhi	828	763	824	830	807	808
Haryana	895	886	888	868	864	865
Himachal Pradesh	945	1084	1070	831	990	976
Jammu Region of J & K	965	983	980	U	U	U
Punjab	927	906	912	868	888	882
Rajasthan	885	879	880	879	919	910
Central						
Madhya Pradesh	923	901	906	893	943	931
Uttar Pradesh	903	921	917	860	884	879
East						
Bihar	893	968	956	844	921	911
Orissa	907	974	963	866	988	971
West Bengal	876	969	940	858	940	917
Northeast						
Arunachal Pradesh	920	980	973	728	880	859
Assam	899	953	947	838	934	923
Manipur	999	981	987	975	951	958
Meghalaya	976	949	955	910	966	955
Mizoram	983	989	986	932	912	921
Nagaland	1007	987	991	749	917	886
Tripura	997	988	989	958	942	945
West						
Goa	1000	1035	1019	930	993	967
Gujarat	912	962	944	907	949	934
Maharashtra	937	988	966	875	972	934
South						
Andhra Pradesh	969	983	979	959	977	972
Karnataka	968	971	970	930	973	960
Kerala	1070	1067	1068	1034	1037	1036
Tamil Nadu	996	1001	1000	960	981	974

Note: Sex ratio is the number of females per 1,000 males.
U: Not available
Source for Census: Office of the Registrar General and Census Commissioner (1992)

fact, the sampling error for the *de facto* sex ratio from the NFHS is only 3.1, yielding a confidence interval of 951-963 (see Table C.2 in Appendix C). Even the lowest value in this range is considerably higher than the Census values. Moreover, both urban and rural sex ratios are higher in the NFHS than in the 1991 Census, suggesting a systematic rather than a random pattern of differences.

The observed differences in the sex ratios between the census and the NFHS in most states can be partly attributed to differences in the two data sources. One difference between the two sources of data is the population coverage. The census includes institutional and homeless persons, who are overwhelmingly male, whereas the NFHS excludes such persons. Aside from the difference in the coverage, the discrepancies in population sex ratios between the

NFHS and the 1991 Census could have occurred if the NFHS missed males more than females, or if the census missed females more than males, or if both occurred. It seems highly unlikely that the NFHS missed more males than females because the underenumeration of females is typically more common in India. Moreover, training and supervision of interviewers was much more thorough in the NFHS than in the census. Therefore, the most likely source of the discrepancy in the estimated sex ratio is relative underenumeration of females in the 1991 Census, a possibility that has been mentioned by Premi (1991), among others. According to post-enumeration checks, Indian censuses have consistently underenumerated females more than males, although the gap has been closing with each successive census. Because of the possible relative underenumeration of females in the 1991 Census, the difference in sex ratio estimates should not be taken as evidence that the NFHS is unrepresentative of the underlying population, especially since other comparisons generally indicate reasonable agreement between the 1992-93 NFHS and other sources of data.

3.2 Marital Status

The NFHS gathered information on the marital status of all household members age 6 years and over. Table 3.5 shows the marital status distribution of the *de facto* household population by age and sex according to residence. Among females age 6 or more years, 54 percent are currently married and 37 percent have never been married. The percentage never married is higher for males (48 percent) than for females. The percentage of females never married is lower in rural areas (35 percent) than in urban areas (39 percent). Percentages currently divorced and separated are small, regardless of age, sex, or type of place of residence. The percentage widowed is also quite small except in the older ages. Forty-seven percent of women age 60-64, one-half of women age 65-69, and three-quarters of women age 70 or over are widows. The corresponding percentages among males are 12, 13 and 25, respectively. The higher percentage of older women than men who are widowed reflects sex differentials in age at marriage, longevity, and remarriage rates.

Of interest from the point of view of fertility trends is the proportion of persons (especially females) who marry young. Marriage is rare for either males or females under age 15. At age 15-19, 7 percent of males and 39 percent of females have married. By age 25-29, marriage is nearly universal for females and the proportion of males ever married reaches 76 percent. Overall, women marry at much younger ages than men, and both men and women marry at much younger ages in rural areas than in urban areas. Nearly one-quarter of women in their childbearing years (age 15-49) are not currently married. This is one of the major factors that has depressed the level of fertility in India. A more detailed discussion of marriage patterns is contained in the next chapter, which is devoted entirely to the topic of nuptiality.

3.3 Household Composition

Table 3.6 shows the percent distribution of households by various characteristics of the household head (sex, age, marital status, religion and caste/tribe), as well as the number of usual household members. Ninety-one percent of household heads are male, and proportionately slightly more female headed households are found in urban than in rural areas. The median age of household heads is one year younger in urban areas (44 years) than in rural areas (45 years). There is a greater concentration of household heads in the age group 30-49 in urban areas (54

Table 3.5 Marital status of the household population

Percent distribution of the *de facto* household population age 6 and above by marital status, according to age, sex and residence, India, 1992-93

Age	Never married	Currently married	Widowed	Divorced	Separated	DK/ missing	Total percent
			URBAN **Male**				
6 - 9	99.1	0.3	0.2	--	0.1	0.3	100.0
10-12	99.5	0.2	0.1	--	0.1	0.1	100.0
13-14	99.6	0.2	0.1	--	0.1	--	100.0
15-19	97.3	2.5	0.1	--	0.1	--	100.0
20-24	75.1	24.1	0.3	0.2	0.4	--	100.0
25-29	35.0	63.9	0.4	0.2	0.5	--	100.0
30-34	10.4	88.2	0.6	0.2	0.5	--	100.0
35-39	4.5	94.3	0.8	0.1	0.4	--	100.0
40-44	2.5	96.0	0.9	0.2	0.4	--	100.0
45-49	1.8	96.1	1.6	0.2	0.4	--	100.0
50-54	1.2	93.5	4.8	0.1	0.3	--	100.0
55-59	1.2	92.3	6.3	0.1	0.1	--	100.0
60-64	1.8	87.9	9.3	0.3	0.7	--	100.0
65-69	1.8	85.9	11.4	0.1	0.8	--	100.0
70+	2.6	73.6	23.1	0.2	0.4	--	100.0
6+	49.3	48.3	1.9	0.1	0.3	--	100.0
15-49	40.7	58.3	0.6	0.1	0.4	--	100.0
			Female				
6 - 9	99.1	0.4	0.1	--	0.1	0.3	100.0
10-12	99.4	0.3	0.1	--	--	0.1	100.0
13-14	97.9	2.1	--	--	--	--	100.0
15-19	78.3	21.1	0.1	0.2	0.3	--	100.0
20-24	31.8	66.3	0.5	0.2	1.2	--	100.0
25-29	9.1	87.9	1.4	0.4	1.3	--	100.0
30-34	3.2	91.7	2.8	0.6	1.7	--	100.0
35-39	1.8	92.4	4.7	0.2	1.0	--	100.0
40-44	1.9	88.4	8.2	0.3	1.3	--	100.0
45-49	1.4	83.6	13.7	0.3	1.1	--	100.0
50-54	0.9	75.1	22.7	0.3	1.0	--	100.0
55-59	0.7	65.8	32.0	0.4	1.1	--	100.0
60-64	0.9	47.6	50.1	0.3	1.0	0.1	100.0
65-69	1.3	43.8	54.3	0.3	0.3	--	100.0
70+	1.7	19.7	77.6	0.5	0.7	0.1	100.0
6+	39.4	50.8	8.8	0.2	0.8	0.1	100.0
15-49	25.1	70.5	3.1	0.3	1.1	--	100.0
			RURAL **Male**				
6 - 9	99.1	0.3	0.1	--	0.1	0.4	100.0
10-12	99.2	0.5	0.1	--	0.1	0.1	100.0
13-14	98.7	1.1	--	--	0.1	--	100.0
15-19	91.8	7.8	0.1	0.1	0.1	0.1	100.0
20-24	56.2	42.6	0.5	0.2	0.5	--	100.0
25-29	19.7	78.8	0.7	0.1	0.6	--	100.0
30-34	6.1	92.0	1.0	0.2	0.6	0.1	100.0
35-39	2.6	94.8	1.7	0.2	0.6	--	100.0
40-44	1.9	95.0	2.4	0.1	0.6	--	100.0
45-49	1.4	94.5	3.4	0.1	0.6	--	100.0
50-54	1.5	91.7	6.1	0.1	0.6	--	100.0
55-59	1.7	89.4	8.2	0.2	0.5	--	100.0
60-64	1.8	85.3	12.2	0.1	0.5	0.1	100.0
65-69	1.8	83.4	14.0	0.2	0.6	--	100.0
70+	1.6	71.9	25.9	0.2	0.4	--	100.0
6+	47.0	49.5	2.9	0.1	0.4	0.1	100.0
15-49	34.3	63.9	1.1	0.1	0.5	--	100.0

Table 3.5 Marital status of the household population (Contd.)

Percent distribution of the *de facto* household population age 6 and above by marital status, according to age, sex and residence, India, 1992-93

Age	Marital status						
	Never married	Currently married	Widowed	Divorced	Separated	DK/ missing	Total percent
			RURAL **Female**				
6 - 9	98.8	0.4	0.3	--	0.1	0.3	100.0
10-12	98.8	0.9	0.1	--	0.1	0.1	100.0
13-14	93.8	6.1	--	--	0.1	--	100.0
15-19	54.6	44.4	0.2	0.1	0.7	--	100.0
20-24	13.2	84.5	0.8	0.2	1.2	--	100.0
25-29	2.9	93.5	1.6	0.3	1.6	--	100.0
30-34	1.3	93.5	3.2	0.5	1.6	--	100.0
35-39	0.7	92.2	5.3	0.3	1.6	--	100.0
40-44	0.6	88.9	8.6	0.2	1.7	--	100.0
45-49	0.5	86.4	11.6	0.3	1.2	--	100.0
50-54	0.5	76.8	21.4	0.2	1.0	0.1	100.0
55-59	0.3	72.1	26.4	0.2	1.0	0.1	100.0
60-64	0.6	52.5	45.9	0.2	0.5	0.2	100.0
65-69	0.6	47.6	50.8	0.2	0.6	0.2	100.0
70+	0.6	22.6	75.9	0.4	0.5	--	100.0
6+	35.4	54.6	8.8	0.2	0.9	0.1	100.0
15-49	15.7	79.6	3.1	0.3	1.3	--	100.0
			TOTAL **Male**				
6 - 9	99.1	0.3	0.1	--	0.1	0.3	100.0
10-12	99.3	0.4	0.1	--	0.1	0.1	100.0
13-14	99.0	0.8	--	--	0.1	--	100.0
15-19	93.3	6.3	0.1	0.1	0.1	0.1	100.0
20-24	61.9	37.0	0.4	0.2	0.4	--	100.0
25-29	24.2	74.4	0.6	0.1	0.6	--	100.0
30-34	7.4	90.9	0.9	0.2	0.6	0.1	100.0
35-39	3.1	94.6	1.4	0.2	0.6	--	100.0
40-44	2.0	95.3	1.9	0.1	0.5	--	100.0
45-49	1.5	95.0	2.9	0.1	0.5	--	100.0
50-54	1.4	92.2	5.7	0.1	0.5	--	100.0
55-59	1.6	90.2	7.7	0.2	0.4	--	100.0
60-64	1.8	85.9	11.6	0.2	0.5	0.1	100.0
65-69	1.8	84.0	13.4	0.1	0.6	--	100.0
70+	1.8	72.3	25.3	0.2	0.4	--	100.0
6+	47.6	49.2	2.7	0.1	0.4	0.1	100.0
15-49	36.2	62.2	0.9	0.1	0.4	--	100.0
			Female				
6 - 9	98.9	0.4	0.2	--	0.1	0.3	100.0
10-12	99.0	0.7	0.1	--	--	0.1	100.0
13-14	94.9	5.0	--	--	--	--	100.0
15-19	60.9	38.2	0.2	0.1	0.6	--	100.0
20-24	18.3	79.5	0.7	0.2	1.2	--	100.0
25-29	4.6	91.9	1.6	0.3	1.5	--	100.0
30-34	1.8	93.0	3.1	0.5	1.6	--	100.0
35-39	1.0	92.2	5.1	0.3	1.4	--	100.0
40-44	0.9	88.8	8.5	0.2	1.6	--	100.0
45-49	0.8	85.6	12.2	0.3	1.2	--	100.0
50-54	0.6	76.3	21.8	0.3	1.0	--	100.0
55-59	0.4	70.5	27.8	0.3	1.0	0.1	100.0
60-64	0.7	51.3	46.9	0.2	0.6	0.2	100.0
65-69	0.8	46.6	51.7	0.2	0.5	0.2	100.0
70+	0.7	21.9	76.3	0.4	0.6	0.1	100.0
6+	36.5	53.6	8.8	0.2	0.9	0.1	100.0
15-49	18.3	77.1	3.1	0.3	1.2	--	100.0

DK: Don't know
-- Less than 0.05 percent

Table 3.6   Household composition

Percent distribution of households by selected characteristics of household head and household size, according to residence, India, 1992-93

Characteristic	Residence		
	Urban	Rural	Total
Sex of household head			
Male	90.4	90.9	90.8
Female	9.6	9.1	9.2
Age of household head			
< 20	0.3	0.7	0.6
20-24	2.6	3.1	2.9
25-29	7.5	8.5	8.3
30-34	11.8	11.2	11.4
35-39	14.9	13.9	14.2
40-44	14.1	12.0	12.5
45-49	12.7	11.1	11.6
50-54	10.4	9.3	9.6
55-59	8.4	7.9	8.0
60+	17.2	22.3	20.9
Median age	44.2	45.1	45.0
Marital status of household head			
Never married	2.6	2.1	2.3
Currently married	86.9	86.5	86.6
Widowed	9.6	10.4	10.1
Divorced	0.2	0.2	0.2
Separated	0.7	0.8	0.8
Religion of household head			
Hindu	76.7	84.5	82.3
Muslim	15.4	9.9	11.4
Christian	3.2	2.5	2.7
Sikh	1.8	1.9	1.8
Jain	1.3	0.2	0.5
Buddhist	1.3	0.7	0.8
Other	0.3	0.5	0.4
Caste/tribe of household head			
Scheduled caste	9.1	13.9	12.6
Scheduled tribe	3.3	11.3	9.1
Other	87.6	74.8	78.3
Number of usual members			
1	3.3	2.6	2.8
2	7.1	7.3	7.2
3	11.3	10.3	10.5
4	18.6	15.1	16.1
5	18.7	17.9	18.2
6	14.7	15.5	15.3
7	9.8	11.1	10.7
8	6.1	7.0	6.8
9+	10.4	13.2	12.4
Mean size	5.4	5.7	5.7
Total percent	100.0	100.0	100.0
Number of households	24424	64138	88562

percent) than in rural areas (48 percent). On the other hand, the proportion of household heads age 60 and above is higher in rural areas (22 percent) than in urban areas (17 percent). This pattern may reflect underlying differences in household composition, for example, whether the oldest generation is present in the household. As shown earlier, rural areas have a slightly higher proportion of old age population than urban areas, especially for males (Table 3.2). Eighty-seven percent of household heads are currently married, regardless of place of residence. Only 2 percent of the household heads have never been married and 11 percent of the household heads are widowed, divorced or separated.

Table 3.6 also shows that 82 percent of household heads are Hindus, 11 percent are Muslims, and another 3 percent are Christians. Sikhs constitute 2 percent of household heads and Jains, Buddhists and others constitute less than 1 percent each. The religious composition of the household heads in the NFHS is similar to that of the population observed in the 1991 Census (see Table 1.1). The percentage Muslim is higher in urban areas (15 percent of household heads) than in rural areas (10 percent). Households with Christian, Jain and Buddhist heads are also more concentrated in urban areas. Thirteen percent of household heads are classified as belonging to scheduled castes and 9 percent are members of scheduled tribes. Both groups (especially the scheduled tribes) are disproportionately concentrated in rural areas. According to the 1991 Census, the percentages of the population belonging to scheduled castes and scheduled tribes in India are 17 and 8 percent, respectively (see Table 1.1). The mean NFHS household size is 5.7 persons per household. The average household size is slightly higher in rural areas than in urban areas.

States differ greatly in terms of the religion and caste/tribe of household heads (Table 3.7). A large majority of household heads are Hindus in 20 of the 25 states. More than one-fourth of the household heads in Assam and 21 percent in West Bengal are Muslims. The percentage of Muslim household heads is 19 percent in Kerala, 17 percent in Jammu, 16 percent each in Uttar Pradesh and Bihar, and 11 percent each in Maharashtra and Karnataka. No other state has more than 10 percent of Muslim households. Christians head more than 93 percent of households in Mizoram and Nagaland, 76 percent in Meghalaya, 31 percent in Goa, 29 percent in Manipur, 22 percent in Kerala and 15 percent in Arunachal Pradesh. In the other states, the proportion of Christian household heads is 6 percent or less. Sikhs are concentrated primarily in Punjab, where they constitute 58 percent of household heads. Interestingly, 38 percent of the household heads in Arunachal Pradesh and 12 percent in Meghalaya profess "other" religions. The 1991 Census also found a high proportion of the population in the "other" religious group in Arunachal Pradesh and Meghalaya - 36 and 17 percent, respectively (Office of the Registrar General and Census Commissioner, 1995).

Between 21 and 30 percent of the households in Jammu, Haryana, Punjab, Himachal Pradesh and Rajasthan belong to scheduled castes. Scheduled castes are also concentrated in Tamil Nadu, Uttar Pradesh, Andhra Pradesh and Karnataka where they constitute 12-20 percent of household heads. No scheduled caste households were identified in Arunachal Pradesh, Manipur, Mizoram and Nagaland. Similarly, Haryana and Punjab do not have scheduled tribes. Scheduled tribes are more concentrated in the northeastern states, particularly in Mizoram, Nagaland, Meghalaya, and Arunachal Pradesh (where more than three-fourths of household heads belong to scheduled tribes). Scheduled tribes constitute 29 percent of the households in Manipur, 28 percent in Madhya Pradesh and 24 percent in Orissa.

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Table 3.7 Religion and caste/tribe of household head

Percent distribution of households by religion and caste/tribe of the household head, according to state, India, 1992-93

State	Religion of household head								Caste/tribe of household head			
	Hindu	Muslim	Christian	Sikh	Jain	Buddhist	Other	Total percent	Scheduled caste	Scheduled tribe	Other	Total percent
India	82.3	11.4	2.7	1.8	0.5	0.8	0.4	100.0	12.6	9.1	78.3	100.0
North												
Delhi	82.4	9.7	1.0	5.3	1.3	0.1	0.1	100.0	5.0	0.9	94.1	100.0
Haryana	88.4	4.3	0.1	6.9	0.3	0.1	0.1	100.0	28.3	--	71.6	100.0
Himachal Pradesh	96.8	1.3	0.1	0.8	--	0.2	0.8	100.0	23.4	5.7	70.8	100.0
Jammu Region of J & K	77.2	17.0	0.2	5.7	--	--	--	100.0	30.2	0.9	68.9	100.0
Punjab	39.7	1.2	1.5	57.5	0.1	--	0.1	100.0	28.0	--	72.0	100.0
Rajasthan	92.3	5.5	0.3	1.0	0.7	--	0.2	100.0	20.7	17.3	62.0	100.0
Central												
Madhya Pradesh	93.0	4.9	0.7	0.2	0.7	0.2	0.2	100.0	7.2	27.5	65.3	100.0
Uttar Pradesh	82.9	15.8	0.1	0.6	0.3	0.1	0.2	100.0	18.0	1.1	80.9	100.0
East												
Bihar	82.1	15.7	0.9	0.2	0.1	0.2	0.8	100.0	9.8	8.6	81.6	100.0
Orissa	96.7	1.5	1.5	0.1	--	--	0.2	100.0	9.5	23.9	66.6	100.0
West Bengal	77.2	20.7	0.6	--	0.1	0.5	0.9	100.0	8.7	4.8	86.5	100.0
Northeast												
Arunachal Pradesh	36.7	0.8	15.0	0.3	--	9.3	37.9	100.0	--	76.1	23.9	100.0
Assam	69.3	26.1	4.2	0.3	0.1	--	--	100.0	4.1	16.0	79.9	100.0
Manipur	60.2	5.4	28.5	0.1	0.1	--	5.6	100.0	--	28.7	71.3	100.0
Meghalaya	9.4	2.4	76.0	--	--	0.3	11.9	100.0	0.2	88.9	10.9	100.0
Mizoram	2.3	0.7	95.5	--	0.1	1.4	--	100.0	--	97.1	2.9	100.0
Nagaland	4.8	0.8	93.2	--	0.4	--	0.8	100.0	--	95.8	4.2	100.0
Tripura	86.4	8.4	2.7	--	0.1	2.4	--	100.0	0.6	16.5	82.9	100.0
West												
Goa	64.0	4.7	30.9	0.1	0.1	0.1	0.1	100.0	2.2	1.8	96.0	100.0
Gujarat	89.5	8.5	0.5	0.1	1.2	0.2	0.1	100.0	5.8	14.9	79.3	100.0
Maharashtra	77.3	11.1	1.0	0.2	1.8	7.7	1.0	100.0	6.6	10.0	83.4	100.0
South												
Andhra Pradesh	87.7	8.4	3.7	0.1	--	--	--	100.0	14.9	6.0	79.1	100.0
Karnataka	86.3	10.6	2.2	--	0.7	--	0.2	100.0	11.9	5.7	82.4	100.0
Kerala	58.3	19.1	22.3	0.1	--	--	0.2	100.0	3.6	3.6	92.8	100.0
Tamil Nadu	88.1	5.4	6.3	--	0.1	--	0.1	100.0	19.8	0.3	79.9	100.0

-- Less than 0.05 percent

3.4 Educational Attainment

The educational level of household members is an important characteristic because educational attainment can affect reproductive behaviour, the use of contraceptives, the health of children, proper hygienic practices and the status of women. Table 3.8 shows the extent of literacy and the level of educational attainment among the male and female household population age 6 and above by age and residence. Fifty-seven percent of females age 6 and above and 31

Table 3.8 Educational level of the household population

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 age, sex and residence, India, 1992-93

Age	|	Educational level								Median number of years of schooling
	Illit-erate	Literate, <primary complete	Primary school complete	Middle school complete	High school complete	Above high school	Miss-ing	Total percent	Number	
URBAN										
Male										
6 - 9	22.5	75.4	1.8	--	--	--	0.3	100.0	6455	1.8
10-14	9.5	29.2	45.2	15.3	0.7	--	0.1	100.0	8049	5.7
15-19	10.3	5.4	15.4	30.0	34.5	4.4	-	100.0	6876	9.4
20-24	11.9	5.9	12.9	17.6	30.1	21.5	0.1	100.0	6497	10.1
25-29	13.6	6.3	14.2	15.5	26.4	23.9	0.1	100.0	5832	10.0
30-34	14.0	6.9	13.4	14.7	27.1	23.8	0.2	100.0	4947	10.1
35-39	16.2	7.4	13.6	12.9	25.6	24.3	0.1	100.0	4632	10.0
40-44	15.9	8.4	12.4	12.7	25.7	24.8	0.1	100.0	3718	10.0
45-49	18.3	9.3	14.2	11.7	25.2	21.0	0.2	100.0	3100	9.4
50+	25.9	13.4	15.4	9.5	21.9	13.5	0.3	100.0	8788	7.0
Total	15.9	18.3	17.0	14.2	20.6	13.9	0.1	100.0	58894	7.7
Female										
6 - 9	25.1	72.5	2.1	--	--	--	0.3	100.0	5911	1.8
10-14	15.7	26.0	42.2	14.9	1.0	--	0.1	100.0	7433	5.5
15-19	19.2	5.3	15.5	23.3	32.0	4.7	--	100.0	6904	9.1
20-24	26.3	5.5	13.7	13.6	23.1	17.7	--	100.0	6581	8.6
25-29	31.2	5.5	13.4	12.8	20.0	17.1	--	100.0	5492	7.8
30-34	33.9	7.1	13.9	11.3	18.7	15.0	--	100.0	4627	7.1
35-39	34.4	8.6	15.3	10.0	20.1	11.6	--	100.0	3988	5.9
40-44	40.8	9.0	15.1	10.1	15.8	9.2	--	100.0	3141	5.1
45-49	43.9	10.7	17.1	8.5	13.2	6.7	--	100.0	2361	4.2
50+	61.6	11.7	12.3	5.7	5.9	2.4	0.4	100.0	8383	0.0
Total	32.5	17.2	16.7	11.4	14.4	7.7	0.1	100.0	54821	5.0
Total										
6 - 9	23.8	74.0	1.9	--	--	--	0.2	100.0	12366	1.8
10-14	12.5	27.7	43.8	15.1	0.9	--	0.1	100.0	15481	5.6
15-19	14.8	5.3	15.5	26.6	33.2	4.6	--	100.0	13780	9.2
20-24	19.2	5.7	13.3	15.6	26.6	19.6	--	100.0	13079	9.5
25-29	22.1	5.9	13.8	14.2	23.3	20.6	0.1	100.0	11324	9.1
30-34	23.6	7.0	13.6	13.0	23.0	19.6	0.1	100.0	9574	8.8
35-39	24.6	8.0	14.4	11.6	23.0	18.4	--	100.0	8619	8.4
40-44	27.3	8.7	13.7	11.5	21.1	17.7	--	100.0	6859	8.0
45-49	29.4	9.9	15.4	10.3	20.0	14.8	0.1	100.0	5461	7.0
50+	43.4	12.6	13.9	7.7	14.1	8.1	0.3	100.0	17171	3.9
Total	23.9	17.8	16.9	12.8	17.6	10.9	0.1	100.0	113715	6.3

Table 3.8 Educational level of the household population (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 age, sex and residence, India, 1992-93

| | Educational level | | | | | | | | | Median |
Age	Illit- erate	Literate, <primary complete	Primary school complete	Middle school complete	High school complete	Above high school	Miss- ing	Total percent	Number	number of years of schooling
				RURAL						
				Male						
6 - 9	40.2	58.1	1.2	--	--	--	0.5	100.0	20569	1.2
10-14	20.9	35.2	35.0	8.5	0.4	--	0.1	100.0	23123	4.5
15-19	23.0	8.6	19.9	27.3	19.8	1.4	0.1	100.0	18078	7.8
20-24	27.1	7.8	15.2	17.3	25.0	7.5	0.1	100.0	14916	7.9
25-29	35.2	9.0	15.7	14.1	18.4	7.6	--	100.0	14006	5.9
30-34	39.5	10.4	16.0	12.6	15.3	6.0	0.1	100.0	11257	5.0
35-39	40.7	11.3	15.8	12.0	14.4	5.8	--	100.0	10910	4.6
40-44	43.0	11.9	16.2	10.7	13.1	5.0	0.1	100.0	8192	4.1
45-49	44.5	13.6	16.4	9.2	12.7	3.4	0.2	100.0	7106	3.4
50+	58.5	15.2	13.3	5.2	6.2	1.4	0.2	100.0	26525	0.0
Total	37.1	21.0	16.8	11.0	10.9	3.1	0.2	100.0	154683	3.6
				Female						
6 - 9	52.9	45.9	0.8	--	--	--	0.4	100.0	19296	0.0
10-14	42.9	26.4	24.6	5.6	0.3	--	0.1	100.0	21350	2.7
15-19	52.8	6.7	15.0	14.5	10.4	0.6	--	100.0	18986	0.0
20-24	62.2	6.2	11.8	8.6	8.8	2.4	--	100.0	17199	0.0
25-29	69.3	6.5	10.5	6.0	6.0	1.7	--	100.0	14232	0.0
30-34	71.7	6.9	10.4	5.2	4.6	1.2	--	100.0	11304	0.0
35-39	74.1	7.1	10.4	4.6	3.2	0.6	--	100.0	9479	0.0
40-44	78.0	7.2	8.3	3.3	2.6	0.5	--	100.0	7434	0.0
45-49	82.2	7.5	6.7	1.9	1.4	0.3	--	100.0	6374	0.0
50+	90.5	5.0	3.0	0.6	0.4	0.1	0.3	100.0	24722	0.0
Total	65.5	14.3	10.5	5.2	3.7	0.7	0.1	100.0	150376	0.0
				Total						
6 - 9	46.3	52.2	1.0	--	--	--	0.4	100.0	39866	1.0
10-14	31.5	31.0	30.0	7.1	0.3	--	0.1	100.0	44472	3.9
15-19	38.2	7.6	17.4	20.7	15.0	1.0	0.1	100.0	37064	5.7
20-24	45.9	6.9	13.3	12.7	16.3	4.8	0.1	100.0	32116	4.2
25-29	52.4	7.7	13.1	10.0	12.2	4.6	--	100.0	28238	0.0
30-34	55.7	8.7	13.2	8.9	9.9	3.6	0.1	100.0	22561	0.0
35-39	56.2	9.3	13.3	8.6	9.2	3.4	--	100.0	20389	0.0
40-44	59.7	9.7	12.4	7.2	8.1	2.9	--	100.0	15626	0.0
45-49	62.4	10.7	11.8	5.8	7.4	1.9	0.1	100.0	13480	0.0
50+	73.9	10.3	8.3	3.0	3.4	0.8	0.2	100.0	51247	0.0
Total	51.1	17.7	13.7	8.2	7.4	1.9	0.1	100.0	305059	0.0

percent of males are illiterate. The 1992-93 levels of illiteracy in the NFHS for the population age 6 and above are somewhat lower than the 1991 Census figures of 61 percent for females and 36 percent for males for the population age 7 and above (see Table 1.1). In the NFHS, a higher percentage of males than females have completed each level of schooling. While only 9 percent of females have at least a high school education, 20 percent of males have completed at least high school. The median number of years of schooling is 4.8 for males and 0.0 for females, the latter indicating that the majority of females have never been to school.

Table 3.8   Educational level of the household population (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 age, sex and residence, India, 1992-93

| | | | Educational level | | | | | | | Median |
Age	Illit-erate	Literate, <primary complete	Primary school complete	Middle school complete	High school complete	Above high school	Miss-ing	Total percent	Number	number of years of schooling
				TOTAL						
				Male						
6 - 9	36.0	62.2	1.3	--	--	--	0.4	100.0	27024	1.4
10-14	17.9	33.6	37.6	10.2	0.5	--	0.1	100.0	31171	4.9
15-19	19.5	7.7	18.7	28.0	23.8	2.3	0.1	100.0	24954	8.3
20-24	22.5	7.2	14.5	17.4	26.6	11.7	0.1	100.0	21414	8.7
25-29	28.8	8.2	15.2	14.5	20.8	12.4	0.1	100.0	19838	7.6
30-34	31.7	9.4	15.2	13.3	18.9	11.4	0.1	100.0	16204	6.6
35-39	33.4	10.1	15.2	12.3	17.7	11.3	--	100.0	15542	5.9
40-44	34.6	10.8	15.0	11.3	17.0	11.2	0.1	100.0	11910	5.6
45-49	36.6	12.3	15.7	10.0	16.5	8.8	0.2	100.0	10206	5.1
50+	50.4	14.8	13.8	6.3	10.1	4.4	0.2	100.0	35313	0.0
Total	31.2	20.2	16.8	11.9	13.6	6.1	0.1	100.0	213577	4.8
				Female						
6 - 9	46.4	52.1	1.1	--	--	--	0.4	100.0	25208	1.0
10-14	35.9	26.3	29.2	8.0	0.5	--	0.1	100.0	28782	3.8
15-19	43.8	6.3	15.1	16.8	16.2	1.7	--	100.0	25891	5.0
20-24	52.3	6.0	12.3	10.0	12.8	6.6	--	100.0	23780	0.0
25-29	58.7	6.2	11.3	7.9	9.9	6.0	--	100.0	19724	0.0
30-34	60.7	7.0	11.4	6.9	8.7	5.2	--	100.0	15930	0.0
35-39	62.3	7.5	11.8	6.2	8.2	3.9	--	100.0	13467	0.0
40-44	67.0	7.8	10.3	5.3	6.5	3.1	--	100.0	10575	0.0
45-49	71.9	8.4	9.5	3.7	4.6	2.0	--	100.0	8735	0.0
50+	83.2	6.7	5.4	1.9	1.8	0.7	0.3	100.0	33105	0.0
Total	56.7	15.1	12.1	6.9	6.6	2.6	0.1	100.0	205197	0.0
				Total						
6 - 9	41.0	57.3	1.2	--	--	--	0.4	100.0	52232	1.2
10-14	26.6	30.1	33.6	9.2	0.5	--	0.1	100.0	59953	4.5
15-19	31.9	7.0	16.9	22.3	19.9	2.0	--	100.0	50845	7.1
20-24	38.2	6.6	13.3	13.5	19.3	9.1	0.1	100.0	45194	5.9
25-29	43.7	7.2	13.3	11.2	15.4	9.2	0.1	100.0	39562	4.8
30-34	45.1	8.2	13.3	10.1	13.8	8.3	0.1	100.0	32135	3.8
35-39	46.8	8.9	13.6	9.5	13.3	7.8	--	100.0	29008	3.5
40-44	49.8	9.4	12.8	8.5	12.1	7.4	--	100.0	22485	1.2
45-49	52.8	10.5	12.9	7.1	11.0	5.6	0.1	100.0	18941	0.0
50+	66.2	10.9	9.7	4.2	6.1	2.6	0.3	100.0	68418	0.0
Total	43.7	17.7	14.5	9.4	10.1	4.4	0.1	100.0	418773	2.5

Note: This table and all subsequent tables are based on the *de facto* population unless otherwise indicated. Table excludes cases with missing information on sex.
-- Less than 0.05 percent

Despite the low overall level of literacy, cohort differences in literacy suggest that there has been progress over time (Table 3.8 and Figure 3.3). For example, while only 17 percent of women age 50 and over are literate, the literacy rate for females almost doubles to 33 percent for those age 40-44, and steadily increases to 48 percent for those age 20-24, and 64 percent for those age 10-14. The literacy gap between males and females has narrowed over time, but even

Figure 3.3
Percentage Literate by Age and Sex

Percentage Literate
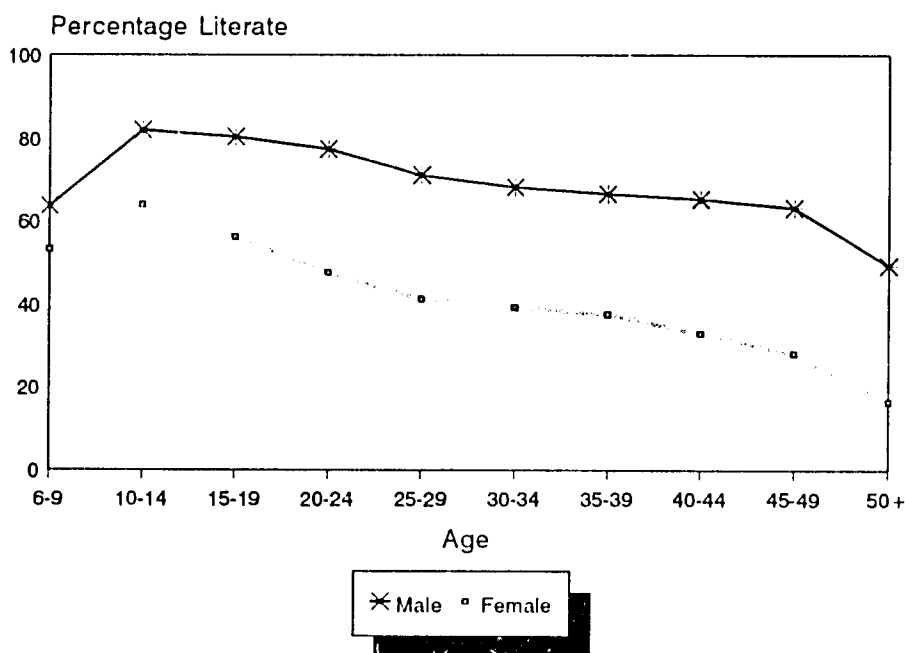
NFHS, India, 1992-93

at age 10-14, a much higher percentage of males than females is literate (82 versus 64 percent).

Urban areas have a wide lead over rural areas in both literacy and the level of education attained. The percentage of females who are illiterate is twice as high in rural areas (66 percent) as in urban areas (33 percent). The corresponding percentages for males are 37 and 16. Differences between urban and rural areas in the proportion of the population that has attended or completed primary school are, however, minimal, with 31-35 percent of both the urban and rural groups attending or completing this level of school. Among those who are literate, however, 77 percent in urban areas and 64 percent in rural areas completed at least primary school. Attending high school or above is also more common in the urban than the rural sample, both for those who are literate and for the whole population. The literacy gap between males and females is greater in rural than in urban areas. Whereas the percentage of rural females who are illiterate (66 percent) exceeds the percentage of rural males who are illiterate (37 percent) by 29 percentage points, the difference is only 17 percentage points in urban areas (33 percent versus 16 percent).

There are large interstate variations in the level of female and male literacy and education (Table 3.9). More than 80 percent of females age 6 and above are literate in Mizoram (89 percent) and Kerala (82 percent). Between 71 and 73 percent of women in Delhi, Nagaland and Goa are literate. At the other extreme, nearly three-fourths of females age 6 and over are illiterate in Rajasthan (75 percent) and Bihar (72 percent). The percentage of females who have at least a high school education is highest in Delhi (29 percent), followed by Goa (23 percent),

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Table 3.9 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, 1992-93

| State | Illiterate | Educational level | | | | | | Total percent | Median number of years of schooling |
		Literate, <primary complete	Primary school complete	Middle school complete	High school complete	Above high school	Missing		
				MALE					
India	31.2	20.2	16.8	11.9	13.6	6.1	0.1	100.0	4.8
North									
Delhi	14.3	16.1	15.9	14.4	23.3	15.7	0.3	100.0	8.4
Haryana	27.7	18.4	18.6	12.0	17.6	5.7	0.1	100.0	5.5
Himachal Pradesh	20.7	22.0	21.7	13.7	16.9	4.9	0.1	100.0	5.8
Jammu Region of J & K	25.8	17.1	16.7	18.7	15.8	5.9	--	100.0	6.0
Punjab	34.1	14.1	17.5	12.1	18.0	4.2	--	100.0	5.2
Rajasthan	39.7	18.9	15.5	11.4	10.2	4.0	0.3	100.0	2.9
Central									
Madhya Pradesh	36.2	19.0	18.4	10.3	11.0	5.0	0.2	100.0	4.2
Uttar Pradesh	36.4	16.8	15.2	12.5	13.8	5.3	0.1	100.0	4.2
East									
Bihar	39.5	17.4	13.5	8.9	13.9	6.7	0.1	100.0	3.0
Orissa	31.2	26.3	18.3	8.9	10.2	5.0	0.1	100.0	3.9
West Bengal	24.6	28.3	15.8	12.8	10.7	7.6	0.2	100.0	4.6
Northeast									
Arunachal Pradesh	38.1	25.2	14.3	9.2	9.0	4.1	--	100.0	2.8
Assam	30.1	28.6	14.1	13.3	9.4	4.4	0.1	100.0	4.0
Manipur	14.9	25.9	14.8	16.6	17.8	10.1	--	100.0	6.7
Meghalaya	33.2	29.3	14.5	11.2	9.1	2.6	--	100.0	3.1
Mizoram	6.6	32.7	25.2	16.5	14.6	4.4	--	100.0	6.2
Nagaland	20.1	26.5	18.9	14.2	16.5	3.8	--	100.0	5.7
Tripura	18.7	32.0	18.1	17.3	8.7	5.1	--	100.0	4.9
West									
Goa	11.7	23.6	17.7	14.9	22.1	9.9	0.1	100.0	7.6
Gujarat	24.6	22.0	20.2	10.9	15.5	6.7	0.1	100.0	5.5
Maharashtra	20.5	24.3	18.9	13.2	15.5	7.4	0.2	100.0	5.9
South									
Andhra Pradesh	39.7	15.4	12.3	12.0	13.8	6.4	0.4	100.0	3.8
Karnataka	31.9	21.3	17.6	8.0	14.6	6.6	0.1	100.0	4.6
Kerala	10.0	24.1	24.2	20.9	15.1	5.3	0.2	100.0	7.0
Tamil Nadu	23.0	18.3	23.3	14.3	14.8	6.2	0.1	100.0	5.8

Kerala (19 percent), Manipur (18 percent), and Punjab and Nagaland (15 percent each). Less than 10 percent of females have at least a high school education in nearly half of the states. In every state, the percentage literate is higher for males than for females and (with a couple of minor exceptions) a higher percentage of males have completed each level of schooling than females. The literacy gap between males and females is particularly large in Rajasthan, Uttar Pradesh and Bihar, where the male literacy rate is more than twice as high as the female literacy rate. The male-female ratio in literacy is also very high in Madhya Pradesh (1.86), Orissa (1.66), Haryana (1.58) and Andhra Pradesh (1.57). The male-female gap in literacy is very small in Mizoram, Meghalaya, Nagaland and Kerala.

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Table 3.9 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, 1992-93

| State | Illiterate | Educational level | | | | | | Total percent | Median number of years schooling |
		Literate, <primary complete	Primary school complete	Middle school complete	High school complete	Above high school	Missing		
FEMALE									
India	56.7	15.1	12.1	6.9	6.6	2.6	0.1	100.0	0.0
North									
Delhi	29.2	15.8	15.1	11.1	16.0	12.5	0.2	100.0	5.6
Haryana	54.1	15.1	14.5	6.2	7.6	2.5	--	100.0	0.0
Himachal Pradesh	42.6	17.8	20.3	8.8	8.6	1.9	--	100.0	2.4
Jammu Region of J & K	48.2	13.3	14.4	11.2	9.3	3.6	--	100.0	1.7
Punjab	48.0	11.1	16.9	8.8	12.2	3.0	--	100.0	2.0
Rajasthan	74.6	9.8	7.3	3.5	3.1	1.4	0.4	100.0	0.0
Central									
Madhya Pradesh	65.7	13.2	10.6	4.5	3.8	2.0	0.2	100.0	0.0
Uttar Pradesh	68.5	10.2	8.9	5.2	5.0	2.2	0.1	100.0	0.0
East									
Bihar	71.4	11.0	7.3	3.6	4.8	1.8	0.1	100.0	0.0
Orissa	58.6	18.2	12.4	4.8	4.4	1.6	--	100.0	0.0
West Bengal	44.8	25.9	12.5	8.9	4.9	2.8	--	100.0	1.0
Northeast									
Arunachal Pradesh	57.9	19.2	10.9	6.5	4.7	0.8	--	100.0	0.0
Assam	49.3	22.2	11.3	10.3	5.1	1.8	--	100.0	1.0
Manipur	37.0	21.8	11.9	10.9	11.4	7.0	--	100.0	2.9
Meghalaya	39.8	27.9	14.9	9.0	6.7	1.6	--	100.0	2.0
Mizoram	11.1	35.6	23.1	17.0	11.6,	1.5	--	100.0	5.4
Nagaland	28.2	24.5	19.2	12.9	13.7	1.5	--	100.0	4.6
Tripura	35.6	28.6	16.4	12.4	4.4	2.6	--	100.0	2.8
West									
Goa	26.9	21.8	16.3	12.4	16.1	6.4	0.1	100.0	5.2
Gujarat	48.7	17.2	15.0	6.6	9.1	3.2	0.1	100.0	1.7
Maharashtra	44.1	19.7	16.2	7.7	8.4	3.7	0.2	100.0	2.6
South									
Andhra Pradesh	61.5	11.8	9.2	7.9	6.8	2.4	0.3	100.0	0.0
Karnataka	53.5	15.9	14.1	5.7	8.2	2.5	0.1	100.0	0.0
Kerala	17.6	21.7	23.0	19.1	14.1	4.4	0.1	100.0	6.4
Tamil Nadu	43.9	14.9	18.9	10.1	9.4	2.7	--	100.0	3.6

Among males who are literate, more than one-quarter (29 percent) have at least a high school education. There are interesting statewise variations in the tendency of literate men to continue with their education through the high school level. Although Kerala has the second highest male literacy rate in the country, a lower proportion of literate males finish at least high school in Kerala (23 percent) than in any other major state except Orissa and Assam. On the other hand, in the low literacy states of Bihar and Andhra Pradesh, more than one-third of literate men have completed at least high school. In Delhi, which is predominantly urban, almost half of literate males (46 percent) have completed at least high school.

Table 3.9 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, 1992-93

State	Illiterate	Literate, <primary complete	Primary school complete	Middle school complete	High school complete	Above high school	Missing	Total percent	Median number of years of schooling
				TOTAL					
India	43.7	17.7	14.5	9.4	10.1	4.4	0.1	1C0.0	2.5
North									
Delhi	21.0	15.9	15.5	12.9	20.0	14.3	0.3	100.0	7.3
Haryana	40.1	16.9	16.7	9.3	12.9	4.2	--	100.0	3.4
Himachal Pradesh	32.1	19.8	21.0	11.2	12.6	3.3	0.1	100.0	4.6
Jammu Region of J & K	36.9	15.2	15.6	15.0	12.6	4.8	--	100.0	4.5
Punjab	40.8	12.7	17.2	10.5	15.2	3.7	--	100.0	4.1
Rajasthan	56.1	14.6	11.6	7.6	6.9	2.8	0.3	100.0	0.0
Central									
Madhya Pradesh	50.2	16.3	14.7	7.5	7.6	3.6	0.2	100.0	0.0
Uttar Pradesh	52.0	13.5	12.1	8.9	9.5	3.8	0.1	100.0	0.0
East									
Bihar	55.4	14.2	10.4	6.3	9.3	4.3	0.1	100.0	0.0
Orissa	44.8	22.3	15.4	6.9	7.4	3.3	--	100.0	1.0
West Bengal	34.4	27.1	14.2	11.0	7.9	5.3	0.1	100.0	3.3
Northeast									
Arunachal Pradesh	47.9	22.3	12.7	7.8	6.9	2.4	--	100.0	1.2
Assam	39.5	25.5	12.8	11.8	7.3	3.1	--	1C0.0	2.6
Manipur	26.0	23.8	13.4	13.7	14.6	8.5	--	100.0	5.1
Meghalaya	36.4	28.6	14.7	10.2	7.9	2.1	--	100.0	2.5
Mizoram	8.9	34.2	24.1	16.7	13.1	3.0	--	100.0	5.9
Nagaland	24.2	25.5	19.0	13.6	15.1	2.7	--	'100.0	5.1
Tripura	27.2	30.3	17.3	14.8	6.5	3.8	--	100.0	3.9
West									
Goa	19.4	22.7	17.0	13.6	19.0	8.2	0.1	100.0	6.5
Gujarat	36.3	19.7	17.7	8.8	12.4	5.0	0.1	100.0	4.1
Maharashtra	32.1	22.0	17.6	10.5	12.0	5.6	0.2	100.0	4.5
South									
Andhra Pradesh	50.6	13.6	10.8	9.9	10.3	4.4	0.4	100.0	0.0
Karnataka	42.6	18.6	15.8	6.9	11.4	4.6	0.1	100.0	2.9
Kerala	14.0	22.9	23.6	20.0	14.6	4.8	0.2	100.0	6.7
Tamil Nadu	33.6	16.6	21.1	12.1	12.1	4.4	0.1	100.0	5.0

-- Less than 0.05 percent

In the case of females, Delhi again has the highest proportion of high school graduates among the literate population (40 percent), but Kerala also slightly exceeds the national average. For India as a whole, literate males are more likely to have completed at least high school (29 percent) than literate females (21 percent). The earlier age at marriage for females may be one important factor that prevents them from acquiring higher education.

Table 3.10 shows school attendance rates for the school-age population, by sex, residence, and state. The results are presented for children age 6-14, because the Indian Constitution established a goal of providing free and compulsory education for children below age 15. In the country as a whole, only 68 percent of children age 6-14 are attending school.

Table 3.10 School attendance

Percentage of the *de facto* household population age 6-14 years attending school by sex, residence and state, India, 1992-93

State	Male Urban	Male Rural	Male Total	Female Urban	Female Rural	Female Total	Total Urban	Total Rural	Total Total
India									
Age 6 -14 years	85.3	72.2	75.5	79.2	52.2	58.9	82.4	62.6	67.5
6 -10 years	86.2	71.4	75.0	81.8	55.0	61.3	84.1	63.5	68.4
11-14 years	84.2	73.4	76.3	75.7	47.9	55.3	80.1	61.2	66.2
North									
Delhi	87.3	89.9	87.5	86.6	82.8	86.3	87.0	86.9	86.9
Haryana	90.8	85.9	87.2	88.8	69.5	74.7	89.8	78.2	81.3
Himachal Pradesh	96.4	93.6	93.8	93.8	87.1	87.6	95.1	90.4	90.8
Jammu Region of J & K	95.2	90.7	91.3	96.3	77.0	79.6	95.7	84.1	85.7
Punjab	88.9	81.1	83.4	89.0	73.1	77.8	88.9	77.4	80.8
Rajasthan	84.2	72.0	74.2	71.9	33.5	40.6	78.6	54.4	58.8
Central									
Madhya Pradesh	84.7	64.3	69.0	81.6	46.3	54.8	83.2	55.9	62.3
Uttar Pradesh	77.1	71.7	72.3	69.5	42.6	48.2	73.5	58.1	61.3
East									
Bihar	84.3	59.8	63.6	67.8	33.6	38.3	76.7	46.9	51.3
Orissa	88.2	74.7	76.8	78.6	58.9	62.0	83.5	67.0	69.6
West Bengal	83.3	68.6	72.5	71.8	60.1	62.9	77.9	64.2	67.7
Northeast									
Arunachal Pradesh	82.4	76.1	76.8	71.1	64.6	65.3	76.7	70.3	71.0
Assam	79.4	73.4	74.0	72.6	65.2	66.0	76.1	69.5	70.1
Manipur	96.2	92.1	93.4	93.5	83.9	86.8	94.9	88.1	90.2
Meghalaya	93.8	69.9	74.3	92.5	71.6	75.7	93.1	70.6	75.0
Mizoram	96.5	89.5	92.8	93.0	84.2	88.5	94.7	86.9	90.7
Nagaland	96.7	88.0	90.1	97.3	86.8	89.0	97.0	87.4	89.6
Tripura	86.2	81.0	81.9	89.9	74.0	76.7	88.0	77.6	79.4
West									
Goa	95.0	94.3	94.7	91.8	93.0	92.5	93.4	93.7	93.5
Gujarat	89.2	76.8	82.4	81.8	61.7	68.4	85.7	70.5	75.7
Maharashtra	90.7	83.3	86.2	87.8	69.2	76.6	89.3	76.4	81.5
South									
Andhra Pradesh	85.0	66.8	71.8	76.3	46.6	54.8	80.6	56.8	63.3
Karnataka	84.6	72.8	76.4	80.1	57.3	64.4	82.4	65.3	70.5
Kerala	94.5	94.8	94.7	96.3	94.3	94.8	95.4	94.6	94.8
Tamil Nadu	87.3	85.3	86.0	86.4	74.8	78.7	86.8	80.1	82.4

As expected, the proportion attending is higher for males than for females: 76 percent for males compared with 59 percent for females (Figure 3.4). Urban attendance is also higher than rural attendance (82 percent compared with 63 percent). The gap between girls and boys in school attendance is more pronounced in rural than in urban areas, especially at age 11-14, where only 48 percent of rural girls as opposed to 73 percent of rural boys are in school. In spite of the substantial educational advances that have been made over time, 41 percent of school-age girls in India are still not attending school.

An interesting feature of Table 3.10 is that attendance rates for males do not differ much by age group (6-10 and 11-14), that is, as male children get older they tend to stay in school.

Figure 3.4
School Attendance by Age and Sex
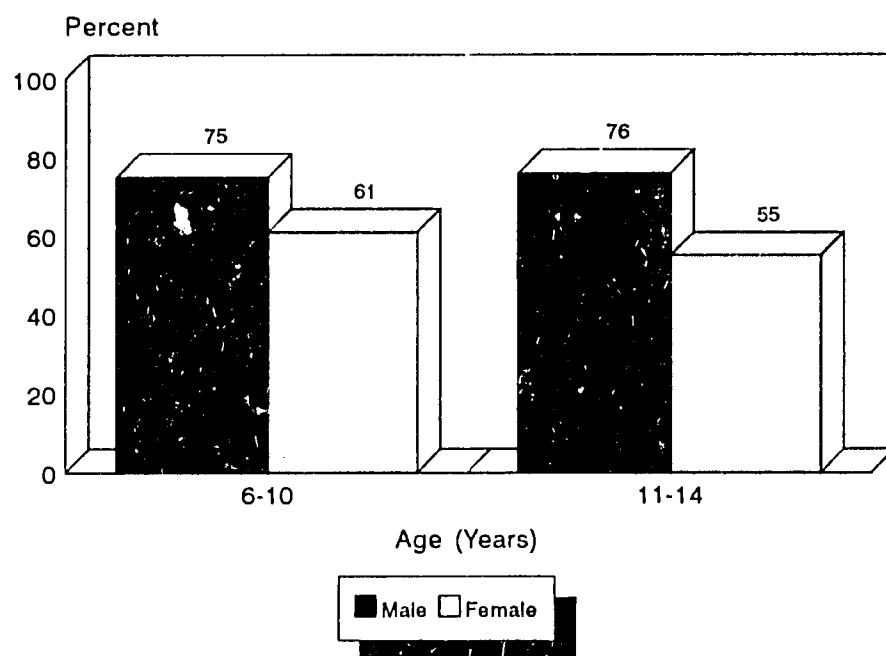
NFHS, India, 1992-93

In comparison, the attendance rates for females decline from age 6-10 to age 11-14 years. Urban females experience a 7 percent decline in attendance and rural females, whose level of education is much lower to begin with, experience a 13 percent decline in attendance from age 6-10 to age 11-14. These differences in attendance rates by age reflect the drop out of children from school at higher ages as well as the improvement in school attendance in recent years.

School attendance is almost universal in Kerala, Goa, Himachal Pradesh, Mizoram and Manipur, where more than 90 percent of school-age children are in school. In every state except Kerala and Meghalaya, proportionately more boys than girls age 6-14 attend school. The attendance rate for both boys and girls is higher in urban than in rural areas in every state except Goa. More than 50 percent of school-age girls in Bihar (62 percent), Rajasthan (59 percent), and Uttar Pradesh (52 percent) are not attending school. The gap between male and female attendance rates is also substantial in these states. The attendance rates for school-age boys in these states are 64 percent in Bihar, 74 percent in Rajasthan, and 73 percent in Uttar Pradesh.

3.5   Housing Characteristics

The NFHS gathered information on the following housing characteristics: electricity, source of bathing/washing water and drinking water, sanitation facility, type of cooking fuel, place where livestock is kept, number of rooms in the house and the housing materials used for construction of the walls, roof and floor. The data on housing are summarized by residence in Table 3.11. Overall, only 51 percent of households have electricity. A large majority of

Table 3.11   Housing characteristics

Percent distribution of households by housing characteristics, according to residence, India, 1992-93

Housing characteristic	Residence		
	Urban	Rural	Total
Electricity			
Yes	82.8	38.7	50.9
No	17.2	61.3	49.1
Source of bathing/washing water			
Piped	65.3	18.3	31.3
Handpump	17.6	35.6	30.6
Well water	12.3	30.2	25.3
Surface water	3.6	14.3	11.4
Other	1.1	1.5	1.4
Source of drinking water			
Piped	69.5	19.3	33.1
Handpump	18.1	41.6	35.1
Well water	9.2	32.1	25.8
Surface water	1.0	5.1	3.9
Other	2.2	2.0	2.0
Sanitation facility			
Flush toilet	60.1	6.9	21.6
Pit toilet/latrine	15.5	5.9	8.6
Other	0.3	0.1	0.1
No facility	24.1	87.1	69.7
Type of fuel for cooking			
Wood	29.6	77.0	63.9
Cow dung cakes	3.0	12.2	9.7
Coal/coke/lignite/charcoal	8.6	2.3	4.1
Kerosene	22.5	1.9	7.6
Electricity	1.0	0.1	0.4
Liquid petroleum gas	33.4	1.9	10.6
Other	1.9	4.5	3.8
Type of house			
Kachcha	17.2	60.4	48.5
Semi-pucca	26.2	28.4	27.8
Pucca	56.6	11.2	23.7
Place where livestock is kept			
Inside the house	4.8	19.5	15.4
Outside the house	9.5	47.5	37.0
No livestock	85.7	33.0	47.6
Persons per room			
< 3.0	63.4	58.6	59.9
3.0-4.9	21.8	25.4	24.4
5.0-6.9	9.9	10.9	10.6
7.0+	4.7	5.0	5.0
Don't know/missing	--	0.1	0.1
Mean	2.7	2.8	2.8
Total percent	100.0	100.0	100.0
Number of households	24424	64138	88562

-- Less than 0.05 percent

households in urban areas have electricity (83 percent), whereas only 39 percent of the households in rural areas have electricity.

The source of water and availability of sanitary facilities are important determinants of the health status of household members, particularly of children. Thirty-three percent of households get piped water for drinking, another 35 percent get water from a handpump, and 26 percent from wells. There are large urban-rural differences in the source of drinking water. More than two-thirds of households in urban areas get piped water, whereas only about one-fifth of rural households use piped water for drinking. The sources of water used for bathing/washing and drinking are similar in urban and rural areas, except that surface water is less likely to be used for drinking.

The lack of availability of sanitary facilities poses a serious health problem. Only 22 percent of the households have a flush toilet (using either piped water or bucket water for flushing), 9 percent have a pit toilet or latrine and a substantial majority (70 percent) have no facility at all. There are large urban-rural differences as well; three-fifths of households in urban areas but only 7 percent in rural areas have a flush toilet, whereas 24 percent of households in urban areas and an overwhelming majority (87 percent) in rural areas have no toilet facility.

Several types of fuel are used for cooking, but wood is the most common fuel. Overall, 64 percent of households rely on wood, 11 percent use liquid petroleum gas, 10 percent use cow dung cakes, 8 percent use kerosene, 4 percent use coal/coke/charcoal and the rest (4 percent) depend on other fuels. Again there are large urban-rural differences. Almost 6 in 10 urban households use liquid petroleum gas or kerosene and only 3 in 10 urban households use wood, whereas a substantial majority of rural households (77 percent) rely on wood for cooking.

Based on the materials used for the construction of the walls, roof and floor, houses in the NFHS are classified as either *kachcha* (made from mud, thatch or other low-quality materials), *pucca* (made from high-quality materials throughout, including the roof, walls and floor), or semi-*pucca* (made from partly low-quality and partly high-quality materials). Almost one-half (49 percent) of houses are *kachcha*, 28 percent are semi-*pucca* and slightly less than one-quarter (24 percent) are *pucca*. Sixty percent of the houses in rural areas can be classified as *kachcha*. The quality of housing is better in urban areas: 57 percent of houses in urban areas are *pucca*, and another 26 percent of houses are semi-*pucca*.

The NFHS also collected information on whether households own any livestock. A follow-up question was asked on where the livestock are usually kept at night, because keeping them inside the house may adversely affect the health of the residents. Overall, 52 percent of households own livestock, 67 percent in rural areas and 14 percent in urban areas. Only 15 percent of all households and 20 percent of rural households have livestock that are kept inside the house at night.

Crowded conditions may affect health as well as the quality of life. The number of persons per room in the household is used as a simple measure of crowding. On average, there are 2.8 persons per room in India. A majority of households (60 percent) have fewer than three persons per room. However, 16 percent of households have five or more persons per room, and

5 percent of households are very crowded, with seven or more persons per room.

An interstate comparison of housing conditions is presented in Table 3.12. The percentage of households with electricity is lowest in Bihar (17 percent), closely followed by Assam (20 percent), Orissa (28 percent), and Uttar Pradesh (32 percent). Apart from Delhi, which is mostly urban, more than 70 percent of households have electricity in Punjab and Goa (92 percent each), Himachal Pradesh (90 percent), Jammu (87 percent), Haryana (85 percent), Gujarat and Nagaland (77 percent each), Mizoram (76 percent), and Maharashtra (74 percent). Piped water or water from a handpump is used for drinking in a majority of households in all states except Assam, Manipur, Meghalaya, Mizoram, Tripura (40-48 percent), and Kerala (21 percent). In Kerala, more than 60 percent of households obtain their drinking water from wells, which in many cases are within the house. Toilet facilities are inadequate in almost all states.

Table 3.12 Housing characteristics by state

Housing characteristics of households, according to state, India, 1992-93

State	Percent with electricity	Percent with drinking water from pump/pipe	Percent with any toilet/ latrine facility	Percent using wood as fuel for cooking	Percent with pucca house construction	Mean number of persons per room
India	50.9	68.2	30.3	63.9	23.7	2.8
North						
Delhi	95.5	99.5	84.1	4.4	81.0	2.6
Haryana	85.0	73.0	26.9	55.6	39.6	2.9
Himachal Pradesh	90.2	57.6	12.6	84.8	22.7	2.1
Jammu Region of J & K	86.7	57.3	19.1	64.9	32.5	2.8
Punjab	92.0	98.6	36.7	44.9	52.6	2.7
Rajasthan	51.9	57.3	19.8	81.0	38.1	3.0
Central						
Madhya Pradesh	62.4	55.8	21.3	68.2	13.8	2.8
Uttar Pradesh	31.9	74.3	22.9	68.3	20.1	3.0
East						
Bihar	16.6	63.6	16.5	51.1	15.5	2.8
Orissa	27.8	30.9	12.2	68.7	9.5	2.4
West Bengal	32.9	84.9	40.4	31.6	22.5	2.8
Northeast						
Arunachal Pradesh	63.1	75.8	73.6	87.7	2.2	2.9
Assam	20.4	43.2	49.6	87.8	2.2	2.4
Manipur	62.1	47.0	83.1	80.5	4.9	2.1
Meghalaya	42.6	47.6	54.3	82.0	3.9	2.0
Mizoram	76.0	40.1	98.3	66.2	6.0	2.4
Nagaland	76.9	72.1	79.3	97.4	8.4	1.9
Tripura	45.1	44.1	79.4	91.1	3.1	2.4
West						
Goa	91.7	56.5	48.0	51.3	54.0	1.8
Gujarat	76.6	75.1	35.8	55.9	33.2	3.3
Maharashtra	73.6	78.5	40.8	55.2	30.6	3.2
South						
Andhra Pradesh	62.2	63.4	24.4	77.0	31.3	2.8
Karnataka	64.0	75.6	31.2	75.4	16.5	2.7
Kerala	60.3	21.0	70.9	87.4	19.9	1.4
Tamil Nadu	63.8	74.6	29.4	77.7	22.7	2.5

Delhi (which is mostly urban), Arunachal Pradesh, Manipur, Mizoram, Nagaland, Tripura, and Kerala are the only states where more than 70 percent of the households have some form of toilet facility. Again with the exception of Delhi, as well as Punjab and West Bengal, the majority of households in every state use wood as cooking fuel. Less than 10 percent of households in the northeastern states and in Orissa are classified as *pucca*. Delhi (81 percent), Goa (54 percent) and Punjab (53 percent) are the only states where a majority of households live in *pucca* houses. Households in Kerala are least crowded (with an average of only 1.4 persons per room) and households in Gujarat, Maharashtra, Rajasthan and Uttar Pradesh are most crowded (with an average of 3.0 persons per room or more).

Table 3.13 contains a number of measures related to the socioeconomic status of the household (household ownership of agricultural land, various kinds of livestock, and durable goods). Overall, 48 percent of households are landless; not surprisingly, urban households are more than twice as likely to be landless as rural households. In rural areas, among those who have land, 37 percent irrigate all of their land and 21 percent irrigate some of their land. More than half (52 percent) of all households have livestock, and rural households are five times as likely to own livestock as urban households. Twenty-nine percent of rural households have one or more bullocks, 35 percent have cows, 28 percent have buffaloes and 17 percent have goats.

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; a refrigerator prolongs the wholesomeness of food; and a means of transportation allows greater access to many services outside the local area. Fifty-three percent of households in India own a clock or a watch, 42 percent own a bicycle, 39 percent own a radio, 21 percent own a television, and 18 percent own a sewing machine. Other durable goods found in Indian households include: motorcycles or scooters (8 percent) and refrigerators (7 percent). Urban households are much more likely to have each of these durable goods.

3.6 Background Characteristics of Respondents

Whereas the previous tables considered characteristics of households, based on results from the NFHS Household Questionnaire, this section examines selected background characteristics of primary respondents (ever-married women age 13-49), based on the NFHS Woman's Questionnaire.

Table 3.14 shows several important background characteristics of respondents: age, marital status, education, religion, caste/tribe, work status, and husband's education. The data shown in the first three columns and in all subsequent tables, are based on the weighted sample of women. The weighted number of cases may not add up to the total of 89,777 women due to rounding.

Up to age 20-24, the percentage in each age group increases reflecting the increase in the proportion married in successive age groups. The decline after age 20-24, by which time most women have already married, reflects the normal pyramidal shape of the age distribution. The age pattern of eligible women differs slightly between the urban and rural areas with a modal age of 25-29 in the urban sample and of 20-24 in the rural sample (Figure 3.5). Moreover, the

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| Table 3.13 Household ownership of land, livestock and durable goods |

Percentage of households owning agricultural land, livestock and various consumer durable goods according to residence, India, 1992-93

	Residence		
Item owned	Urban	Rural	Total

Agricultural land

No land	81.0	36.0	48.4

Irrigated land only
< 1 Acre	1.7	7.6	6.0
1-5 Acres	3.5	12.1	9.7
6+ Acres	1.5	3.8	3.2

Non-irrigated land only
< 1 Acre	2.1	6.3	5.1
1-5 Acres	4.8	15.6	12.6
6+ Acres	2.1	5.1	4.3

Irrigated and non-irrigated land
< 1 Acre	0.5	2.4	1.9
1-5 Acres	1.3	6.4	5.0
6+ Acres	1.5	4.8	3.9

Total percent	100.0	100.0	100.0

Livestock
Bullock	3.0	29.1	21.9
Cow	6.7	34.8	27.1
Buffalo	4.4	27.8	21.4
Goat	4.3	17.2	13.7
Sheep	0.2	1.9	1.4
Camel	0.1	0.5	0.3
Other	0.8	2.8	2.3
No livestock	85.7	33.0	47.6

Consumer durable goods
Sewing machine	35.5	11.3	18.0
Clock/watch	78.7	43.1	52.9
Radio	59.4	31.6	39.3
Television	51.7	8.9	20.7
Refrigerator	20.1	1.7	6.8
Bicycle	47.5	39.7	41.8
Motorcycle/scooter	19.2	3.8	8.1
Car	3.2	0.3	1.1

Number of households	24424	64138	88562

Note: Information on the ownership of bullock carts, threshers, tractors and water pumps is not included under consumer durable goods because information on these items was not collected for all states.

percentages in the younger age groups are smaller in urban areas, reflecting the somewhat later age at marriage in urban areas (see the earlier discussion of Table 3.5.).

Overall, 94 percent of respondents (ever-married women) are currently married, and the proportion currently married is nearly the same in urban and rural areas. Among the remainder, most are widowed (4 percent), less than 1 percent are divorced and 2 percent are separated.

Table 3.14 Background characteristics of respondents

Percent distribution of ever-married women age 13-49, by selected background characteristics, according to residence, India, 1992-93

Background characteristic	Residence			Number of women	
	Urban	Rural	Total	Weighted	Unweighted
Age					
13-14	0.2	0.5	0.4	352	272
15-19	5.9	11.6	10.1	9095	7816
20-24	18.0	20.7	20.0	17983	17233
25-29	20.1	19.2	19.4	17442	17734
30-34	18.3	15.6	16.3	14660	15161
35-39	15.8	13.2	13.9	12461	12875
40-44	12.4	10.3	10.9	9748	10195
45-49	9.4	8.8	9.0	8036	8491
Marital status					
Currently married	94.1	94.4	94.3	84678	84558
Widowed	4.0	3.7	3.8	3421	3526
Divorced	0.4	0.3	0.3	274	367
Separated	1.5	1.6	1.6	1404	1326
Education					
Illiterate	36.8	72.4	63.1	56656	52142
Literate, < primary complete	7.4	6.4	6.7	5997	6473
Primary school complete	15.4	10.3	11.7	10478	11169
Middle school complete	12.0	5.6	7.2	6508	7463
High school complete	17.9	4.4	7.9	7128	8675
Above high school	10.6	0.8	3.4	3011	3855
Religion					
Hindu	75.6	84.3	82.0	73648	70129
Muslim	16.6	10.4	12.0	10806	9494
Christian	2.9	2.2	2.4	2142	5923
Sikh	1.8	1.9	1.9	1673	2616
Jain	1.3	0.2	0.5	428	376
Buddhist	1.5	0.6	0.8	734	514
Other	0.3	0.4	0.4	345	725
Caste/tribe					
Scheduled caste	9.1	13.3	12.2	10970	10571
Scheduled tribe	3.2	10.8	8.8	7934	10780
Other	87.6	75.9	78.9	70872	68426
Work status					
Not working	79.5	64.6	68.5	61462	61870
Working in family farm/business	3.6	15.3	12.2	10987	11356
Employed by someone else	12.8	17.4	16.2	14575	13144
Self-employed	4.1	2.7	3.1	2752	3407
Husband's education					
Illiterate	17.0	41.0	34.7	31142	28539
Literate, < primary complete	8.2	10.8	10.1	9073	9028
Primary school complete	14.9	16.1	15.8	14148	13987
Middle school complete	13.1	11.6	12.0	10735	11451
High school complete	25.9	15.7	18.3	16461	17713
Above high school	20.7	4.8	8.9	8025	8881
Don't know/missing	0.2	0.2	0.2	193	178
Total percent	100.0	100.0	100.0	NA	NA
Number of women					
Weighted	23455	66322	89777	89777	NA
Unweighted	27534	62243	89777	NA	89777

NA: Not applicable

Figure 3.5
Age Distribution of Ever-Married
Women by Residence
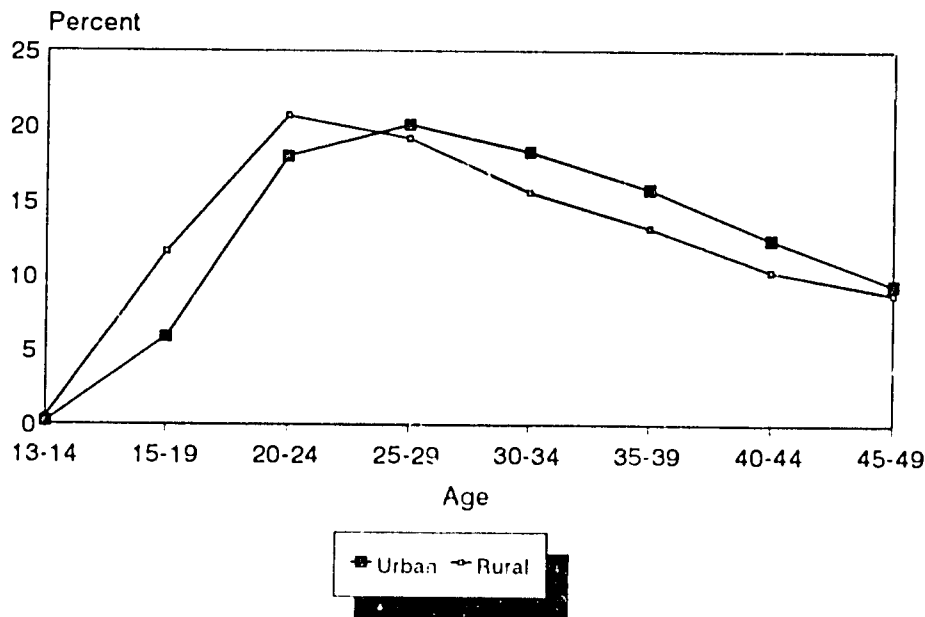
Percent

NFHS, India, 1992-93

The literacy level of ever-married women age 13-49 in India is quite low. Sixty-three percent of respondents are illiterate and the percentage illiterate is even higher in rural areas (72 percent). Only 11 percent have completed at least high school. Ever-married women in urban areas are substantially better educated than their rural counterparts. For example, 41 percent of urban respondents, compared with 11 percent of rural respondents, have completed at least middle school. The distribution of ever-married women by educational level is similar to that of all females in the *de facto* household population age 6 and above, but as a group, the primary respondents are less literate than the female household population in the childbearing ages (Table 3.7). This difference reflects a tendency for illiterate women to marry at younger ages than literate women.

The pattern of distribution of respondents by religion and caste/tribe is similar to the pattern of distribution of household heads by the same characteristics, as discussed in Section 3.3. Table 3.14 also shows the distribution of respondents by the respondent's work status and her husband's education. In the NFHS, work is defined as any kind of job for which the woman is paid in cash or in kind as well as unpaid work on a family farm or business. Overall, 69 percent of respondents report that they are not working (80 percent in urban areas and 65 percent in rural areas). The proportion working on a family farm or in some other family business is 12 percent overall and 15 percent in rural areas. Sixteen percent of respondents report that they are employed by someone other than a family member. The percentage self-employed is almost the same in urban and rural areas (3-4 percent).

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Thirty-five percent of husbands are illiterate (17 percent in urban areas and 41 percent in rural areas). The percentage of husbands with at least a high school education is more than twice as high in urban areas (47 percent) as in rural areas (21 percent).

The states vary substantially with respect to literacy and the educational level of ever-married women (Table 3.15). The literacy rate among ever-married women is highest in Mizoram (92 percent), closely followed by Kerala (84 percent). More than 70 percent of ever-married women are illiterate in Rajasthan (82 percent), Bihar (78 percent), Uttar Pradesh (76 percent) and Madhya Pradesh (74 percent). The percentage of interviewed women who have completed at least high school ranges from only 5 percent in Rajasthan to 37 percent in Delhi.

Table 3.16 shows interstate variations in the work status of interviewed women. Approximately half of women report that they are working in Manipur, Andhra Pradesh,

Table 3.15 Education of respondents

Percent distribution of ever-married women age 13-49 by education and state, India, 1992-93

State	Illit-erate	Literate, <primary complete	Primary school complete	Middle school complete	High school complete	Above high school	Total percent
India	63.1	6.7	11.7	7.2	7.9	3.4	100.0
North							
Delhi	37.4	3.5	11.6	10.6	19.8	17.1	100.0
Haryana	63.8	3.1	12.8	6.0	11.0	3.4	100.0
Himachal Pradesh	49.7	7.2	21.0	8.7	10.6	2.8	100.0
Jammu Region of J & K	56.7	1.5	11.8	11.2	13.2	5.6	100.0
Punjab	52.6	2.3	17.8	9.0	14.1	4.2	100.0
Rajasthan	82.2	2.2	6.7	3.5	3.6	1.8	100.0
Central							
Madhya Pradesh	74.4	4.3	9.2	4.7	4.7	2.6	100.0
Uttar Pradesh	75.7	2.0	7.9	5.6	5.6	3.2	100.0
East							
Bihar	78.3	2.9	7.6	3.1	5.6	2.5	100.0
Orissa	67.4	9.1	14.0	3.4	4.6	1.4	100.0
West Bengal	50.6	17.2	12.4	10.3	5.9	3.7	100.0
Northeast							
Arunachal Pradesh	69.5	5.7	9.5	7.9	6.2	1.1	100.0
Assam	59.3	13.8	10.1	9.8	5.0	2.1	100.0
Manipur	47.6	10.3	8.9	10.6	14.5	8.1	100.0
Meghalaya	51.4	15.7	13.7	8.8	8.2	2.2	100.0
Mizoram	8.4	32.1	25.6	19.2	12.8	1.8	100.0
Nagaland	43.0	11.7	16.3	13.3	14.1	1.7	100.0
Tripura	41.3	15.4	19.4	15.5	5.4	3.2	100.0
West							
Goa	33.7	16.3	12.6	10.2	19.8	7.4	100.0
Gujarat	55.3	8.7	13.0	6.9	11.9	4.2	100.0
Maharashtra	50.2	10.5	16.6	8.0	10.4	4.4	100.0
South							
Andhra Pradesh	68.7	4.7	8.7	7.6	7.6	2.8	100.0
Karnataka	61.6	6.5	12.8	5.5	10.5	3.1	100.0
Kerala	16.0	14.5	23.2	25.0	15.5	5.8	100.0
Tamil Nadu	50.1	6.9	17.6	10.3	12.1	3.1	100.0

Table 3.16 Work status of respondents					

Percent distribution of ever-married women age 13-49 by work status, according to state, India, 1992-93

State	Not working	Working in family farm/business	Working for someone else	Self-employed	Total percent
India	68.5	12.2	16.2	3.1	100.0
North					
Delhi	80.7	1.8	10.9	6.7	100.0
Haryana	71.1	18.6	8.6	1.8	100.0
Himachal Pradesh	52.3	40.9	5.9	0.9	100.0
Jammu Region of J & K	72.5	20.8	5.3	1.5	100.0
Punjab	92.3	1.8	4.7	1.3	100.0
Rajasthan	68.6	23.0	6.1	2.3	100.0
Central					
Madhya Pradesh	67.6	20.8	9.2	2.3	100.0
Uttar Pradesh	86.6	7.9	3.2	2.3	100.0
East					
Bihar	75.1	6.8	15.5	2.5	100.0
Orissa	75.1	2.5	18.3	4.1	100.0
West Bengal	77.0	6.3	13.1	3.6	100.0
Northeast					
Arunachal Pradesh	55.1	18.6	7.7	18.6	100.0
Assam	81.6	1.0	15.4	2.1	100.0
Manipur	46.5	17.7	11.6	24.1	100.0
Meghalaya	58.2	16.6	18.2	6.9	100.0
Mizoram	66.8	15.3	11.7	6.2	100.0
Nagaland	56.3	15.1	5.1	23.5	100.0
Tripura	74.3	10.3	12.9	2.5	100.0
West					
Goa	70.3	4.9	18.0	6.8	100.0
Gujarat	56.8	18.4	22.1	2.7	100.0
Maharashtra	51.0	20.0	25.6	3.4	100.0
South					
Andhra Pradesh	46.6	18.4	29.4	5.6	100.0
Karnataka	53.0	17.0	27.3	2.7	100.0
Kerala	75.3	1.2	19.6	3.9	100.0
Tamil Nadu	53.3	9.2	35.3	2.2	100.0

Maharashtra, Himachal Pradesh, Karnataka and Tamil Nadu. Women are least likely to work in Punjab (8 percent) and Uttar Pradesh (13 percent). Delhi follows the national pattern of low levels of urban employment of married women. In most states, the majority of working women work for someone outside the family. The particularly high proportion of females in Tamil Nadu working for someone outside the family (35 percent) is consistent with various government programmes to promote female employment in the state. However, in Haryana, Himachal Pradesh, Jammu, Rajasthan, Madhya Pradesh and Uttar Pradesh, the majority of working women work on the family farm or in the family business. The percentage of women who are self-employed is highest in Nagaland and Manipur.

Among ever-married women age 13-49, the proportion illiterate generally increases with age, reflecting improvements in levels of education over time (Table 3.17). A notably high

Percent distribution of ever-married women age 13-49 by highest level of education attained, according to selected background characteristics and residence, India, 1992-93

Background characteristic	Illiterate	Literate, <primary complete	Primary school complete	Middle school complete	High school complete	Above high school	Total percent	Number
				URBAN				
Age								
13-14	(60.8)	(18.9)	(15.7)	(4.6)	(--)	(--)	100.0	42
15-19	44.1	6.6	19.1	14.8	14.8	0.7	100.0	1376
20-24	35.1	5.9	16.5	14.9	19.5	8.1	100.0	4229
25-29	33.2	5.5	14.0	13.4	19.4	14.5	100.0	4705
30-34	34.2	7.5	14.1	11.3	18.5	14.4	100.0	4291
35-39	35.2	8.3	15.8	10.0	19.4	11.3	100.0	3715
40-44	41.6	9.0	15.1	10.1	15.2	9.1	100.0	2899
45-49	44.2	10.9	16.5	8.6	13.3	6.4	100.0	2197
Religion								
Hindu	34.7	6.7	15.3	12.6	18.9	11.7	100.0	17730
Muslim	52.1	11.1	16.4	8.5	9.2	2.7	100.0	3902
Christian	17.6	7.3	13.1	15.0	30.2	16.8	100.0	692
Sikh	25.3	1.7	16.8	11.8	28.0	16.6	100.0	419
Jain	7.8	5.1	13.1	9.3	34.2	30.5	100.0	311
Buddhist	50.8	9.8	14.9	12.4	9.1	3.0	100.0	342
Other	37.0	10.9	10.2	11.0	20.2	10.6	100.0	59
Caste/tribe								
Scheduled caste	64.2	5.9	12.1	7.7	7.7	2.2	100.0	2140
Scheduled tribe	53.6	7.3	12.6	9.0	12.3	5.3	100.0	762
Other	33.3	7.6	15.9	12.5	19.1	11.6	100.0	20553
Husband's education								
Illiterate	83.5	6.0	6.9	2.5	1.1	--	100.0	3983
Lit., < primary complete	58.7	18.0	15.4	6.3	1.2	0.3	100.0	1926
Primary school complete	51.4	10.9	22.5	9.4	5.3	0.5	100.0	3501
Middle school complete	32.3	9.5	23.8	22.1	11.3	1.0	100.0	3073
High school complete	18.0	6.0	19.6	18.4	31.3	6.7	100.0	6067
Above high school	5.3	2.3	6.8	9.4	34.7	41.5	100.0	4848
Missing	55.4	5.4	3.4	6.5	15.3	14.0	100.0	57
Total	36.8	7.4	15.4	12.0	17.9	10.6	100.0	23455

proportion of women in the age groups 13-14 and 15-19 (73 and 67 percent, respectively) are illiterate because women who marry young tend to be drawn selectively from among the less educated.

Almost two-thirds of Hindu and Muslim women are illiterate, as are one-third of Christians and one-half of Sikhs. The percentage of women who have completed at least a high school education is lowest among Muslims (6 percent), followed by Buddhists (7 percent), Hindus (11 percent), Sikhs (19 percent), and Christians (27 percent). Jains are the most highly educated group. Fifty-seven percent of Jain women have completed at least high school and only 10 percent are illiterate. Between 81 and 84 percent of women belonging to scheduled castes and scheduled tribes are illiterate compared with 58 percent of other women. A similar disadvantage of scheduled castes and scheduled tribes is also found at each level of schooling. With respect to the husband's education, 93 percent of women with illiterate husbands are illiterate themselves. Among husbands who have completed high school (but have not gone on

Percent distribution of ever-married women age 13-49 by highest level of education attained, according to selected background characteristics and residence, India, 1992-93

Background characteristic	Illiterate	Literate, <primary complete	Primary school complete	Middle school complete	High school complete	Above high school	Total percent	Number
			RURAL					
Age								
13-14	74.3	7.9	15.8	2.0	--	--	100.0	311
15-19	71.2	5.4	11.9	7.5	3.9	0.1	100.0	7719
20-24	67.4	5.8	11.7	7.8	6.4	1.0	100.0	13755
25-29	70.3	6.4	10.4	5.9	5.7	1.3	100.0	12735
30-34	71.8	6.7	10.4	5.2	4.7	1.2	100.0	10369
35-39	73.7	7.2	10.6	4.6	3.3	0.6	100.0	8746
40-44	78.6	6.8	8.2	3.5	2.4	0.5	100.0	6850
45-49	82.4	7.3	6.8	1.9	1.4	0.2	100.0	5838
Religion								
Hindu	73.5	5.9	10.0	5.4	4.4	0.8	100.0	55919
Muslim	74.0	9.4	9.9	4.5	1.8	0.4	100.0	6905
Christian	40.5	12.0	15.9	14.4	13.8	3.4	100.0	1450
Sikh	59.0	3.6	19.8	7.0	9.2	1.5	100.0	1254
Jain	16.8	13.0	14.4	18.5	31.4	6.0	100.0	117
Buddh st	67.0	12.7	10.7	6.5	3.1	--	100.0	392
Other	79.0	7.7	8.6	3.4	1.0	0.4	100.0	286
Caste/tribe								
Scheduled caste	85.4	3.8	5.8	3.1	1.8	0.1	100.0	8830
Scheduled tribe	87.6	4.4	3.9	2.5	1.4	0.2	100.0	7172
Other	68.0	7.2	12.1	6.5	5.3	1.0	100.0	50319
Husband's education								
Illiterate	93.8	2.8	2.7	0.6	0.1	--	100.0	27159
Lit., < primary complete	74.4	14.1	8.4	2.6	0.5	--	100.0	7147
Primary school complete	68.4	9.9	15.4	4.7	1.6	--	100.0	10647
Middle school complete	56.8	9.1	18.0	12.1	3.8	0.1	100.0	7662
High school complete	45.7	5.8	19.0	14.0	14.3	1.1	100.0	10395
Above high school	23.4	4.5	16.0	14.9	28.6	12.5	100.0	3177
Missing	71.8	3.8	14.9	4.6	4.8	--	100.0	136
Total	72.4	6.4	10.3	5.6	4.4	0.8	100.0	66322

to a higher level of education), three-fourths have married women with lower levels of education. As expected, urban respondents have lower levels of illiteracy and higher levels of education for all the background characteristics considered.

Tables 3.18 and 3.19 provide information on exposure of respondents to mass media. This type of information can be used as one measure of modernity and it can also he'p health and family welfare planners design appropriate information, education and communication (IEC) programmes. Almost half (47 percent) of NFHS respondents are not regularly exposed to any kind of mass media (television, radio or cinema). Only 44 percent of women normally listen to the radio at least once a week; 32 percent watch television at least once a week; and 15 percent go to a cinema hall or theatre to see a movie at least once a month. It was noted earlier (Table 3.13) that 39 percent of households own a radio and only 21 percent own a television. These facts point out the difficulty of diffusing information on family planning, health and other topics through the mass media.

Table 3.17 Respondent's level of education by background characteristics (Contd.)

Percent distribution of ever-married women age 13-49 by highest level of education attained, according to selected background characteristics and residence, India, 1992-93

Background characteristic	Respondent's level of education							
	Illiterate	Literate, <primary complete	Primary school complete	Middle school complete	High school complete	Above high school	Total percent	Number
TOTAL								
Age								
13-14	72.7	9.2	15.8	2.3	--	--	100.0	352
15-19	67.1	5.6	13.0	8.6	5.6	0.2	100.0	9095
20-24	59.8	5.8	12.8	9.5	9.5	2.6	100.0	17983
25-29	60.3	6.1	11.3	7.9	9.4	4.9	100.0	17442
30-34	60.8	6.9	11.5	7.0	8.8	5.0	100.0	14660
35-39	62.2	7.5	12.1	6.2	8.1	3.8	100.0	12461
40-44	67.6	7.4	10.2	5.5	6.2	3.1	100.0	9748
45-49	72.0	8.3	9.5	3.7	4.7	1.9	100.0	8036
Religion								
Hindu	64.1	6.1	11.3	7.2	7.9	3.4	100.0	73648
Muslim	66.1	10.0	12.2	5.9	4.5	1.2	100.0	10806
Christian	33.1	10.5	15.0	14.6	19.1	7.8	100.0	2142
Sikh	50.5	3.1	19.0	8.2	13.9	5.3	100.0	1673
Jain	10.3	7.2	13.5	11.8	33.4	23.8	100.0	428
Buddhist	59.4	11.3	12.7	9.3	5.9	1.4	100.0	734
Other	71.7	8.3	8.8	4.7	4.3	2.2	100.0	345
Caste/tribe								
Scheduled caste	81.3	4.2	7.0	4.0	3.0	0.5	100.0	10970
Scheduled tribe	84.3	4.7	4.7	3.1	2.4	0.7	100.0	7934
Other	57.9	7.3	13.2	8.2	9.3	4.1	100.0	70872
Husband's education								
Illiterate	92.5	3.2	3.2	0.8	0.3	--	100.0	31142
Lit., < primary complete	71.1	14.9	9.9	3.4	0.7	0.1	100.0	9073
Primary school complete	64.2	10.1	17.2	5.9	2.5	0.1	100.0	14148
Middle school complete	49.8	9.2	19.7	15.0	5.9	0.4	100.0	10735
High school complete	35.5	5.9	19.3	15.6	20.6	3.1	100.0	16461
Above high school	12.5	3.2	10.4	11.6	32.3	30.0	100.0	8025
Missing	67.0	4.3	11.5	5.2	7.9	4.1	100.0	193
Total	63.1	6.7	11.7	7.2	7.9	3.4	100.0	89777

( ) Based on 25-49 unweighted cases
-- Less than 0.05 percent

Exposure to mass media varies sharply according to women's place of residence, education, religion, and caste/tribe, but not as much according to their age. The proportion who watch television at least once a week ranges from 31 to 35 percent across the different age groups, except among women under age 20 who are less likely to watch television. This lower percentage no doubt occurs because women who marry young are selectively drawn from among the less educated and lower socioeconomic groups, as mentioned earlier. The proportion who listen to the radio at least once a week ranges from 34 to 45 percent, increasing up to age 20-24, after which it decreases slightly. The number who go to the cinema/theatre at least once a month ranges from 9 to 20 percent, with younger women more likely to attend than older women.

Media exposure is much greater in urban than in rural areas, regardless of the type of media. Eighty-one percent of urban women are regularly exposed to any media compared with

Table 3.18 Exposure to mass media

Percent of ever-married women age 13-49 who usually watch television or listen to the radio at least once a week or visit a cinema at least once a month or who are not regularly exposed to any of these media, by selected background characteristics, India, 1992-93

Background characteristic	Exposure to mass media				
	Watches television at least once a week	Listens to the radio at least once a week	Visits a cinema/theatre at least once a month	Not regularly exposed to any media	Number of women
Age					
13-14	17.3	34.1	19.6	54.6	352
15-19	22.6	41.0	18.2	50.5	9095
20-24	30.7	44.6	18.0	46.5	17983
25-29	33.0	44.5	17.1	46.1	17442
30-34	34.3	43.7	14.4	46.8	14660
35-39	35.3	43.6	13.3	46.0	12461
40-44	32.8	43.7	10.9	47.6	9748
45-49	31.2	40.8	9.2	50.8	8036
Residence					
Urban	68.2	63.5	27.6	19.1	23455
Rural	18.9	36.4	10.6	57.3	66322
Education					
Illiterate	15.1	28.9	9.2	64.2	56654
Lit., < middle complete	45.0	59.7	20.1	27.7	16475
Middle school complete	63.5	70.9	26.8	14.5	6508
High school and above	83.0	80.7	31.9	6.4	10138
Religion					
Hindu	31.2	43.3	15.7	47.7	73648
Muslim	27.6	40.4	11.0	51.4	10806
Christian	41.3	57.4	18.9	32.4	2142
Sikh	54.7	41.9	3.1	37.1	1673
Jain	85.0	78.0	28.4	8.6	428
Buddhist	46.6	50.4	15.6	36.4	734
Other	19.0	29.7	11.0	63.1	345
Caste/tribe					
Scheduled caste	22.7	34.8	13.8	56.0	10970
Scheduled tribe	12.0	25.3	6.3	70.2	7934
Other	35.4	46.8	16.2	43.4	70872
Total	31.8	43.5	15.0	47.3	89777

only 43 percent of rural women. Differences in media exposure by education are even more pronounced, with greater exposure for the more educated. Only 36 percent of illiterate women are regularly exposed to any media compared with 94 percent of women with at least a high school education. Hindus are slightly more exposed to mass media than Muslims (52 percent compared with 49 percent). Between 63 and 68 percent of Christian, Sikh and Buddhist women are regularly exposed to mass media, as are 91 percent of Jain women. Women from scheduled tribes are least exposed to all kinds of media. Scheduled caste women are also less likely to be exposed to mass media than non-SC/ST women. These differences may partly reflect underlying differences in place of residence or education.

Interstate variations in media exposure are presented in Table 3.19. More than three-fourths of women are regularly exposed to television, radio or the cinema in Delhi, Goa, Kerala,

Table 3.19 Exposure to mass media by state

Percent of ever-married women age 13-49 who usually watch television or listen to the radio at least once a week or visit a cinema at least once a month or who are not regularly exposed to any of these media, by state, India, 1992-93

State	Exposure to mass media			
	Watches television at least once a week	Listens to the radio at least once a week	Visits a cinema/theatre at least once a month	Not regularly exposed to any media
India	31.8	43.5	15.0	47.3
North				
Delhi	82.8	63.6	5.7	13.3
Haryana	49.0	42.2	2.0	39.9
Himachal Pradesh	47.1	54.6	2.9	33.2
Jammu Region of J & K	50.1	64.2	2.5	27.8
Punjab	57.3	42.0	2.3	34.5
Rajasthan	17.9	27.2	5.2	69.9
Central				
Madhya Pradesh	26.7	32.7	10.0	59.0
Uttar Pradesh	19.0	29.7	4.1	64.5
East				
Bihar	12.7	25.9	5.2	70.5
Orissa	16.1	34.9	7.4	60.5
West Bengal	33.3	48.3	16.1	38.7
Northeast				
Arunachal Pradesh	28.7	40.7	14.4	53.4
Assam	18.0	32.8	4.2	60.9
Manipur	38.2	63.1	16.5	32.2
Meghalaya	23.8	37.6	5.4	53.6
Mizoram	25.3	55.1	0.6	38.7
Nagaland	22.5	42.4	1.5	55.4
Tripura	34.3	56.7	6.7	34.5
West				
Goa	70.6	69.3	3.9	14.8
Gujarat	39.4	47.0	9.5	44.6
Maharashtra	46.4	52.3	14.9	37.2
South				
Andhra Pradesh	39.1	62.4	48.8	24.8
Karnataka	39.5	62.9	30.3	29.9
Kerala	42.2	71.3	18.3	20.8
Tamil Nadu	50.4	59.7	42.6	22.0

Tamil Nadu, and Andhra Pradesh. Less than 40 percent of women are regularly exposed to mass media in Rajasthan, Bihar, Uttar Pradesh, Assam and Orissa. The states differ most in the exposure of women to television. Only 13-19 percent of women watch television at least once a week in Bihar, Orissa, Assam, Rajasthan and Uttar Pradesh. On the other hand, more than 70 percent of women regularly watch television in Delhi and Goa. The penetration of television is also relatively high in Punjab, Tamil Nadu and Jammu, where more than half of women are regularly exposed to television. The southern states have the highest percentage of women who visit a cinema/theatre at least once in month. Among the remaining states, cinema watching is more common in Manipur, West Bengal, Maharashtra, Arunachal Pradesh and Madhya Pradesh.

CHAPTER 4

NUPTIALITY

This chapter presents findings on marriage patterns from the National Family Health Survey. Marriage is important in its own right, and also because it influences fertility and population growth, affects the nature of family relationships, and is inextricably linked to the status of women. After examining current marital status distributions, this chapter considers age at first marriage, age at first cohabitation, and marriage between relatives. State differentials in age at marriage and the incidence of consanguineous marriages are also presented in this chapter. Before discussing the findings of the NFHS on marriage patterns in India, it is useful to describe the salient features of the marriage system in India.

4.1   Marriage in India

Marriage is the basis of social life and is a matter of great importance in India. By that very fact, marriage is subject to strict rules and prohibitions. One of these rules, laid down by Hindu scriptures, is that marriage should take place as soon as the girl reaches puberty, or else the father or guardian commits a grave fault. If he finds a good bridegroom, the father may arrange her marriage even before puberty (Renou, 1959). Child wives are expected to live with their parents until puberty. Traditionally, virginity was highly respected, and was regarded as a sign of the elite and an index to high caste. Consequently, marriages with no possibility of suspicion regarding the virginity of the girl were considered most desirable. This is one of the reasons why even today parents are very concerned and anxious once their daughters attain puberty (Kapadia, 1966). According to Kapadia, a further impetus to prepuberty marriages was given by attaching social prestige to them. To have one's daughter betrothed before puberty was also considered a sign of one's affluence, influence or status. "Under the operation of these various forces early marriages became more popular, and with the passing of time the practice became so compelling that a departure from it was a matter of social disgrace" (Kapadia, 1966).

Various laws have been enacted in India to prevent child marriages. The Child Marriage Restraint Act, which is commonly known as the Sarda Act, was enacted in 1929 and was applicable at that time only to British India. Initially the Act placed restrictions on marriages of girls below age 12 and boys below age 15. However, in its final form, the Act specified the minimum age at marriage for females and males to be 14 and 18 years, respectively. Through an amendment of this Act in 1949, the legal minimum age at marriage for females was raised to 15. According to the Child Marriage Restraint Act of 1978, the minimum legal age at marriage in India is 18 years for women and 21 years for men. Registration of marriages is not compulsory in India.

Traditionally, divorce and separation have not been common in India. Marriage has been considered as a union of souls and not merely of bodies. Writing about Hindu marriage, Dass in his study on Rigvedic Culture observes: "It is more solemn affair in a man or woman's life, upon which depends his or her worldly and spiritual welfare and final emancipation from bonds that tie him or her down to the earth. It is certainly not a thing to be donned or doffed at one's pleasure. It is an eternal bond that binds two souls together for ever and each suffers for other's lapses and derelictions. It is not a contract with them, but a sacrament and there is no breaking

away or parting from the union" (as quoted by Goyal, 1988).

However, the proportion of widows has been relatively high in India because of the considerable age gap between husbands and wives, high levels of mortality, and restrictions on remarriage. Traditionally, remarriage is more permissible for men than for women. Remarriages among high caste Hindu women were socially prohibited, but such restrictions did not exist for low caste Hindu women (Agarwala, 1985). The restrictions on remarriages still prevail, particularly in rural areas.

Another facet of marriage in India is the dowry. The custom of dowry in the form of the presentation of gifts to the bridegroom by parents or guardians of brides has prevailed in India since ancient times. According to the Hindu *Dharmashastras*, among the eight forms of marriages, the most approved form, the *Brahma Vivah*, is that in which a maiden or virgin girl is decorated with ornaments and is given by her father to a suitable partner. The most emphatically denounced form of marriage is that in which money is paid to the father or kinsman of the bride by the bridegroom, in other words, where the bride is purchased (Prabhu, 1963; Kapadia, 1966). The custom of giving dowry may also be rooted in the desire of parents to show affection for their daughters who are married at a very early age (Hooja, 1969). These days, however, the dowry is a matter of status for the bride's family - the bigger the dowry and grander the ceremony, the greater the prestige to the family.

Although the practice is officially outlawed, a dowry is still expected in the majority of cases. For poorer families the marriage can become a huge financial burden. Many families are forced to borrow the money, either for the daughter's dowry or to stage a lavish ceremony and feast (or both), usually at high rates of interest. The system of dowry also perpetuates early marriages in that parents wish to have their daughter marry young, when less dowry is demanded.

4.2   Current Marital Status

Table 4.1 shows the current marital status of women by residence and age. Information on marital status comes from the Woman's Questionnaire, except for the information on never-married women, which comes from the Household Questionnaire. Table 4.1 contains similar information to Table 3.5, which also includes information for males and covers a wider range of ages. The percentages never married in the two tables differ slightly due to differential nonresponse among eligible women.

Table 4.1 suggests that marriage is virtually universal in India and that marriages in rural areas take place at relatively young ages. At age 15-19, 39 percent of women in India have ever been married. The proportions ever married at age 15-19 are much lower in urban areas (22 percent) than in rural areas (46 percent). Not only do the marriages take place at later ages in urban areas, the proportion of women age 35-49 who remain unmarried is also slightly higher in urban areas (2 percent) than in rural areas (less than 1 percent). The percent of ever-married women increases rapidly with age from 82 percent of women age 20-24 to 98 percent of women age 30-34. Only 1 percent of women age 35-39 remain unmarried. The proportions divorced and separated together account for less than 2 percent of the total sample of women age 15-49. Only 3 percent of women age 15-49 are widowed, and the proportion widowed increases with

Table 4.1 Current marital status

Percent distribution of women age 15-49 by current marital status, according to age and residence, India, 1992-93

| | Marital status | | | | | |
Age	Never married	Currently married	Widowed	Divorced	Separated	Total percent
URBAN						
15-19	78.2	21.3	0.1	0.1	0.3	100.0
20-24	31.8	66.4	0.5	0.2	1.1	100.0
25-29	8.9	88.1	1.2	0.3	1.4	100.0
30-34	3.1	92.2	2.6	0.5	1.7	100.0
35-39	1.7	92.4	4.5	0.2	1.3	100.0
40-44	1.9	88.1	8.4	0.3	1.3	100.0
45-49	1.6	82.8	13.9	0.3	1.4	100.0
Total	24.6	70.9	3.0	0.3	1.1	100.0
RURAL						
15-19	54.4	44.7	0.1	0.1	0.6	100.0
20-24	13.2	84.5	0.8	0.2	1.3	100.0
25-29	2.9	93.4	1.6	0.3	1.8	100.0
30-34	1.1	93.7	3.2	0.4	1.7	100.0
35-39	0.6	92.1	5.5	0.3	1.6	100.0
40-44	0.3	89.1	8.8	0.1	1.6	100.0
45-49	0.5	86.0	11.9	0.2	1.3	100.0
Total	15.3	80.0	3.2	0.2	1.3	100.0
TOTAL						
15-19	60.7	38.4	0.1	0.1	0.6	100.0
20-24	18.5	79.4	0.7	0.2	1.3	100.0
25-29	4.7	91.9	1.5	0.3	1.7	100.0
30-34	1.7	93.2	3.0	0.4	1.7	100.0
35-39	0.9	92.2	5.2	0.2	1.5	100.0
40-44	1.1	88.5	8.7	0.2	1.5	100.0
45-49	0.6	85.3	12.5	0.2	1.3	100.0
Total	17.9	77.4	3.1	0.3	1.3	100.0

age from less than 1 percent among women below age 25 to 13 percent among women age 45-49. The lower proportion of widows at younger ages may partly be due to lower mortality and partly due to the greater likelihood of widows remarrying in the younger age groups (Agarwala, 1985).

The proportions of women of different ages who are currently married in each state are presented in Table 4.2. Early marriages are common in Madhya Pradesh, Andhra Pradesh and Bihar where more than 50 percent of women age 15-19 are currently married. Marriages also occur relatively early in Haryana and Uttar Pradesh, where 40-44 percent of women age 15-19 and 88 percent of women age 20-24 are currently married. Women tend to marry late in Kerala, Punjab and in the smaller states of Goa, Manipur, Mizoram and Nagaland, with less than 15 percent of women age 15-19 in these states being currently married. In almost every state, the percentage currently married increases with an increase in the age of women up to age 25-29, levels off at age 30-39 and thereafter gradually declines, mainly because of the increase in

Table 4.2	Percentage currently married by age								

Percentage of women age 15-49 who are currently married and percentage of ever-married women married more than once, by age and state, India, 1992-93

State	Current age							Total	Percent married more than once[1]
	15-19	20-24	25-29	30-34	35-39	40-44	45-49		
India	38.4	79.4	91.9	93.2	92.2	88.5	85.3	77.4	1.6
North									
Delhi	18.6	69.5	92.4	95.3	94.4	9?.8	84.1	74.3	0.6
Haryana	44.1	88.4	97.0	97.2	95.3	91.2	88.4	82.5	1.1
Himachal Pradesh	19.3	74.9	94.3	92.6	95.3	89.5	86.7	73.9	1.8
Jammu Region of J & K	18.0	62.9	91.9	94.6	94.2	90.7	88.4	68.7	0.9
Punjab	14.4	66.9	93.3	96.0	94.9	92.2	87.8	70.8	0.7
Rajasthan	38.3	87.5	97.9	97.2	96.0	93.1	90.4	81.3	0.9
Central									
Madhya Pradesh	61.9	88.7	94.1	94.2	95.0	95.0	89.0	86.9	2.5
Uttar Pradesh	39.6	88.0	96.8	96.3	95.3	92.0	88.6	80.8	1.6
East									
Bihar	50.3	88.6	95.2	96.1	93.1	90.6	86.0	82.9	1.8
Orissa	27.5	70.9	90.7	93.5	89.7	90.9	83.6	71.8	1.5
West Bengal	40.0	77.5	88.6	88.7	88.9	85.1	83.1	74.8	1.8
Northeast									
Arunachal Pradesh	28.6	75.8	88.8	91.3	90.2	87.8	82.7	72.0	2.1
Assam	31.0	60.9	80.5	87.2	86.8	78.3	77.5	65.5	2.0
Manipur	6.0	41.0	67.4	81.7	88.5	86.0	86.1	55.5	1.2
Meghalaya	18.3	61.0	84.4	88.1	85.6	83.9	77.0	64.8	2.0
Mizoram	9.2	40.8	70.0	80.2	92.8	85.6	81.7	56.6	2.8
Nagaland	11.3	50.6	75.1	81.3	90.5	81.2	88.9	61.0	0.4
Tripura	25.8	61.5	82.1	85.8	91.9	85.5	80.3	67.2	1.2
West									
Goa	3.1	28.8	68.3	86.2	90.9	85.6	81.2	55.7	0.3
Gujarat	22.0	74.5	92.3	95.2	94.4	89.1	86.6	73.9	2.1
Maharashtra	36.2	78.3	89.0	92.3	91.1	87.6	86.2	75.8	1.7
South									
Andhra Pradesh	52.2	85.7	92.3	91.9	89.1	84.3	81.4	80.1	1.6
Karnataka	37.0	72.8	89.7	90.0	89.6	81.9	79.0	72.8	0.4
Kerala	13.4	52.8	82.8	87.3	88.6	83.6	78.4	64.6	2.1
Tamil Nadu	24.4	71.4	88.2	88.8	89.2	87.1	82.2	71.5	0.9

[1]Ever-married women age 13-49.

widowhood at later ages.

Table 4.2 also provides information on the percentage of ever-married women who have been married more than once. Overall, 2 percent of ever-married women in India have been married more than once. The proportion is low in all states, varying from 0.3 percent in Goa to around 3 percent in Mizoram.

4.3 Age at First Marriage

The description of marriage patterns can be sharpened by examining values of the Singulate Mean Age at Marriage (SMAM), which is calculated from the age-specific proportions never married for age groups 15-19 through 45-49 (Hajnal, 1953; Shryock and Siegel, 1980). Table 4.3 presents female and male SMAMs computed from the 1961, 1971, and 1981 Census, and from the NFHS, for India and the states. For India as a whole, female values of SMAM from the NFHS are 21.5 years in urban areas, 19.3 in rural areas, and 20.0 overall. On average, males marry 5 years later than females. Marriage ages are consistently higher in urban areas, with urban men marrying about two years later than rural men, and urban women also marrying two years later than their rural counterparts. Together, the Census and NFHS SMAMs in Table 4.3 also indicate how age at marriage has been changing in the country. Between 1961 and 1992-93, the SMAM for females rose by 4.1 years, from 15.9 years of age to 20.0. Over the same period, the SMAM for males rose by 3.1 years, from 21.9 to 25.0.

There are large interstate variations in SMAM. In almost every state, men marry later than women, and men and women marry earlier in rural areas than in urban areas. The female SMAM is lowest in Madhya Pradesh (17.4 years) and highest in Goa (25.1 years). Among the major states (states with a population of more than 5 million in 1991), the female SMAM is higher than 20 years in Kerala, Assam, Punjab, Delhi, Orissa, Tamil Nadu, Himachal Pradesh and Gujarat. On the other hand, the mean age at marriage for females is less than 19 years in Madhya Pradesh, Bihar, Andhra Pradesh, Rajasthan, Haryana and Uttar Pradesh. The female age at marriage is relatively high in the northeastern states, particularly in Manipur. Similar differences across the states are also observed for the SMAM for males. The difference between the male and female SMAMs is relatively large (6-7 years) in West Bengal, Assam, Tripura, Karnataka and Kerala.

More detailed information from the NFHS on female age at first marriage is shown in Table 4.4, which shows the percentage of all women who were ever married by specified exact ages. The table shows a clear trend toward rising age at marriage, with especially large declines in marriage at very young ages. The proportion marrying before age 13 declines from 27 percent in the 45-49 age cohort to less than 7 percent in the 15-19 age cohort, and the proportion marrying before age 15 declines from 45 percent in the 45-49 age cohort to 17 percent in the 15-19 age cohort. Although marriages before age 15 have declined considerably, marriages before the legal minimum age at marriage of 18 years are still quite common. For instance, 54 percent of women currently age 20-24 married before age 18, and this percentage is much higher in rural (63 percent) than in urban areas (33 percent). Declines in age at marriage are less pronounced, but still large, at higher exact age cutoffs.

Table 4.5 shows the median age at first marriage[1] for females by age group and selected background characteristics. The median age at first marriage is used instead of the mean age at marriage (where both are calculated directly from reported ages at marriage) because the median, unlike the mean, is not biased by age truncation. (The survey interview marks the point

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[1] Median age at first marriage is not calculated for age cohorts in which fewer than 50 percent of the women were married by the age that defines the lower boundary of the age group.

Table 4.3 Singulate mean age at marriage

Singulate mean age at marriage from selected sources, by sex and state, India, 1961-1993

| | 1961 Census | | 1971 Census | | 1981 Census | | NFHS 1992-93 | | | | | |
| | | | | | | | Urban | | Rural | | Total | |
State	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
India	21.9	15.9	22.6	17.2	23.5	18.4	26.3	21.5	24.4	19.3	25.0	20.0
North												
Delhi	23.3	18.7	24.0	20.0	24.3	20.5	24.4	21.0	24.1	19.0	24.3	20.9
Haryana	U	U	20.9	17.7	25.2	17.9	24.4	19.9	22.6	17.9	23.1	18.4
Himachal Pradesh	22.2	15.6	23.5	17.8	24.2	19.1	26.1	22.3	24.9	20.2	25.0	20.4
Jammu Region of J & K	U	U	U	U	U	U	27.5	23.1	26.0	20.9	26.3	21.2
Punjab	22.6	17.5	24.1	20.1	25.0	21.1	25.5	21.7	24.6	20.9	24.8	21.1
Rajasthan	19.6	14.2	19.9	15.1	20.6	16.1	24.9	20.5	22.2	17.9	22.7	18.4
Central												
Madhya Pradesh	18.7	13.9	19.5	15.0	20.8	16.6	24.9	19.7	21.0	16.7	22.0	17.4
Uttar Pradesh	19.4	14.5	19.8	15.5	21.3	16.7	25.2	20.9	22.4	17.9	23.0	18.6
East												
Bihar	18.9	14.3	20.0	15.3	21.6	16.6	25.3	20.3	22.7	17.6	23.2	18.0
Orissa	21.9	16.4	22.7	17.3	24.3	19.1	27.2	21.8	25.3	20.4	25.6	20.7
West Bengal	24.3	15.9	24.6	18.0	26.0	19.3	27.6	21.8	25.0	18.1	25.9	19.2
Northeast												
Arunachal Pradesh	U	U	25.6	19.6	U	U	25.6	19.3	24.8	20.0	24.9	20.0
Assam	25.9	18.6	25.8	18.7	U	U	29.2	23.0	27.7	21.4	27.9	21.6
Manipur	24.8	19.9	26.4	22.2	27.3	23.4	29.0	26.5	28.0	24.2	28.3	25.0
Meghalaya	U	U	25.5	20.2	26.0	21.0	27.1	23.3	24.6	20.6	25.1	21.2
Mizoram	U	U	U	U	U	U	28.5	24.0	26.9	21.4	27.8	22.9
Nagaland	26.2	22.2	27.8	24.0	29.0	24.8	26.3	19.0	25.7	22.8	25.8	22.7
Tripura	24.1	16.3	25.3	18.4	26.8	20.3	28.6	22.4	27.1	20.9	27.3	21.2
West												
Goa	27.1	20.9	U	U	28.5	23.0	30.7	25.0	30.5	25.2	30.6	25.1
Gujarat	21.7	17.1	22.4	18.5	23.3	19.6	24.8	20.6	23.5	20.0	23.9	20.2
Maharashtra	22.6	15.8	23.8	17.6	24.4	18.8	25.8	21.0	24.1	17.9	24.9	19.3
South												
Andhra Pradesh	22.3	15.2	22.8	16.3	23.1	17.3	25.6	20.3	22.8	17.3	23.6	18.1
Karnataka	24.7	16.4	25.2	17.9	26.0	19.3	26.9	20.8	25.6	19.0	26.1	19.6
Kerala	26.6	20.2	27.0	21.3	27.5	22.1	28.7	23.2	27.9	21.7	28.1	22.1
Tamil Nadu	25.3	18.4	26.1	19.6	26.1	20.3	27.3	21.3	25.9	20.0	26.4	20.5

U: Not available

Table 4.4 Age at first marriage

Percentage of women married by specific exact ages, by current age and residence, India, 1992-93

Current age[1]	Percentage ever married before age:						Percent never married
	13	15	18	20	22	25	
URBAN							
15-19	1.8	5.5	NA	NA	NA	NA	78.2
20-24	3.9	10.9	32.6	52.5	NA	NA	31.8
25-29	5.9	16.1	40.9	59.9	73.5	86.5	8.9
30-34	6.8	16.9	46.2	65.1	78.1	89.3	3.1
35-39	8.9	20.8	51.9	69.8	81.5	91.4	1.7
40-44	11.9	25.6	56.1	73.6	85.0	92.9	1.9
45-49	13.6	27.9	59.2	77.2	87.4	94.4	1.6
20-49	7.4	17.9	44.9	63.7	75.8	84.6	11.0
25-49	8.6	20.2	49.0	67.4	79.7	90.1	4.1
RURAL							
15-19	8.6	21.3	NA	NA	NA	NA	54.4
20-24	14.9	32.0	62.8	78.8	NA	NA	13.2
25-29	18.1	38.0	71.2	84.7	91.8	95.8	2.9
30-34	22.2	41.5	74.6	87.4	93.8	97.2	1.1
35-39	24.7	44.9	77.8	88.8	94.8	97.6	0.6
40-44	27.0	47.6	79.8	90.8	96.5	98.5	0.3
45-49	31.6	51.6	80.8	91.0	96.3	98.5	0.5
20-49	21.2	40.4	72.4	85.5	91.8	94.5	4.4
25-49	23.4	43.4	75.8	87.9	94.2	97.2	1.3
TOTAL							
15-19	6.8	17.0	NA	NA	NA	NA	60.7
20-24	11.8	26.1	54.2	71.4	NA	NA	18.5
25-29	14.7	31.8	62.6	77.7	86.6	93.1	4.7
30-34	17.6	34.2	66.2	80.7	89.1	94.9	1.7
35-39	19.9	37.6	70.0	83.1	90.8	95.7	0.9
40-44	22.4	40.8	72.4	85.3	92.7	96.5	1.1
45-49	26.7	45.1	75.0	87.3	94.0	97.5	0.6
20-49	17.2	33.9	64.5	79.2	87.1	91.6	6.4
25-49	19.1	36.6	68.0	81.9	89.9	95.1	2.2

NA: Not applicable
[1]The current age groups include both never-married and ever-married women.

of age truncation.) For example, in the 20-24 age cohort in Table 4.5, the mean age at first marriage will ultimately be influenced by marriages that occur in this cohort after the survey. But the median age at first marriage for the cohort will not be so affected, because more than 50 percent of the women in the cohort married before age 20, implying that the median is determined before the survey occurred. It follows that the variation in median age at first marriage by age cohort, from oldest to youngest, reflects a trend over time that is not biased by age truncation.

The median age at first marriage increases steadily from 15.5 years for women in the 40-49 age cohort to 17.4 years in the 20-24 age cohort, a rise of 2.0 years. The median age at marriage is higher among women who are currently living in urban areas than among those

currently living in rural areas, but both groups show a similar decline across cohorts. Indeed, the decline has been slightly greater in urban than in rural areas. Urban women marry about three years later than rural women.

The median age at first marriage is higher the more educated the woman is, with the median among women who have completed high school exceeding the median among illiterate women by six years. There are also differences by religion, with Christians and Sikhs marrying four years later than Hindus. There is no difference in the median age at first marriage between Hindus and Muslims in any of the age groups. The differences in the median age at marriage by caste/tribe are moderate. The median age at marriage for women age 25-49 is lowest among scheduled caste women (15.0 years), and highest among non-SC/ST women (16.3 years), with scheduled tribe women marrying, on average, about half a year earlier than non-SC/ST women.

States differ considerably in the median age at first marriage (Table 4.6). At least half of women age 20-49 married at or below age 15 in Madhya Pradesh, Bihar, Rajasthan, Uttar Pradesh, and Andhra Pradesh. Only in a few smaller states (Manipur, Mizoram, Nagaland and Goa) and Kerala is the median age at marriage 20 years or higher.

The median age at marriage exhibits a consistent gradual rise from the oldest to the youngest cohorts in all states except Rajasthan and the smaller states of Arunachal Pradesh, Meghalaya, Mizoram and Nagaland. However, even these five states have exhibited a rise in

Table 4.5 Median age at first marriage by background characteristics

Median age at first marriage among women age 20-49 years, by current age and selected background characteristics, India, 1992-93

Background characteristic	Current age						
	20-24	25-29	30-34	35-39	40-49	20-49	25-49
Residence							
Urban	19.7	18.8	18.3	17.8	17.1	18.4	18.1
Rural	16.5	15.9	15.6	15.3	15.0	15.7	15.5
Education							
Illiterate	15.5	15.3	15.2	14.9	14.7	15.1	15.0
Lit., < middle complete	18.0	17.1	16.9	16.7	16.6	17.1	16.8
Middle school complete	19.1	18.7	18.3	18.4	18.1	18.6	18.4
High school and above	NC	21.7	21.4	21.0	20.8	NC	21.3
Religion							
Hindu	17.2	16.4	16.1	15.8	15.4	16.1	15.9
Muslim	17.2	16.4	16.0	15.8	15.5	16.2	15.9
Christian	NC	20.4	20.5	19.9	19.4	NC	20.0
Sikh	NC	20.4	19.6	18.9	18.8	NC	19.5
Other	18.8	17.7	18.1	16.7	16.1	17.7	17.1
Caste/tribe							
Scheduled caste	15.9	15.3	15.2	14.8	14.5	15.2	15.0
Scheduled tribe	16.4	16.1	15.8	15.6	15.6	15.9	15.8
Other	17.8	16.8	16.5	16.2	15.7	16.6	16.3
Total	17.4	16.6	16.3	15.9	15.5	16.4	16.1

NC: Not calculated because less than 50 percent of the women have married for the first time by age 20

Table 4.6 Median age at first marriage by state

Median age at first marriage among women age 20-49 years, by current age and state, India, 1992-93

State	Current age						
	20-24	25-29	30-34	35-39	40-49	20-49	25-49
India	17.4	16.6	16.3	15.9	15.5	16.4	16.1
North							
Delhi	19.7	18.7	18.5	18.5	17.2	18.6	18.3
Haryana	17.1	16.4	16.2	15.9	15.8	16.3	16.0
Himachal Pradesh	19.7	18.6	17.9	17.2	16.6	18.2	17.7
Jammu Region of J & K	NC	19.1	18.3	16.7	16.4	18.6	17.8
Punjab	NC	19.8	19.1	18.8	18.7	19.5	19.0
Rajasthan	15.9	15.2	14.9	15.1	15.0	15.2	15.0
Central							
Madhya Pradesh	15.4	14.9	14.5	14.3	14.0	14.7	14.5
Uttar Pradesh	16.4	15.6	15.2	15.0	14.5	15.4	15.1
East							
Bihar	15.8	15.4	14.9	14.6	13.9	15.0	14.7
Orissa	18.5	17.4	17.0	16.2	15.9	17.0	16.6
West Bengal	17.3	16.6	16.4	15.8	15.1	16.3	16.0
Northeast							
Arunachal Pradesh	18.5	17.9	18.2	18.2	18.9	18.3	18.2
Assam	18.7	17.6	17.2	16.8	16.2	17.4	16.9
Manipur	NC	22.1	21.5	20.5	19.8	NC	20.8
Meghalaya	NC	19.1	18.4	19.0	19.4	19.3	19.0
Mizoram	NC	21.9	20.4	20.9	21.1	NC	21.0
Nagaland	NC	21.0	19.3	20.0	20.1	NC	20.1
Tripura	18.9	17.8	18.1	16.9	16.3	17.6	17.2
West							
Goa	NC	24.1	22.5	21.0	20.0	NC	21.7
Gujarat	19.1	18.3	18.2	17.6	17.4	18.2	17.9
Maharashtra	17.5	16.6	16.4	16.1	15.3	16.4	16.1
South							
Andhra Pradesh	15.9	15.4	15.2	15.0	14.6	15.3	15.1
Karnataka	17.9	16.9	16.6	16.6	16.2	16.8	16.6
Kerala	NC	20.6	20.3	19.6	19.0	NC	19.8
Tamil Nadu	19.3	18.7	18.6	18.0	17.1	18.3	18.1

NC: Not calculated because less than 50 percent of the women have married for the first time by age 20

the median age at marriage among the younger cohorts. The increase in the age at marriage has been the greatest in Goa, where the median increased from 20.0 years for the women age 40-49 to 24.1 years for the 25-29 age cohort, a rise of more than four years. The difference in the median age at marriage between the youngest and oldest cohorts is also more than two years in Himachal Pradesh, Jammu, Orissa, Tripura, Delhi, Assam, Manipur, West Bengal, Maharashtra and Tamil Nadu.

In the NFHS, respondents were asked about their knowledge of the legal minimum age at marriage for males and females in India. Table 4.7 presents the percentage of women who reported correctly the minimum legal age at marriage in India, according to selected background characteristics. Perhaps because of its weak enforcement, the legal minimum age at marriage

Table 4.7 Knowledge of minimum legal age at marriage

Percent distribution of ever-married women age 13-49 who correctly know the minimum legal age at marriage for males and females, by selected background characteristics, India, 1992-93

Background characteristic	Percentage who correctly know legal minimum age at marriage: For males	For females	Number of women
Age			
13-19	15.8	27.5	9447
20-29	21.2	34.2	35424
30-39	20.9	35.2	27122
40-49	17.3	31.2	17784
Residence			
Urban	38.9	57.3	23455
Rural	13.0	24.7	66322
Education			
Illiterate	7.4	16.2	56656
Lit., < middle complete	26.7	50.1	16475
Middle school complete	42.8	67.1	6508
High school and above	63.0	79.3	10138
Religion			
Hindu	19.6	32.5	73648
Muslim	14.8	31.4	10806
Christian	30.9	49.6	2142
Sikh	33.3	41.3	1673
Jain	59.8	78.3	428
Buddhist	29.9	48.9	734
Other	9.5	21.3	345
Caste/tribe			
Scheduled caste	12.5	22.8	10970
Scheduled tribe	7.5	15.5	7934
Other	22.3	36.8	70872
Total	19.8	33.2	89777

is not widely known among women in India. Overall, only one-third of respondents can correctly identify 18 as the legal minimum age at marriage for females, and only one-fifth can correctly identify 21 as the legal minimum age at marriage for males. The provisions of the law are better known in urban areas, where 57 percent of the respondents can correctly identify the legal minimum age at marriage for females, than in rural areas, where only 25 percent know the legally mandated minimum age for females. Knowledge of legal minimum age requirements also varies by literacy and educational attainment. Sixty-three percent of women with a high school education or above know the legal minimum age at marriage for males, and 79 percent know it for females. In contrast, only 7 and 16 percent of illiterate women correctly specify the legal minimum age at marriage for males and females, respectively. Jain women are most likely to know the minimum legal age at marriage for males and females, with Hindu and Muslim women least likely to know about the legal age requirements for marriage. Knowledge about the legal minimum age at marriage is also relatively high among non-SC/ST women than among scheduled caste and scheduled tribe women. For every group of women shown in Table 4.7, the legal minimum age at marriage for males is less well known than is the legal minimum age

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at marriage for females.

Legal minimum age requirements for marriage are best known in the high literacy states of Kerala, Delhi, Himachal Pradesh, and Mizoram, where between 55 and 65 percent of women can correctly identify age 18 as the legal minimum age at marriage for females (Table 4.8). Less than one-quarter of women know the minimum legal age at marriage for females in Assam, Bihar, Arunachal Pradesh, Orissa, Manipur, Nagaland and Madhya Pradesh. Interestingly, knowledge of the minimum legal age requirements is not widespread in Manipur and Goa, the two states with the highest mean age at marriage for females (25 years, see Table 4.3). Thus the fact that a large majority of women in Manipur and Goa are married after attaining the legal minimum age at marriage apparently reflects social norms and economic conditions more than knowledge of the legal minimum age at marriage. In every state, the legal minimum age at

Table 4.8 Knowledge of minimum legal age at marriage by state

Percentage of ever-married women age 13-49 who correctly know the minimum legal age at marriage for males and females, by state, India, 1992-93

| State | Percentage who correctly know legal minimum age at marriage: | |
	For males	For females
India	19.8	33.2
North		
Delhi	50.5	65.4
Haryana	27.5	40.9
Himachal Pradesh	28.9	56.3
Jammu Region of J & K	21.0	33.9
Punjab	33.0	41.1
Rajasthan	18.0	26.9
Central		
Madhya Pradesh	15.9	24.6
Uttar Pradesh	17.7	26.9
East		
Bihar	12.8	18.9
Orissa	6.5	19.1
West Bengal	10.7	31.6
Northeast		
Arunachal Pradesh	3.7	19.0
Assam	3.8	18.8
Manipur	5.1	20.9
Meghalaya	13.7	27.7
Mizoram	28.4	54.7
Nagaland	16.9	23.8
Tripura	5.6	28.2
West		
Goa	24.7	35.9
Gujarat	23.6	33.7
Maharashtra	31.4	49.1
South		
Andhra Pradesh	27.0	38.0
Karnataka	23.7	40.9
Kerala	27.6	65.3
Tamil Nadu	19.6	38.9

marriage is better known for males than females.

4.4 Age at First Cohabitation

Table 4.9 shows median ages at which the respondents started living with their husbands. The age at first marriage (Table 4.5) and the age at first cohabitation given in Table 4.9 may differ because formal marriage is not always immediately followed by living with the husband,

Table 4.9 Age at first cohabitation with husband

Percentage of women who started living with husband by specific exact ages, and median age at first cohabitation with husband, by current age and residence, India, 1992-93

Current age[1]	Percentage who started living with husband before age:						Percent never cohabited	Median age at first cohabitation with husband
	13	15	18	20	22	25		
URBAN								
15-19	0.8	4.5	NA	NA	NA	NA	78.2	NC
20-24	1.8	8.3	31.3	52.0	NA	NA	31.8	19.8
25-29	2.3	12.4	39.3	59.3	73.3	86.4	8.9	18.9
30-34	2.7	12.7	44.1	64.2	77.8	89.2	3.1	18.4
35-39	3.8	15.4	49.5	69.1	81.2	91.3	1.7	18.0
40-44	5.1	19.8	53.1	72.5	84.6	92.8	1.9	17.6
45-49	5.2	20.8	55.8	75.6	87.1	94.1	1.6	17.4
20-49	3.1	13.5	42.8	62.9	75.5	84.5	11.0	18.6
25-49	3.5	15.3	46.7	66.5	79.4	90.0	4.1	18.3
RURAL								
15-19	2.7	14.6	NA	NA	NA	NA	54.4	NC
20-24	4.8	21.9	58.1	77.1	NA	NA	13.2	17.2
25-29	5.9	26.1	65.8	82.4	91.0	95.5	2.9	16.6
30-34	6.5	27.2	68.6	85.2	93.0	96.8	1.1	16.4
35-39	8.0	29.7	71.2	86.7	94.1	97.3	0.6	16.2
40-44	8.6	31.8	73.0	88.4	95.6	98.2	0.3	16.1
45-49	9.9	34.3	73.5	87.9	95.1	98.0	0.5	16.0
20-49	6.7	27.1	66.6	83.3	91.0	94.2	4.4	16.5
25-49	7.4	29.0	69.6	85.5	93.3	96.9	1.3	16.3
TOTAL								
15-19	2.2	11.9	NA	NA	NA	NA	60.7	NC
20-24	3.9	18.0	50.6	70.0	NA	NA	18.5	17.9
25-29	4.9	22.2	58.3	75.9	86.0	92.9	4.7	17.1
30-34	5.4	22.9	61.3	79.0	88.5	94.5	1.7	16.9
35-39	6.8	25.4	64.7	81.4	90.2	95.5	0.9	16.7
40-44	7.5	28.1	66.8	83.3	92.0	96.2	1.1	16.5
45-49	8.6	30.7	68.7	84.6	93.0	97.1	0.6	16.3
20-49	5.6	23.2	59.7	77.4	86.5	91.3	6.4	17.0
25-49	6.2	25.0	62.9	79.9	89.2	94.8	2.2	16.8

NA: Not applicable
NC: Not calculated because less than 50 percent of women in the age group 15-19 started living with their husbands by age 15
[1]The current age groups include both never-married and ever-married women.

which generally does not occur until after the *gauna* ceremony[2]. In the country as a whole, the median age at first marriage is about 8 months earlier than the median age at first cohabitation with the husband. As the median age at marriage has risen and early marriages have become less popular, the difference between the age at marriage and the age at first cohabitation has been reduced. In urban areas, the difference is negligible.

4.5 Marriage Between Relatives

Table 4.10 provides information on marriage between relatives. For both social and biological reasons, marriage between relatives has implications for fertility as well as mortality and morbidity of the couple's children. For example, Bittles et al. (1992) found a positive association between consanguinity and fertility in 19 out of 22 populations. They also found that mortality was significantly higher among children of marriages between blood relatives than among other children. In analyzing the relationship between inbreeding and demographic rates, it is important to control for socioeconomic variables because of a tendency for marriages between relatives to be more common in lower socioeconomic groups whose fertility and mortality are higher primarily for socioeconomic reasons. Such a refined analysis is infeasible in this report, however, and will have to await further studies.

Table 4.10 indicates that overall 10 percent of ever-married women in India married a first cousin (on either their father's side or their mother's side). In addition, 4 percent married a second cousin, uncle, or other blood relative, and 2 percent married a brother-in-law or other non-blood relative. Thus, consanguineous marriages are not very common in the country, accounting for 14 percent of the marriages of ever-married women age 13-49. The percentages marrying a close relative vary only slightly by age, being somewhat more common in the younger cohorts, particularly among women age 13-14. This may reflect a tendency for these marriages to occur at a young age, that is, the age difference may reflect selectivity rather than a trend over time. Interestingly, however, urban women are somewhat more likely than rural women to have married a close relative, contrary to the general pattern observed elsewhere (Rao et al., 1972; Rao and Inbaraj, 1977; Khlat and Khoury, 1991). The relatively high prevalence of consanguineous marriages in urban areas may be due to the urban concentration of Muslim women, who are particularly prone to marry relatives.

Consanguinity does not vary much with literacy and education, although women with at least a high school education are less likely to have married a close relative. As mentioned earlier, Muslim women are more likely to have entered into a consanguineous marriage than are non-Muslim women. Twenty-seven percent of Muslim women married a blood relative. Consanguineous marriages are also relatively high among Buddhists, and such marriages are particularly low among Sikhs and Jains. Consanguineous marriages are less common among scheduled tribes (10 percent) than among nontribal groups (around 15 percent).

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[2] After marriage the bride often returns to her parental home until the gauna ceremony, which usually occurs when the bride is considered to be mature enough to begin cohabitating with her husband. The difference in the age at formal marriage and the age at first cohabitation with the husband is often large for women who marry before menarche.

Percent distribution of ever-married women by relationship to current (last) husband, according to selected background characteristics, India, 1992-93

Background characteristic	First cousin Father's side	First cousin Mother's side	Second cousin	Uncle	Other blood relation	Brother-in-law	Other non-blood relation	Not re-lated	Miss-ing	Total per-cent	Number of women
Age											
13-14	10.1	5.4	0.3	2.0	2.6	0.6	0.4	78.6	--	100.0	352
15-19	6.1	5.7	1.1	0.8	2.8	0.4	1.9	81.2	0.1	100.0	9095
20-24	5.8	4.9	0.9	1.0	2.5	0.5	1.6	82.9	0.1	100.0	17983
25-29	5.3	4.3	1.0	0.9	2.3	0.5	1.4	84.2	0.1	100.0	17442
30-34	4.9	4.2	0.9	0.8	2.2	0.5	1.4	85.0	0.1	100.0	14660
35-39	5.9	4.6	1.0	1.0	2.4	0.4	1.6	82.9	0.1	100.0	12461
40-44	5.4	4.4	1.1	1.0	2.5	0.3	1.2	84.0	0.1	100.0	9748
45-49	5.3	4.5	0.8	1.0	2.0	0.4	1.1	84.8	0.1	100.0	8036
Residence											
Urban	5.7	5.0	1.1	0.9	2.9	0.3	1.8	82.2	0.1	100.0	23455
Rural	5.4	4.5	0.9	0.9	2.2	0.5	1.3	84.1	0.1	100.0	66322
Education											
Illiterate	5.8	5.0	0.9	1.0	2.3	0.5	1.2	83.3	0.1	100.0	56656
Lit.,< middle complete	6.3	4.5	1.1	1.0	2.7	0.4	1.9	82.1	0.1	100.0	16475
Middle school complete	4.6	4.8	1.0	0.9	2.5	0.4	2.1	83.7	0.1	100.0	6508
High school and above	3.5	2.7	0.8	0.7	2.3	0.2	1.8	87.9	0.1	100.0	10138
Religion											
Hindu	4.8	3.9	0.9	1.0	2.3	0.4	1.4	85.2	0.1	100.0	73648
Muslim	11.3	10.1	1.5	0.4	3.5	0.6	1.4	71.1	0.1	100.0	10806
Christian	4.8	3.7	0.7	1.1	2.6	0.2	1.1	85.9	--	100.0	2142
Sikh	0.6	0.6	0.2	0.1	0.9	0.8	3.0	93.8	0.1	100.0	1673
Jain	1.0	2.6	0.7	--	1.2	--	1.9	92.5	--	100.0	428
Buddhist	11.2	5.7	0.1	0.1	2.3	0.9	2.9	76.9	--	100.0	734
Other	4.9	3.6	--	0.2	2.4	0.3	1.6	86.5	0.6	100.0	345
Caste/tribe											
Scheduled caste	5.5	5.0	1.0	1.6	2.4	0.6	1.3	82.5	0.1	100.0	10970
Scheduled tribe	3.8	3.7	0.3	0.4	1.5	0.3	0.9	88.9	0.1	100.0	7934
Other	5.7	4.6	1.0	0.9	2.5	0.4	1.5	83.2	0.1	100.0	70872
Total	5.5	4.6	0.9	0.9	2.4	0.4	1.5	83.6	0.1	100.0	89777

-- Less than 0.05 percent

Marriage between close relatives is more common in the southern states (with the exception of Kerala) and in Maharashtra (Table 4.11). By far the largest proportion of ever-married women age 13-49 who have married a blood relative are in Tamil Nadu (47 percent), followed by Andhra Pradesh and Karnataka (35 percent each) and Maharashtra (25 percent). The incidence of consanguineous marriages is less than 10 percent in all other states except Goa. Previous studies have also observed considerably higher levels of consanguinity in South India than in North India (Kapadia, 1958; Sanghvi, 1966; Roychoudhury, 1976; Bittles et al., 1991). In every state, consanguineous marriages are mainly between first cousins, either on the father's side or on the mother's side. Uncle-niece marriages are rare everywhere except in Tamil Nadu and Andhra Pradesh.

Table 4.11 Marriage between relatives by state

Percent distribution of ever-married women by relationship to current (last) husband, according to state, India, 1992-93

State	First cousin Father's side	First cousin Mother's side	Second cousin	Uncle	Other blood relation	Brother-in-law	Other non-blood relation	Not related	Miss-ing	Total per-cent
India	5.5	4.6	0.9	0.9	2.4	0.4	1.5	83.6	0.1	100.0
North										
Delhi	1.9	1.6	0.8	--	1.9	0.4	3.4	90.0	0.1	100.0
Haryana	0.4	0.3	0.3	--	0.8	1.4	6.0	90.8	--	100.0
Himachal Pradesh	0.2	0.3	0.3	--	0.5	0.6	1.0	97.0	--	100.0
Jammu Region of J & K	3.4	3.5	0.7	0.4	1.8	0.3	6.4	83.5	--	100.0
Punjab	0.4	0.5	--	--	0.7	0.9	2.4	95.0	--	100.0
Rajasthan	0.5	0.5	0.3	--	0.6	0.3	0.8	96.6	0.3	100.0
Central										
Madhya Pradesh	2.0	2.0	0.1	--	0.8	0.3	0.7	94.0	0.2	100.0
Uttar Pradesh	3.9	3.2	0.4	--	1.3	0.9	1.1	89.2	0.1	100.0
East										
Bihar	2.2	2.2	0.3	0.3	1.2	0.5	0.5	92.7	0.1	100.0
Orissa	2.8	2.1	0.6	0.2	1.3	0.5	1.5	91.0	0.1	100.0
West Bengal	2.6	1.8	0.5	0.1	1.2	0.2	2.9	90.7	--	100.0
Northeast										
Arunachal Pradesh	0.6	2.3	0.1	0.9	5.0	0.5	4.5	86.2	--	100.0
Assam	0.6	1.0	0.1	--	0.4	0.5	0.7	96.7	--	100.0
Manipur	1.5	0.6	--	--	2.6	0.2	0.2	94.9	--	100.0
Meghalaya	1.9	0.4	0.1	0.3	0.8	0.3	0.8	95.4	--	100.0
Mizoram	0.1	0.2	0.2	--	0.4	--	0.3	98.9	--	100.0
Nagaland	0.7	0.8	--	--	1.1	0.8	1.0	95.6	--	100.0
Tripura	0.6	0.8	0.5	--	0.9	0.2	4.0	92.9	--	100.0
West										
Goa	6.3	3.5	0.5	0.3	3.8	0.1	0.7	84.8	--	100.0
Gujarat	2.3	2.1	0.4	0.1	0.8	0.1	0.8	93.3	0.1	100.0
Maharashtra	12.9	7.6	0.3	0.2	4.4	0.3	2.4	71.7	0.1	100.0
South										
Andhra Pradesh	14.5	10.5	1.6	4.2	4.2	0.2	1.2	63.5	0.1	100.0
Karnataka	10.6	16.5	2.0	0.6	6.0	0.5	1.0	62.8	--	100.0
Kerala	3.7	2.7	1.1	--	1.8	0.2	1.4	89.0	--	100.0
Tamil Nadu	13.6	10.8	6.4	7.4	8.3	0.4	1.3	51.8	--	100.0

-- Less than 0.05 percent

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CHAPTER 5

FERTILITY

A major objective of the National Family Health Survey is to estimate fertility levels, differentials and trends in India and in individual states. This chapter presents a description of current and past fertility levels, cumulative fertility and family size, fertility levels by sociodemographic characteristics, pregnancy outcomes, birth intervals and durations of postpartum amenorrhoea, abstinence and nonsusceptibility. Age at first birth and age at last birth, teenage childbearing and age at menopause are also discussed.

Most of the fertility measures presented in this chapter are based on the complete birth histories of ever-married women age 15-49. Several procedures were established to facilitate the complete and accurate reporting of births. First, women were asked separately about the number of their sons and daughters presently living at home, those living elsewhere and those who had died. Then, more complete details were collected for each live birth, including information on the sex, year and month of birth, age and survival status of the child. Interviewers received extensive training in probing techniques to help respondents recall the details of all births. In addition, interviewers were instructed to check any documents (such as horoscopes, school certificates or vaccination cards) that might provide information on the child's date of birth. Finally, for any interval of four or more years between births, interviewers were required to record the reason for the long interval to help in identifying any live births that might have been omitted during the time period. This additional probe also helped to obtain more accurate information on stillbirths and abortions.

Despite all the measures taken to improve data quality, the NFHS is subject, to some degree, to the same kinds 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 displacement of births due to the difficulty of determining dates of birth accurately. These problems may be particularly common in states where the level of female literacy is relatively low.

5.1 Current Fertility Levels, Differentials and Trends

The discussion of fertility levels, differentials and trends is based on both summary and age-specific measures of fertility. Summary measures include the crude birth rate (CBR), the general fertility rate (GFR), and the total fertility rate (TFR). Alternative measures of the crude birth rate are calculated from births recorded in the Household Questionnaire and from births recorded in the birth history in the Woman's Questionnaire. The crude birth rate calculated from births recorded in the Household Questionnaire pertains to the two-year period immediately preceding the survey. All other measures are calculated for the three-year period preceding the survey. Because the fieldwork for the NFHS was conducted at different times in each state, the three-year fertility rates do not correspond exactly to any particular calendar years, but they are centred roughly on 1990-1992. A three-year period was chosen for the NFHS rates as a compromise among three objectives: to obtain the most current information, to reduce the effects of sampling variation, and to minimize problems with the displacement of births from recent years to earlier years.

The NFHS fertility estimates can be compared with estimates from the Sample Registration System (SRS) for 1990-92 (Office of the Registrar General, 1994). Estimates of various fertility measures from the NFHS and SRS are shown by place of residence in Table 5.1 and discussed in the following sections.

Crude Birth Rate

The two sets of crude birth rates discussed above are shown in Table 5.1. The CBR from the household birth record is calculated as the annual number of births in the two-year period before the date of interview per 1,000 usual residents. The denominator for this CBR estimate is adjusted by projecting the population at the time of the survey backward to the midpoint of the time period using the intercensal population growth rate in India, for urban and rural areas separately. The CBR estimate based on the birth history in the Woman's Questionnaire is calculated as a sum of products, where each product is an age-specific fertility rate multiplied by the proportion of women in the specified age group, out of the total *de facto* population, both male and female.

Although the NFHS estimates of the CBR are based on information from two different parts of the interview (often with different respondents), the two estimates agree quite closely. The three-year CBR of 28.7 is slightly higher than the two-year (household-based) rate of 28.0,

Table 5.1   Current fertility

Age-specific and cumulative fertility rates and crude birth rates from the NFHS and the SRS, by residence, India, 1990-92

Age	NFHS (1990-92)[1]			SRS (1990-92)		
	Urban	Rural	Total	Urban	Rural	Total
15-19	0.075	0.131	0.116	0.046	0.087	0.078
20-24	0.203	0.243	0.231	0.196	0.248	0.235
25-29	0.154	0.177	0.170	0.160	0.204	0.193
30-34	0.071	0.108	0.097	0.080	0.130	0.117
35-39	0.027	0.051	0.044	0.038	0.078	0.068
40-44	0.006	0.019	0.015	0.016	0.036	0.031
45-49	0.004	0.006	0.005	0.006	0.014	0.012
TFR 15-44	2.68	3.64	3.36	2.68	3.92	3.61
TFR 15-49	2.70	3.67	3.39	2.71	3.99	3.67
GFR	98	133	123	93	129	121
NFHS CBR based on						
Household birth record	23.6	29.6	28.0	NA	NA	NA
Woman's birth history	24.1	30.4	28.7	NA	NA	NA
SRS CBR	NA	NA	NA	24.0	32.2	29.6

Note: Rates from the NFHS are for the period 1-36 months before the interview except for the CBR from the household birth record which is based on the period 1-24 months before the interview. Rates for the age group 45-49 might be slightly biased due to truncation.
TFR: Total Fertility Rate for ages 15-44 and 15-49, expressed per woman.
GFR: General Fertility Rate (births to women age 13-49 divided by woman-years lived between age 15 and 49, expressed per 1,000 women.
CBR: Crude Birth Rate, expressed per 1,000 population.
NA: Not applicable
[1] Three years preceding the survey
Source of SRS data: Office of the Registrar General (1994)

as would be expected when fertility is declining. The SRS national crude birth rate for 1990-92 excluding Jammu and Kashmir (29.6) is very close to the NFHS crude birth rate for 1990-92 (28.7). The urban CBR is 21 percent lower than the rural CBR in the NFHS and 25 percent lower in the SRS.

General Fertility Rate

The general fertility rate (GFR) in the NFHS is calculated by dividing the total number of births to women age 13-49 occurring during the three years preceding the survey by the number of woman-years lived between the ages of 15 and 49 during the same period, and multiplying the result by 1,000. The estimated GFR for 1990-92 is 123 births per 1,000 women for India as a whole, almost the same as the SRS GFR for 1990-92 (121). The observed GFR in the NFHS is 26 percent lower in urban areas (98) than in rural areas (133). The 1990-92 SRS estimate for urban areas (93) is 28 percent lower than the estimate for rural areas (129).

Age-Specific and Total Fertility Rates

Both the GFR and the CBR are crude summary measures of the rate at which the population is replacing itself. A more precise picture of fertility can be obtained by examining the age-specific fertility rates (ASFRs) and the total fertility rate (TFR), because they are not affected by the age structure of the population. Both the ASFRs and the TFR from the NFHS, as shown in Table 5.1, are based on births during the three-year period preceding the survey. The numerator of each age-specific fertility rate is live births in a five-year age group, and the denominator is the number of woman-years lived in the same five-year age interval during the three-year time period. The TFR is a summary measure that is calculated as five times the sum (over five-year age groups) of the age-specific fertility rates. The TFR is interpreted as the number of children a woman would bear during her reproductive years (alternatively, 15-44 or 15-49) if she were to experience the age-specific fertility rates prevailing during the three-year period preceding the survey.

A TFR of 3.4 children per woman is observed for the period 1990-92 for both the 15-44 age range and the 15-49 age range, because there were very few births to women age 45-49 during the three years preceding the survey. The urban TFR (2.7 children per woman) is considerably lower than the rural TFR (3.7 children per woman). Under the present age schedule of fertility, a woman in the urban areas would have, on average, one child less (or 26 percent fewer children) during her childbearing years than a woman in the rural areas.

The age-specific fertility rates follow the expected pattern. Fertility peaks in the 20-24 age group, reflecting a pattern of early marriage and childbearing. This is true for both the urban and rural areas (see Figure 5.1). Fertility rates decline steadily after age 25, reaching very low levels for women in their forties. Fertility is highly concentrated in the 15-29 age group. Eighty percent of urban fertility and 75 percent of rural fertility is concentrated in this age group. Current fertility in India is characterized by a substantial amount of early childbearing; 17 percent of total fertility is accounted for by births to women in the age group 15-19. Births to women age 35 years and above account for only 9 percent of the TFR. Births to women age 40-49 account for even less of the TFR: 2 percent in urban areas and 3 percent in rural areas. The age-specific fertility rates are considerably higher in rural than in urban

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Figure 5.1
Age-Specific Fertility Rates
by Residence

Births per 1,000 Women
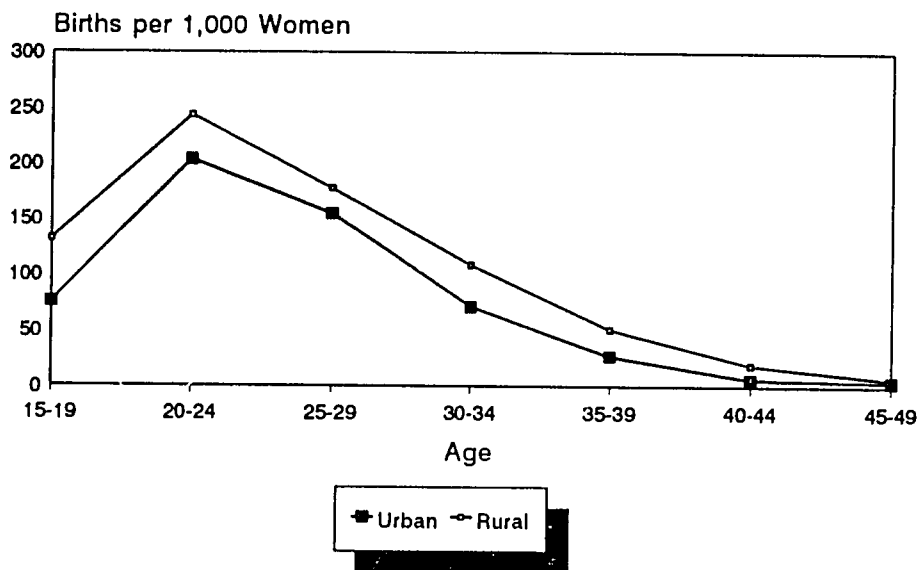
Note: Rates are for the three years before the survey (1990-92)

NFHS, India, 1992-93

areas in every age group, although the relative differentials are smaller in the prime childbearing years (age 20-29) than at either younger or older ages.

The TFR from the NFHS for 1990-92 in Table 5.1 is identical to the 1990-92 SRS estimate in urban areas (2.7) and 8 percent lower than the SRS estimate in rural areas. For the country as a whole, the NFHS TFR is also 8 percent lower than the SRS TFR. Given the sampling variability in both surveys and the differences in methodology, the correspondence between the SRS and NFHS estimates should be considered to be reasonable.

It is instructive to extend the comparison of NFHS and SRS results from total fertility rates to the corresponding age-specific fertility rates, as shown in Table 5.1 and Figure 5.2. The estimates are nearly identical in the highest fertility age group (age 20-24), but the NFHS estimate is considerably higher than the SRS estimate at age 15-19 and considerably lower than the SRS estimates for women age 25-49. The difference for the 15-19 age group may be due to the fact that the SRS rates are *de jure* while the NFHS rates are *de facto*. Thus, in calculating fertility estimates, the SRS excludes births occurring within the sample unit to visitors, but includes births to usual residents outside the sample unit. Because young women typically return to their parental household to have their first baby, the SRS may not be able to obtain complete information on recent births to usual residents who are temporarily absent. Thus, it is not surprising that the NFHS fertility estimate for the 15-19 age group is somewhat higher than the SRS estimate. More difficult to explain are the differences in the older age groups. The very low fertility rates for women in the highest age groups in India are reasonable, because many

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Figure 5.2
Age-Specific Fertility Rates
NFHS and SRS

Births per 1,000 Women

NFHS, India, 1992-93
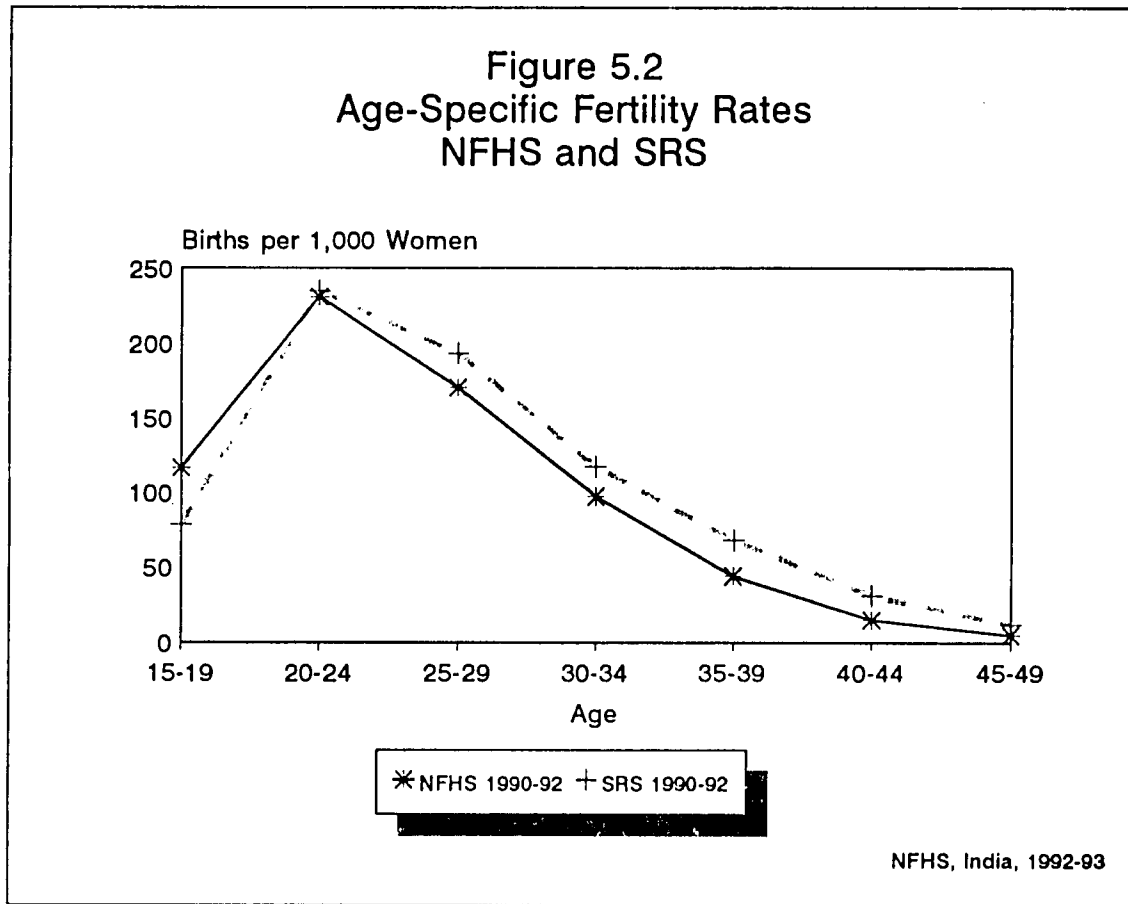
women at these ages have been sterilized or are menopausal. Moreover, terminal abstinence from sexual intercourse is commonly practised by couples once their daughter attains menarche or once any of their children gets married or has a child. A complete explanation of the differences in fertility estimates at older ages from the two data sets must await further analysis.

Fertility Differentials and Trends

There are wide variations in fertility levels among the states (Table 5.2 and Figure 5.3). Fertility is considerably below the national average in South India and West India, where two states (Kerala and Goa) have achieved below-replacement fertility[1]. Goa has a unique pattern of childbearing, with very low fertility before age 25 as a result of the high average age at marriage and the late initiation of childbearing. At the other end of the spectrum, fertility is four children per woman or higher in Uttar Pradesh, Bihar, Haryana and Arunachal Pradesh, and the TFR also exceeds the national average in Madhya Pradesh, Meghalaya, Rajasthan and Assam. With a TFR of 4.8, Uttar Pradesh stands out as having especially high fertility (more than 40 percent higher than the national average). Early childbearing (fertility at age 15-19) is particularly high in Madhya Pradesh, Andhra Pradesh, Haryana and Maharashtra. The highest rates of childbearing for women in their forties are found in Uttar Pradesh, Bihar, Madhya

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[1] A replacement level fertility is the level at which each woman, on average, is replaced by one daughter, which occurs at approximately a TFR of 2.1 children per woman.

Table 5.2 Fertility by state

Age-specific and total fertility rates (TFR), average number of children ever born (CEB) for women age 40-49, and crude birth rate for the three-year period prior to the survey, according to residence and state, India, 1992-93

State	Age-specific fertility rates							TFR 15-49	Mean CEB for women age 40-49	Crude birth rate
	15-19	20-24	25-29	30-34	35-39	40-44	45-49			
	URBAN									
India	0.075	0.203	0.154	0.071	0.027	0.006	C.004	2.70	· 4.16	24.1
North										
Delhi	0.061	0.223	0.186	0.085	0.041	0.005	0.000	3.00	4.15	26.2
Haryana	0.075	0.274	0.181	0.063	0.019	C.015	*	3.14	4.35	26.7
Himachal Pradesh	0.023	0.184	0.124	0.059	0.015	0.000	(0.000)	2.03	3.41	20.2
Jammu Region of J & K	0.026	0.144	0.165	0.081	0.010	0.000	(0.000)	2.13	3.89	21.2
Punjab	0.041	0.224	0.147	0.059	0.021	0.003	*	2.48	3.92	21.0
Rajasthan	0.063	0.184	0.181	0.087	0.031	0.000	(0.007)	2.77	4.14	22.3
Central										
Madhya Pradesh	0.092	0.239	0.188	0.077	0.037	0.012	(0.009)	3.27	4.58	27.1
Uttar Pradesh	0.062	0.240	0.204	0.125	0.057	0.014	0.013	3.58	5.18	28.5
East										
Bihar	0.089	0.224	0.182	0.090	0.053	0.012	0.000	3.25	4.59	27.5
Orissa	0.070	0.182	0.147	0.084	0.012	0.011	(0.000)	2.53	4.64	23.9
West Bengal	0.083	0.158	0.107	0.058	0.016	0.000	(0.007)	2.14	3.64	18.5
Northeast										
Arunachal Pradesh	*	*	*	*	*	*	*	NC	*	NC
Assam	0.070	0.167	0.159	0.054	0.046	0.011	(0.000)	2.53	4.16	23.2
Manipur	0.030	0.122	0.121	(0.133)	(0.035)	(0.000)	*	NC	(4.51)	NC
Meghalaya	0.046	(0.207)	(0.194)	*	*	*	*	NC	(4.55)	NC
Mizoram	0.053	0.125	0.154	0.089	(0.029)	(0.006)	(0.000)	NC	4.06	NC
Nagaland	0.026	(0.145)	(0.126)	*	(0.035)	*	*	NC	(3.71)	NC
Tripura	(0.057)	(0.089)	(0.121)	(0.062)	*	*	*	NC	*	NC
West										
Goa	0.019	0.092	0.124	0.083	0.032	0.008	0.002	1.80	3.56	16.4
Gujarat	0.063	0.227	0.154	0.065	0.011	0.006	(0.004)	2.65	4.01	24.6
Maharashtra	0.088	0.196	0.151	0.054	0.014	0.003	0.000	2.54	3.94	24.2
South										
Andhra Pradesh	0.085	0.210	0.104	0.049	0.019	0.003	(0.000)	2.35	3.88	22.3
Karnataka	0.094	0.169	0.127	0.057	0.020	0.002	0.009	2.38	4.04	22.7
Kerala	0.033	0.149	0.121	0.036	0.013	0.003	0.000	1.78	3.31	18.0
Tamil Nadu	0.063	0.188	0.149	0.051	0.017	0.004	0.000	2.36	4.10	23.4

Pradesh and some of the small northeastern states. Childbearing at age 40 and above is rare in Tamil Nadu, Andhra Pradesh, Delhi, Maharashtra, Goa, Himachal Pradesh, Punjab, and Kerala, all of which have age-specific fertility rates of 7 or fewer children per 1,000 women at these ages. In Maharashtra, fertility begins early and ends early. In fact, Maharashtra has lower fertility rates than any other state for women age 35-49. For most states, the NFHS fertility estimates are slightly lower than the estimates from the Sample Registration System for approximately corresponding years (see individual NFHS state reports for comparative statistics). In half of the major states, the two sets of estimates are quite close (within 0.2 children). The two sets of estimates differ by more than half a child in only two states (Rajasthan and Madhya Pradesh). Given other available information, it is likely that the current fertility estimates in the NFHS are too low in both of these states (see individual state reports).

Table 5.2 Fertility by state (Contd.)

Age-specific and total fertility rates (TFR), average number of children ever born (CEB) for women age 40-49, and crude birth rate for the three-year period prior to the survey, according to residence and state, India, 1992-93

State	Age-specific fertility rates							TFR 15-49	Mean CEB for women age 40-49	Crude birth rate
	15-19	20-24	25-29	30-34	35-39	40-44	45-49			
RURAL										
India	0.131	0.243	0.177	0.108	0.051	0.019	0.006	3.67	5.13	30.4
North										
Delhi	(0.131)	(0.231)	(0.160)	*	*	*	*	NC	4.91	NC
Haryana	0.166	0.331	0.202	0.100	0.043	0.015	(0.004)	4.32	5.51	35.1
Himachal Pradesh	0.080	0.267	0.179	0.044	0.036	0.008	0.000	3.07	4.54	29.0
Jammu Region of J & K	0.058	0.243	0.216	0.093	0.045	0.011	0.007	3.36	5.37	29.3
Punjab	0.074	0.242	0.194	0.078	0.021	0.005	0.003	3.09	4.29	26.5
Rajasthan	0.124	0.264	0.181	0.113	0.063	0.017	0.011	3.87	5.22	28.1
Central										
Madhya Pradesh	0.173	0.260	0.192	0.115	0.051	0.020	0.011	4.11	5.42	32.9
Uttar Pradesh	0.128	0.289	0.264	0.195	0.105	0.044	0.014	5.19	6.19	37.9
East										
Bihar	0.127	0.244	0.191	0.150	0.083	0.029	0.005	4.14	5.36	32.9
Orissa	0.089	0.209	0.166	0.089	0.036	0.010	0.000	3.00	4.93	27.0
West Bengal	0.140	0.219	0.152	0.084	0.039	0.012	0.005	3.25	5.28	28.4
Northeast										
Arunachal Pradesh	0.118	0.246	0.194	0.150	0.086	(0.045)	*	4.38	4.88	34.6
Assam	0.122	0.205	0.200	0.128	0.057	0.023	(0.000)	3.68	6.01	31.4
Manipur	0.033	0.170	0.195	0.124	0.067	(0.016)	*	3.03	4.97	25.5
Meghalaya	0.086	0.176	0.176	0.125	0.116	0.053	(0.029)	3.80	5.03	31.9
Mizoram	0.039	0.157	0.129	(0.082)	(0.033)	(0.020)	(0.000)	(2.30)	4.43	(19.6)
Nagaland	0.064	0.199	0.212	0.150	0.067	0.019	0.008	3.60	4.28	34.2
Tripura	0.091	0.185	0.126	0.090	0.058	0.031	(0.000)	2.91	5.70	24.5
West										
Goa	0.011	0.099	0.172	0.084	0.030	0.001	0.000	1.99	3.94	17.8
Gujarat	0.096	0.264	0.158	0.080	0.027	0.005	0.004	3.17	4.64	28.4
Maharashtra	0.183	0.252	0.118	0.052	0.010	0.009	0.000	3.12	4.53	27.9
South										
Andhra Pradesh	0.164	0.198	0.101	0.046	0.020	0.005	0.000	2.67	4.12	24.7
Karnataka	0.147	0.226	0.138	0.069	0.026	0.009	0.002	3.08	4.99	27.5
Kerala	0.040	0.164	0.123	0.063	0.019	0.008	0.001	2.09	3.82	20.3
Tamil Nadu	0.099	0.212	0.121	0.051	0.020	0.004	0.000	2.54	4.27	23.5

In urban areas, the total fertility rate is less than 2.5 children per woman in 9 of the 19 states for which estimates are shown. In every state which has urban and rural estimates, the total fertility rate from the NFHS is lower in urban areas than in rural areas. There is, however, a convergence of urban and rural fertility rates for states with low fertility. In the four states with the lowest overall fertility (Goa, Kerala, Tamil Nadu and Andhra Pradesh), rural fertility is only 12 percent higher than urban fertility, on average. In the remaining states, rural fertility exceeds urban fertility by an average of 35 percent, varying from 19 percent in Orissa to 58 percent in Jammu.

Table 5.3 and Figure 5.4 show current and cohort fertility by selected background characteristics. Current fertility is measured by the total fertility rate for the three years prior to the survey. Cohort fertility is measured by the mean number of children ever born to women

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Table 5.2 Fertility by state (Contd.)

Age-specific and total fertility rates (TFR), average number of children ever born (CEB) for women age 40-49, and crude birth rate for the three-year period prior to the survey, according to residence and state, India, 1992-93

State	Age-specific fertility rates							TFR 15-49	Mean CEB for women age 40-49	Crude birth rate
	15-19	20-24	25-29	30-34	35-39	40-44	45-49			
TOTAL										
India	0.116	0.231	0.170	0.097	0.044	0.015	0.005	3.39	4.84	28.7
North										
Delhi	0.066	0.224	0.184	0.086	0.040	0.005	0.000	3.02	4.19	26.6
Haryana	0.143	0.316	0.196	0.088	0.036	0.015	0.003	3.99	5.21	32.9
Himachal Pradesh	0.075	0.259	0.172	0.046	0.034	0.007	0.000	2.97	4.42	28.2
Jammu Region of J & K	0.054	0.223	0.206	0.090	0.038	0.009	0.005	3.13	5.05	27.9
Punjab	0.065	0.238	0.180	0.072	0.021	0.005	0.002	2.92	4.18	25.0
Rajasthan	0.112	0.247	0.181	0.107	0.055	0.014	0.010	3.63	5.00	27.0
Central										
Madhya Pradesh	0.153	0.255	0.191	0.106	0.047	0.018	0.010	3.90	5.22	31.6
Uttar Pradesh	0.113	0.279	0.251	0.177	0.094	0.037	0.014	4.82	5.97	35.9
East										
Bihar	0.121	0.241	0.190	0.141	0.078	0.026	0.004	4.00	5.23	32.1
Orissa	0.086	0.204	0.163	0.089	0.031	0.010	0.000	2.92	4.88	26.5
West Bengal	0.123	0.202	0.138	0.075	0.031	0.008	0.005	2.92	4.72	25.5
Northeast										
Arunachal Pradesh	0.115	0.246	0.194	0.139	0.081	(0.039)	*	4.25	4.86	34.6
Assam	0.116	0.200	0.195	0.117	0.055	0.021	0.000	3.53	5.74	30.4
Manipur	0.037	0.152	0.170	0.128	0.057	0.010	(0.000)	2.76	4.80	24.4
Meghalaya	0.079	0.182	0.180	0.117	0.115	0.051	0.022	3.73	4.92	31.9
Mizoram	0.046	0.140	0.143	0.085	0.031	0.014	0.000	2.30	4.26	20.8
Nagaland	0.057	0.188	0.196	0.131	0.059	0.015	0.006	3.26	4.16	31.3
Tripura	0.085	0.166	0.125	0.081	0.052	0.026	(0.000)	2.67	5.44	23.1
West										
Goa	0.016	0.096	0.148	0.083	0.031	0.005	0.001	1.90	3.74	17.2
Gujarat	0.086	0.251	0.157	0.074	0.021	0.005	0.004	2.99	4.42	27.2
Maharashtra	0.141	0.227	0.132	0.053	0.012	0.006	0.000	2.86	4.25	26.3
South										
Andhra Pradesh	0.144	0.202	0.101	0.047	0.019	0.005	0.000	2.59	4.05	24.2
Karnataka	0.129	0.206	0.134	0.064	0.024	0.006	0.005	2.85	4.45	25.9
Kerala	0.038	0.160	0.123	0.054	0.017	0.006	0.001	2.00	3.65	19.6
Tamil Nadu	0.087	0.203	0.132	0.051	0.019	0.004	0.000	2.48	4.21	23.5

NC: Not calculated because there are too few women in this category

( ) Based on 125-249 woman-years of exposure for age-specific fertility rates and 25-49 unweighted women age 40-49 for CB.

* Rate not shown; based on fewer than 125 woman-years of exposure for age-specific fertility rates and fewer than 25 unweighted women age 40-49 for CEB.

age 40-49 at the time of the survey. Both measures are calculated from the birth history information in the Woman's Questionnaire.

If there had been no change in fertility for three or more decades prior to the survey, the current and cohort indicators would be nearly identical, differences being due solely to the slightly incomplete fertility of women age 40-49. If fertility has declined, current fertility will be lower than cohort fertility, with larger differences generally indicating more rapid decline. The gap between the TFR of 3.4 and the mean number of children ever born of 4.8 indicates

Table 5.3 Fertility by background characteristics

Total fertility rate for the three years preceding the survey, and mean number of children ever born to women age 40-49, by selected background characteristics, India, 1992-93

Background characteristic	Total fertility rate[1]	Mean number of children ever born to women age 40-49
Residence		
Urban	2.70	4.16
Rural	3.67	5.13
Education		
Illiterate	4.03	5.26
Literate, < middle complete	3.01	4.50
Middle school complete	2.49	3.71
High school and above	2.15	2.80
Religion		
Hindu	3.30	4.78
Muslim	4.41	5.83
Christian	2.87	4.01
Sikh	2.43	3.99
Other	2.77	4.24
Caste/tribe		
Scheduled caste	3.92	5.40
Scheduled tribe	3.55	4.81
Other	3.30	4.76
Total	3.39	4.84

[1]Rate for women age 1. 49 years

that a substantial fertility decline has taken place in India. In absolute terms, the total fertility rate is 1.5 children lower than the average number of children ever born in both urban and rural areas. But the larger relative decline in urban areas (35 percent) than in rural areas (28 percent) indicates that fertility has been declining somewhat more rapidly in urban areas.

Differentials by education are substantial, with current fertility declining steadily from 4.0 children per woman for illiterate women to 2.2 children per woman for women with at least a high school education. Cohort fertility also is higher among illiterate women than among women with at least a high school education (5.3 children compared to 2.8 children). Fertility has declined rapidly in all education groups, but it has declined most rapidly among literate women with less than a high school education. Differences in current fertility by religion and caste/tribe are less pronounced, but still substantial. Although fertility has declined substantially in all caste/tribe groups, women from scheduled castes still have higher fertility than other groups. The fertility of scheduled tribe women is also slightly higher than the fertility of women who do not belong to either scheduled castes or scheduled tribes.

Muslims have considerably higher fertility than any other religious group. On average, Muslim women have 1.1 children more than Hindu women. However, even among Muslims there has been a considerable decline in fertility over time. The lowest fertility levels (under

Figure 5.3
Total Fertility Rate (TFR) by State

Goa
Kerala
Mizoram
Tamil Nadu
Andhra Pradesh
Tripura
Manipur
Karnataka
Maharashtra
Punjab
West Bengal
Orissa
Himachal Pradesh
Gujarat
Delhi
Jammu Region of J & K
Nagaland

INDIA

Assam
Rajasthan
Meghalaya
Madhya Pradesh
Haryana
Bihar
Arunachal Pradesh
Uttar Pradesh

0   1   2   3   4   5   6
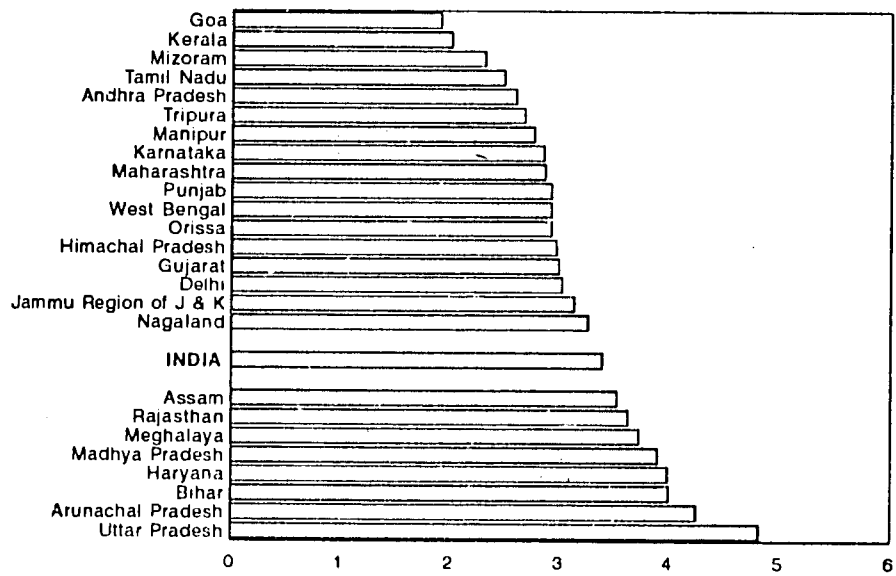
Note: TFR is for the three years
before the survey

NFHS, India, 1992-93

Figure 5.4
Total Fertility Rate (TFR) and Mean
Number of Children Ever Born (CEB)

RESIDENCE
Urban
Rural

EDUCATION
Illiterate
Lit., <Middle Comp.
Middle Complete
High School & Above

RELIGION
Hindu
Muslim
Christian
Sikh
Other

CASTE/TRIBE
Scheduled Caste
Scheduled Tribe
Other

0   1   2   3   4   5   6

■ TFR (last 3 years) □ CEB (women 40-49)

NFHS, India, 1992-93

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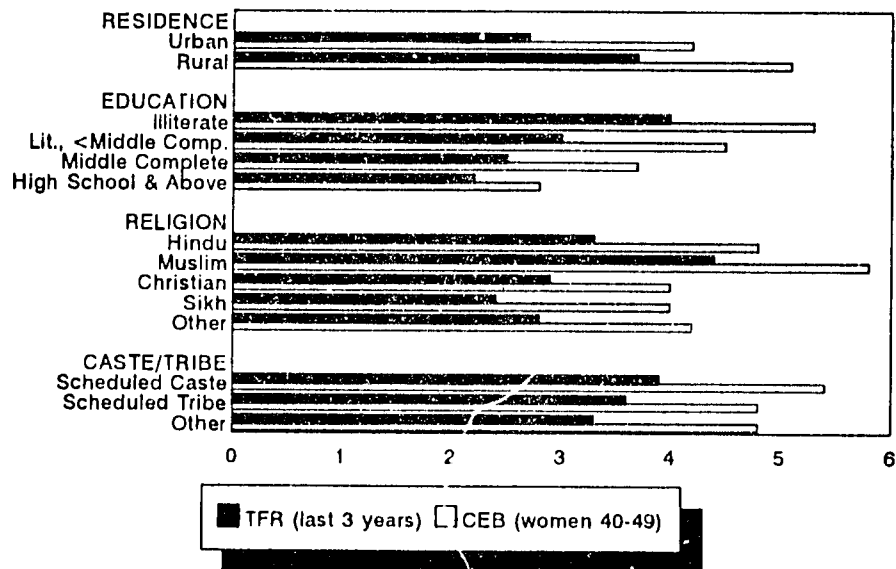
three children per woman) are exhibited by Christians, Sikhs, and women from other religions (primarily Buddhists and Jains). Religious differentials may be due to socioeconomic differences among the different religious groups rather than religious affiliation itself. A complete examination of factors responsible for the religious differentials requires a multivariate analysis of the determinants of fertility, which is beyond the scope of this report. Some insight into the role of socioeconomic factors may be gained, however, by examining religious differentials in fertility within education groups (Table 5.4). Within each education group, Muslims have substantially higher fertility than Hindus. In the first three education groups, the Muslim TFR is 23-28 percent higher than the Hindu TFR. The differential is even larger (43 percent) for the relatively small number of women in the highest education group. The differential between Muslim and Hindu fertility overall (see Table 5.3) is 34 percent. Thus, controlling for the effects of education does decrease religious differentials in fertility to some extent for women with less than a high school education, but religion is still strongly related to fertility even within education groups. It should be noted, however, that according to both measures fertility generally declines sharply with increasing education in every religious group, including Muslims.

Table 5.4 Fertility by religion and education

Total fertility rate (TFR) for the three years preceding the survey, and mean number of children ever born (CEB) to women age 40-49, by religion and education, India, 1992-93

	Illiterate		Literate, < middle complete		Middle school complete		High school and above	
Religion	TFR	CEB	TFR	CEB	TFR	CEB	TFR	CEB
Hindu	3.93	5.18	2.93	4.44	2.45	3.73	2.07	2.79
Muslim	5.03	6.06	3.61	5.49	3.05	4.59	2.97	4.04
Christian	3.30	4.68	2.86	4.23	2.50	4.00	2.79	2.81
Sikh	3.43	4.43	2.80	3.73	2.06	3.53	1.68	2.64
Other	3.57	4.63	2.59	4.44	2.59	3.25	2.14	2.88
Total	4.03	5.26	3.01	4.50	2.49	3.71	2.15	2.80

Note: TFR is for women age 15-49 years.

The most direct way of observing fertility trends is to examine changes in age-specific rates over time. Table 5.5 shows age-specific fertility rates for the 20-year period preceding the survey, calculated from the birth history information. Because birth histories are obtained only for women under age 50 at the time of the survey, no rates are available for women age 45 and over for the period 5-9 years prior to the survey, or for women age 40 and over 10-14 years prior to the survey, or for women age 35 and over 15-19 years prior to the survey. In every age group, fertility fell steadily from the period 10-14 years before the survey to the period 0-4 years before the survey. There was a general tendency for the fertility decline to accelerate during the most recent period in both urban and rural areas. Over the last 15 years, the rate of fertility decline was slightly faster at age 15-19 than at age 20-24, probably because of the rising age at marriage. The rapidity of the fertility decline increases with age after age 20-24 as is typical during the fertility transition.

The TFR for the five years before the NFHS (roughly 1988-92) is 9 percent lower than the average TFR from the SRS for 1988-92. On the other hand, at ages 15-44 the average SRS

Table 5.5 Fertility trends

Age-specific fertility rates for five-year periods preceding
the survey by residence, India, 1992

Maternal age at birth	Years preceding survey			
	0-4	5-9	10-14	15-19
URBAN				
15-19	0.079	0.114	0.128	0.129
20-24	0.204	0.249	0.262	0.266
25-29	0.155	0.189	0.216	0.226
30-34	0.072	0.100	0.129	[0.165]
35-39	0.027	0.042	[0.068]	U
40-44	0.006	[0.017]	U	U
45-49	[0.004]	U	U	U
RURAL				
15-19	0.137	0.181	0.190	0.181
20-24	0.246	0.306	0.305	0.299
25-29	0.179	0.233	0.253	0.260
30-34	0.107	0.146	0.171	[0.206]
35-39	0.051	0.080	[0.116]	U
40-44	0.019	[0.038]	U	U
45-49	[0.007]	U	U	U
TOTAL				
15-19	0.121	0.162	0.172	0.166
20-24	0.234	0.289	0.292	0.288
25-29	0.172	0.220	0.241	0.250
30-34	0.097	0.131	0.159	[0.195]
35-39	0.043	0.069	[0.103]	U
40-44	0.015	[0.033]	U	U
45-49	[0.0u6]	U	U	U

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

TFR for 1983-87 is 9 percent lower than the NFHS TFR for the period 5-9 years before the survey. This suggests that there was some age displacement of NFHS births out of the most recent five-year period. The average 10-year fertility rate estimates from the NFHS and the SRS for 1983-92 are virtually identical.

Further evidence of a decline in fertility over time is shown in Table 5.6, which gives fertility rates over the last 20 years by the number of years since women started living with their husbands[2]. This measure controls to some extent for changing age at marriage and may help to elucidate the trends in Table 5.5. In almost all marital duration groups, fertility has fallen

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[2] Information was collected on a woman's age at effective marriage, not the year and month of her effective marriage (which would be difficult to determine accurately in most cases). Therefore, the duration since first effective marriage is calculated as the woman's age during the specified time period minus the age at which she started living with her (first) husband. For those whose current age is the same as their age at effective marriage (marriage duration 0), the average period covered is only about six months rather than one full year. Hence, the 0-4 duration category effectively covers a period of only about 4.5 years, whereas all other duration categories cover 5 years.

Table 5.6 Fertility by marital duration

Fertility rates for ever-married women by duration since first effective marriage (in years) for five-year periods preceding the survey, India, 1992-93

Duration of effective marriage	Years preceding survey			
	0-4	5-9	10-14	15-19
URBAN				
0 - 4	0.304	0.329	0.325	0.307
5 - 9	0.186	0.228	0.263	0.272
10-14	0.093	0.138	0.170	0.215
15-19	0.046	0.071	0.118	0.160
20-24	0.019	0.044	0.070	(0.141)
25-29	0.006	0.016	(0.113)	*
RURAL				
0 - 4	0.287	0.320	0.308	0.281
5 - 9	0.240	0.300	0.304	0.302
10-14	0.152	0.207	0.229	0.249
15-19	0.089	0.129	0.159	0.198
20-24	0.044	0.076	0.115	0.151
25-29	0.018	0.038	0.117	*
TOTAL				
0 - 4	0.291	0.322	0.312	0.288
5 - 9	0.226	0.280	0.293	0.294
10-14	0.136	0.188	0.213	0.240
15-19	0.077	0.113	0.149	0.190
20-24	0.037	0.068	0.106	0.149
25-29	0.015	0.034	0.117	*

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

steadily over time. The rapidity of the fertility decline increases dramatically with marital duration, being most pronounced for women married 20 years or more. The absence of any marked fertility decline in the group married for 0-4 years is typical of populations in which contraception is initiated only after the first birth or later (as is the case in India; see Chapter 6).

For women married at least five years, marital fertility is lower in urban than in rural areas in every five-year time period. The opposite relationship is observed for women who have been married for less than five years. This pattern is not uncommon in populations in which the age at marriage is higher in urban areas than in rural areas, as is the case in India (see Chapter 4). Women who marry at later ages often have their first birth sooner after marriage and concentrate their births earlier in their marriage.

5.2 Outcome of Pregnancies

Table 5.7 shows the outcome of all lifetime pregnancies reported by ever-married women according to their current age and current place of residence. Information on stillbirths and spontaneous and induced abortions was obtained in the reproduction section of the Woman's Questionnaire. In any survey, it is more difficult to collect retrospective information on pregnancies than on live births, particularly on pregnancies spontaneously aborted within the first few months after conception. The total number of pregnancies and the percentage of all pregnancies that end in spontaneous abortions are almost certainly underestimated, and should not be subject to very intensive interpretation. Stillbirths are probably much more accurately reported than abortions. Reports of induced abortions may be suppressed by respondents, or

Table 5.7 Outcome of pregnancy

Percent distribution of all pregnancies of ever-married women by their outcome, according to age of the woman and residence, India, 1992-93

| Current age | Outcome of pregnancy | | | | Total percent | Number of pregnancies |
	Spontaneous abortion	Induced abortion	Still-birth	Live birth		
URBAN						
15-19	9.5	3.3	1.9	85.3	100.0	968
20-24	6.4	2.2	1.9	89.5	100.0	6842
25-29	6.1	2.5	2.0	89.4	100.0	12727
30-34	4.9	3.1	1.9	90.2	100.0	14710
35-39	5.4	2.7	1.9	89.9	100.0	14976
40-44	5.1	2.1	1.9	90.9	100.0	12960
45-49	5.2	1.3	2.0	91.5	100.0	10723
Total	5.5	2.4	1.9	90.2	100.0	73922
RURAL						
15-19	6.8	1.4	2.5	89.3	100.0	5357
20-24	5.2	0.9	2.6	91.3	100.0	25640
25-29	4.5	1.2	2.4	92.0	100.0	40551
30-34	4.1	0.9	2.4	92.6	100.0	43904
35-39	3.8	1.0	2.4	92.9	100.0	42069
40-44	3.7	0.7	2.3	93.2	100.0	36532
45-49	3.6	0.6	2.2	93.5	100.0	33397
Total	4.2	0.9	2.4	92.5	100.0	227478
TOTAL						
13-14	(11.9)	(--)	(--)	(88.1)	100.0	40
15-19	7.3	1.7	2.4	88.7	100.0	6325
20-24	5.5	1.2	2.5	90.9	100.0	32481
25-29	4.9	1.5	2.3	91.4	100.0	53278
30-34	4.3	1.4	2.2	92.0	100.0	58613
35-39	4.2	1.4	2.3	92.1	100.0	57045
40-44	4.1	1.1	2.2	92.6	100.0	49492
45-49	4.0	0.8	2.2	93.0	100.0	44121
Total	4.5	1.3	2.3	92.0	100.0	301400

Note: The urban and rural totals include 12 and 28 pregnancies to women age 13-14, respectively, which are not shown separately.
( ) Based on 25-49 unweighted cases
-- Less than 0.05 percent

induced abortions may be reported as spontaneous abortions, so that the actual incidence of induced abortions may be much higher than is reported.

Of the 301,400 pregnancies reported by sample women, 92 percent resulted in live births, 2 percent in stillbirths, 1 percent in induced abortions, and 5 percent in spontaneous abortions. There is relatively little variation in the outcome of pregnancies by the current age of the mother, although the proportion of live births increases somewhat with an increase in age, and spontaneous abortions are particularly common for young women. Women currently living in urban areas report somewhat higher pregnancy wastage than do rural women.

In view of the problems of underreporting early spontaneous abortions, it is useful to consider induced abortions and stillbirths in relation to live births rather than to total pregnancies. By this measure, there were 2.5 stillbirths and 1.4 induced abortions for every 100 live births in the country as a whole.

5.3   Children Ever Born and Living

The distribution of women age 15-49 by number of children ever born is shown in Table 5.8, both for currently married women and for all women (including never-married women). The table also shows the mean number of children ever born and surviving. Women of childbearing age in India, both ever-married and never-married, have borne an average of 2.5 children and have an average of 2.2 currently living children. Women who are currently married have borne 3.1 children, on average, of whom 2.7 children are still living. The mean number of children ever born increases steadily with age among all women as well as among currently married women, reaching a high of more than five children for women age 45-49. Currently, early childbearing is relatively rare in India. Only 19 percent of all women in the 15-19 age group have ever had a child.

It is not uncommon in sample surveys to find mean numbers of children ever born for older age groups declining, which may indicate deteriorating completeness of reporting of children ever born as women reach the end of the reproductive age span. Although the steady increase with age in the NFHS mean number of children ever born does not provide conclusive evidence that births have been completely reported by older women, there is no indication of underreporting, either in the pattern or the level of fertility.

The distribution of women age 45-49 by number of children ever born is of particular interest since these women have nearly completed their childbearing. The distribution of children ever born to this cohort, therefore, approximates their completed parity distribution. The majority of women in this age group have had five or more live births and 17 percent have had at least eight live births.

The parity distribution of older currently married women provides a measure of primary sterility, which is the proportion of couples who are unable to have children. In India, only 2 percent of currently married women age 45-49 (as well as women age 40-44) have never had a live birth.

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Table 5.8 Children ever born and living

Percent distribution of all women and currently married women age 15-49 by number of children ever born and mean number of children ever born (CEB) and living, according to age and residence, India, 1992-93

Age	| Children ever born | 0	1	2	3	4	5	6	7	8	9	10+	Total percent	Number of women	Mean CEB	Mean children living

URBAN
All women

Age	0	1	2	3	4	5	6	7	8	9	10+	Total percent	Number of women	Mean CEB	Mean children living
15-19	89.6	8.1	1.9	0.3	--	--	--	--	--	--	--	100.0	6299	0.13	0.12
20-24	47.3	22.2	19.0	8.5	2.2	0.6	0.2	--	--	--	--	100.0	6198	0.99	0.92
25-29	16.1	17.5	27.2	19.6	11.9	5.4	1.6	0.5	0.1	--	--	100.0	5166	2.20	2.02
30-34	7.5	10.1	24.6	22.8	17.1	9.9	4.7	1.9	0.8	0.3	0.3	100.0	4429	2.99	2.72
35-39	5.8	6.4	19.1	22.9	17.9	12.1	7.2	4.5	2.0	1.3	0.7	100.0	3781	3.56	3.20
40-44	4.9	4.9	15.9	20.1	18.9	13.5	7.9	6.8	3.4	2.2	1.5	100.0	2955	3.99	3.49
45-49	4.7	6.2	12.1	17.3	15.6	14.1	10.6	7.5	5.6	3.0	3.2	100.0	2232	4.39	3.73
Total	32.9	12.1	16.9	14.2	10.0	6.2	3.4	2.1	1.1	0.6	0.5	100.0	31061	2.15	1.92

Currently married women

Age	0	1	2	3	4	5	6	7	8	9	10+	Total percent	Number of women	Mean CEB	Mean children living
15-19	52.4	37.1	8.9	1.4	0.2	--	--	--	--	--	--	100.0	1339	0.60	0.55
20-24	22.5	32.6	28.0	12.4	3.3	0.9	0.4	--	--	--	--	100.0	4116	1.46	1.35
25-29	7.3	19.0	30.0	21.8	13.3	6.0	1.8	0.6	0.1	--	0.1	100.0	4553	2.44	2.24
30-34	3.8	9.7	25.6	24.0	18.2	10.1	5.1	2.0	0.8	0.4	0.3	100.0	4083	3.14	2.86
35-39	3.7	5.9	19.2	23.4	18.6	12.6	7.6	4.8	2.2	1.3	0.8	100.0	3493	3.68	3.32
40-44	2.4	4.6	15.6	20.8	19.7	13.9	8.4	6.9	3.6	2.4	1.7	100.0	2603	4.14	3.64
45-49	2.4	5.9	13.0	17.4	16.0	14.4	10.8	8.0	5.6	3.1	3.4	100.0	1849	4.51	3.88
Total	10.7	16.1	22.7	19.0	13.4	8.1	4.5	2.7	1.4	0.8	0.7	100.0	22036	2.85	2.56

RURAL
All women

Age	0	1	2	3	4	5	6	7	8	9	10+	Total percent	Number of women	Mean CEB	Mean children living
15-19	78.4	15.9	4.9	0.8	0.1	--	--	--	--	--	--	100.0	16914	0.28	0.25
20-24	28.0	25.5	25.7	14.5	5.0	1.1	0.3	0.1	--	--	--	100.0	15846	1.48	1.31
25-29	8.5	10.5	22.3	27.0	17.6	9.2	3.4	1.2	0.3	0.1	--	100.0	13121	2.84	2.48
30-34	4.1	5.1	12.8	22.3	21.2	15.6	9.8	5.8	2.2	0.7	0.3	100.0	10483	3.88	3.28
35-39	3.6	3.8	10.7	17.7	18.6	16.7	11.5	7.7	5.2	2.4	2.1	100.0	8794	4.44	3.66
40-44	3.0	3.9	8.0	13.6	16.1	16.5	14.0	9.7	7.1	4.3	3.9	100.0	6870	4.96	3.99
45-49	3.4	3.3	5.7	10.3	15.5	16.1	14.6	11.8	8.4	5.4	5.6	100.0	5866	5.33	4.16
Total	25.6	12.1	14.1	14.6	11.5	8.4	5.6	3.6	2.2	1.2	1.0	100.0	77893	2.70	2.26

Currently married women

Age	0	1	2	3	4	5	6	7	8	9	10+	Total percent	Number of women	Mean CEB	Mean children living
15-19	52.3	35.0	10.8	1.7	0.2	--	--	--	--	--	--	100.0	7558	0.63	0.55
20-24	16.6	29.0	29.9	16.9	5.8	1.3	0.3	0.1	--	--	--	100.0	13388	1.72	1.52
25-29	5.0	10.1	23.2	28.3	18.5	9.7	3.6	1.3	0.3	0.1	--	100.0	12254	2.97	2.60
30-34	2.4	4.2	12.6	22.9	21.8	16.3	10.3	6.1	2.4	0.7	0.3	100.0	9818	4.00	3.39
35-39	2.5	3.0	10.0	18.0	19.1	17.2	11.9	8.1	5.4	2.5	2.2	100.0	8104	4.57	3.77
40-44	2.2	2.7	7.1	13.3	16.6	16.8	14.6	10.2	7.5	4.6	4.2	100.0	6122	5.13	4.15
45-49	2.4	2.5	5.2	9.9	15.6	16.5	14.9	12.3	8.8	5.8	6.1	100.0	5047	5.50	4.31
Total	12.0	14.0	16.7	17.5	13.7	10.0	6.6	4.3	2.6	1.4	1.3	100.0	62291	3.21	2.69

Table 5.8 Children ever born and living (Contd.)

Percent distribution of all women and currently married women age 15-49 by number of children ever born and mean number of children ever born (CEB) and living, according to age and residence, India, 1992-93

| Age | Children ever born | | | | | | | | | | | Total percent | Number of women | Mean CEB | Mean children living |
	0	1	2	3	4	5	6	7	8	9	10+				
TOTAL All women															
15-19	81.4	13.8	4.1	0.6	0.1	--	--	--	--	--	--	100.0	23150	0.24	0.21
20-24	33.5	24.5	23.8	12.8	4.2	1.0	0.3	--	--	--	--	100.0	22057	1.34	1.20
25-29	10.7	12.5	23.7	24.9	16.0	8.1	2.9	1.0	0.2	0.1	--	100.0	18296	2.66	2.35
30-34	5.1	6.6	16.3	22.4	20.0	13.9	8.3	4.6	1.8	0.6	0.3	100.0	14915	3.62	3.11
35-39	4.2	4.6	13.2	19.3	18.4	15.3	10.2	6.8	4.2	2.1	1.7	100.0	12577	4.18	3.52
40-44	3.9	4.2	10.3	15.5	16.9	15.5	12.1	8.8	5.9	3.7	3.1	100.0	9859	4.65	3.83
45-49	3.7	4.1	7.5	12.2	15.6	15.5	13.5	10.6	7.6	4.7	5.0	100.0	8088	5.07	4.05
Total	27.7	12.1	14.9	14.5	11.1	7.8	5.0	3.2	1.9	1.0	0.9	100.0	108940	2.54	2.16
Currently married women															
15-19	52.3	35.3	10.5	1.7	0.2	--	--	--	--	--	--	100.0	8897	0.62	0.55
20-24	18.0	29.9	29.5	15.9	5.2	1.2	0.3	0.1	--	--	--	100.0	17504	1.66	1.48
25-29	5.6	12.5	25.1	26.5	17.1	8.7	3.1	1.1	0.2	0.1	--	100.0	16807	2.83	2.50
30-34	2.8	5.8	16.4	23.2	20.7	14.5	8.8	4.9	1.9	0.6	0.3	100.0	13901	3.75	3.24
35-39	2.9	3.9	12.8	19.7	18.9	15.8	10.6	7.1	4.4	2.2	1.8	100.0	11596	4.30	3.63
40-44	2.2	3.3	9.7	15.6	17.6	15.9	12.8	9.2	6.3	4.0	3.5	100.0	8725	4.84	4.00
45-49	2.4	3.4	7.3	11.9	15.7	16.0	13.8	11.1	7.9	5.1	5.4	100.0	6896	5.23	4.19
Total	11.7	14.5	18.3	17.9	13.6	9.5	6.0	3.9	2.3	1.2	1.1	100.0	84327	3.11	2.65

Note: All women includes never-married women.
-- Less than 0.05 percent

Differentials in the number of children ever born and children still living by background characteristics, shown in Table 5.9, provide additional information on fertility patterns in India. To avoid the confounding influence of different age distributions of women in different groups, the mean values in the table are age-standardized according to the age distribution of all currently married women. The differentials by background characteristics seen in Table 5.9 are similar to those observed earlier in Table 5.3. Fertility is higher among illiterate women and those with low educational attainment, Muslims and scheduled caste women.

Differentials in the mean number of children still living are smaller than differentials in the mean number of children ever born. This convergence is caused by the simultaneous occurrence of high fertility and relatively high levels of infant and child mortality in some groups. For example, while women in rural areas have borne almost 0.4 children more than women in urban areas, they have only 0.1 living children more than urban women. Rural women have had more children, but have lost relatively more as well.

State differentials in the number of children ever born (Table 5.10) generally parallel the differentials in current fertility rates discussed earlier. For currently married women of all ages, the average number of children ever born ranges from 2.5 in Kerala to 3.7 in Assam. Because high fertility states tend to have high mortality as well, the range is somewhat smaller in the case of the average number of children still living (from 2.3 in Kerala and Tamil Nadu to 3.2 in Nagaland). High fertility and high mortality have combined to make the average child loss quite

Table 5.9 Mean number of children ever born and living by background characteristics

Age-standardized mean number of children ever born and living for currently married women, according to sex and selected background characteristics, India, 1992-93

Background characteristic	Children ever born			Children living		
	Male	Female	Total	Male	Female	Total
Age						
13-14	0.1	0.0	0.1	0.0	0.0	0.1
15-19	0.3	0.3	0.6	0.3	0.3	0.6
20-24	0.8	0.8	1.7	0.7	0.7	1.5
25-29	1.5	1.4	2.8	1.3	1.2	2.5
30-34	2.0	1.8	3.7	1.7	1.5	3.2
35-39	2.2	2.1	4.3	1.9	1.7	3.6
40-44	2.5	2.3	4.8	2.1	1.9	4.0
45-49	2.7	2.5	5.2	2.2	2.0	4.2
Residence						
Urban	1.5	1.4	2.8	1.3	1.2	2.6
Rural	1.6	1.5	3.2	1.4	1.3	2.7
Education						
Illiterate	1.8	1.7	3.5	1.5	1.4	2.9
Literate, < middle complete	1.5	1.4	2.9	1.3	1.3	2.6
Middle school complete	1.2	1.1	2.3	1.1	1.0	2.1
High school and above	1.0	0.9	1.9	0.9	0.9	1.8
Religion						
Hindu	1.6	1.5	3.0	1.3	1.2	2.6
Muslim	1.8	1.8	3.6	1.6	1.5	3.2
Christian	1.4	1.4	2.8	1.3	1.3	2.5
Sikh	1.5	1.4	2.9	1.4	1.2	2.6
Jain	1.3	1.2	2.5	1.2	1.2	2.3
Buddhist	1.6	1.4	3.0	1.3	1.2	2.5
Other	1.5	1.4	2.9	1.3	1.2	2.5
Caste/tribe						
Scheduled caste	1.7	1.6	3.3	1.4	1.3	2.7
Scheduled tribe	1.6	1.5	3.1	1.4	1.3	2.7
Other	1.6	1.5	3.1	1.4	1.3	2.6
Total	1.6	1.5	3.1	1.4	1.3	2.6

Note: The means by residence, education, religion and caste/tribe are standardized on the age distribution of all currently married women.

high (0.7 children per woman) in Uttar Pradesh. In the case of Rajasthan, the difference between the average number of children ever born and living is only 0.3 children, which may reflect underreporting of dead children in the birth history.

5.4 Sex Ratio at Birth

The sex ratio at birth of children ever born is shown in Table D.4 in Appendix D. Information is available for 277,192 children born to interviewed women. In all, the sex ratio at birth is 107.0 which is on the high end of the normal range of 105-107 which has been observed in most other countries. The sex ratio at birth is particularly high (112.0) for births occurring before 1972, indicating that there is underenumeration of female births that occurred more than 20 years before the survey. Since 1972, however, the sex ratio at birth has been almost constant at an average level of 106.3-106.6 for five-year periods. Therefore, there is no

Table 5.10 Mean number of children ever born and living by state

Mean number of children ever born and living for currently married women, according to sex and state, India, 1992-93

State	Children ever born			Children living		
	Male	Female	Total	Male	Female	Total
India	1.6	1.5	3.1	1.4	1.3	2.6
North						
Delhi	1.5	1.3	2.8	1.4	1.2	2.6
Haryana	1.6	1.5	3.1	1.4	1.3	2.7
Himachal Pradesh	1.5	1.4	3.0	1.4	1.3	2.7
Jammu Region of J & K	1.6	1.5	3.1	1.5	1.3	2.9
Punjab	1.5	1.4	2.9	1.4	1.3	2.7
Rajasthan	1.7	1.5	3.1	1.5	1.3	2.8
Central						
Madhya Pradesh	1.7	1.5	3.2	1.4	1.2	2.6
Uttar Pradesh	1.9	1.7	3.6	1.5	1.3	2.9
East						
Bihar	1.7	1.6	3.2	1.4	1.3	2.7
Orissa	1.6	1.5	3.0	1.3	1.2	2.5
West Bengal	1.5	1.5	3.0	1.3	1.2	2.6
Northeast						
Arunachal Pradesh	1.6	1.5	3.1	1.4	1.3	2.8
Assam	1.9	1.8	3.7	1.6	1.5	3.1
Manipur	1.8	1.6	3.4	1.6	1.5	3.1
Meghalaya	1.7	1.5	3.2	1.6	1.4	3.0
Mizoram	1.6	1.5	3.1	1.5	1.4	3.0
Nagaland	1.7	1.5	3.2	1.6	1.5	3.2
Tripura	1.7	1.5	3.3	1.5	1.3	2.8
West						
Goa	1.4	1.3	2.7	1.3	1.2	2.5
Gujarat	1.5	1.4	2.9	1.3	1.2	2.6
Maharashtra	1.5	1.4	2.9	1.3	1.3	2.6
South						
Andhra Pradesh	1.4	1.3	2.7	1.2	1.2	2.4
Karnataka	1.6	1.5	3.1	1.4	1.3	2.6
Kerala	1.3	1.2	2.5	1.2	1.2	2.3
Tamil Nadu	1.4	1.3	2.7	1.2	1.2	2.3

evidence in India of the type of rise in the sex ratio at birth over time that has been observed in countries such as Korea and China, where the preference for sons is strong and sex-selective abortions have been carried out based on the determination of the sex of unborn foetuses (Park and Cho, 1995)[3].

5.5 Birth Order

Birth order analysis is important in understanding trends and differentials in fertility. Information on birth order can also be used to gauge the extent to which couples are following

[3] Between 1982 and 1992, the sex ratio at birth increased from 107 to 114 in South Korea and from 108 to 119 in China.

the 2-child family norm promoted by the family welfare programme. The birth order of children born during the three years before the survey is shown in Table 5.11. Overall, 28 percent of all births were first births and 24 percent were second births. As one would expect, the number of births at each order is greater than the number at the next higher order. Also as expected, younger women have more lower order births and older women have more higher order births. First births, as a percent of all births, decline rapidly with increasing age of the mother and third and higher order births increase with increasing age of the mother. Predictably, the birth order distribution is more skewed toward lower order births in urban than in rural areas. Even in urban areas, however 14 percent of all births were of order five and above. The birth order distribution in the NFHS is similar to the estimates produced by the Sample Registration System for live births in 1991, although the NFHS reports a slightly higher percentage of high order births (Office of the Registrar General, 1993a).

Table 5.11 Birth order by age of woman

Percent distribution of births during the three years preceding the survey by order of birth and age of the woman at birth, according to residence, India, 1992-93

Maternal age at birth	Order of birth						Total percent	Number of births
	1	2	3	4	5	6+		
URBAN								
13-14	(96.7)	(3.3)	(--)	(--)	(--)	(--)	100.0	41
15-19	67.9	24.6	6.1	1.1	0.3	--	100.0	1474
20-24	35.2	34.4	20.0	7.1	2.4	0.9	100.0	3533
25-29	15.8	26.3	21.3	18.4	11.9	6.4	100.0	2272
30-34	7.4	15.4	16.3	18.3	14.7	28.0	100.0	910
35-39	4.0	6.3	8.3	14.3	6.9	60.2	100.0	285
40-44	6.3	4.3	3.0	9.1	7.3	70.0	100.0	48
Total	31.8	27.2	16.9	10.5	6.0	7.6	100.0	8580
RURAL								
13-14	93.2	6.8	--	--	--	--	100.0	231
15-19	63.5	28.2	7.2	0.9	0.2	--	100.0	6824
20-24	24.6	33.6	25.1	11.6	3.9	1.2	100.0	10869
25-29	6.7	14.4	24.4	23.9	17.2	13.6	100.0	6523
30-34	1.6	5.0	11.1	15.9	18.5	47.9	100.0	3214
35-39	0.5	2.3	5.1	8.3	12.5	71.3	100.0	1244
40-44	0.3	0.4	1.7	5.6	11.4	80.6	100.0	366
45-49	0.2	--	1.1	6.9	6.2	85.6	100.0	65
Total	26.3	22.9	17.9	12.0	8.0	12.9	100.0	29336
TOTAL								
13-14	93.7	6.3	--	--	--	--	100.0	273
15-19	64.3	27.6	7.0	1.0	0.2	--	100.0	8298
20-24	27.2	33.8	23.9	10.5	3.5	1.1	100.0	14403
25-29	9.0	17.5	23.6	22.4	15.8	11.7	100.0	8794
30-34	2.9	7.3	12.2	16.4	17.6	43.5	100.0	4124
35-39	1.2	3.0	5.7	9.4	11.5	69.2	100.0	1529
40-44	1.0	0.8	1.8	6.0	10.9	79.4	100.0	414
45-49	0.2	1.3	2.2	8.0	6.7	81.5	100.0	82
Total	27.5	23.9	17.6	11.6	7.6	11.7	100.0	37916

Note: Table is based on children born in the period 1-36 months prior to the survey. Urban total includes 17 births to women age 45-49, which are not shown separately.
( ) Based on 25-49 unweighted cases
-- Less than 0.05 percent

The birth order distribution for illiterate women differs dramatically from the distribution for women with a substantial amount of education (Table 5.12). Eighty percent of recent births to women with a high school education are first or second births and only 7 percent are fourth or higher order births. For illiterate women, only 43 percent of births are first and second order, whereas 39 percent are fourth or higher order.

Table 5.12 Birth order by education of woman

Percent distribution of births during the three years preceding the survey by order of birth and age of the woman at birth, according to education, India, 1992-93

Maternal age at birth	Order of birth						Total percent	Number of births
	1	2	3	4	5	6+		
ILLITERATE								
13-14	94.9	5.1	--	--	--	--	100.0	213
15-19	60.1	29.9	8.5	1.2	0.3	--	100.0	5598
20-24	19.9	31.6	27.8	13.9	5.0	1.7	100.0	8697
25-29	4.0	11.2	23.4	26.0	19.5	15.8	100.0	5678
30-34	1.2	3.4	9.6	16.8	18.9	50.1	100.0	3052
35-39	0.3	2.0	3.8	7.8	11.4	74.6	100.0	1271
40-44	0.3	0.1	1.5	5.2	10.8	82.2	100.0	366
45-49	0.2	1.5	2.5	7.2	5.4	83.3	100.0	75
Total	22.3	20.9	18.3	13.6	9.3	15.6	100.0	24949
LITERATE, < MIDDLE SCHOOL COMPLETE								
13-14	(86.8)	(13.2)	(--)	(--)	(--)	(--)	100.0	47
15-19	68.6	25.7	5.1	0.5	--	--	100.0	1570
20-24	28.0	37.5	23.5	8.6	2.1	0.4	100.0	2644
25-29	7.5	17.3	28.3	24.8	14.9	7.3	100.0	1333
30-34	3.5	7.0	15.4	17.4	19.1	37.6	100.0	539
35-39	0.7	3.1	10.5	19.5	12.2	54.0	100.0	157
40-44	(--)	(6.3)	(1.4)	(7.6)	(8.7)	(75.9)	100.0	33
Total	31.3	26.5	18.6	10.9	6.0	6.7	100.0	6328
MIDDLE SCHOOL COMPLETE								
15-19	76.5	20.1	2.5	0.4	0.5	--	100.0	683
20-24	35.5	42.8	18.0	3.4	0.3	--	100.0	1343
25-29	15.8	26.5	28.2	15.7	10.2	3.7	100.0	523
30-34	3.8	11.7	18.7	20.5	19.8	25.5	100.0	157
35-39	(11.5)	(2.2)	(15.5)	(2.2)	(15.8)	(52.8)	100.0	34
Total	40.1	31.5	16.0	6.0	3.5	2.9	100.0	2757
HIGH SCHOOL AND ABOVE								
15-19	82.5	16.1	1.4	--	--	--	100.0	446
20-24	56.5	32.0	9.2	1.5	0.5	0.3	100.0	1719
25-29	30.2	41.9	17.5	6.6	2.6	1.1	100.0	1260
30-34	15.3	37.1	26.1	10.7	4.2	6.6	100.0	376
35-39	13.4	23.1	24.7	20.6	8.2	10.0	100.0	67
Total	46.1	33.6	12.9	4.3	1.7	1.3	100.0	3882

Note: Table is based on children born in the period 1-36 months prior to the survey. Total for literate, < middle school complete includes 5 births to women age 45-49, total for middle school complete includes 11 and 5 births to women age 13-14 and 40-44, respectively, and total for high school and above includes 1, 12 and 2 births to women age 13-14, 40-44 and 45-49, respectively, which are not shown separately.
( ) Based on 25-49 unweignted cases
-- Less than 0.05 percent

Substantial differences in the birth order distribution by state (Table 5.13) reflect differences in the overall level of fertility in past years. The proportion of recent births that are first order births varies from 22-24 percent in Assam, Uttar Pradesh and Bihar to 38-40 percent in the low fertility states of Goa and Kerala. Similarly, higher order births (fifth order and above) are most common in Uttar Pradesh, Assam, Meghalaya and Bihar and relatively rare in Kerala, Goa and Tamil Nadu.

Table 5.13 Birth order by state

Percent distribution of births during the three years preceding the survey by order of birth and state, India, 1992-93

| State | Order of birth | | | | | | Total percent |
	1	2	3	4	5	6+	
India	27.5	23.9	17.6	11.6	7.6	11.7	100.0
North							
Delhi	28.0	27.7	17.5	12.7	6.7	7.5	100.0
Haryana	28.4	24.1	19.4	11.6	6.5	10.2	100.0
Himachal Pradesh	30.8	26.5	21.3	10.9	4.6	5.9	100.0
Jammu Region of J & K	31.6	24.3	18.6	10.9	6.0	8.6	100.0
Punjab	29.2	28.1	20.1	11.3	6.1	5.2	100.0
Rajasthan	27.0	22.3	17.1	12.4	9.0	12.1	100.0
Central							
Madhya Pradesh	26.5	23.7	16.9	12.0	8.3	12.6	100.0
Uttar Pradesh	22.9	19.6	16.4	12.5	9.6	19.0	100.0
East							
Bihar	23.5	20.1	16.3	14.3	9.8	16.0	100.0
Orissa	27.4	24.6	19.8	12.8	6.8	8.6	100.0
West Bengal	29.2	24.6	17.2	11.0	7.5	10.4	100.0
Northeast							
Arunachal Pradesh	26.1	19.3	17.9	15.4	8.4	12.8	100.0
Assam	22.4	19.4	17.3	13.8	8.5	18.5	100.0
Manipur	27.5	20.5	18.9	13.5	7.5	12.1	100.0
Meghalaya	24.9	21.6	15.6	11.0	9.3	17.6	100.0
Mizoram	30.4	24.6	20.3	14.2	4.1	6.4	100.0
Nagaland	27.8	24.1	16.4	10.4	10.4	10.8	100.0
Tripura	29.0	25.2	16.1	11.1	8.1	10.6	100.0
West							
Goa	38.1	29.7	17.7	7.9	3.5	3.1	100.0
Gujarat	33.2	24.8	17.8	11.0	6.3	6.9	100.0
Maharashtra	29.9	27.3	19.9	11.8	5.1	6.1	100.0
South							
Andhra Pradesh	30.6	27.3	20.6	10.7	5.5	5.3	100.0
Karnataka	30.9	26.7	17.8	9.0	6.4	9.2	100.0
Kerala	39.5	34.5	15.5	4.2	2.5	3.8	100.0
Tamil Nadu	35.7	32.0	18.2	6.9	4.1	3.1	100.0

Note: Table is based on children born in the period 1-36 months prior to the survey.

5.6 Birth Intervals

Birth intervals are an important measure of the pace of childbearing. Past research has shown that children born too close to a previous birth have an increased risk of dying, especially if the interval between births is less than 24 months (Govindasamy et al., 1993; Hobcraft et al., 1983). Table 5.14 presents the percentage distribution of second and higher order births in the

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Table 5.14 Birth intervals

Percent distribution of births during the five years preceding the survey by interval since previous birth, according to demographic and background characteristics, India, 1992-93

Characteristic	Months since previous birth						Total percent	Median months since previous birth	Number of births
	<12	12-17	18-23	24-35	36-47	48+			
Age of the mother									
15-19	3.6	18.4	23.2	40.3	11.7	2.9	100.0	24.8	1263
20-24	2.7	12.5	18.5	38.8	19.2	8.2	100.0	27.8	12445
25-29	1.9	9.3	15.7	33.7	21.8	17.5	100.0	31.8	16093
30-34	1.4	7.5	11.9	30.7	21.9	26.6	100.0	35.4	9331
35-39	1.6	7.4	10.7	26.8	21.7	31.8	100.0	37.3	4060
40-44	1.3	5.7	6.2	26.6	21.4	38.8	100.0	40.0	1338
45-49	0.9	3.6	4.9	23.8	21.9	45.0	100.0	43.6	369
Order of prior birth									
1	1.9	10.9	16.8	33.3	19.5	17.6	100.0	30.7	14701
2	2.1	9.0	14.3	35.1	21.2	18.3	100.0	31.7	10883
3	1.8	9.0	14.6	33.8	21.2	19.5	100.0	31.9	7259
4	2.1	9.4	14.1	32.3	22.0	20.2	100.0	32.8	4758
5	1.7	8.8	14.7	33.2	22.0	19.6	100.0	32.9	2984
6+	2.4	10.2	13.5	33.9	21.5	18.5	100.0	31.9	4315
Sex of prior birth									
Male	1.9	9.5	15.0	33.2	21.2	19.2	100.0	32.1	22381
Female	2.1	10.0	15.1	34.3	20.5	18.0	100.0	31.3	22518
Survival of prior birth									
Still living	1.4	8.1	14.8	34.4	21.8	19.4	100.0	32.5	39043
Deceased	5.8	20.8	16.7	29.3	14.2	13.2	100.0	25.7	5856
Residence									
Urban	2.3	10.5	16.0	32.1	19.1	20.0	100.0	31.0	9563
Rural	1.9	9.6	14.8	34.2	21.3	18.2	100.0	31.8	35337
Education of the mother									
Illiterate	2.1	9.5	14.2	34.0	21.6	18.6	100.0	32.0	32113
Lit., < middle complete	1.5	10.3	16.9	35.5	19.3	16.5	100.0	30.6	7041
Middle school complete	1.6	10.7	18.3	32.6	19.1	17.7	100.0	29.6	2559
High school and above	2.1	11.1	17.1	28.3	17.7	23.6	100.0	31.7	3186
Religion									
Hindu	1.9	9.6	14.7	33.6	21.1	19.1	100.0	32.0	35344
Muslim	2.7	10.2	16.2	34.6	20.2	16.1	100.0	30.3	7411
Christian	1.7	8.8	17.9	33.6	18.2	19.8	100.0	31.1	829
Sikh	2.0	14.8	17.9	31.5	18.9	14.9	100.0	28.8	710
Jain	0.1	12.6	10.9	31.0	19.9	25.4	100.0	35.0	101
Buddhist	1.4	9.6	17.7	38.7	17.7	14.8	100.0	30.0	300
Other	2.1	8.1	17.0	36.7	13.9	22.1	100.0	30.3	205
Caste/tribe									
Scheduled caste	2.1	10.1	15.0	33.5	21.0	18.3	100.0	31.4	6280
Scheduled tribe	2.0	9.9	14.6	35.9	19.9	17.6	100.0	31.2	4361
Other	2.0	9.7	15.2	33.5	20.9	18.7	100.0	31.7	34258
Total	2.0	9.8	15.1	33.8	20.8	18.6	100.0	31.6	44900

Note: First order births are excluded. The interval for multiple births is the number of months since the preceding pregnancy that ended in a live birth. There were no reported second or higher order births to women age 13-14.

five years prior to the survey by the interval since the previous birth. Intervals between marriage and first birth, which do not include an interval of postpartum amenorrhoea, are excluded to make comparisons of the intervals over different characteristics of women more meaningful. Overall, 12 percent of the births occurred within 18 months of the previous birth and 27 percent occurred within 24 months. The median birth interval is 32 months or about 2.6 years.

The relatively short median birth interval for women age 15-19 at the time of the survey probably results from a selection effect. Only women who have had two or more births are included in this table, and women age 15-19 with two or more births are likely to have considerably higher fecundability than women at large. Differences in fecundability by age of the mother may likewise account for the generally positive gradient in the length of birth intervals by mother's age. Curiously, in view of the correlation between age of women and birth order, there is little variation in median intervals according to the birth order of the previous birth. This is because women with large numbers of births are probably more fecund, and therefore have shorter median intervals than other women.

The median birth interval is seven months shorter when the last birth is deceased than when the last birth is still alive and very short birth intervals are unusually high for the former group. This probably reflects the cessation of breastfeeding when the child dies and the consequent shortening of the period of postpartum amenorrhoea.

Birth intervals vary little by the sex of the prior birth, residence, education, or caste/tribe. Jains have particularly long birth intervals (a median of 35 months) and birth intervals are shortest for Sikhs, who have low fertility but a more rapid pace of childbearing than other groups. Interestingly, median birth intervals are relatively high in both the highest and lowest fertility states (see Table 5.15). This phenomenon is probably due to the older average age of women having children in high fertility states and a number of factors in low-fertility states, such as high levels of child survivorship and more frequent use of temporary methods of contraception.

5.7 Age at First and Last Birth

The onset of childbearing is an important demographic indicator. Postponement of first births, reflecting a rise in the age at marriage, can make an important contribution to overall fertility decline. Table 5.16 shows the distribution of women by age at first birth. Nearly half of all women age 20-49 had their first birth at age 15-19 and more than one-quarter had their first birth at age 20-24. Very early childbearing (below age 15) is relatively rare in all of the age groups and the incidence has dropped fairly steadily across cohorts of women. Childbearing before age 15 is negligible in the 15-19 age group. Childbearing before age 20 has also declined slightly, with the proportion of women having their first child before age 20 dropping below 50 percent for the first time in the 20-24 age group. Urban women are much less likely than rural women to have their first birth before age 18 and much more likely to have their first birth after age 22.

Table 5.17 shows the median age at first birth by selected background characteristics. The median age at first birth for any group of women is the age by which half of them have had

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Table 5.15 Birth intervals by state

Percent distribution of births during the five years preceding the survey by interval since previous birth, according to state, India, 1992-93

| State | Months since previous birth | | | | | | Total percent | Median months since previous birth |
	<12	12-17	18-23	24-35	36-47	48+		
India	2.0	9.8	15.1	33.8	20.8	18.6	100.0	31.6
North								
Delhi	2.3	11.8	16.3	31.0	18.3	20.2	100.0	30.6
Haryana	2.1	13.7	17.6	34.7	18.7	13.2	1C0.0	28.1
Himachal Pradesh	1.9	12.7	18.7	37.4	16.9	12.4	100.0	28.3
Jammu Region of J & K	1.8	12.5	14.3	34.0	21.3	16.0	100.0	30.9
Punjab	2.4	13.7	17.1	32.8	18.1	15.9	100.0	29.3
Rajasthan	2.2	8.8	13.1	33.4	21.9	20.6	100.0	32.5
Central								
Madhya Pradesh	1.9	9.4	13.8	35.4	21.3	18.3	100.0	32.1
Uttar Pradesh	2.6	10.4	14.5	32.2	21.6	18.6	100.0	32.1
East								
Bihar	1.7	8.8	13.6	31.7	23.4	20.8	100.0	33.9
Orissa	1.9	9.7	13.8	32.6	21.6	20.5	100.0	32.7
West Bengal	1.3	8.8	14.4	35.4	20.7	19.4	100.0	31.7
Northeast								
Arunachal Pradesh	0.8	8.5	19.6	36.3	16.4	18.4	100.0	29.8
Assam	0.8	12.4	16.6	34.9	19.8	15.4	100.0	29.8
Manipur	1.3	10.1	14.5	35.6	20.4	18.1	100.0	31.6
Meghalaya	0.9	11.4	22.1	36.1	16.9	12.5	100.0	27.5
Mizoram	1.5	13.4	20.7	34.9	13.2	16.3	100.0	27.6
Nagaland	2.8	10.5	20.2	37.8	16.7	11.9	100.0	28.1
Tripura	0.6	8.7	12.7	34.1	20.4	23.6	100.0	33.9
West								
Goa	1.2	8.8	13.8	27.9	20.0	28.2	100.0	35.2
Gujarat	1.9	10.2	17.2	36.9	19.3	14.5	100.0	30.0
Maharashtra	2.8	9.0	18.8	36.1	19.6	13.6	100.0	28.7
South								
Andhra Pradesh	1.8	8.0	12.9	33.7	21.2	22.5	100.0	33.4
Karnataka	2.0	9.7	16.9	36.9	18.4	16.2	100.0	29.9
Kerala	1.4	8.3	13.5	28.5	19.7	28.6	100.0	34.9
Tamil Nadu	0.9	9.7	16.5	33.1	18.5	21.3	100.0	31.6

Note: First order births are excluded. The interval for multiple births is the number of months since the preceding pregnancy that ended in a live birth.

their first birth. For women in the younger age groups, the number who will eventually become mothers is not known since some first births to the cohort will occur only in the future. The medians are, therefore, calculated as the ages by which half of *all* women in the cohort have had a first birth, rather than the age by which half of all mothers in the cohort have had a first birth. This statistic may be computed without knowing how many women in the cohort will eventually have a first birth. The medians are, of course, undefined for cohorts in which fewer than half of the women have had a first birth. This is the reason why no medians are shown for women age 20-24 and 20-49 for some background characteristics in Table 5.17.

Table 5.16 Age at first birth

Percent distribution of women by age at first birth, according to current age and residence, India, 1992-93

Current age[1]	No birth[2]	Age at first birth						Total percent
		<15	15-17	18-19	20-21	22-24	25+	
URBAN								
15-19	89.6	1.6	5.9	2.9	NA	NA	NA	100.0
20-24	47.3	2.6	13.5	17.5	14.1	5.0	NA	100.0
25-29	16.1	4.0	18.3	19.2	17.7	17.1	7.7	100.0
30-34	7.5	3.6	19.9	20.7	18.2	17.2	12.9	100.0
35-39	5.8	4.2	20.7	21.3	17.4	17.7	13.0	100.0
40-44	4.9	4.5	23.4	21.3	18.3	15.6	12.2	100.0
45-49	4.7	5.8	22.5	21.3	18.5	15.8	11.3	100.0
20-49	18.4	3.8	18.7	19.8	17.0	13.9	8.4	100.0
25-49	8.8	4.2	20.5	20.6	17.9	16.8	11.2	100.0
RURAL								
15-19	78.4	3.4	13.5	4.8	NA	NA	NA	100.0
20-24	28.0	6.1	27.0	21.4	13.2	4.3	NA	100.0
25-29	8.5	6.5	30.9	23.3	16.4	11.1	3.3	100.0
30-34	4.1	6.5	30.6	24.7	17.2	11.6	5.3	100.0
35-39	3.6	7.2	31.4	23.5	16.1	11.8	6.6	100.0
40-44	3.0	6.9	30.0	24.7	17.8	11.6	6.0	100.0
45-49	3.4	7.4	29.5	22.5	16.1	13.2	7.9	100.0
20-49	11.0	6.6	29.7	23.2	15.8	9.8	4.0	100.0
25-49	5.0	6.8	30.6	23.8	16.7	11.7	5.4	100.0
TOTAL								
15-19	81.4	2.9	11.4	4.3	NA	NA	NA	100.0
20-24	33.5	5.1	23.2	20.3	13.4	4.5	NA	100.0
25-29	10.7	5.8	27.3	22.2	16.8	12.8	4.6	100.0
30-34	5.1	5.7	27.4	23.5	17.5	13.2	7.6	100.0
35-39	4.2	6.3	28.2	22.8	16.5	13.5	8.5	100.0
40-44	3.9	6.1	27.9	23.6	17.9	12.8	7.8	100.0
45-49	3.7	7.0	27.6	22.2	16.8	13.9	8.9	100.0
20-49	13.2	5.8	26.5	22.2	16.1	10.9	5.3	100.0
25-49	6.2	6.1	27.6	22.8	17.1	13.2	7.1	100.0

NA: Not applicable
[1] The current age groups include both never-married and ever-married women
[2] Never-married women are included in this category

For women age 25-49, the median age at first birth has been almost constant at 19.3-19.5 years. Although the median age at first marriage is 1.2 years higher for women age 25-29 than for women age 45-49 (see Table 4.5), and the median age at first cohabitation is 0.8 years higher (see Table 4.9), the median age at first birth is almost the same for these two age groups. This means that the interval between marriage and first cohabitation and the interval between first cohabitation and first birth have both been decreasing over time, as the age at first marriage and first cohabitation have been increasing.

On average, median ages at first birth are 1-2 months higher in urban than in rural areas. In all age groups, better educated women have a considerably higher median age at first birth than do less educated women: the median at age 25-49 is 23 years of age among women with

Table 5.17 Median age at first birth by background characteristics

Median age at first birth among women age 20-49 years, by current age and selected background characteristics, India, 1992-93

Background characteristic	Current age							
	20-24	25-29	30-34	35-39	40-44	45-49	20-49	25-49
Residence								
Urban	NC	20.9	20.6	20.4	20.1	20.0	NC	20.5
Rural	19.6	19.0	19.0	18.9	19.0	19.1	19.1	19.0
Education								
Illiterate	18.8	18.5	18.7	18.6	18.8	19.0	18.7	18.7
Lit., < middle complete	NC	19.5	19.3	19.3	19.2	19.5	19.5	19.4
Middle school complete	NC	20.6	20.2	20.5	20.1	21.0	NC	20.4
High school and above	NC	23.6	23.1	23.3	23.1	23.1	NC	23.3
Religion								
Hindu	NC	19.5	19.4	19.3	19.3	19.3	19.5	19.4
Muslim	19.5	18.8	18.8	18.6	18.7	18.8	18.9	18.7
Christian	NC	21.9	22.2	21.7	21.6	20.9	NC	21.7
Sikh	NC	21.8	21.3	20.9	21.3	21.5	NC	21.4
Other	NC	19.8	20.4	19.2	19.7	19.6	NC	19.8
Caste/tribe								
Scheduled caste	19.2	18.6	18.7	18.7	18.8	19.0	18.8	18.7
Scheduled tribe	19.2	19.0	18.9	18.8	19.2	19.3	19.1	19.0
Other	NC	19.7	19.6	19.5	19.4	19.4	19.7	19.6
Total	NC	19.5	19.4	19.3	19.3	19.4	19.6	19.4

NC: Median is not calculated when less than 50 percent of the women age x to x+n have had a birth by age x.

at least a high school education but only 19 years of age among illiterate women. Among the religious groups, Muslims have the youngest median age at first birth and Christians and Sikhs the oldest, with Hind·:s falling in between. Although the median age at first marriage is the same for Hindus and Muslims (see Table 4.5), Muslims begin childbearing at a slightly younger age than Hindus, reflecting the shorter gap between marriage and childbearing among Muslim women. Scheduled castes and tribes begin childbearing slightly earlier than non-SC/ST group, but the differences are small.

For all women age 25-49, the median age at first birth is four years higher than average in Goa and three years higher than average in Manipur and Mizoram (Table 5.18). Particularly young ages at first birth are common in Andhra Pradesh, West Bengal, Assam, Madhya Pradesh, and Karnataka. The difference between the median age at first birth and the median age at first marriage for women age 25-49 (Table 4.6) is less than three years in every state except the early marriage states of Rajasthan, Uttar Pradesh, Bihar, Haryana and Madhya Pradesh (where the difference ranges from 3.7 to 4.7 years). This result is consistent with the findings of Basu (1993) of particularly long first birth intervals related to cultural practices in North India. This finding may also be related to adolescent subfecundity among women who marry at very young ages. The difference between the median age at first birth and the median age at first marriage is unusually low in all of the northeastern states, where the culture is more accepting of premarital conception and even premarital births.

Table 5.18 Median age at first birth by state

Median age at first birth among women age 20-49 years, by current age and state, India, 1992-93

State	Current age							
	20-24	25-29	30-34	35-39	40-44	45-49	20-49	25-49
India	NC	19.5	19.4	19.3	19.3	19.4	19.6	19.4
North								
Delhi	NC	21.2	21.1	20.9	20.8	19.8	NC	20.9
Haryana	19.7	19.7	19.7	19.8	20.1	20.4	19.8	19.8
Himachal Pradesh	NC	20.6	20.0	19.6	19.7	19.6	NC	20.0
Jammu Region of J & K	NC	21.1	20.4	19.6	19.1	20.1	NC	20.2
Punjab	NC	21.0	21.0	20.8	21.2	21.5	NC	21.0
Rajasthan	20.0	19.1	19.4	20.0	20.0	20.6	19.8	19.7
Central								
Madhya Pradesh	19.2	19.0	18.5	18.8	18.8	19.0	18.9	18.8
Uttar Pradesh	NC	19.5	19.4	19.6	19.6	19.5	19.7	19.5
East								
Bihar	19.5	19.1	19.1	19.2	18.9	18.8	19.1	19.0
Orissa	NC	19.8	19.2	18.5	18.7	19.2	19.5	19.1
West Bengal	19.3	19.0	18.7	18.4	18.1	18.6	18.8	18.6
Northeast								
Arunachal Pradesh	NC	20.0	19.7	20.0	20.7	21.2	NC	20.1
Assam	NC	19.1	18.9	19.0	18.3	18.7	19.2	18.8
Manipur	NC	24.0	23.0	21.9	21.6	21.8	NC	22.4
Meghalaya	NC	20.2	19.6	20.0	19.9	21.9	NC	20.3
Mizoram	NC	22.6	21.1	22.1	21.9	22.3	NC	22.0
Nagaland	NC	21.9	20.1	21.3	21.0	21.4	NC	21.2
Tripura	NC	19.7	20.3	19.1	18.8	18.9	19.7	19.4
West								
Goa	NC	NC	24.3	22.9	21.8	22.5	NC	23.7
Gujarat	NC	20.4	20.5	20.1	20.1	20.0	NC	20.2
Maharashtra	19.6	19.0	19.1	18.9	19.0	19.0	19.2	19.0
South								
Andhra Pradesh	18.5	17.9	18.0	17.6	18.2	18.1	18.0	17.9
Karnataka	19.9	18.9	18.9	18.9	18.9	18.7	19.1	18.9
Kerala	NC	22.3	22.1,	21.4	21.0	20.9	NC	21.6
Tamil Nadu	NC	20.7	20.5	20.1	19.5	19.2	NC	20.1

NC: Median is not calculated when less than 50 percent of the women age x to x+n have had a birth by age x

The age at last birth is another important determinant of overall fertility levels. Table 5.19 shows the distribution of women by age at last birth for women age 40-44 and 45-49. Although a few of these women may have another birth later on, the very low fertility rates for women in their forties seen earlier suggest that childbearing is virtually complete for this cohort. Nearly half of women age 40-49 completed their childbearing by age 30 and three-quarters had their last birth before age 35. The median ages at last birth for women age 40-44 and 45-49 at the time of the survey are 30.0 and 31.4 years, respectively.

Differentials in the age at last birth by background characteristics are shown in Table 5.20. Rural residents, illiterate women, Muslims and women from scheduled castes and scheduled tribes are most likely to continue childbearing into their late thirties and their forties.

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Table 5.19 Age at last birth

Percent distribution of ever-married women age 40-49 by age at last birth, according to current age and residence, India, 1992-93

Current age	No birth	Age at last birth							Total percent	Median age at last birth	Number of women
		< 20	20-24	25-29	30-34	35-39	40-44	45-49			
					URBAN						
40-44	3.0	2.6	19.0	32.7	29.1	11.8	1.9	NA	100.0	28.9	2899
45-49	3.2	2.8	13.3	31.8	30.0	14.5	3.5	0.9	100.0	29.8	2197
40-49	3.1	2.7	16.6	32.3	29.5	13.0	2.5	0.4	100.0	29.3	5096
					RURAL						
40-44	2.7	3.2	13.1	27.9	29.5	18.8	4.9	NA	100.0	30.5	6850
45-49	3.0	2.3	9.6	24.1	27.7	22.9	9.0	1.5	100.0	32.1	5838
40-49	2.8	2.7	11.5	26.2	28.7	20.7	6.8	0.7	100.0	31.2	12688
					TOTAL						
40-44	2.8	3.0	14.9	29.3	29.3	16.7	4.0	NA	100.0	30.0	9748
45-49	3.0	2.4	10.6	26.2	28.4	20.6	7.5	1.3	100.0	31.4	8036
40-49	2.9	2.7	13.0	27.9	28.9	18.5	5.5	0.6	100.0	30.6	17784

NA: Not applicable

Table 5.20 Age at last birth by background characteristics

Percent distribution of ever-married women age 40-49 by age at last birth, according to current age and selected background characteristics, India, 1992-93

Background characteristic	No birth	Age at last birth							Total percent	Median age at last birth	Number of women
		< 20	20-24	25-29	30-34	35-39	40-44	45-49			
Residence											
Urban	3.1	2.7	16.6	32.3	29.5	13.0	2.5	0.4	100.0	29.3	5096
Rural	2.8	2.7	11.5	26.2	28.7	20.7	6.8	0.7	100.0	31.2	12688
Education											
Illiterate	2.9	3.1	10.7	24.6	29.1	21.7	7.1	0.8	100.0	31.6	12370
Lit., < middle complete	2.5	2.3	17.7	32.6	28.9	13.2	2.7	0.2	100.0	29.3	3146
Middle school complete	3.7	2.0	20.7	40.8	23.9	7.9	1.0	--	100.0	27.9	832
High school and above	3.1	0.6	17.3	39.0	30.4	8.1	1.3	0.2	100.0	28.7	1436
Religion											
Hindu	2.9	2.8	13.5	28.6	28.5	17.8	5.3	0.6	100.0	30.4	14579
Muslim	3.2	2.9	8.5	20.1	28.5	26.8	9.3	0.8	100.0	32.8	1936
Christian	2.2	2.4	11.8	32.6	33.4	13.2	3.9	0.5	100.0	30.1	565
Sikh	1.6	0.4	15.3	33.6	34.2	13.6	1.4	--	100.0	29.9	366
Jain	5.1	--	19.1	33.1	31.4	9.4	1.9	--	100.0	29.4	111
Buddhist	3.1	2.8	10.1	30.2	38.9	14.1	0.6	0.2	100.0	30.4	150
Other	6.7	1.4	9.2	31.7	30.7	14.4	5.3	0.6	100.0	30.2	76
Caste/tribe											
Scheduled caste	2.2	2.8	9.8	24.4	30.4	22.3	7.2	1.0	100.0	31.9	2041
Scheduled tribe	3.7	3.9	13.9	27.3	24.0	19.3	7.1	0.8	100.0	30.2	1438
Other	2.9	2.6	13.3	28.5	29.2	17.8	5.2	0.5	100.0	30.4	14305
Total	2.9	2.7	13.0	27.9	28.9	18.5	5.5	0.6	100.0	30.6	17784

-- Less than 0.05 percent

Among all of the groups examined, the highest median age at last birth is for Muslims (32.8 years) and the lowest is for women who have completed middle school (27.9 years).

Differences between the median age at last birth and the median age at first birth for women in their forties are shown in Table 5.21. The difference between the median age at first birth and the median age at last birth gives an estimated reproductive life of 11 years for women who are approaching the end of their childbearing years. This span is likely to be considerably shorter for younger cohorts, who have begun their childbearing at a later average age and who can be expected to have their last birth at a younger age as fertility levels continue to decline. The reproductive life span is relatively short in South and West India. In fact, women in Goa and Kerala concentrated their births within a period of only 8 years. The reproductive life span is 6 years longer in Uttar Pradesh, Bihar and Tripura, where women have had their births over a period of 14 years.

Table 5.21 Median age at first birth and median age at last birth

Median age at first birth and median age at last birth for women age 40-49, by state, India, 1992-93

State	Median age at first birth	Median age at last birth	Difference
India	19.3	30.6	11.3
North			
Delhi	20.1	29.7	9.6
Haryana	20.2	31.2	11.0
Himachal Pradesh	19.6	29.3	9.7
Jammu Region of J & K	19.6	31.1	11.5
Punjab	21.4	30.0	8.6
Rajasthan	20.3	32.1	11.8
Central			
Madhya Pradesh	18.9	31.1	12.2
Uttar Pradesh	19.6	33.8	14.2
East			
Bihar	18.8	32.7	13.9
Orissa	18.8	30.9	12.1
West Bengal	18.2	29.8	11.6
Northeast			
Arunachal Pradesh	20.8	33.1	12.3
Assam	18.4	31.8	13.4
Manipur	21.6	32.7	11.1
Meghalaya	20.8	31.5	10.7
Mizoram	22.0	31.8	9.8
Nagaland	21.1	30.1	9.0
Tripura	18.8	32.8	14.0
West			
Goa	22.0	29.9	7.9
Gujarat	20.0	29.3	9.3
Maharashtra	18.9	28.0	9.1
South			
Andhra Pradesh	18.1	27.9	9.8
Karnataka	18.8	29.2	10.4
Kerala	20.9	29.0	8.1
Tamil Nadu	19.3	29.1	9.8

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5.8 Childbearing at Young Ages

Fertility among teenagers (those under age 20) is drawing increasing attention from policymakers. Table 5.22 shows the percentages of ever-married women age 13-19 who are either mothers or are pregnant with their first child. The sum of these two percentages represents the proportion of young ever-married women who have begun childbearing. Overall, 58 percent of ever-married teenage women have started their childbearing (46 percent have already become mothers and 12 percent are pregnant with their first child). However, because the proportion in this age group who have never married has been rising over time, childbearing among teenage women is likely to be less common now than in the past. Only 25 percent of married women age 13-16 are mothers compared with 52 percent of those age 17-19. The percentage of ever-married women who have begun childbearing is slightly higher in urban areas than in rural areas, but since a smaller proportion of urban women are married, overall childbearing is higher among teenage women in rural areas. There is no difference in the percentage of ever-married women who have begun childbearing between illiterate women and literate women with less than a middle school education, but married women who have completed high school are less likely to have begun childbearing. Differentials by religion and

Table 5.22 Childbearing among ever-married women age 13-19

Percentage of ever-married women age 13-19 who are mothers or pregnant with their first child, by selected background characteristics, India, 1992-93

Background characteristic	Percentage who are:		Percent who have begun child-bearing	Number of women
	Mothers	Pregnant with first child		
Age				
13-16	24.5	11.7	36.1	2170
17-19	52.4	11.7	64.1	7277
Residence				
Urban	47.1	13.8	60.9	1418
Rural	45.8	11.3	57.1	8029
Education				
Illiterate	48.1	10.2	58.3	6359
Literate, <middle complete	45.1	13.7	58.8	1778
Middle school complete	39.3	15.6	54.9	787
High School and above	33.0	17.3	50.3	522
Religion				
Hindu	45.2	11.6	56.8	7858
Muslim	51.4	10.9	62.3	1261
Christian	47.3	16.0	63.4	104
Sikh	34.6	22.9	57.5	75
Buddhist	50.1	11.7	61.8	87
Other	48.2	15.5	63.7	45
Caste/tribe				
Scheduled caste	46.2	11.1	57.3	1419
Scheduled tribe	52.4	11.6	64.0	939
Other	45.1	11.8	56.9	7089
Total	46.0	11.7	57.7	9447

Note: Total includes 16 ever-married Jain women, who are not shown separately.

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caste/tribe are not large. The percentage who have begun childbearing is slightly higher among scheduled tribe women and Christians and Muslims.

Table 5.23 contains similar information for ever-married teenage women in each state. The percentage who have begun childbearing is much higher than average in all of the northeastern states, as well as Goa, Maharashtra and Karnataka. Once again, however, these percentages should be considered in relation to the proportion of teenage women who have ever been married if one wants to examine the percentage of all teenage women who have begun

Table 5.23 Childbearing among women age 13-19 by state

Percentage of ever-married women age 13-19 who are mothers or pregnant with their first child and percentage of ever-married women and all women age 13-19 who have begun childbearing, by state, India, 1992-93

State	Ever-married women		Percent who have begun child-bearing	All women
	Percentage who are:			Percent who have begun childbearing
	Mothers	Pregnant with first child		
India	46.0	11.7	57.7	17.0
North				
Delhi	45.5	14.3	59.7	8.0
Haryana	50.1	12.7	62.9	20.7
Himachal Pradesh	39.3	15.8	55.2	7.1
Jammu Region of J & K	37.3	12.8	50.1	6.5
Punjab	42.4	22.0	64.4	6.7
Rajasthan	35.6	9.8	45.4	13.0
Central				
Madhya Pradesh	41.9	13.0	54.9	26.5
Uttar Pradesh	41.4	8.1	49.4	14.1
East				
Bihar	39.1	9.1	48.2	18.6
Orissa	48.2	11.6	59.8	13.2
West Bengal	47.8	15.6	63.4	20.4
Northeast				
Arunachal Pradesh	50.6	18.5	69.1	14.8
Assam	59.9	10.7	70.6	17.9
Manipur	*	*	*	2.9
Meghalaya	49.3	22.4	71.6	11.5
Mizoram	(42.5)	(30.0)	(72.5)	5.7
Nagaland	(65.9)	(22.0)	(87.8)	7.3
Tripura	54.5	11.9	66.3	14.9
West				
Goa	(52.9)	(14.7)	(67.6)	1.6
Gujarat	46.9	8.8	55.7	8.9
Maharashtra	57.8	10.3	68.1	19.9
South				
Andhra Pradesh	47.4	12.7	60.1	25.4
Karnataka	57.8	13.9	71.7	20.8
Kerala	37.9	21.3	59.2	5.9
Tamil Nadu	47.9	17.1	65.0	12.0

( ) Based on 25-49 unweighted cases
* Percent not shown; based on fewer than 25 unweighted cases

childbearing (see the last column of Table 5.23). Overall, only 17 percent of teenage women in India have begun childbearing. For individual states, the picture is quite different for all women than for ever-married women. Teenage childbearing is particularly high in Madhya Pradesh and Andhra Pradesh. On the other hand, less than 5 percent of teenage women have begun childbearing in Goa and Manipur.

5.9 Postpartum Amenorrhoea, Abstinence and Nonsusceptibility

The importance of lactational amenorrhoea and postpartum abstinence as determinants of fertility is well recognized. The duration of postpartum amenorrhoea (delayed resumption of ovulation) following a birth is closely associated with the duration of breastfeeding, which tends to suppress the resumption of ovulation. Conception can also be delayed by prolonged postpartum abstinence. The total period of protection from amenorrhoea or abstinence or both is defined as the nonsusceptible duration. The percentage of births during the last three years whose mothers are presently postpartum amenorrhoeic, abstaining or nonsusceptible is presented in Table 5.24. The mean and median durations and the prevalence/incidence mean duration are also shown in the table. Estimates of means and medians are based on a smoothed distribution of the current status proportion in each months-since-birth group. The prevalence/incidence mean is obtained by dividing the number of mothers who are nonsusceptible by the average number of births per month over a 36-month period. Ninety-two percent of all women who had a birth in the month prior to the survey were still amenorrhoeic when interviewed. The proportion amenorrhoeic gradually decreases as the number of months since birth increases, to half of women 8 months after the birth, and one-quarter of women 13-14 months after the birth. The proportions of mothers abstaining from sexual intercourse are much lower than the proportions amenorrhoeic. Half of women were still abstaining 3 months after the birth and nearly one-quarter of women were still abstaining 6 months after the birth.

Overall, nearly half (47 percent) of women become susceptible to pregnancy within 10 months of giving birth and 70 percent become susceptible after 15 months. The median and mean durations of nonsusceptibility are 10.2 and 11.1 months, respectively. The median duration of amenorrhoea (9.0 months) is longer than the median duration of abstinence (3.4 months). The prevalence-incidence mean suggests that on average, women remain nonsusceptible to conception for just under one year after a birth, primarily due to the effects of postpartum amenorrhoea.

Table 5.25 shows median durations of postpartum amenorrhoea, postpartum abstinence, and postpartum nonsusceptibility by selected background characteristics. Variations in postpartum abstinence are relatively small so that the duration of nonsusceptibility is determined largely by variations in the duration of postpartum amenorrhoea. The median duration of amenorrhoea is slightly longer for women age 30 and over than for women under age 30, but the median duration of abstinence does not show any consistent pattern with age. The median duration of postpartum nonsusceptibility rises consistently with the age of the mother until age 35-39. Median durations of postpartum amenorrhoea and nonsusceptibility are longer for women in rural areas 'han for women in urban areas, probably due to the longer period of breastfeeding in rural areas (see Table 10.5). Periods of amenorrhoea and nonsusceptibility are relatively long for illiterate women and women belonging to scheduled castes and tribes, again as a probable

Table 5.24 Postpartum amenorrhoea, abstinence and nonsusceptibility

Percentage of births occurring during the three years preceding the survey whose mothers are postpartum amenorrhoeic, postpartum abstaining or postpartum nonsusceptible, by number of months since birth, and median and mean durations, India, 1992-93

Months since birth	Percent of births whose mothers are:			Number of births
	Postpartum amenorrhoeic	Postpartum abstaining	Postpartum nonsusceptible	
<1	91.7	97.0	99.0	629
1	91.2	85.9	97.1	1105
2	81.3	63.1	87.8	1217
3	75.8	49.5	85.3	1234
4	70.5	35.3	76.7	1256
5	65.3	28.9	72.2	1163
6	59.0	24.4	64.9	1240
7	57.0	21.3	63.6	1206
8	49.9	19.1	57.1	1076
9	48.8	14.7	53.4	1022
10	43.6	15.0	48.4	891
11	39.4	11.5	43.3	825
12	30.5	10.9	35.6	1045
13	24.4	8.4	28.8	1238
14	25.3	9.3	30.9	1192
15	23.8	9.1	29.6	1214
16	17.2	7.5	22.1	1247
17	16.0	5.7	19.1	1158
18	15.7	7.7	19.0	1139
19	9.9	4.4	13.2	1024
20	11.0	4.7	14.5	989
21	8.6	5.3	13.1	921
22	8.6	5.4	12.4	795
23	6.9	3.6	9.9	814
24	5.1	5.3	9.?	1016
25	3.5	2.6	5.8	1149
26	2.4	3.6	5.6	1099
27	2.5	3.2	5.0	983
28	2.6	2.8	4.9	1077
29	2.6	4.0	6.1	934
30	2.2	3.5	5.5	997
31	1.2	1.5	2.6	889
32	1.4	2.5	3.8	903
33	1.1	2.0	2.9	887
34	1.8	3.2	4.6	882
35	2.0	2.2	4.1	803
Median	9.0	3.4	10.2	NA
Mean	9.5	5.4	11.1	NA
Prevalence/incidence mean	10.3	5.8	11.9	NA

Note: Medians and means are based on current status. Nonsusceptible is defined as amenorrhoeic or abstaining or both.
NA: Not applicable

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Table 5.25 Median duration of postpartum nonsusceptibility by background characteristics

Median number of months of postpartum amenorrhoea, postpartum abstinence and postpartum nonsusceptibility, by selected background characteristics of mothers, for births during the three years preceding the survey, India, 1992-93

Background characteristic	Postpartum amenorrhoea	Postpartum abstinence	Postpartum nonsusceptibility	Number of births
Age				
13-14	(7.5)	(6.2)	(7.5)	35
15-19	7.2	3.5	9.5	4581
20-24	8.5	3.5	10.0	14131
25-29	9.2	3.3	10.4	10518
30-34	10.0	3.4	11.3	5167
35-39	10.7	3.4	11.7	2052
40-44	11.1	4.8	11.4	625
45-49	5.9	3.9	6.0	153
Residence				
Urban	6.7	3.3	8.0	8418
Rural	10.0	3.5	10.8	28845
Education				
Illiterate	10.8	3.5	11.4	24518
Lit., < middle complete	8.0	3.4	9.2	6222
Middle school complete	5.0	3.3	7.9	2704
High school and above	4.4	3.5	6.2	3820
Religion				
Hindu	9.3	3.6	10.3	29582
Muslim	8.3	2.9	9.2	5720
Christian	6.6	3.9	8.8	748
Sikh	4.0	3.1	4.4	653
Jain	3.7	2.8	3.7	114
Buddhist	11.8	4.0	12.1	266
Other	12.4	3.6	13.4	178
Caste/tribe				
Scheduled caste	10.7	3.7	11.0	5027
Scheduled tribe	12.0	3.5	12.3	3485
Other	8.5	3.4	9.5	28750
Total	9.0	3.4	10.2	37263

Note: Medians are based on current status. Nonsusceptible is defined as amenorrhoeic or abstaining or both.
( ) Based on 25-49 unweighted cases

consequence of relatively prolonged breastfeeding in these groups. Christians, Sikhs and Jains, who have the shortest durations of breastfeeding, are also most likely to resume ovulation quickly after having a birth.

The duration of postpartum abstinence varies considerably more by state than by other characteristics (see Table 5.26). The duration of postpartum abstinence is particularly long (about 4-7 months) in most of South India and West India, as well as in Nagaland and Orissa. For three states (Nagaland, Goa and Tamil Nadu), the duration of postpartum abstinence is at least as long as the duration of postpartum amenorrhoea. The pattern in these states is quite different from the situation elsewhere in India, where the median duration of postpartum amenorrhoea is nearly three times as long as the median duration of postpartum abstinence. The duration of postpartum abstinence is about one month shorter than average in all of the states

Table 5.26 Median duration of postpartum nonsusceptibility by state

Median number of months of postpartum amenorrhoea, postpartum abstinence and postpartum nonsusceptibility for mothers of children born during the three years preceding the survey, by state, India, 1992-93

State	Postpartum amenorrhoea	Postpartum abstinence	Postpartum nonsusceptibility
India	9.0	3.4	10.2
North			
Delhi	4.3	1.8	4.8
Haryana	8.9	2.0	8.9
Himachal Pradesh	7.6	2.6	8.5
Jammu Region of J & K	5.7	2.5	6.3
Punjab	4.1	2.4	4.4
Rajasthan	8.0	2.0	8.6
Central			
Madhya Pradesh	8.3	2.5	9.4
Uttar Pradesh	8.9	2.9	9.5
East			
Bihar	9.9	2.9	10.6
Orissa	8.5	4.7	10.2
West Bengal	9.5	2.3	10.0
Northeast			
Arunachal Pradesh	9.3	1.8	10.6
Assam	10.2	2.9	10.9
Manipur	8.7	2.5	9.3
Meghalaya	8.7	4.0	11.0
Mizoram	5.1	1.3	6.0
Nagaland	6.3	7.2	10.7
Tripura	6.9	3.3	7.9
West			
Goa	4.1	5.6	6.7
Gujarat	8.9	2.9	9.4
Maharashtra	8.5	4.5	9.8
South			
Andhra Pradesh	9.1	4.3	10.1
Karnataka	8.6	5.3	10.0
Kerala	5.4	4.8	7.3
Tamil Nadu	5.6	5.6	9.3

Note: Medians are based on current status. Nonsusceptible is defined as amenorrhoeic or abstaining or both.

in North India, as well as Madhya Pradesh, West Bengal and some small northeastern states.

The median duration of postpartum amenorrhoea varies widely from only 4 months in Delhi, Punjab and Goa, to 10 months in Assam, Bihar and West Bengal. Similarly, the median duration of nonsusceptibility varies from 4 months in Punjab to 11 months in Bihar and several northeastern states. These variations in the duration of postpartum nonsusceptibility are one important determinant of fertility differentials in the states of India. It is interesting to note that the median duration of nonsusceptibility is relatively low in many low fertility states. This suggests that the state differentials in fertility would be even larger in the absence of state differentials in nonsusceptibility.

5.10 Menopause

Another factor impinging on fertility is the onset of menopause. Later in life (typically beginning around age 30), the risk of pregnancy begins to decline with age. In the NFHS, menopause is defined as the lack of a menstrual period for at least six months preceding the survey for women who are neither pregnant nor postpartum amenorrhoeic. Women who report that they are menopausal are also included in this group. In India, menopause is relatively rare for women in their thirties, but its incidence increases rapidly after age 40 (Table 5.27). By age 44-45, 38 percent of women are in menopause. This figure increases to 56 percent for women age 46-47 and 71 percent for women age 48-49. The onset of menopause is slightly later in urban areas than in rural areas. Among the major states, menopause takes place at relatively young ages in Maharashtra and Andhra Pradesh, and relatively old ages in Haryana and Kerala.

Table 5.27 Menopause

Percentage of currently married women age 30-49 years who are in menopause, by age and state, India, 1992-93

State	Age						
	30-34	35-39	40-41	42-43	44-45	46-47	48-49
India - Urban	2.4	7.0	14.4	23.2	35.5	51.8	70.3
India - Rural	3.3	7.0	18.0	26.2	38.7	57.2	70.8
India - Total	3.0	7.0	16.9	25.3	37.8	55.8	70.6
North							
Delhi	2.5	4.1	12.1	12.1	30.1	52.1	73.7
Haryana	1.8	5.6	6.3	7.6	23.7	44.4	55.2
Himachal Pradesh	0.4	8.6	16.2	19.1	48.6	54.3	59.8
Jammu Region of J & K	0.6	4.8	8.8	20.3	36.7	56.8	66.7
Punjab	0.6	3.0	14.6	18.0	26.9	53.3	74.3
Rajasthan	2.8	5.4	12.1	20.6	36.6	45.3	59.7
Central							
Madhya Pradesh	3.5	4.3	17.7	22.5	32.5	58.7	55.0
Uttar Pradesh	2.3	5.6	13.6	24.6	37.2	57.9	73.1
East							
Bihar	1.5	7.8	18.8	26.3	48.2	52.9	72.5
Orissa	0.8	4.0	18.1	22.3	37.6	53.0	73.8
West Bengal	3.0	5.2	12.6	24.8	32.6	50.8	66.9
Northeast							
Arunachal Pradesh	2.6	9.2	(12.8)	*	*	*	*
Assam	5.7	11.6	16.1	44.0	40.8	68.1	(59.2)
Manipur	0.7	7.0	7.5	9.3	(25.5)	(47.2)	(53.8)
Meghalaya	0.9	2.1	(10.2)	(29.4)	(56.8)	(59.3)	(69.2)
Mizoram	0.8	0.7	5.8	(14.6)	(14.9)	(31.9)	50.8
Nagaland	10.3	7.6	6.7	*	21.1	(44.4)	40.3
Tripura	5.0	7.4	(5.4)	(21.3)	(39.4)	(51.4)	(69.4)
West							
Goa	2.1	6.6	16.0	21.1	37.4	48.1	67.1
Gujarat	3.7	7.0	16.3	23.5	38.8	62.6	70.4
Maharashtra	3.2	11.0	24.5	36.6	45.9	64.4	80.8
South							
Andhra Pradesh	8.0	15.2	26.5	41.9	52.3	66.3	82.8
Karnataka	3.7	8.1	21.6	27.3	39.2	58.5	71.3
Kerala	2.1	2.4	8.9	15.0	23.3	38.7	62.3
Tamil Nadu	1.9	4.8	17.9	18.1	30.9	49.3	70.9

Note: Percentage menopausal is defined as the percent of nonpregnant, nonamenorrhoeic currently married women whose last menstrual period occurred six or more months prior to the survey or who reported that they are menopausal.
( ) Based on 25-49 unweighted cases
* Percentage not shown; based on fewer than 25 unweighted cases.

CHAPTER 6

FAMILY PLANNING

Information about knowledge of family planning and the use of contraceptive methods is of practical use to policymakers and programme administrators for formulating policies and strategies. This chapter begins with an appraisal of women's knowledge of contraceptive methods and knowledge of sources of supply of modern contraceptive methods before moving on to a consideration of current and past family planning practice. Special attention is focused on nonuse, reasons for discontinuation, and intentions to use family planning in the future. The chapter also contains information on exposure to media coverage on family planning and interspousal discussions on family planning, and concludes with an analysis of attitudes toward family planning.

6.1 Knowledge of Family Planning Methods and Sources

Each respondent was asked the following question about her knowledge of family planning, "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. Which ways or methods have you heard about?" The respondent was first asked to name all the methods she knew or had heard of, without any prompting. Then the interviewer read out the name and a short description of each method not mentioned, and asked if she knew the method. Thus, the woman's knowledge of contraception is measured at three levels: a) methods the woman thinks of on her own (she can name them spontaneously without probing), b) methods she knows when asked specifically about them (she recognizes the method after probing), and c) methods that she has not heard of. Six modern methods (pills, IUDs, injections, condoms, female sterilization, and male sterilization) were included, as well as two traditional methods (periodic abstinence, or the rhythm method, and withdrawal). Any other methods mentioned by the respondent as a method to avoid a pregnancy, such as herbs and breastfeeding, were also recorded. For each modern method known to the respondent, either spontaneously or after probing, she was asked if she knew where a person could go to get the method. If she reported knowing about the rhythm method, she was asked if she knew where a person could obtain advice on how to use the method.

Table 6.1 presents the extent of knowledge of ever-married women and currently married women as obtained by spontaneous responses (without any probe) and probed responses. Knowledge of family planning is nearly universal in India, with 99 and 94 percent of ever-married respondents in urban and rural areas, respectively, recognizing at least one modern method of family planning (Figure 6.1). Knowledge of at least one modern method among ever-married women is reported spontaneously by 82 percent of urban women and 64 percent of rural women. Effective knowledge of family planning methods is thus lower in rural than in urban areas. Ever-married and currently married women differ little in their knowledge of family planning methods, and the discussion focuses on currently married women for the sake of simplicity.

Knowledge about sterilization is widespread in India. A higher proportion of women are aware of female than male sterilization, with the gap in knowledge of the two methods being especially large in rural areas. Spontaneous knowledge is also higher for female sterilization

Table 6.1 Knowledge of contraceptive methods and source of methods

Percentage of ever-married and currently married women knowing any contraceptive method and knowing a source, by specific method and residence, India, 1992-93

Method	Ever-married women				Currently married women			
	Knowing method				Knowing method			
	Without probe	With probe	Total	Knowing source[1]	Without probe	With probe	Total	Knowing source[1]
URBAN								
Any method	82.5	16.1	98.5	95.4	83.3	15.4	98.7	95.6
Any modern method	82.0	16.5	98.5	95.2	82.7	15.9	98.6	95.5
Any modern temporary method	65.5	24.9	90.4	82.3	66.7	24.5	91.2	83.3
Pill	55.0	29.6	84.6	74.1	56.1	29.4	85.5	75.1
Copper T/IUD	49.2	32.9	82.1	72.7	50.2	32.8	83.1	73.8
Injection	8.1	16.6	24.7	19.8	8.2	16.9	25.2	20.3
Condom	47.6	31.5	79.1	69.0	48.7	31.5	80.2	70.2
Female sterilization	66.5	31.1	97.6	92.9	67.1	30.6	97.7	93.1
Male sterilization	43.7	46.9	90.6	84.6	44.2	47.0	91.1	85.1
Any traditional method	15.6	32.3	48.0	NA	16.0	32.8	48.8	NA
Rhythm/periodic abstinence	11.5	31.8	43.3	31.4	11.8	32.2	44.0	31.9
Withdrawal	5.6	20.2	25.8	NA	5.8	20.6	26.4	NA
Other methods	3.7	NA	3.7	NA	3.8	NA	3.8	NA
Number of women	23455	23455	23455	23455	22077	22077	22077	22077
RURAL								
Any method	64.9	29.6	94.5	86.7	65.5	29.3	94.7	87.0
Any modern method	63.8	30.5	94.2	86.2	64.3	30.1	94.5	86.5
Any modern temporary method	33.9	36.1	70.1	56.1	34.5	36.2	70.7	56.8
Pill	25.2	33.5	58.7	45.6	25.7	33.7	59.4	46.2
Copper T/IUD	20.6	31.7	52.4	42.2	21.0	31.9	52.9	42.7
Injection	3.8	13.2	17.0	12.6	3.8	13.4	17.2	12.8
Condom	18.3	31.2	49.4	37.4	18.7	31.5	50.2	38.0
Female sterilization	55.8	37.4	93.2	83.9	56.3	37.2	93.5	84.2
Male sterilization	32.9	48.9	81.8	71.8	33.1	49.0	82.1	72.1
Any traditional method	9.3	26.2	35.5	NA	9.5	26.5	36.0	NA
Rhythm/periodic abstinence	5.7	25.6	31.3	21.9	5.8	25.9	31.7	22.1
Withdrawal	2.2	15.4	17.6	NA	2.2	15.6	17.8	NA
Other methods	3.4	NA	3.4	NA	3.5	NA	3.5	NA
Number of women	66322	66322	66322	66322	62601	62601	62601	62601
TOTAL								
Any method	69.5	26.1	95.5	89.0	70.1	25.7	95.8	89.2
Any modern method	68.5	26.8	95.3	88.6	69.1	26.4	95.5	88.8
Any modern temporary method	42.2	33.2	75.4	63.0	42.9	33.2	76.1	63.7
Pill	33.0	32.5	65.4	53.0	33.6	32.6	66.2	53.7
Copper T/IUD	28.1	32.0	60.1	50.2	28.6	32.1	60.8	50.8
Injection	4.9	14.1	19.0	14.5	5.0	14.3	19.3	14.7
Condom	25.9	31.2	57.2	45.7	26.5	31.5	58.1	46.4
Female sterilization	58.6	35.7	94.3	86.3	59.1	35.5	94.6	86.5
Male sterilization	35.7	48.4	84.1	75.1	36.0	48.5	84.5	75.5
Any traditional method	11.0	27.8	38.8	NA	11.2	28.1	39.3	NA
Rhythm/periodic abstinence	7.2	27.2	34.4	24.3	7.3	27.5	34.9	24.7
Withdrawal	3.1	16.7	19.7	NA	3.2	16.9	20.1	NA
Other methods	3.5	NA	3.5	NA	3.6	NA	3.6	NA
Number of women	89777	89777	89777	89777	84678	84678	84678	84678

NA: Not applicable

[1] For modern methods, the source refers to a place that a person could go to get the method. For rhythm/periodic abstinence, the source refers to a source of advice on how to use periodic abstinence.

Figure 6.1
Knowledge of Modern Contraceptive
Methods and Sources by Residence

Percent of Ever-Married Women
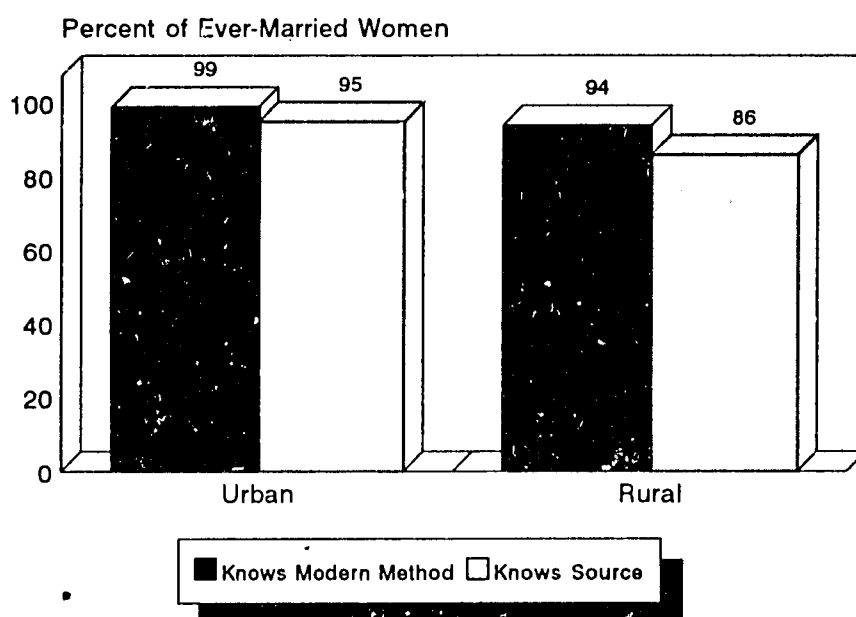
NFHS, India, 1992-93

than male sterilization in both urban and rural areas.

In contrast to widespread knowledge of sterilization, knowledge of the three officially sponsored temporary methods, namely, the IUD, the pill, and the condom, is much less widespread. Nearly one-fourth of currently married women do not know any of the modern temporary methods, this proportion being higher in rural (29 percent) than in urban areas (9 percent). The most well known among the modern temporary methods is the pill (reported by 66 percent of currently married women), followed by the IUD (61 percent) and condoms (58 percent). Injections are the least known modern method, with only 19 percent reporting knowledge of them[1].

In India, traditional methods of contraception are generally less well known than modern methods. Thirty-nine percent of currently married women report knowledge of these methods, with periodic abstinence being better known (35 percent) than withdrawal (20 percent). The table reveals that probing was often needed to elicit complete knowledge about contraceptive methods, especially traditional methods.

_____

[1] For a method with negligible use in India, it is perhaps surprising that 19 percent of women say they have heard of the method. One possible explanation for the unexpectedly high reported knowledge of contraceptive injections in North India is that the Hindi word for injections (*sui*) is also often used in reference to IUD insertions.

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The Third All India Survey on Family Planning Practices in India, conducted in 1988-89 (Operations Research Group, 1990), which studied currently married women age 15-44, reached broadly similar conclusions about women's awareness of specific methods. Comparing the two surveys and recognizing that the NFHS was done almost three years later than the Third All India Survey, the proportion of women having knowledge of condoms and male sterilization were found to be lower in the NFHS (58 and 85 percent, respectively) than in the Third All India Survey (66 and 89 percent). The proportion of women having knowledge of female sterilization is exactly the same in both surveys, and, the NFHS estimates of the proportion of women having knowledge of the other major methods (the IUD, the pill, periodic abstinence and withdrawal) are slightly higher (61, 66, 35 and 20, respectively) than those in the Third All India Survey (55, 60, 27 and 17, respectively).

In the NFHS, urban-rural differentials in the level of knowledge are most pronounced for the pill, the IUD, and condoms, with knowledge of these methods greater among urban than among rural women. Urban and rural women also differ in their knowledge of traditional methods. Only 36 percent of women in rural areas know of a traditional method, compared with nearly one-half of women in urban areas.

Table 6.1 also provides information about knowledge of sources of contraceptive methods. The question about the source of a method was asked only of those women who knew about the method. Knowledge about the sources of contraceptives is generally high, with more than 89 percent of currently married women knowing where to obtain at least one modern method of family planning. Women are most knowledgeable about a source for sterilizations, especially female sterilization. In comparison, 64 percent of the women know where to obtain a modern temporary method. Regardless of the method, urban women are more likely to know of a contraceptive source than rural women.

Table 6.2 shows differentials in knowledge of modern contraceptive methods and sources of methods among currently married women according to background characteristics. In terms of the respondent's age, the level of knowledge increases with age through age 30-34 and stays very high through age 45-49 years. Particularly noticeable, in this context, is the relatively low level of knowledge among women age 13-14. More than one-third of women age 13-14 either do not know about any modern method of family planning or are not aware of the source of any method. The proportion of such women is also relatively high (20 percent) among women age 15-19. The level of knowledge of at least one modern method of contraception increases with the level of education. Although the knowledge of contraception is widespread, it is lowest among illiterate women. Six percent of illiterate women do not know about a modern method and 16 percent are ignorant about the source. Knowledge about a modern method is slightly higher among Sikh, Jain and Buddhist women and is lower among scheduled tribe women.

Interstate variations in the knowledge of contraception are shown in Table 6.3. Knowledge of any modern method is widespread in all states except Nagaland, where only 44 percent of women reported having knowledge of any modern method. Knowledge of any modern method is also relatively low in two other northeastern states (Arunachal Pradesh and Meghalaya). Among the major states (with a population more than 5 million), the proportion of women knowing at least one modern method ranges from a low of 87 percent in Rajasthan to nearly 100 percent in Kerala and Punjab. The situation is similar in terms of knowledge of

Table 6.2 Knowledge of methods and source by background characteristics

Percentage of currently married women knowing any con·raceptive method and at least one modern method and knowing a source for a modern method by selected background characteristics, India, 1992-93

Background characteristic	Knows any method	Knows any modern method[1]	Knows source for any modern method	Number of women
Age				
13-14	77.8	76.9	65.8	351
15-19	90.4	90.2	79.9	8897
20-24	95.1	94.8	86.4	17504
25-29	96.5	96.3	90.3	16807
30-34	97.6	97.4	92.0	13900
35-39	97.2	97.0	92.0	11596
40-44	97.0	96.9	91.1	8725
45-49	95.7	95.6	89.4	6896
Residence				
Urban	98.7	98.6	95.5	22077
Rural	94.7	94.5	85.5	62601
Education				
Illiterate	93.9	93.5	84.1	53045
Lit., < middle complete	98.3	98.3	95.2	15476
Middle school complete	99.3	99.3	97.0	6280
High school and above	99.7	99.7	98.9	9879
Religion				
Hindu	95.6	95.4	88.7	69635
Muslim	96.8	96.6	87.5	10082
Christian	93.5	93.2	90.5	1960
Sikh	99.6	99.6	98.1	1606
Jain	99.7	99.7	99.2	418
Buddhist	97.1	97.1	95.4	665
Other	84.5	84.5	75.8	312
Caste/tribe				
Scheduled caste	95.7	95.4	86.7	10350
Scheduled tribe	85.5	85.0	75.9	7422
Other	96.9	96.7	90.6	66906
Total	95.8	95.5	88.8	84678

[1] Includes pill, copper T/IUD, injections, condoms, female sterilization and male sterilization

female sterilization. In fact, except in Rajasthan and Madhya Pradesh, where 85 percent of women reported knowledge of female sterilization, in all the other major states more than 90 percent of women know about female sterilization. Interstate variations in the knowledge of contraception are more pronounced in the case of modern temporary methods. Less than two-thirds of women reported knowledge of any modern temporary method in Nagaland, Madhya Pradesh, Rajasthan, Orissa, Andhra Pradesh, Arunachal Pradesh, and Meghalaya, compared to more than 90 percent of women in Haryana, West Bengal, Punjab, Tripura, Kerala and Delhi. Among the modern temporary methods, the pill is relatively well known. This is particularly true in Tripura and West Bengal where knowledge of the pill is much higher than knowledge of either IUDs or condoms. This is not surprising because the use of pills is also higher in these two states than in any other Indian state (see Table 6.7). In states such as Madhya Pradesh, Bihar, Rajasthan and Orissa, more than half of women report that they have not heard of the

Table 6.3 Knowledge of contraceptive methods by state

Percentage of currently married women age 13-49 knowing any contraceptive method by specific method and state, India, 1992-93

State	Any meth-od	Any modern method	Any modern temporary method	Pill	IUD	In-jec-tion	Con-dom	Fe-male ster-ili-zation	Male ster-ili-zation	Any trad. meth-od	Peri-odic absti-nence	With-drawal	Other meth-ods
India	95.8	95.5	?6.1	66.2	60.8	19.3	58.1	94.6	84.5	39.3	34.9	20.1	3.6
North													
Delhi	99.0	98.9	96.8	94.3	93.4	34.9	93.7	97.5	95.3	59.3	54.6	31.1	5.6
Haryana	99.4	99.4	90.6	76.2	80.0	45.8	75.9	99.2	98.2	58.7	46.5	41.9	4.2
Himachal Pradesh	99.1	98.9	88.4	70.1	73.7	45.6	74.1	98.1	95.7	61.0	49.1	37.3	9.9
Jammu Region of J & K	99.7	99.6	88.5	76.6	74.3	51.1	74.9	99.4	98.0	72.0	59.5	53.5	2.4
Punjab	99.8	99.8	94.0	83.9	87.5	47.2	82.1	99.7	99.1	64.1	56.0	41.5	1.5
Rajasthan	87.5	87.2	58.8	53.1	46.4	23.4	37.7	85.3	70.9	27.5	23.8	14.5	1.4
Central													
Madhya Pradesh	88.1	87.8	57.4	51.3	42.3	12.7	42.3	85.4	76.5	19.7	17.7	5.3	2.6
Uttar Pradesh	95.7	95.2	80.1	64.7	56.2	25.0	67.2	93.7	88.2	36.7	34.3	12.9	2.6
East													
Bihar	94.9	94.9	68.4	57.3	44.1	4.2	54.6	94.5	88.0	29.4	26.0	9.4	1.8
Orissa	92.9	92.5	60.7	52.1	48.0	7.4	34.6	91.7	72.2	33.9	27.4	9.5	7.4
West Bengal	99.1	98.8	90.9	85.6	68.2	42.5	67.6	98.0	84.8	72.5	62.0	55.4	5.0
Northeast													
Arunachal Pradesh	77.7	77.7	62.9	55.2	52.6	28.7	39.6	75.1	47.8	27.2	25.4	17.6	0.6
Assam	97.5	96.9	82.2	72.9	60.8	39.0	59.2	96.2	83.9	79.2	71.0	61.0	9.6
Manipur	93.6	93.0	87.9	77.9	81.0	5.6	60.3	87.7	87.4	72.4	71.2	44.4	3.9
Meghalaya	78.0	76.9	64.7	58.5	49.3	9.7	47.7	71.9	46.5	43.5	35.5	17.7	15.7
Mizoram	98.1	98.1	86.2	70.1	76.2	1.8	61.0	98.0	71.3	43.7	36.2	30.7	0.3
Nagaland	44.4	44.3	36.7	24.9	24.2	15.9	29.0	30.4	20.9	10.7	9.7	9.3	0.8
Tripura	99.7	99.7	95.4	93.9	65.0	42.1	68.1	99.4	89.2	85.7	75.8	68.8	7.8
West													
Goa	98.9	98.8	89.9	80.6	76.3	20.7	73.1	97.7	72.8	45.6	41.6	24.1	2.9
Gujarat	96.6	96.4	77.0	65.9	71.4	22.8	62.7	95.6	78.6	45.9	43.3	24.4	1.7
Maharashtra	97.8	97.8	76.8	67.1	70.7	8.1	57.3	97.3	83.6	23.3	21.3	8.4	2.0
South													
Andhra Pradesh	96.7	96.6	61.2	53.7	43.7	12.8	41.9	95.7	89.7	14.6	11.3	2.9	3.5
Karnataka	98.9	98.8	83.8	75.1	78.0	5.4	50.0	98.6	81.1	41.1	38.8	15.0	6.4
Kerala	99.7	99.7	96.6	87.1	90.3	13.0	91.0	99.3	90.0	72.6	66.1	50.7	2.7
Tamil Nadu	99.1	99.1	85.6	74.5	77.8	12.6	61.0	98.8	86.0	46.2	39.0	23.7	6.6

IUD. Knowledge of condoms is particularly low in Orissa, Rajasthan, Arunachal Pradesh and Nagaland. Injections, which are not included in the official family welfare programme, are the least known modern method in every state.

6.2 Contraceptive Use

Ever Use of Family Planning Methods

All respondents who knew at least one method of family planning were asked whether they had ever used each of the methods they knew. The use of contraception was further probed by asking whether they "ever used anything or tried in any way to delay or avoid getting pregnant". Table 6.4 presents the pattern of ever use by age and residence separately for ever-married and currently married women.

Although 96 percent of currently married women know of at least one method of family planning, only 47 percent have ever used a method. Modern methods have been used by 42 percent of currently married women and traditional methods by 12 percent. By far the most commonly used method is female sterilization, which has been adopted by 27 percent of currently married women. Male sterilization has been used by 4 percent of couples. Modern temporary methods such as IUDs, pills, and condoms have each been used by only 5-7 percent.

Table 6.4 Ever use of contraception

Percentage of ever-married and currently married women who have ever used any contraceptive method, by specific method and age, according to residence, India, 1992-93

Age	Any meth-od	Any modern method	Any modern temporary method	Pill	IUD	In-jec-tion	Con-dom	Female ster-il-iza-tion	Male ster-il-iza-tion	Any trad. meth-od	Peri-odic absti-nence	With-drawal	Other meth-ods	Number of women
						URBAN								
						Ever-married women								
13-14	(11.2)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(11.2)	(11.2)	(--)	(--)	42
15-19	14.9	11.9	10.9	3.7	2.7	0.1	5.8	1.2	0.1	4.7	3.1	3.2	0.2	1376
20-24	36.1	31.7	23.6	7.3	9.2	0.2	12.1	9.5	0.3	8.8	6.0	4.5	0.5	4229
25-29	60.6	54.8	33.2	10.1	13.8	0.3	18.0	26.2	1.0	16.1	11.5	8.5	0.9	4705
30-34	70.3	64.7	32.3	10.4	14.3	0.4	17.9	38.8	2.3	17.1	12.4	8.1	1.2	4291
35-39	73.8	68.1	26.5	9.3	10.6	0.2	14.3	46.7	4.6	16.8	12.3	7.7	1.5	3715
40-44	66.7	60.8	18.2	7.3	6.1	0.3	9.5	41.9	7.5	14.4	10.6	6.0	1.1	2899
45-49	59.5	52.9	15.8	5.9	4.1	0.2	9.1	32.1	10.6	15.3	11.8	7.0	0.9	2197
Total	57.9	52.5	25.4	8.4	10.0	0.3	13.7	29.7	3.3	14.1	10.2	6.8	1.0	23455
						Currently married women								
13-14	(11.2)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(11.2)	(11.2)	(--)	(--)	42
15-19	15.1	12.1	11.2	3.8	2.8	0.1	5.9	1.1	0.1	4.8	3.2	3.2	0.2	1339
20-24	36.6	32.1	24.2	7.4	9.5	0.2	12.3	9.5	0.3	9.0	6.2	4.6	0.5	4116
25-29	61.7	55.8	34.1	10.4	14.2	0.3	18.5	26.5	1.0	16.2	11.6	8.6	0.9	4553
30-34	72.3	66.5	33.5	10.8	14.8	0.4	18.5	40.0	2.2	17.8	12.9	8.4	1.3	4082
35-39	75.7	70.0	27.4	9.7	10.9	0.2	14.9	47.9	4.7	17.3	12.7	8.0	1.6	3493
40-44	70.1	64.0	19.4	7.7	6.6	0.3	10.0	44.3	7.7	15.4	11.3	6.5	1.2	2603
45-49	63.4	56.4	17.2	6.5	4.6	0.1	9.7	34.1	11.1	16.4	12.7	7.3	1.0	1849
Total	59.4	53.9	26.5	8.7	10.5	0.3	14.3	30.4	3.3	14.6	10.6	7.0	1.0	22077

Table 6.4 Ever use of contraception (Contd.)

Percentage of ever-married and currently married women who have ever used any contraceptive method, by specific method and age, according to residence, India, 1992-93

Age	Any meth-od	Any modern method	Any modern temporary method	Pill	IUD	In-jec-tion	Con-dom	Female ster-il-iza-tion	Male ster-il-iza-tion	Any trad. meth-od	Peri-odic absti-nence	With-drawal	Other meth-ods	Number of women
						RURAL								
						Ever-married women								
13-14	6.5	2.0	2.0	0.6	--	--	1.4	--	--	4.5	3.2	3.4	--	311
15-19	11.0	5.7	4.4	1.9	0.7	0.1	2.3	1.3	--	6.5	4.8	3.4	0.1	7719
20-24	26.4	20.6	10.4	4.4	3.0	0.2	5.1	10.8	0.4	9.4	7.1	4.7	0.3	13755
25-29	44.7	39.2	12.6	5.2	4.6	0.1	5.8	28.3	1.3	11.2	8.5	5.4	0.7	12735
30-34	56.6	51.3	12.3	5.0	4.4	0.2	5.7	40.2	3.1	12.1	9.3	5.3	1.3	10369
35-39	58.9	53.8	9.8	4.3	3.2	0.3	4.4	41.6	6.1	12.2	9.4	5.1	1.0	8746
40-44	54.5	49.2	7.3	2.8	2.1	0.4	3.6	35.9	9.3	10.8	8.5	4.2	1.0	6850
45-49	45.4	40.3	4.6	1.7	1.5	0.1	2.0	27.4	10.9	8.5	6.4	3.4	0.8	5838
Total	41.6	36.2	9.5	3.9	3.0	0.2	4.5	25.7	3.5	10.2	7.8	4.7	0.7	66322
						Currently married women								
13-14	6.5	2.0	2.0	0.6	--	--	1.4	--	--	4.5	3.2	3.5	--	309
15-19	11.2	5.7	4.5	1.9	0.7	0.1	2.4	1.3	--	6.6	4.9	3.5	0.1	7558
20-24	26.7	20.8	10.6	4.5	3.1	0.2	5.2	10.8	0.4	9.5	7.2	4.8	0.3	13388
25-29	45.7	40.1	13.0	5.4	4.7	0.2	6.0	28.8	1.3	11.4	8.7	5.5	0.7	12254
30-34	57.9	52.6	12.6	5.2	4.5	0.2	5.8	41.3	3.1	12.3	9.4	5.4	1.3	9818
35-39	61.0	55.8	10.3	4.5	3.4	0.3	4.6	43.1	6.2	12.6	9.6	5.4	1.1	8104
40-44	57.3	52.1	7.8	3.1	2.2	0.4	3.8	38.0	9.7	11.1	8.8	4.5	1.0	6122
45-49	48.3	43.7	5.1	2.0	1.7	0.1	2.2	29.3	11.6	8.8	6.6	3.6	0.9	5047
Total	42.5	37.1	9.9	4.1	3.2	0.2	4.6	26.3	3.5	10.4	8.0	4.8	0.7	62601
						TOTAL								
						Ever-married women								
13-14	7.1	1.8	1.8	0.5	--	--	1.3	--	--	5.3	4.1	3.0	--	352
15-19	11.6	6.6	5.4	2.2	1.0	0.1	2.8	1.3	0.1	6.2	4.6	3.4	0.1	9095
20-24	28.6	23.2	13.5	5.1	4.5	0.2	6.8	10.5	0.4	9.2	6.8	4.7	0.4	17983
25-29	49.0	43.4	18.2	6.5	7.0	0.2	9.1	27.7	1.2	12.5	9.3	6.2	0.8	17441
30-34	60.6	55.2	18.2	6.6	7.3	0.2	9.3	39.8	2.9	13.6	10.2	6.1	1.2	14660
35-39	63.3	58.1	14.8	5.8	5.4	0.2	7.4	43.1	5.7	13.6	10.3	5.9	1.2	12461
40-44	58.1	52.6	10.5	4.2	3.3	0.3	5.4	37.7	8.7	11.8	9.1	4.8	1.0	9748
45-49	49.2	44.1	7.7	2.9	2.2	0.1	3.9	28.7	10.8	10.3	7.9	4.3	0.9	8036
Total	45.9	40.5	13.7	5.1	4.9	0.2	6.9	26.8	3.5	11.2	8.5	5.2	0.8	89777
						Currently married women								
13-14	7.1	1.8	1.8	0.5	--	--	1.3	--	--	5.3	4.1	3.0	--	351
15-19	11.8	6.7	5.5	2.2	1.0	0.1	2.9	1.3	0.1	6.3	4.7	3.4	0.1	8897
20-24	29.0	23.5	13.8	5.2	4.6	0.2	6.9	10.5	0.4	9.4	7.0	4.8	0.4	17504
25-29	50.0	44.3	18.7	6.7	7.3	0.2	9.4	28.2	1.2	12.7	9.5	6.3	0.8	16807
30-34	62.2	56.7	18.8	6.8	7.5	0.2	9.5	40.9	2.8	13.9	10.4	6.3	1.3	13900
35-39	65.4	60.1	15.5	6.1	5.6	0.3	7.7	44.6	5.7	14.0	10.6	6.2	1.3	11596
40-44	61.1	55.6	11.2	4.5	3.5	0.4	5.7	39.9	9.1	12.4	9.5	5.1	1.1	8725
45-49	52.4	47.1	8.3	3.2	2.4	0.1	4.2	30.6	11.5	10.8	8.2	4.6	0.9	6896
Total	46.9	41.5	14.2	5.3	5.1	0.2	7.1	27.3	3.5	11.5	8.6	5.4	0.8	84678

( ) Based on 25-49 unweighted cases
-- Less than 0.05 percent

The pattern of use suggests very little switching among the modern temporary methods. Less than 4 percent of women have ever used more than one spacing method. As expected, ever use of contraceptive methods is higher in urban than in rural areas (59 percent compared with 43 percent of currently married women; see Figure 6.2). This is true for every contraceptive method except male sterilization, but the difference is particularly large for modern temporary methods. The proportion of women who have ever used a modern temporary method is almost three times as high in urban areas (27 percent) as in rural areas (10 percent). The use of more than one modern temporary method is also higher in urban areas than in rural areas. Ever use of traditional methods is also somewhat higher in urban areas (15 percent) than in rural areas (10 percent).

In terms of differences by age, experience with having used contraception rises through age 35-39 and gradually decreases thereafter. Contraceptive use rates are highest in the age group 30-39, where knowledge is also reported to be highest. A very low use rate, even for modern temporary methods, is observed among younger married women age less than 20. Only 2 and 6 percent of women age 13-14 and 15-19, respectively, reported ever use of any modern temporary method. The use of traditional methods is also low in these two age groups, although it is higher than the use of modern temporary methods. Male sterilization is the only method that increases steadily throughout the age range. The relatively large proportion of male sterilizations in the older age groups undoubtedly reflects the large number of vasectomies that were performed 15-20 years before the survey.

The age pattern of ever use of modern methods of family planning is similar for urban and rural women, peaking in the 35-39 age group. At every age, however, the level of ever use is higher for urban than for rural women.

Current Use of Family Planning Methods

Current contraceptive prevalence in India is moderate with 41 percent of currently married women age 13-49 practising family planning; 36 percent use modern methods (31 percent using sterilization and 6 percent using modern temporary methods) and another 4 percent use traditional methods (Table 6.5)[2]. Most of the currently married women who have ever used contraception are current users (41 out of 47 percent). The overall level of contraceptive use is almost the same as the combined level of 42 percent for all less developed countries excluding China (Population Reference Bureau, 1994). The NFHS estimate of current contraceptive prevalence is somewhat lower than that obtained in the 1988-89 Third All India Survey on Family Planning Practices in India (Operations Research Group, 1990). That survey (which covered currently married women age 15-44 only) found a contraceptive prevalence rate of 45 percent for India, with 40 percent using modern methods and 5 percent using traditional methods. When the NFHS sample is restricted by age to match the All India Survey's sample, the prevalence rate is 40 percent, with 36 percent using modern methods. The percentage of couples sterilized is almost identical in the two surveys (between 30 and 31 percent). The estimates in the two surveys are also close in the case of pills (around 1 percent) and IUDs (2

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[2] In the NFHS, no specific reference period was defined for current use. The woman was asked whether she or her husband was currently using a method.

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Figure 6.2
Ever Use of Contraception by Residence

Percent of Currently Married Women

■ Urban □ Rural
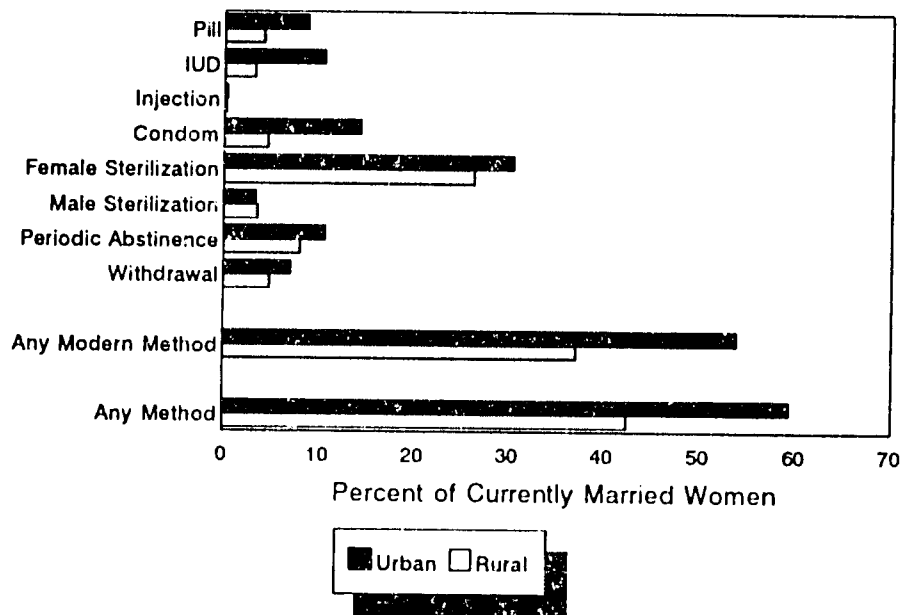
NFHS, India, 1992-93

percent). Therefore, the difference between the overall contraceptive prevalence rates estimated in the NFHS and the Third All India Survey is largely in the reported use of condoms, which was 5 percent in the Third All India Survey and less than 3 percent in the NFHS. The NFHS sterilization figures are also very close to the unpublished official statistics for 1993 (Evaluation and Information Division, Department of Family Welfare, Ministry of Health and Family Welfare), according to which 30 percent of couples in the country are protected through sterilization compared with 31 percent in the NFHS.

Table 6.5 shows that female sterilization is the most popular contraceptive method in India. Twenty-seven percent of currently married women are sterilized and female sterilization alone accounts for 67 percent of current contraceptive prevalence. Another 3 percent of currently married women report that their husbands are sterilized, and 2 percent each report the use of IUDs and condoms. The pill is used by only 1 percent of currently married women. The preponderance of terminal methods is commensurate with the emphasis on sterilization in the Indian family planning programme.

Contraceptive prevalence is 38 percent higher in urban than in rural areas (51 percent compared with 37 percent), with urban use higher for every single method of family planning, except male sterilization. In rural areas, however, male and female sterilization together account for a higher proportion of total contraceptive use among women age 15-49 (81 percent) than they do in urban areas (66 percent). As expected, the use of modern temporary methods is higher in urban areas (12 percent) than rural areas (3 percent).

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Table 6.5 Current use of contraception

Percent distribution of currently married women by contraceptive method currently used, according to age and residence, India, 1992-93

Age	Any meth-od	Any modern method	Any modern temporary method	Pill	IUD	In-jec-tion	Con-dom	Female ster-il-iza-tion	Male ster-il-iza-tion	Any trad. meth-od	Peri-odic absti-nence	With-drawal	Other meth-ods	Not using any method	Total per-cent	Number of women
							URBAN									
13-14	(10.6)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(10.6)	(10.6)	(--)	(--)	(89.4)	100.0	42
15-19	9.8	7.7	6.6	1.7	1.7	--	3.2	1.1	0.1	2.1	0.5	1.4	0.2	90.2	100.0	1339
20-24	26.7	23.0	13.2	2.2	4.6	--	6.4	9.5	0.3	3.7	2.5	1.0	0.1	73.3	100.0	4116
25-29	51.2	44.9	17.4	3.1	6.2	--	8.1	26.5	1.0	6.3	3.6	2.7	0.1	48.8	100.0	4553
30-34	64.2	57.3	15.2	2.2	5.3	0.1	7.5	40.0	2.2	6.9	4.0	2.6	0.3	35.8	100.0	4082
35-39	70.5	62.5	9.9	1.5	3.3	--	5.1	47.9	4.7	8.0	5.0	2.5	0.5	29.5	100.0	3493
40-44	63.5	57.5	5.5	0.8	1.1	--	3.6	44.3	7.6	6.1	3.5	2.3	0.2	36.5	100.0	2603
45-49	51.8	47.4	2.2	0.5	0.4	--	1.4	34.1	11.0	4.5	3.2	0.9	0.3	48.2	100.0	1849
15-44	51.0	45.2	12.6	2.1	4.2	--	6.2	30.1	2.5	5.9	3.5	2.2	0.2	49.0	100.0	20186
15-49	51.1	45.3	11.7	1.9	3.9	--	5.8	30.4	3.2	5.8	3.5	2.1	0.2	48.9	100.0	22035
13-49	51.0	45.3	11.7	1.9	3.9	--	5.8	30.4	3.2	5.8	3.5	2.1	0.2	49.0	100.0	22077
							RURAL									
13-14	3.9	1.0	1.0	0.4	--	--	0.6	--	--	3.0	1.8	1.2	--	96.1	100.0	309
15-19	6.6	3.4	2.0	0.6	0.4	--	0.9	1.3	--	3.3	2.1	1.2	0.1	93.4	100.0	7558
20-24	19.3	15.6	4.3	1.4	1.4	--	1.5	10.8	0.4	3.7	2.3	1.4	--	80.7	100.0	13388
25-29	39.1	35.1	5.1	1.4	1.9	--	1.7	28.8	1.3	4.0	2.4	1.3	0.2	60.9	100.0	12254
30-34	52.4	48.3	3.8	0.9	1.4	--	1.5	41.3	3.1	4.1	2.6	1.1	0.4	47.6	100.0	9818
35-39	56.9	52.3	3.0	0.8	1.2	0.1	1.0	43.1	6.2	4.6	2.9	1.4	0.3	43.1	100.0	8104
40-44	53.2	49.3	1.6	0.2	0.5	0.1	0.7	38.0	9.7	3.9	2.5	1.0	0.4	46.8	100.0	6122
45-49	43.6	41.8	0.9	0.2	0.3	--	0.4	29.3	11.6	1.8	0.9	0.6	0.2	56.4	100.0	5047
15-44	36.5	32.6	3.6	1.0	1.2	--	1.3	26.1	2.8	3.9	2.5	1.2	0.2	63.5	100.0	57244
15-49	37.1	33.3	3.4	0.9	1.2	--	1.2	26.4	3.5	3.8	2.3	1.2	0.2	62.9	100.0	62291
13-49	36.9	33.1	3.4	0.9	1.2	--	1.2	26.3	3.5	3.8	2.3	1.2	0.2	63.1	100.0	62601
							TOTAL									
13-14	4.7	0.8	0.8	0.3	--	--	0.5	--	--	3.9	2.8	1.0	--	95.3	100.0	351
15-19	7.1	4.0	2.7	0.8	0.6	--	1.2	1.3	0.1	3.1	1.8	1.2	0.1	92.9	100.0	8897
20-24	21.0	17.3	6.4	1.6	2.1	--	2.7	10.5	0.4	3.7	2.3	1.3	0.1	79.0	100.0	17504
25-29	42.4	37.8	8.4	1.9	3.1	--	3.5	28.2	1.2	4.6	2.7	1.7	0.2	57.6	100.0	16807
30-34	55.9	50.9	7.2	1.3	2.6	--	3.2	40.9	2.8	4.9	3.0	1.5	0.4	44.1	100.0	13900
35-39	61.0	55.4	5.1	1.0	1.8	--	2.2	44.6	5.7	5.6	3.5	1.7	0.4	39.0	100.0	11596
40-44	56.3	51.7	2.7	0.4	0.7	0.1	1.6	39.9	9.1	4.5	2.8	1.4	0.3	43.7	100.0	8725
45-49	45.8	43.3	1.3	0.3	0.3	--	0.7	30.6	11.4	2.5	1.5	0.7	0.3	54.2	100.0	6896
15-44	40.3	35.8	5.9	1.3	2.0	--	2.6	27.2	2.7	4.4	2.7	1.5	0.2	59.7	100.0	77430
15-49	40.7	36.5	5.6	1.2	1.9	--	2.4	27.4	3.5	4.3	2.6	1.4	0.2	59.3	100.0	84326
13-49	40.6	36.3	5.5	1.2	1.9	--	2.4	27.3	3.4	4.3	2.6	1.4	0.2	59.4	100.0	84678

( ) Based on 25-49 unweighted cases
-- Less than 0.05 percent

The level of contraceptive use varies with the age of women, increasing from 5 percent for currently married women age 13-14 to a high of 61 percent for women age 35-39, and decreasing thereafter. In the age groups with the highest fertility (20-24 and 25-29), contraceptive prevalence rates are 21 and 42 percent, respectively. Among modern methods, female sterilization is the most widely used method above age 20, and its use peaks in the age group 35-39 (at 45 percent). The use rate of most of the modern methods, especially female sterilization, shows an expected curvilinear relationship with age. The temporary methods (pills, IUDs, injections, condoms, periodic abstinence and withdrawal) are each consistently used by less than 4 percent of couples at all ages. The low use rate of any method at early ages and the lack of use of temporary methods suggest that very little attempt is being made by women to space their children. The age pattern of the current use of contraception is similar for urban and rural women, peaking in the age group 35-39. At every age, however, current use is higher for urban than for rural women.

Socioeconomic Differentials in Current Use of Family Planning

Table 6.6 and Figure 6.3 show differences in current contraceptive use by background characteristics. Education has a positive relationship to current use, although the differences are most evident between illiterate women and women with the lowest level of education (literate but primary school not completed). Further increases in the contraceptive use rate with education are marginal. A little more than one-third of illiterate women currently use a family planning method, compared to 51-55 percent of literate women. A strong positive relationship between education and the level of current use is seen for spacing methods, both for modern and traditional methods. The use of sterilization, however, decreases with an increase in education among literate women, although female sterilization is also lower among illiterate women than among women with less than a high school education. Since female sterilization is the most dominant method, this curvilinear relationship tends to weaken the otherwise strong positive relationship between the level of education and the current use of any method. It should also be noted that women with the highest levels of education come disproportionately from the younger age groups, where the use of contraception is generally lower.

Religious differences in the use of contraception are even more substantial than the differences by education. The prevalence rate is highest among Jains (63 percent) and lowest among Muslims (28 percent). Contraceptive prevalence is also higher among Sikhs (58 percent), Buddhists (50 percent), and Christians (48 percent) than among Hindus (42 percent). The use of modern temporary methods is particularly high among Jains and Sikhs. Twenty-two percent of Jains and 17 percent of Sikhs are using a modern temporary method compared to only 4-7 percent among other religious groups. The prevalence of female sterilization does not differ much among most religious groups, except for the fact that it is very low among Muslims and the small proportion of women belonging to "other" religious groups. The proportion of women and men who have been sterilized is twice as high for Hindus as for Muslims. Religious differentials in contraceptive use may be partly an artifact of the relationship between the level of education and contraceptive use. That is, a portion of these differentials may disappear once the level of education of women is controlled. Further discussion on this issue is presented later in this chapter.

Table 6.6 Current use by background characteristics

Percent distribution of currently married women by contraceptive method currently used, according to selected background characteristics, India, 1992-93

Background characteristic	Any meth-od	Any mod-ern meth-od	Any mod-ern temp-orary meth-od	Pill	IUD	In-jec-tion	Con-dom	Female ster-il-iza-tion	Male ster-il-iza-tion	Any trad. meth-od	Peri-odic absti-nence	With-draw-al	Other m th-ods	Not using any method	Total per-cent	Number of women
Residence																
Urban	51.0	45.3	11.7	1.9	3.9	--	5.8	30.4	3.2	5.8	3.5	2.1	0.2	49.0	100.0	22077
Rural	36.9	33.1	3.4	0.9	1.2	--	1.2	26.3	3.5	3.8	2.3	1.2	0.2	63.1	100.0	62601
Education																
Illiterate	33.9	31.5	2.1	0.6	0.6	--	0.8	25.7	3.7	2.4	1.6	0.6	0.2	66.1	100.0	53045
Literate, < middle	50.4	44.8	6.1	1.7	2.2	--	2.2	35.1	3.7	5.5	3.2	2.1	0.2	49.6	100.0	15476
Middle school complete	50.8	42.4	9.5	2.3	3.3	--	3.8	30.1	2.8	8.5	4.9	3.4	0.1	49.2	100.0	6280
High school and above	54.7	45.0	20.9	2.8	7.3	--	10.7	22.0	2.1	9.7	5.9	3.4	0.3	45.3	100.0	9879
Religion																
Hindu	41.6	37.7	5.1	1.0	1.7	--	2.2	29.0	3.7	3.9	2.4	1.3	0.2	58.4	100.0	69635
Muslim	27.7	22.0	6.1	1.9	1.7	--	2.4	14.4	1.6	5.7	3.7	1.6	0.4	72.3	100.0	10082
Christian	48.3	40.3	6.5	1.2	2.5	--	2.8	30.2	3.6	8.0	5.2	2.2	0.6	51.7	100.0	1960
Sikh	57.6	50.0	17.0	2.5	6.4	--	8.1	30.3	2.6	7.6	4.2	3.3	--	42.4	100.0	1606
Jain	62.6	58.3	22.3	2.1	7.9	--	12.3	34.3	1.7	4.2	3.3	0.9	--	37.4	100.0	418
Buddhist	50.4	47.9	5.7	1.9	2.8	--	1.0	30.3	11.9	2.5	1.9	0.6	--	49.6	100.0	665
Other	37.4	33.3	4.2	1.0	1.4	--	1.8	23.8	5.3	4.1	3.1	0.6	0.4	62.6	100.0	312
Caste/tribe																
Scheduled caste	34.5	31.7	2.8	0.7	0.8	--	1.3	25.6	3.2	2.8	1.9	0.8	0.2	65.5	100.0	10350
Scheduled tribe	33.0	30.8	2.0	0.7	0.5	--	0.7	23.2	5.6	2.2	1.2	0.6	0.4	67.0	100.0	7422
Other	42.4	37.6	6.4	1.3	2.2	--	2.8	28.0	3.2	4.7	2.9	1.6	0.2	57.6	100.0	66906
Number and sex of living children																
None	4.2	2.1	1.4	0.3	0.1	--	1.1	0.3	0.4	2.1	1.2	0.8	--	95.8	100.0	11265
1 child	19.3	12.8	8.5	1.6	3.2	--	3.6	3.1	1.2	6.5	3.8	2.5	0.2	80.7	100.0	13843
1 son	20.9	14.1	9.2	1.8	3.7	0.1	3.7	3.5	1.4	6.9	4.0	2.7	0.2	79.1	100.0	7271
No sons	17.4	11.4	7.8	1.5	2.7	--	3.6	2.6	1.0	6.0	3.6	2.3	0.1	82.6	100.0	6572
2 children	46.1	40.2	9.5	1.7	3.6	--	4.2	27.1	3.6	5.9	3.7	2.0	0.2	53.9	100.0	17695
2 sons	55.0	50.0	9.0	1.6	3.7	--	3.6	37.0	4.0	5.1	3.1	1.9	0.1	45.0	100.0	5233
1 son	46.4	40.2	10.0	1.9	3.6	0.1	4.5	26.3	3.8	6.2	3.9	2.0	0.2	53.6	100.0	9134
No sons	31.5	24.9	8.9	1.4	3.4	--	4.1	13.4	2.5	6.6	4.2	2.3	0.2	68.5	100.0	3328
3 children	58.9	55.4	4.8	1.1	1.5	--	2.1	45.3	5.3	3.5	2.2	1.1	0.2	41.1	100.0	17204
3 sons	64.9	62.4	3.1	0.9	0.8	--	1.4	52.3	7.0	2.5	1.6	0.8	0.2	35.1	100.0	2342
2 sons	68.0	65.1	4.1	1.1	1.3	--	1.8	54.9	6.0	2.9	1.8	1.0	0.2	32.0	100.0	7662
1 son	51.2	47.1	6.0	1.1	2.2	--	2.7	36.4	4.7	4.1	2.5	1.3	0.3	48.8	100.0	5778
No sons	31.7	25.9	6.1	2.1	1.6	--	2.5	18.0	1.8	5.7	4.2	1.3	0.3	68.3	100.0	1422
4+ children	52.4	49.0	3.4	1.0	1.0	0.1	1.3	40.9	4.6	3.4	2.1	0.9	0.4	47.6	100.0	24672
2+ sons	53.8	50.5	3.0	0.9	0.8	0.1	1.2	42.8	4.7	3.3	2.0	0.9	0.5	46.2	100.0	19408
1 son	49.5	45.6	5.1	1.6	1.5	0.1	1.9	36.1	4.3	3.9	2.6	1.1	0.3	50.5	100.0	4471
No sons	34.8	30.9	4.4	0.8	1.4	0.2	2.0	22.5	4.1	3.9	2.6	1.3	--	65.2	100.0	794
Total	40.6	36.3	5.5	1.2	1.9	--	2.4	27.3	3.4	4.3	2.6	1.4	0.2	59.4	100.0	84678

-- Less than 0.05 percent

Figure 6.3
Current Use of Modern Contraceptive Methods by Education

Percent of Currently Married Women
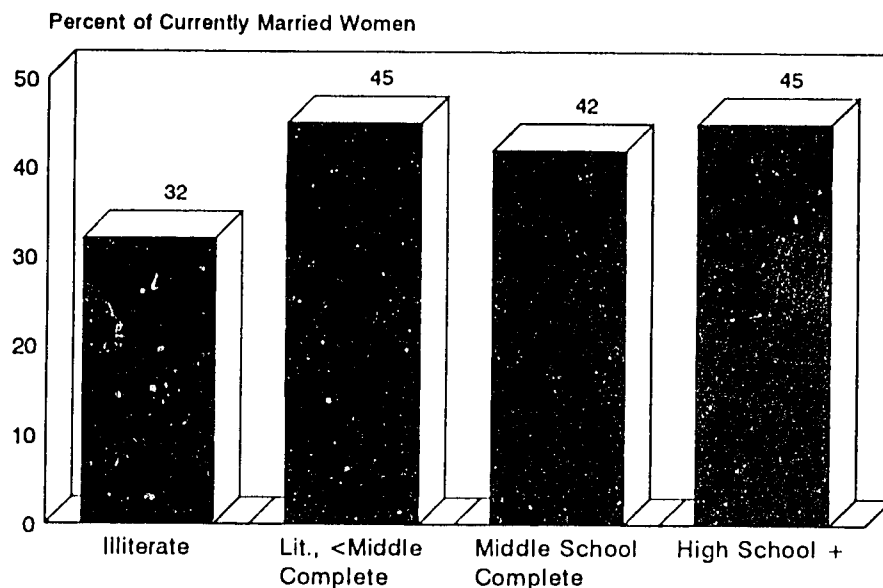
NFHS, India, 1992-93

Caste/tribe is also related to current use of contraception, although not as strongly as religion or parity. The practice of family planning is lower among scheduled caste and scheduled tribe women (33-35 percent) than among non-SC/ST women (42 percent). Between 83 and 87 percent of current use among scheduled caste and scheduled tribe women consists of sterilization, a figure that is 74 percent among non-SC/ST women.

Table 6.6 also shows differences in current use by the number and sex of living children. A curvilinear relationship exists between the number of living children a woman has and her current practice of contraception. Current use of any modern method increases steadily from only 2 percent for women with no living children to 13 percent for women with one child, 40 percent with two children, and 55 percent with three children, before declining to 49 percent among women with four or more children. A similar trend is evident for sterilized women. The data on the prevalence rate by the sex composition of living children indicate the existence of son preference; at each parity, the current use of family planning is lowest for women having no sons and highest for women who have two or more sons. The contraceptive prevalence rate is highest (between 64 and 68 percent) among women who have exactly three sons or two sons and one daughter. As expected, sterilization is a particularly unpopular method for women who do not have any sons.

Table 6.7 and Figure 6.4 show variations in the current use of contraception by state. Among the major states, the current use of any method varies from a low of 20 percent in Uttar Pradesh to a high of 63 percent in Kerala. Uttar Pradesh, Bihar, Rajasthan, Orissa and Madhya

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Table 6.7 Current use by state

Percent distribution of currently married women age 13-49 by contraceptive method currently used, according to state and residence, India, 1992-93

State	Any meth-od	Any modern method	Any modern temporary method	Pill	IUD	In-jec-tion	Con-dom	Fe-male ster-ril-ization	Male ste-ril-iza-tion	Any trad. meth-od	Peri-odic absti-nence	With-drawal	Other meth-ods	Not using any method	Total per-cent
						URBAN									
India	51.0	45.3	11.7	1.9	3.9	--	5.8	30.4	3.2	5.8	3.5	2.1	0.2	49.0	100.0
North															
Delhi	60.7	54.9	31.5	3.0	8.1	0.1	20.3	20.2	3.1	5.8	3.2	2.5	0.1	39.3	100.0
Haryana	58.0	48.7	20.2	1.5	5.4	--	13.3	23.5	5.0	9.3	3.0	6.1	0.2	42.0	100.0
Himachal Pradesh	70.4	63.0	24.4	1.2	8.9	--	14.3	29.1	9.6	7.4	2.4	4.9	0.1	29.6	100.0
Jammu Region of J & K	64.4	50.1	22.5	2.5	7.0	--	13.1	22.5	5.0	14.3	3.9	9.9	0.4	35.6	100.0
Punjab	62.8	54.3	23.9	1.8	7.8	--	14.4	27.6	2.8	8.5	4.3	4.0	0.3	37.3	100.0
Rajasthan	47.1	46.8	8.6	0.8	2.5	0.1	5.1	34.9	3.4	0.3	0.1	0.2	--	52.9	100.0
Central															
Madhya Pradesh	47.7	46.2	11.6	1.2	3.6	--	6.8	29.9	4.7	1.5	1.0	0.2	0.2	52.3	100.0
Uttar Pradesh	32.0	29.6	13.7	1.5	3.4	--	8.8	13.6	2.2	2.4	1.6	0.6	0.2	68.0	100.0
East															
Bihar	42.5	39.2	8.5	2.3	1.6	0.2	4.5	27.4	3.3	3.3	1.7	1.1	0.5	57.5	100.0
Orissa	47.4	45.1	7.9	2.5	3.2	--	2.2	33.1	4.1	2.3	1.2	0.7	0.4	52.6	100.0
West Bengal	61.8	36.5	11.1	5.2	1.6	--	4.3	23.3	2.1	25.3	12.8	11.8	0.7	38.2	100.0
Northeast															
Arunachal Pradesh	39.5	29.0	13.7	4.0	5.6	--	4.0	14.5	0.8	10.5	8.9	1.6	--	60.5	100.0
Assam	62.3	33.6	10.9	3.9	1.6	--	5.5	21.4	1.3	28.7	17.2	11.0	0.5	37.7	100.0
Manipur	44.3	31.6	17.2	3.4	12.0	--	1.7	11.0	3.4	12.7	12.0	0.7	--	55.7	100.0
Meghalaya	31.9	27.7	7.9	3.7	3.7	--	0.5	19.4	0.5	4.2	2.1	2.1	--	68.1	100.0
Mizoram	57.1	55.8	9.5	3.6	4.5	--	1.4	46.0	0.2	1.4	0.9	0.5	--	42.9	100.0
Nagaland	20.6	20.6	8.3	3.2	3.2	--	1.8	11.9	0.5	--	--	--	--	79.4	100.0
Tripura	71.1	39.3	13.9	9.5	2.0	--	2.5	23.4	2.0	31.8	15.4	15.9	0.5	28.9	100.0
West															
Goa	51.2	36.7	9.3	0.9	3.0	--	5.4	26.0	1.4	14.5	11.3	3.1	0.1	48.8	100.0
Gujarat	52.7	49.0	11.0	1.7	5.5	0.1	3.7	34.8	3.3	3.7	2.8	0.9	--	47.3	100.0
Maharashtra	52.9	50.8	11.3	2.3	4.6	--	4.4	36.7	2.8	2.2	2.0	0.1	0.1	47.1	100.0
South															
Andhra Pradesh	56.6	55.6	4.3	1.1	1.0	--	2.1	44.1	7.2	1.0	0.8	--	0.2	43.4	100.0
Karnataka	52.0	49.1	8.7	0.7	5.0	--	2.9	39.4	1.0	2.9	2.6	0.2	0.1	48.0	100.0
Kerala	68.2	57.3	6.9	0.6	2.3	--	3.9	42.6	7.8	10.9	7.9	3.0	--	31.8	100.0
Tamil Nadu	50.9	44.5	9.9	0.9	6.1	--	3.0	33.3	1.4	6.3	4.3	1.6	0.5	49.1	100.0

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Table 6.7 Current use by state (Contd.)

Percent distribution of currently married women age 13-49 by contraceptive method currently used, according to state and residence, India, 1992-93

| State	Any meth-od	Any modern method	Any modern temporary method	Pill	IUD	In-jec-tion	Con-dom	Female ster-ili-zation	Male ster-ili-zation	Any trad. meth-od	Peri-odic absti-nence	With-draw-l	Other meth-ods	Not using any method	Total per-cent
							RURAL								
India	36.9	33.1	3.4	0.9	1.2	--	1.2	26.3	3.5	3.8	2.3	1.2	0.2	63.1	100.0
North															
Delhi	55.3	50.6	28.4	1.6	4.3	--	22.6	17.9	4.3	4.7	2.3	1.9	0.4	44.7	100.0
Haryana	46.7	42.8	5.8	1.1	2.4	0.1	2.3	32.0	5.0	3.9	2.0	1.9	--	53.3	100.0
Himachal Pradesh	57.1	53.4	6.9	0.5	2.0	0.1	4.3	33.0	13.6	3.6	1.6	1.9	0.1	42.9	100.0
Jammu Region of J & K	46.2	37.5	7.3	1.1	1.9	--	4.4	25.9	4.2	8.8	3.3	5.4	--	53.8	100.0
Punjab	57.2	50.2	14.8	2.3	5.7	--	6.8	33.0	2.4	7.0	4.5	2.5	--	42.8	100.0
Rajasthan	28.2	27.1	2.0	0.4	0.9	--	0.6	23.0	2.1	1.0	0.5	0.4	0.1	71.8	100.0
Central															
Madhya Pradesh	33.4	32.5	1.8	0.5	0.4	--	0.9	25.4	5.3	0.9	0.6	--	0.3	66.6	100.0
Uttar Pradesh	16.7	15.8	3.4	0.9	0.6	0.2	1.8	11.2	1.2	1.0	0.7	0.1	0.1	83.3	100.0
East															
Bihar	19.8	18.5	2.0	0.9	0.4	--	0.7	15.6	1.0	1.2	0.8	0.4	--	80.2	100.0
Orissa	34.2	32.7	2.1	0.6	1.2	--	0.3	27.3	3.3	1.5	0.9	0.2	0.5	65.8	100.0
West Bengal	55.7	37.6	5.0	2.9	1.1	0.1	0.9	27.4	5.1	18.2	10.8	6.9	0.5	44.3	100.0
Northeast															
Arunachal Pradesh	20.8	17.6	7.7	3.1	4.4	0.1	0.1	9.6	0.3	3.2	3.0	0.3	--	79.2	100.0
Assam	40.1	18.0	4.7	2.7	0.8	--	1.2	10.8	2.5	22.1	15.5	5.7	1.0	59.9	100.0
Manipur	30.3	20.5	7.0	1.8	4.2	--	1.0	10.8	2.7	9.8	9.0	0.8	--	69.7	100.0
Meghalaya	18.0	12.1	4.4	2.1	1.8	--	0.5	7.0	0.6	5.9	1.0	0.2	4.7	82.0	100.0
Mizoram	50.5	50.1	7.1	1.5	5.6	--	--	43.0	--	0.4	0.4	--	--	49.5	100.0
Nagaland	10.9	10.9	6.1	1.9	1.7	0.2	2.2	4.8	--	--	--	--	--	89.1	100.0
Tripura	52.4	25.9	8.4	5.6	1.4	--	1.4	15.1	2.5	26.4	17.0	9.1	0.4	47.6	100.0
West															
Goa	44.4	39.0	5.4	0.5	2.4	--	2.5	33.0	0.6	5.3	3.7	1.6	--	55.6	100.0
Gujarat	47.5	45.7	3.2	0.7	1.7	--	0.8	38.9	3.7	1.7	1.1	0.6	--	52.5	100.0
Maharashtra	54.3	53.8	2.9	0.7	1.1	--	1.2	42.3	8.5	0.5	0.4	--	0.1	45.7	100.0
South															
Andhra Pradesh	43.6	43.3	0.9	0.2	0.4	--	0.2	36.0	6.4	0.3	0.1	--	0.2	56.4	100.0
Karnataka	47.7	46.4	2.9	0.3	2.3	--	0.3	41.7	1.8	1.2	1.0	0.1	0.1	52.3	100.0
Kerala	61.4	53.2	5.8	0.4	2.9	--	2.5	41.5	6.0	8.1	5.2	2.8	0.1	38.6	100.0
Tamil Nadu	49.2	45.5	3.4	0.4	2.2	--	0.8	39.9	2.3	3.7	1.7	1.3	0.7	50.8	100.0

Table 6.7 Current use by state (Contd.)

Percent distribution of currently married women age 13-49 by contraceptive method currently used, according to state and residence, India, 1992-93

State	Any method	Any modern method	Any modern temporary method	Pill	IUD	In-jec-tion	Con-dom	Female ster-ili-zation	Male ster-ili-zation	Any trad. meth-od	Peri-odic absti-nence	With-drawal	Other meth-ods	Not using any method	Total per-cent
						TOTAL									
India	40.6	36.3	5.5	1.2	1.9	--	2.4	27.3	3.4	4.3	2.6	1.4	0.2	59.4	100.0
North															
Delhi	60.3	54.6	31.3	2.9	7.8	0.1	20.5	20.0	3.2	5.7	3.1	2.5	0.2	39.7	100.0
Haryana	49.7	44.3	9.6	1.2	3.2	--	5.2	29.7	5.0	5.3	2.2	3.0	0.1	50.3	100.0
Himachal Pradesh	58.4	54.4	8.6	0.5	2.7	--	5.3	32.6	13.2	4.0	1.7	2.2	0.1	41.6	100.0
Jammu Region of J & K	49.4	39.7	10.0	1.3	2.8	--	5.9	25.3	4.4	9.7	3.4	6.2	0.1	50.6	100.0
Punjab	58.7	51.3	17.3	2.2	6.3	--	8.9	31.5	2.5	7.4	4.4	2.9	0.1	41.3	100.0
Rajasthan	31.8	30.9	3.3	0.5	1.2	0.1	1.5	25.3	2.4	0.9	0.4	0.4	0.1	68.2	100.0
Central															
Madhya Pradesh	36.5	35.5	4.0	0.7	1.1	--	2.2	26.4	5.1	1.0	0.7	0.1	0.3	63.5	100.0
Uttar Pradesh	19.8	18.5	5.5	1.0	1.1	0.1	3.2	11.7	1.4	1.3	0.9	0.2	0.1	80.2	100.0
East															
Bihar	23.1	21.6	2.9	1.1	0.5	--	1.3	17.3	1.3	1.5	0.9	0.5	0.1	76.9	100.0
Orissa	36.3	34.6	3.0	0.9	1.5	--	0.6	28.2	3.4	1.6	0.9	0.3	0.5	63.7	100.0
West Bengal	57.4	37.3	6.7	3.5	1.3	0.1	1.9	26.3	4.3	20.1	11.3	8.3	0.5	42.6	100.0
Northeast															
Arunachal Pradesh	23.6	19.3	8.6	3.2	4.6	0.1	0.7	10.3	0.4	4.3	3.8	0.5	--	76.4	100.0
Assam	42.8	19.8	5.4	2.8	0.9	--	1.7	12.1	2.3	22.9	15.7	6.3	0.9	57.2	100.0
Manipur	34.9	24.1	10.3	2.4	6.7	--	1.2	10.9	2.9	10.8	10.0	0.8	--	65.1	100.0
Meghalaya	20.7	15.1	5.1	2.4	2.2	--	0.5	9.4	0.6	5.6	1.2	0.6	3.8	79.3	100.0
Mizoram	53.8	52.9	8.3	2.5	5.1	--	0.7	44.5	0.1	0.9	0.7	0.2	--	46.2	100.0
Nagaland	13.0	13.0	6.5	2.1	2.0	0.2	2.1	6.3	0.1	--	--	--	--	87.0	100.0
Tripura	56.1	28.6	9.5	6.4	1.5	--	1.6	16.7	2.4	27.5	16.7	10.5	0.4	43.9	100.0
West															
Goa	47.8	37.9	7.3	0.7	2.7	--	3.9	29.5	1.0	9.9	7.5	2.4	0.1	52.2	100.0
Gujarat	49.3	46.9	5.9	1.0	3.0	0.1	1.8	37.5	3.5	2.4	1.7	0.7	--	50.7	100.0
Maharashtra	53.7	52.5	6.4	1.4	2.5	--	2.5	40.0	6.2	1.2	1.1	0.1	0.1	46.3	100.0
South															
Andhra Pradesh	47.0	46.5	1.8	0.5	0.6	--	0.7	38.1	6.6	0.5	0.3	--	0.2	53.0	100.0
Karnataka	49.1	47.3	4.8	0.4	3.2	--	1.2	41.0	1.5	1.8	1.5	0.1	0.1	50.9	100.0
Kerala	63.3	54.4	6.1	0.5	2.7	--	2.9	41.8	6.5	8.9	6.0	2.9	0.1	36.7	100.0
Tamil Nadu	49.8	45.2	5.7	0.6	3.5	--	1.6	37.5	2.0	4.6	2.6	1.4	0.6	50.2	100.0

-- Less than 0.05 percent

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Figure 6.4
Current Use of Any Contraceptive Method by State

Percent Using Any Contraceptive Method
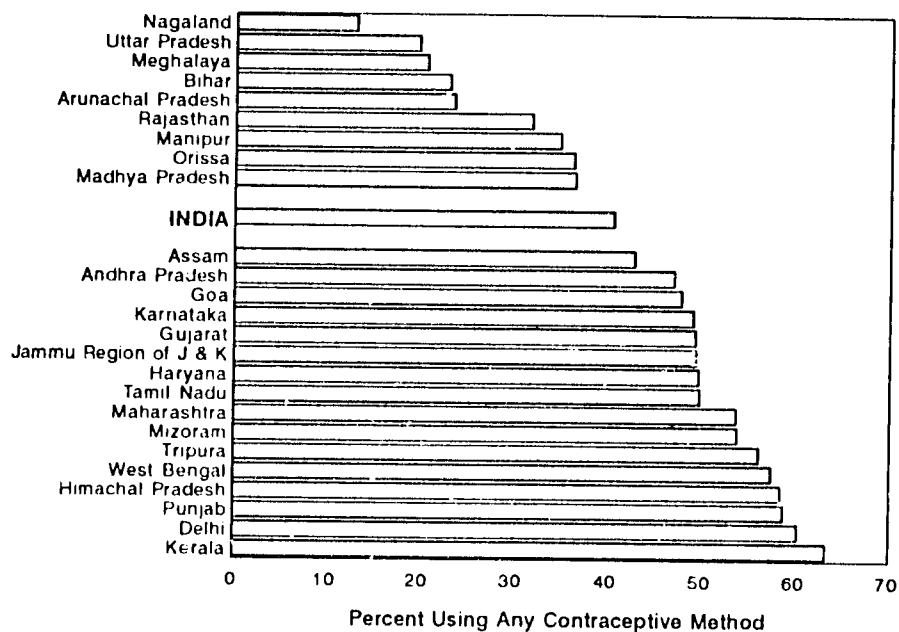
NFHS, India, 1992-93

Pradesh, which together accounted for 43 percent of the population of the country in 1991, have a prevalence rate lower than the national average. In fact, contraceptive use is way below the national average in the two most populous states of Uttar Pradesh and Bihar. The contraceptive prevalence rate is at least one-third higher than the national average in West Bengal, Himachal Pradesh, Punjab, Delhi and Kerala. Considerable variation in the contraceptive prevalence rate is observed in the seven northeastern states, with a higher rate than the national average in Assam, Mizoram and Tripura and a particularly low prevalence rate in Nagaland, Meghalaya and Arunachal Pradesh. As mentioned earlier, knowledge of contraceptives is also low in the latter three states.

Sterilization is the mainstay of the family planning programme and it accounts for more than three-fourths of contraceptive use in half of the states. In fact, more than 85 percent of current contraceptive users are sterilized in Andhra Pradesh, Rajasthan, Maharashtra and Karnataka. The contraceptive method mix is particularly skewed in Andhra Pradesh, where 95 percent of users are sterilized. Male sterilization constitutes 11 percent of total sterilizations in India. The use of male sterilization is noticeably high in Himachal Pradesh, where this method is used by 13 percent of couples. Assam, West Bengal, Punjab and Uttar Pradesh are the only major states where the relative contribution of methods other than sterilization is large.

The use of modern temporary methods is low in all states except in Delhi, where 31 percent of currently married women use a modern temporary method. The use rate for any modern temporary method ranges from 10-17 percent in Jammu, Manipur and Punjab. In the

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remaining states, less than 10 percent of currently married women use a modern temporary method. The contribution of modern temporary methods to total contraceptive use is relatively high in Delhi (52 percent), Punjab (29 percent) and Uttar Pradesh (28 percent).

Traditional methods of family planning, mostly periodic abstinence, are used by only 4 percent of Indian women, ranging from a low of less than 1 percent in several states to a high of 28 percent in Tripura. Among the major states, West Bengal and Assam are characterized by an unusually high prevalence of traditional methods, which constitute 35 percent and 54 percent of total contraceptive prevalence, respectively. In Tripura, which borders on Assam, nearly half of all contraceptive users rely on traditional methods.

There are considerable urban-rural differentials in the use of contraception in almost all states. Maharashtra is the only state where the prevalence rate is slightly higher in rural areas (54 percent) than in urban areas (53 percent). The urban-rural differentials are also quite small in Tamil Nadu and several other low fertility states. The gap between the urban and rural rates is substantial in Bihar, Uttar Pradesh, and several small northeastern states, where the contraceptive prevalence rate is approximately twice as high in urban areas as in rural areas.

The patterns of contraceptive use by age for the states are shown in Table 6.8. Although the extent of contraceptive use varies considerably across the states, the age pattern of use is more or less invariant. In all states except Haryana, Manipur, Nagaland, Himachal Pradesh, Tamil Nadu and Andhra Pradesh, the use rate reaches a maximum at age 35-39. In Haryana and Manipur, the peak is attained at age 40-44, whereas in the other four states the peak is at age 30-34. In Kerala, Punjab and Himachal Pradesh, at least 80 percent of women age 35-39 are using contraception. In Uttar Pradesh, Bihar, Rajasthan and some of the small northeastern states, where the overall practice of family planning is low, the use of contraception in the early reproductive ages of 15-24 is negligible (less than 10 percent). West Bengal, Delhi and Tripura are the only states where the contraceptive use rate at age 20-24 is higher than 40 percent. In addition to these states, the contraceptive prevalence rate at age 25-29 is also high (more than 50 percent) in Himachal Pradesh, Haryana, Punjab, Maharashtra and the four southern states.

The pattern of contraceptive use by the number and sex of living children for the states is presented in Table 6.9. West Bengal, Delhi and Tripura stand out as having relatively high levels of use (more than 40 percent) among women with one child. The early use of contraception is consistent with the fact that spacing methods are particularly popular in these states. More than 60 percent of two-child couples are using family planning in these three states, as well as in Himachal Pradesh, Punjab and Kerala. The table reveals a strong association between the sex composition of children and the use of contraception. For a given number of living children, women with more sons are generally more likely to be using contraception. The differentials are quite small for women with one living child. For women with two living children, son preference is observed in every state except Nagaland and Meghalaya, although a slight preference for a balanced sex composition exists together with son preference in Delhi, Kerala and several small northeastern states. At parity three, son preference persists, but a desire to have at least one daughter emerges in half of the states. Overall, son preference is evident in every state. Son preference is extremely high in Rajasthan, Gujarat, Haryana, Madhya Pradesh, Bihar and Himachal Pradesh. Son preference is relatively low (but still pronounced) in the southern states (except in Karnataka) and in Goa, West Bengal,

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Table 6.8 Current use by state and age

Percentage of currently married women age 13-49 who are currently using any contraceptive method, according to state and age, India, 1992-93

State	13-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	15-44	15-49	13-49
India	4.7	7.1	21.0	42.4	55.9	61.0	56.3	45.8	40.3	40.7	40.6
North											
Delhi	*	14.7	42.1	61.0	74.3	74.4	72.0	55.5	60.8	60.3	60.3
Haryana	*	8.2	25.9	53.8	68.2	71.8	72.8	63.5	48.7	49.7	49.7
Himachal Pradesh	NC	9.1	24.2	63.8	81.2	79.9	73.5	57.9	58.4	58.4	58.4
Jammu Region of J & K	*	6.2	22.9	42.8	65.4	72.4	68.8	59.5	48.5	49.4	49.4
Punjab	*	10.7	28.0	55.3	73.6	81.4	73.6	57.6	58.8	58.7	58.7
Rajasthan	*	2.1	9.1	28.6	43.9	53.0	52.2	46.0	30.6	31.9	31.8
Central											
Madhya Pradesh	(--)	3.8	12.8	35.0	57.6	61.3	61.0	53.2	35.5	36.7	36.5
Uttar Pradesh	(--)	2.6	7.4	17.4	27.7	34.6	32.5	26.1	19.2	19.8	19.8
East											
Bihar	(--)	2.7	7.8	23.5	35.8	40.0	36.9	30.2	22.5	23.2	23.1
Orissa	*	1.8	16.3	33.5	53.6	59.3	50.0	40.1	36.1	36.3	36.3
West Bengal	(20.6)	27.2	44.9	63.9	72.3	76.5	66.3	47.9	58.5	57.7	57.4
Northeast											
Arunachal Pradesh	*	9.0	11.6	26.9	31.6	38.9	26.4	(17.1)	24.0	23.6	23.6
Assam	*	18.1	31.4	41.0	54.6	62.7	50.7	39.2	43.2	43.0	42.8
Manipur	NC	*	17.4	27.6	42.2	45.5	47.9	34.7	34.9	34.9	34.9
Meghalaya	*	3.5	9.1	19.6	31.8	32.5	28.6	22.4	20.5	20.7	20.7
Mizoram	NC	(5.9)	22.0	37.6	65.1	76.1	73.1	63.6	51.9	53.8	53.8
Nagaland	NC	(5.0)	4.0	9.2	23.1	22.2	16.1	10.7	13.4	13.0	13.0
Tripura	*	26.4	40.0	60.9	70.8	74.7	61.3	42.0	57.8	56.4	56.1
West											
Goa	*	(18.8)	21.4	38.1	51.8	59.0	57.3	49.8	47.5	47.8	47.8
Gujarat	*	3.2	18.1	42.4	63.8	76.9	73.9	64.3	47.8	49.3	49.3
Maharashtra	(--)	9.1	29.5	59.2	72.4	76.8	71.0	67.4	53.0	54.1	53.7
South											
Andhra Pradesh	(--)	4.5	31.6	57.5	70.4	65.3	62.3	54.3	46.9	47.4	47.0
Karnataka	(4.0)	4.3	31.8	59.4	67.2	69.7	62.0	48.4	49.5	49.4	49.1
Kerala	*	13.0	28.5	61.0	75.5	83.1	77.4	68.1	62.8	63.3	63.3
Tamil Nadu	*	10.6	29.2	55.1	66.9	66.4	58.3	41.7	50.6	49.8	49.8

NC: Not calculated because there are no currently married women age 13-14.
( ) Based on 25-49 unweighted cases
* Percentage not shown; based on fewer than 25 unweighted cases
-- Less than 0.05 percent

Delhi and parts of the northeast. The contraceptive prevalence rate is highest for women with three sons and no daughter in most major states except Madhya Pradesh, Bihar, Orissa, Assam and southern states where the prevalence rate is highest for women with 2 sons and 1 daughter.

The gap in the contraceptive prevalence rate between illiterate and literate women is conspicuous in Uttar Pradesh, Bihar and Rajasthan (Table 6.10). Contraceptive use differentials by literacy are also large in West Bengal and Assam, where the use of spacing methods is prominent. In Uttar Pradesh, only 16 percent of illiterate women use family planning compared with 40 percent of women who have completed high school. In general, the use of family planning is higher among literate than illiterate women, but literacy is not strongly related to the

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Table 6.9 Current use by state and number and sex of living children

Percentage of currently married women age 13-49 who are currently using any contraceptive method, by state and number and sex of living children, India, 1992-93

State	None	1 child	1 son	No son	2 children	2 sons	1 son	No sons	3 children	3 sons	2 sons	1 son	No sons	4+ children	2+ sons	1 son	No sons
India	4.2	19.3	20.9	17.4	46.1	55.0	46.4	31.5	58.9	64.9	68.0	51.2	31.7	52.4	53.8	49.5	34.8
North																	
Delhi	13.1	47.6	48.5	46.4	70.8	69.3	75.4	57.6	71.4	76.6	73.9	71.3	53.7	67.9	68.7	67.7	*
Haryana	3.4	19.8	20.6	18.8	48.1	65.3	42.6	26.0	70.6	84.9	81.9	51.3	(12.8)	67.1	71.0	55.8	*
Himachal Pradesh	6.8	20.1	22.5	16.8	64.6	77.9	63.1	31.6	76.4	89.4	87.0	66.2	(19.4)	75.3	79.5	68.0	*
Jammu Region of J & K	3.9	23.3	24.3	22.1	49.9	55.3	53.2	30.8	67.9	76.8	75.3	57.1	(43.4)	65.0	69.3	44.4	*
Punjab	2.3	28.9	31.2	26.3	61.1	70.2	61.5	34.8	74.1	85.7	82.3	65.9	(29.8)	76.1	80.9	61.8	*
Rajasthan	1.9	6.9	6.9	7.0	27.6	34.2	30.6	5.8	47.2	63.9	57.4	27.2	12.0	49.3	52.2	36.4	(26.5)
Central																	
Madhya Pradesh	2.2	9.3	9.1	9.6	35.2	52.6	32.2	16.2	54.9	57.3	70.4	39.3	16.4	57.6	60.9	48.2	33.3
Uttar Pradesh	1.8	7.8	9.2	6.3	18.6	26.9	17.1	9.7	28.1	35.6	35.3	19.0	14.8	28.5	30.4	21.2	10.8
East																	
Bihar	1.7	7.9	7.8	8.0	24.7	34.5	23.1	14.7	34.3	38.0	46.9	24.7	4.0	33.4	36.3	23.9	8.9
Orissa	2.7	12.1	14.0	9.9	39.9	51.8	40.0	20.0	51.7	60.7	61.5	43.3	21.5	54.3	55.8	51.0	(42.7)
West Bengal	19.8	49.5	53.9	44.8	66.4	74.8	67.0	52.7	74.2	82.3	78.0	72.0	53.2	62.0	61.4	66.7	(47.3)
Northeast																	
Arunachal Pradesh	4.1	14.2	19.8	5.9	25.0	(26.2)	29.2	(15.8)	25.5	(30.8	33.3	19.2	*	34.5	37.0	*	*
Assam	18.0	28.4	32.8	23.9	46.4	54.4	46.6	35.0	51.4	51.8	59.2	48.0	27.8	49.6	50.5	46.6	(42.9)
Manipur	4.8	20.3	26.6	15.2	35.0	(43.6)	35.6	(20.0)	46.9	*	51.4	41.3	*	42.2	43.2	37.5	*
Meghalaya	4.0	13.5	14.3	12.5	23.5	20.8	24.7	(24.4)	32.1	*	39.7	27.0	*	23.4	22.5	(30.6)	*
Mizoram	0.9	25.2	33.3	14.0	48.9	(61.1)	43.5	(47.1)	67.0	(71.9)	67.5	71.9	*	74.3	75.7	70.9	*
Nagaland	2.4	7.3	6.4	9.0	9.6	(8.5)	10.6	(8.7)	17.5	*	17.1	21.6	*	17.3	18.0	14.0	*
Tripura	15.7	45.1	49.5	40.2	60.8	61.4	64.6	(48.7)	71.4	*	67.4	77.0	*	62.5	59.7	78.4	*
West																	
Goa	4.6	27.1	26.9	27.2	48.6	52.0	48.9	43.2	63.0	63.0	70.3	58.2	46.3	66.6	68.7	62.8	(44.4)
Gujarat	3.3	18.2	23.3	11.7	55.6	70.0	54.7	26.2	67.7	84.0	81.6	53.3	18.3	68.6	73.9	56.5	(11.1)
Maharashtra	3.1	22.8	27.3	17.8	50.3	65.9	48.1	27.9	74.8	86.0	84.7	63.9	30.8	76.0	79.7	69.5	(48.6)
South																	
Andhra Pradesh	1.6	15.2	16.2	14.2	53.2	55.5	54.9	45.7	73.5	76.9	79.9	70.8	51.7	69.9	70.4	70.7	(59.1)
Karnataka	2.2	18.5	19.4	17.5	54.9	67.3	54.6	35.0	72.3	76.0	79.8	69.9	38.9	63.5	64.5	62.6	(47.4)
Kerala	8.5	37.1	38.1	36.0	78.1	78.2	80.1	73.1	83.1	85.3	86.5	81.8	74.3	68.9	67.1	77.4	(65.5)
Tamil Nadu	3.3	24.4	24.9	23.9	59.5	62.5	61.9	49.0	72.6	74.2	80.4	70.4	50.6	64.6	64.1	68.0	(59.5)

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

Table 6.10 Current use by state and background characteristics

Percentage of currently married women age 13-49 who are currently using any contraceptive method, by state and selected background characteristics, India, 1992-93

State	Education				Religion							Caste/tribe		
	Il-lit-erate	Lit., <mid-dle	Middle com-plete	High school & above	Hindu	Muslim	Chris-tian	Sikh	Jain	Bud-dhist	Other	Sched-uled caste	Sched-uled tribe	Other
India	33.9	50.4	50.8	54.7	41.6	27.7	48.3	57.6	62.6	50.4	37.4	34.5	33.0	42.4
North														
Delhi	50.2	60.8	65.8	68.4	61.2	47.4	(68.0)	65.8	(73.5)	*	*	58.8	61.5	60.4
Haryana	47.8	50.7	52.6	55.4	51.3	13.8	*	47.2	*	*	*	43.5	NC	51.9
Himachal Pradesh	58.0	59.4	55.4	57.6	58.8	(41.4)	*	(72.9)	NC	*	*	56.6	39.5	60.1
Jammu Region of J & K	45.7	47.8	49.7	61.1	51.8	34.3	*	61.8	*	NC	*	43.4	*	51.9
Punjab	56.7	61.0	58.0	62.4	59.9	(40.6)	(34.8)	59.0	*	NC	*	57.2	NC	59.3
Rajasthan	29.2	42.5	43.5	46.9	32.3	18.4	*	41.5	(61.3)	*	*	28.5	23.9	35.1
Central														
Madhya Pradesh	33.6	43.4	42.7	49.6	36.1	38.6	(33.1)	*	(64.4)	*	*	33.2	30.2	39.4
Uttar Pradesh	15.5	28.4	29.5	40.4	21.2	10.5	*	*	(55.7)	*	*	15.1	12.0	20.9
East														
Bihar	17.6	39.2	42.4	45.7	26.0	7.5	(19.6)	*	*	(22.9)	(22.6)	14.7	16.4	24.7
Orissa	33.8	40.5	33.8	47.5	36.5	16.1	45.6	39.7	*	NC	*	33.7	30.0	38.5
West Bengal	49.1	61.6	66.9	75.1	61.4	43.0	*	NC	*	*	(41.3)	54.5	44.8	58.4
Northeast														
Arunachal Pradesh	19.9	26.4	27.5	46.9	35.5	*	23.7	*	NC	29.7	10.9	NC	18.4	41.3
Assam	32.1	51.7	63.7	69.3	48.3	32.3	19.1	*	*	NC	NC	52.9	31.4	44.5
Manipur	30.4	35.3	40.8	41.0	39.9	25.0	22.8	*	*	NC	(45.7)	NC	22.6	39.2
Meghalaya	17.0	20.1	30.8	32.0	45.7	(28.0)	18.7	NC	NC	*	11.2	*	17.9	42.3
Mizoram	35.4	58.5	49.4	51.5	*	*	54.1	NC	*	*	NC	NC	54.1	40.0
Nagaland	6.6	16.0	17.8	20.8	12.1	*	13.1	NC	*	NC	*	NC	12.9	14.0
Tripura	45.0	61.0	66.9	67.8	58.6	28.6	*	NC	NC	(44.0)	NC	*	51.0	56.8
West														
Goa	46.6	49.4	41.3	49.8	52.3	48.3	36.1	*	*	*	*	45.1	41.5	48.0
Gujarat	46.3	51.2	53.9	54.8	50.3	35.0	*	*	(68.3)	*	*	53.5	47.3	49.4
Maharashtra	54.1	53.2	45.4	58.0	56.6	36.1	(41.4)	*	59.7	52.0	(70.4)	55.1	49.2	54.2
South														
Andhra Pradesh	43.5	55.8	55.3	52.2	47.0	44.7	52.3	*	*	*	*	35.9	36.5	49.7
Karnataka	45.5	53.3	52.8	56.9	50.6	36.8	47.6	*	(61.8)	NC	*	45.1	45.7	49.9
Kerala	66.7	64.1	60.5	62.9	72.5	37.8	71.7	*	*	NC	*	76.7	75.0	62.5
Tamil Nadu	47.5	51.7	52.6	52.3	50.2	45.8	48.8	NC	*	NC	*	45.0	*	51.0

NC: Not calculated because there are no cases on which to base a percentage
( ) Based on 25-49 unweighted cases
* Percentage not shown; based on fewer than 25 unweighted cases

use of family planning in Himachal Pradesh, Maharashtra, Goa, Kerala and Tamil Nadu, all of which have relatively high average levels of education.

Table 6.10 also shows that in all states except Madhya Pradesh, the contraceptive prevalence rate is higher among Hindus than Muslims. However, the gap in the contraceptive prevalence rate between the two religious groups is marginal in Andhra Pradesh, Tamil Nadu, and Goa. In general, the practice of family planning is relatively low among women from both scheduled castes and scheduled tribes. In Assam, Gujarat, Maharashtra and Kerala, the prevalence rate is higher among scheduled caste women than women from either of the other two caste/tribe groups. Similarly, in Delhi, the practice of contraception is highest among scheduled tribe women.

The religious differentials in the contraceptive use rate can be understood better from Table 6.11, which provides these rates by religious composition as well as level of education of women. The contraceptive prevalence rate is lowest among Muslims and highest among Sikhs for each educational category of women. With more education, the religious differentials in the use rate tend to narrow. For women with at least a high school education, the contraceptive prevalence rate ranges from a low level of 45 percent among Muslims to a high of 62 percent among Sikhs. For illiterates, the variation is from a low of 22 percent among Muslims to a high of 56 percent among Sikhs. The use of any modern temporary method is, however, higher among Muslims than among Hindus in each educational category. The analysis suggests that educational differentials among different religious groups partly explain the religious differences in contraceptive use; however, the religious differentials persist even after controlling for education.

Table 6.11 Current use by religion and education

Percentage of currently married women age 13-49 currently using any method, any modern method, and any modern temporary method of contraception, by religion and education, India, 1992-93

Religion	Any method				Any modern method				Any modern temporary method			
	Illit-erate	Literate, < middle school	Middle school complete	High school and above	Illit-erate	Literate, < middle school	Middle school complete	High school and above	Illit-erate	Literate, < middle school	Middle school complete	High school and above
Hindu	35.1	52.2	51.7	55.2	33.1	47.3	43.5	45.5	1.8	5.3	8.8	20.3
Muslim	21.8	37.2	40.5	44.9	17.3	29.0	31.4	38.9	3.1	8.0	13.6	24.6
Christian	36.4	55.6	55.0	52.0	32.1	50.1	44.0	39.2	2.1	4.2	7.2	13.4
Sikh	55.9	57.4	57.0	61.9	50.6	49.3	45.8	50.6	8.3	20.7	20.2	34.1
Other	43.1	56.7	50.2	57.3	42.4	51.7	45.2	50.3	2.0	8.6	12.1	30.0

Number of Children at First Use of Contraception

In order to examine the timing of initial family planning use, the NFHS included a question on how many living children women had when they first used a method. The distribution of ever-married women according to the number of living children at first contraceptive use is shown in Table 6.12. Overall, only 7 percent of contraceptors (3 percent of all ever-married women) initiated the use of contraception before having any children, and another 19 percent started after the first child. As mentioned earlier, use of spacing methods

is minimal and there is hardly any effort to space the first child. However, although early use of contraception is rare, the majority of those who ever used family planning (68 percent) initiated use when they had fewer than four living children. This pattern of first acceptance at relatively low parities means that family planning has a larger demographic impact than it would if contraceptive use were initiated later.

Table 6.12 suggests that there has been a shift over time toward initiating contraceptive use at lower parities. In the older cohorts, the average parity at which women who ever used contraception first did so was considerably higher than the parity at which ever users in the younger cohorts first used. For example, 30 percent of ever users age 25-29 began their first use when they had fewer than two living children, whereas only 12 percent of ever users age

Table 6.12 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, 1992-93

| Current age | Never used | Number of living children at the time of first use | | | | | | Total percent | Number of women |
		0	1	2	3	4+	Missing		
URBAN									
13-14	(88.8)	(10.6)	(0.6)	(--)	(--)	(--)	(--)	100.0	42
15-19	85.1	5.5	7.4	1.4	0.3	0.2	0.2	100.0	1376
20-24	63.9	6.7	15.7	8.4	4.0	1.2	0.2	100.0	4229
25-29	39.4	6.0	19.3	15.9	11.5	7.7	0.1	100.0	4705
30-34	29.7	3.8	16.7	16.9	16.5	16.1	0.2	100.0	4291
35-39	26.2	3.4	12.5	14.8	17.1	25.9	--	100.0	3715
40-44	33.3	2.2	9.4	11.3	15.0	28.7	0.1	100.0	2899
45-49	40.5	1.9	8.3	9.2	12.4	27.5	0.3	100.0	2197
Total	42.1	4.4	14.1	12.5	11.8	15.0	0.2	100.0	23455
RURAL									
13-14	93.5	5.6	0.9	--	--	--	--	100.0	311
15-19	89.0	5.5	3.9	1.3	0.3	--	0.1	100.0	7719
20-24	73.6	4.0	8.9	7.4	4.6	1.3	0.1	100.0	13755
25-29	55.3	2.4	8.4	12.0	13.5	8.2	0.1	100.0	12735
30-34	43.4	1.7	7.6	10.7	16.5	20.0	0.1	100.0	10369
35-39	41.1	1.5	6.1	9.4	15.6	26.3	0.1	100.0	8746
40-44	45.5	1.4	4.9	6.5	11.5	30.1	0.1	100.0	6850
45-49	54.6	0.6	3.4	4.5	8.0	28.6	0.2	100.0	5838
Total	58.4	2.6	6.7	8.0	10.1	14.1	0.1	100.0	66322
TOTAL									
13-14	92.9	6.2	0.9	--	--	--	--	100.0	352
15-19	88.4	5.5	4.4	1.3	0.3	--	0.1	100.0	9095
20-24	71.3	4.6	10.5	7.6	4.5	1.3	0.1	100.0	17983
25-29	51.0	3.4	11.4	13.1	13.0	8.1	0.1	100.0	17441
30-34	39.4	2.4	10.3	12.5	16.5	18.8	0.1	100.0	14660
35-39	36.7	2.1	8.0	11.0	16.0	26.2	0.1	100.0	12461
40-44	41.9	1.6	6.2	8.0	12.5	29.7	0.1	100.0	9748
45-49	50.8	1.0	4.8	5.8	9.2	28.3	0.2	100.0	8036
Total	54.1	3.1	8.7	9.1	10.5	14.3	0.1	100.0	89777

( ) Based on 25-49 unweighted cases
-- Less than 0.05 percent

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45-49 initiated the use of contraception at such an early stage in the family building process. The average parity at which urban women initiate contraceptive use also is slightly lower than the average parity at which rural women initiate use, but the difference is small, despite the very substantial urban-rural difference in total contraceptive prevalence.

Problems in the Current Use of Family Planning

Table 6.13 deals with the problems faced by women while using the pill, IUD, and sterilization. Most women using these methods did not report any problems. For pill and IUD users, however, the extent of problems may be underestimated because women who had serious problems with these methods may have already discontinued use. Among the specific problems listed in the case of pill users, headache is most common (6 percent of users) followed by dizziness and body ache (each was mentioned by 4 percent of users). In the case of the IUD, the major problems are excessive bleeding (8 percent) and backache (7 percent). The proportion of women complaining of a problem is higher in the case of female sterilization, the most

Table 6.13 Problems with current method

Percentage of current users of the pill, copper T/IUD, and female/male sterilization who have had problems in using the method, India, 1992-93

Problem	Method
	Pill
No problems	80.0
Cramps	0.8
Dizziness	3.8
Body ache	3.8
Spotting/bleeding	2.4
White discharge	1.5
Headache	5.9
Other	5.8
Number of pill users	1013
	Copper T/IUD
No problems	81.1
Backache	6.5
Irregular periods	2.6
Excessive bleeding	7.8
Weakness/inability to work	3.0
Other	3.4
Number of IUD users	1589

	Female sterilization	Male sterilization
No problems	76.7	84.9
Fever	1.7	1.0
Pain/backache	14.6	7.3
Sepsis	2.0	1.8
Weakness/inability to work	9.5	6.1
Failure/woman got pregnant	0.6	1.2
Loss of sexual power	0.3	0.6
Other	3.0	0.8
Number sterilized	23136	2916

Note: Percentages may sum to more than 100.0 because multiple problems could be recorded.

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commonly used method. The major causes of discomfort reported in this case are pain or backache (15 percent) and weakness or inability to work (10 percent). The same problems were most commonly mentioned in the case of male sterilization. Sepsis was mentioned in a few cases, as was the failure of the operation, but even fewer women mentioned the loss of sexual power as a result of female or male sterilization.

Family Planning Services

The NFHS included some questions designed to elicit information on the extent of follow-up services provided by health workers to the users of various contraceptive methods, either at home or outside the home. Such data can provide useful information about the mechanisms to encourage continuity in use, which is an important element in the framework for assessing the quality of care provided by the family welfare programme (Bruce, 1990). In a recent study conducted in India, it was found that home visits by health workers can be an important factor affecting the utilization of government family welfare services (Verma et al., 1994).

The follow-up care provided by the family welfare programme needs improvement. Only 15 percent of IUD and pill users reported having received a follow-up visit at home, and for the most popular method (sterilization), follow-up care was received by 30 percent of users (Table 6.14). There are wide interstate variations in the extent of follow-up home care provided by the programme. Only in Karnataka and Orissa did more than 50 percent of sterilized women or their sterilized husbands receive follow-up care services at home. Even in Kerala and Maharashtra, where the programme has been performing well, health workers are generally not providing follow-up home visits. Only one-fifth of sterilized couples in Maharashtra and less than one-fifth (18 percent) of sterilized couples in Kerala reported a follow-up home visit.

A larger proportion of acceptors, however, went outside the home for a follow-up consultation with medical or health personnel. Sixty percent of IUD users, 49 percent of pill users and 43 percent of sterilization acceptors made such a visit. It appears that women using spacing methods had a substantial need for counselling regarding side effects and other method-related problems, and follow-up home care was particularly lacking in such cases. For example, 79 percent of IUD users in Maharashtra went outside the home for a consultation with a medical or a health person. Only 18 percent of the IUD users in Maharashtra were given the required follow-up home visits by health workers.

The quality of care and services offered by the programme was further assessed by asking sterilized women about the quality of care they received during and just after the operation, as well as the quality of follow-up home care if they were visited by a health worker. A majority of sterilized women (53 percent) rated the operative and postoperative care as either very good or excellent (Table 6.15). More than 60 percent of women rated the care as either very good or excellent in Gujarat (79 percent), Karnataka (72 percent), Mizoram (72 percent), Goa (66 percent), Maharashtra (66 percent), Tripura (64 percent), Tamil Nadu (63 percent) and Manipur (61 percent).

Ratings of the quality of follow-up home care received after the operation are similar to ratings given to the care during and just after the operation. Only 4 percent thought the follow-up care was not so good or very bad. Not only was the extent of follow-up services very high

Table 6.14 Follow-up from a health worker

Percentage of currently married women age 13-49 currently using the pill, IUD or sterilization who had a follow-up visit from a health worker, by place of visit and state, India, 1992-93

State	Follow-up at home			Follow-up outside home			Follow-up of any type		
	Pill	IUD	Steril- ization	Pill	IUD	Steril- ization	Pill	IUD	Steril- ization
India	15.0	14.7	30.1	48.5	60.4	43.4	54.6	65.3	61.9
North									
Delhi	3.1	1.9	10.8	51.0	67.2	60.3	53.1	68.3	66.1
Haryana	(15.6)	3.9	44.5	(52.2)	59.0	50.5	(58.9)	61.2	81.1
Himachal Pradesh	*	2.1	34.4	*	65.7	50.8	*	67.8	72.5
Jammu Region of J & K	(--)	3.1	12.9	(43.2)	66.7	69.4	(43.2)	68.4	76.6
Punjab	3.2	4.4	35.0	38.7	71.3	53.1	40.3	73.5	75.4
Rajasthan	(24.0)	22.2	24.3	(44.0)	54.0	41.4	(48.0)	61.9	53.8
Central									
Madhya Pradesh	(25.3)	16.9	32.0	(69.3)	71.8	42.3	(79.5)	77.1	60.0
Uttar Pradesh	21.6	5.8	28.4	45.0	56.9	36.5	57.0	59.3	53.8
East									
Bihar	3.0	(8.6)	16.8	31.3	(49.6)	37.2	31.9	(55.8)	48.1
Orissa	(11.5)	25.3	52.7	(29.4)	58.9	36.1	(32.7)	72.1	71.8
West Bengal	7.2	(13.2)	17.8	49.8	(49.4)	50.3	53.2	(55.2)	60.?
Northeast									
Arunachal Pradesh	(7.4)	(5.3)	4.5	(74.1)	(63.2)	67.4	(74.1)	(65.8)	70.8
Assam	9.5	(1.3)	11.3	40.5	(58.3)	57.2	44.1	(59.6)	64.0
Manipur	*	--	4.9	*	45.0	53.7	*	45.0	53.7
Meghalaya	*	*	6.0	*	*	67.0	*	*	67.0
Mizoram	*	(17.4)	10.4	*	(78.3)	18.8	*	(82.6)	25.7
Nagaland	*	*	12.1	*	*	56.1	*	*	56.1
Tripura	1.6	*	7.8	50.0	*	66.1	51.6	*	69.3
West									
Goa	*	21.5	22.2	*	65.8	73.5	*	77.2	79.5
Gujarat	(37.8)	13.8	38.9	(35.1)	53.2	32.9	(54.1)	56.0	63.7
Maharashtra	32.7	17.7	20.1	78.8	79.2	45.5	78.8	81.3	57.9
South									
Andhra Pradesh	*	*	37.6	*	*	50.8	*	*	71.4
Karnataka	*	33.8	53.7	*	59.2	46.7	*	66.2	75.5
Kerala	*	28.7	17.9	*	35.2	31.5	*	51.9	43.6
Tamil Nadu	*	13.2	32.2	*	50.4	40.3	*	57.4	63.0

( ) Based on 25-49 unweighted cases
* Percentage not shown; based on fewer than 25 unweighted cases
-- Less than 0.05 percent

in Karnataka, but a large majority of women in that state (70 percent) also rated the services as very good or excellent. In Orissa, on the other hand, where the extent of follow-up visits was also relatively good, the majority of women (55 percent) rated the service as "alright". In Gujarat and Maharashtra, where the extent of follow-up care was relatively low, a large majority of women rated the services as very good or excellent.

Table 6.15 Quality of care during sterilization and follow-up after sterilization

Percent distribution of sterilization acceptors by reported quality of care during sterilization and at the time of follow-up visit by state, India, 1992-93

State	Care during sterilization							Follow-up care[1]						
	Excel-lent	Very good	Al-right	Not so good	Very bad	DK/ missing	Total percent	Excel-lent	Very good	Al-right	Not so good	Very bad	DK/ missing	Total percent
India	10.0	42.6	39.2	5.6	1.5	1.1	100.0	8.5	47.6	40.0	3.2	0.5	0.3	100.0
North														
Delhi	16.4	35.5	41.2	3.6	1.2	2.2	100.0	15.7	42.2	39.8	2.4	--	--	100.0
Haryana	3.7	40.6	44.6	7.1	0.4	3.5	100.0	2.8	40.0	53.3	3.9	--	--	100.0
Himachal Pradesh	3.9	30.5	58.7	4.8	1.5	0.7	100.0	6.2	37.2	53.8	1.9	0.6	0.3	100.0
Jammu Region of J & K	4.6	26.1	57.5	7.8	1.3	2.7	100.0	6.5	23.9	66.6	1.7	1.2	--	100.0
Punjab	8.8	30.5	54.4	4.6	0.5	1.2	100.0	7.9	43.0	46.8	2.3	--	--	100.0
Rajasthan	13.3	20.1	52.3	7.4	3.6	3.3	100.0	15.0	25.3	54.1	3.8	0.9	0.9	100.0
Central														
Madhya Pradesh	7.5	29.3	50.1	9.1	3.0	1.1	100.0	7.0	35.6	52.0	4.4	0.8	0.1	100.0
Uttar Pradesh	11.0	37.2	40.5	6.9	2.8	1.6	100.0	14.7	44.9	34.8	3.5	1.0	1.0	100.0
East														
Bihar	4.2	35.9	51.2	7.0	0.8	0.8	100.0	1.5	34.9	57.8	4.6	--	1.3	100.0
Orissa	3.2	30.7	53.7	8.7	1.1	2.6	100.0	3.4	30.4	55.1	9.7	0.9	0.6	100.0
West Bengal	7.6	39.3	40.7	9.5	2.7	0.2	100.0	7.5	47.6	41.1	2.7	1.0	--	100.0
Northeast														
Arunachal Pradesh	4.5	49.4	34.8	9.0	1.1	1.1	100.0	*	*	*	*	*	*	100.0
Assam	2.2	48.7	38.4	5.6	0.6	4.5	100.0	(3.8)	(57.6)	(32.4)	(6.2)	(--)	(--)	100.0
Manipur	1.6	59.3	25.2	9.8	4.1	--	100.0	*	*	*	*	*	*	100.0
Meghalaya	13.0	18.0	60.0	6.0	1.0	2.0	100.0	*	*	*	*	*	*	100.0
Mizoram	22.0	49.5	19.3	8.2	1.0	--	100.0	(23.8)	(45.2)	(26.2)	(4.8)	(--)	(--)	100.0
Nagaland	21.2	13.6	48.5	16.7	--	--	100.0	*	*	*	*	*	*	100.0
Tripura	4.2	59.9	26.0	6.8	--	3.1	100.0	*	*	*	*	*	*	100.0
West														
Goa	10.6	55.8	29.0	3.1	0.9	0.6	100.0	6.6	49.7	38.1	4.6	1.0	--	100.0
Gujarat	8.1	70.4	18.0	2.4	0.5	0.6	100.0	7.6	69.1	22.4	0.9	--	--	100.0
Maharashtra	18.1	47.4	29.4	3.3	1.0	0.7	100.0	10.7	56.5	28.8	2.8	0.6	0.6	100.0
South														
Andhra Pradesh	8.8	41.2	44.1	4.6	1.1	0.3	100.0	8.1	45.0	44.7	1.9	0.3	--	100.0
Karnataka	13.9	58.1	23.6	3.2	0.6	0.6	100.0	10.0	59.6	27.6	2.6	0.2	--	100.0
Kerala	4.9	43.2	45.2	3.8	1.0	1.9	100.0	6.4	37.5	48.8	5.2	1.7	0.3	100.0
Tamil Nadu	12.2	51.0	29.5	5.2	1.4	0.8	100.0	9.7	55.3	33.5	1.3	0.2	--	100.0

DK: Don't know
( ) Based on 25-49 unweighted cases
 * Percentage not shown; based on 25-49 unweighted cases
-- Less than 0.05 percent
[1]For those receiving follow-up home care from a health worker

Duration of Contraceptive Use

In the NFHS, the duration of continuous use of a method was ascertained from each current user of family planning. Table 6.16 shows that the mean duration of continuous use of any method of family planning is 77 months, or 6.4 years. On average, female sterilizations took place 7 years before the time of the survey and male sterilizations were performed nearly 13 years before the survey. Among the modern temporary methods, the mean duration of use is tne highest for condoms (28 months), followed by the IUD (23 months). The shortest mean duration of use for any method is for the pill (17 months). The duration of use for each method increases with the current age of the woman.

Table 6.16 Mean duration of use of contraceptive methods

Mean duration of use of contraceptive methods in months, by woman's age, India, 1992-93

Woman's current age	Any method	Any modern method	Any modern temporary method	Pill	IUD	Injec- tion	Condom	Female steril- ization	Male steril- ization	Periodic absti- nence	With- drawal
15-19	6.7	8.8	5.1	7.8	(5.8)	*	6.0	10.0	*	5.3	1.7
20-24	17.3	19.4	9.2	9.1	11.8	*	9.2	24.9	29.2	9.1	4.7
25-29	36.6	39.3	16.2	15.7	18.7	*	17.3	45.1	60.6	15.2	11.3
30-34	63.1	66.5	29.1	22.3	29.7	*	35.2	70.8	97.1	26.8	25.9
35-39	94.9	100.C	42.8	26.9	39.8	*	53.1	101.6	140.9	44.6	38.5
40-44	130.7	137.4	54.6	(46.4)	45.1	*	70.7	134.3	177.3	51.0	51.4
45-49	166.7	173.0	56.3	*	(62.2)	*	71.3	167.2	202.7	57.4	47.3
Total	76.7	82.7	24.5	17.1	23.4	(23.0)	28.1	86.5	152.9	26.8	21.7

( ) Based on 25-49 unweighted cases
* Mean not shown; based on fewer than 25 unweighted cases

Age at Sterilization

Table 6.17 shows the age and time at which couples obtained a sterilization. A total of 26,051 sterilization operations were reported, of which 42 percent were conducted fewer than 6 years before the survey, another 26 percent were conducted 6-9 years before the survey and the remaining 32 percent were conducted 10 or more years before the survey. Sixty-nine percent of the vasectomy operations (which constitute only 11 percent of total sterilization operations) were performed more than 10 years before the survey. About three-fourths (73 percent) of couples had undergone sterilization before the wife was age 30, and there are only a negligible proportion of cases of sterilization being performed when the wife was age 40 and above. The median age of the woman at the time of sterilization is 27 years. There has been a gradual decline in the median age at sterilization, from 27.3 years among those who underwent the operation 8-9 years ago to 26.3 years among those who were sterilized in the last two years. One cannot assess the trend in the median age at sterilization more than 10 years before the survey because the NFHS only interviewed ever-married women age 13-49. This means that, for the period 10 or more years before the survey, there are no women age 40-49 because these women would have been age 50-59 at the time of survey.

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Table 6.17 Timing of sterilization

Percent distribution of currently married sterilized women and wives of sterilized men by age at the time of sterilization, according to the number of years since the operation, India, 1992-93

Years since operation	Woman's age at the time of operation						Total percent	Number	Median age[1]
	<25	25-29	30-34	35-39	40-44	45-49			
STERILIZED WOMEN									
< 2	38.6	34.8	18.2	6.4	1.5	0.5	100.0	3654	26.3
2-3	39.2	34.5	17.8	6.7	1.6	0.2	100.0	3165	26.2
4-5	37.2	33.8	19.4	6.8	2.7	0.1	100.0	3669	26.4
6-7	35.4	34.0	20.2	8.0	2.3	U	100.0	3497	26.9
8-9	31.1	37.4	20.8	9.8	0.9	U	100.0	2901	27.2
10+	35.0	40.5	20.3	4.2	U	U	100.0	6248	NC
Total	36.1	36.3	19.5	6.6	1.3	0.1	100.0	23136	26.6
WIVES OF STERILIZED MEN									
< 2	33.9	26.2	24.3	9.1	3.5	2.9	100.0	122	27.1
2-3	27.7	34.3	22.4	10.2	4.1	1.3	100.0	124	27.4
4-5	39.6	28.1	15.6	11.4	5.2	--	100.0	205	25.8
6-7	32.9	28.0	25.7	9.5	3.9	U	100.0	222	27.9
8-9	32.5	33.2	21.1	12.1	1.0	U	100.0	221	27.7
10+	38.5	39.9	18.5	3.1	U	U	100.0	2021	NC
Total	37.1	36.8	19.5	5.4	1.1	0.2	100.0	2916	26.7
STERILIZED COUPLES									
< 2	38.5	34.5	18.4	6.4	1.5	0.6	100.0	3776	26.3
2-3	38.8	34.5	17.9	6.8	1.7	0.3	100.0	3289	26.2
4-5	37.3	33.5	19.2	7.0	2.8	0.1	100.0	3873	26.4
6-7	35.3	33.7	20.5	8.1	2.4	U	100.0	3719	27.0
8-9	31.2	37.1	20.8	9.9	0.9	U	100.0	3123	27.3
10+	35.9	40.3	19.9	3.9	U	U	100.0	8269	NC
Total	36.2	36.4	19.5	6.4	1.3	0.1	100.0	26051	26.6

NC: Not calculated due to censoring
U: Not available
-- Less than 0.05 percent
[1]Median ages are calculated only for persons sterilized at less than 40 years of age to avoid problems of censoring.

The median age of women at the time of sterilization varies from a low of 24.5 years in Andhra Pradesh to a high of 29.7 years in Manipur (Table 6.18). The median age at sterilization is relatively high in the larger North Indian states, such as Uttar Pradesh (29.6 years), Bihar (28.1 years) and Rajasthan (27.7 years) where the current use of contraception is also low. The median age at sterilization is relatively low in Maharashtra and the four southern states, and it has registered a decline, particularly in recent years, in Tamil Nadu and Maharashtra.

Methods Used Before Sterilization

The NFHS did not collect information on the sequence of contraceptive methods used in the past, but some information on method switching is provided by the survey data. Table 6.19 shows the extent to which sterilization users have used other temporary methods before accepting

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Table 6.18 Timing of sterilization by state

Median age of currently married sterilized women or wives of sterilized men at the time of sterilization, by number of years since operation and state, India, 1992-93

| State | Years since operation | | | | | |
	<2	2-3	4-5	6-7	8-9	Total
India	26.3	26.2	26.4	27.0	27.3	26.6
North						
Delhi	29.0	27.6	28.4	28.4	27.7	28.2
Haryana	26.3	26.7	27.4	27.0	23.4	27.3
Himachal Pradesh	26.2	26.5	26.9	27.4	26.4	26.9
Jammu Region of J & K	28.4	27.8	28.2	29.8	29.4	28.6
Punjab	27.4	27.1	28.4	28.4	28.5	27.9
Rajasthan	28.3	27.9	27.2	27.1	28.0	27.7
Central						
Madhya Pradesh	28.0	26.9	26.8	27.5	27.5	27.3
Uttar Pradesh	29.3	29.1	30.2	29.7	29.7	29.6
East						
Bihar	28.1	27.5	27.2	28.3	29.3	28.1
Orissa	27.7	27.2	26.4	26.7	27.1	26.8
West Bengal	25.7	25.2	25.8	26.7	26.1	26.0
Northeast						
Arunachal Pradesh	28.3	28.5	29.5	30.5	24.8	28.0
Assam	28.0	26.6	27.1	27.7	28.3	27.1
Manipur	28.3	29.0	30.0	29.7	31.8	29.7
Meghalaya	29.8	31.8	29.0	28.0	27.0	27.9
Mizoram	28.6	29.5	28.3	28.3	28.9	28.8
Nagaland	31.5	33.0	30.5	29.3	26.8	29.3
Tripura	28.3	27.7	26.0	30.6	29.2	28.1
West						
Goa	28.7	29.3	29.3	28.8	29.4	28.5
Gujarat	27.8	27.7	27.2	27.7	27.6	27.5
Maharashtra	24.7	25.6	24.9	26.5	26.0	25.6
South						
Andhra Pradesh	24.3	23.8	24.2	24.3	25.7	24.5
Karnataka	24.9	25.0	24.6	24.9	25.9	25.2
Kerala	26.6	26.1	27.0	26.8	27.5	26.5
Tamil Nadu	25.0	26.2	26.4	26.4	27.4	26.2

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 40 years of age to avoid problems of censoring.

the terminal method. For India as a whole, 82 percent of sterilization users never used any other method of contraception before sterilization. Seven percent used periodic abstinence previously, 6 percent used condoms and 4 percent each used the pill, the IUD or withdrawal. Two-thirds of sterilized couples in Tripura used some temporary method, especially the traditional methods, before accepting sterilization. The extent of prior use of temporary methods before sterilization is also substantial in Assam (54 percent), Delhi (50 percent), West Bengal (43 percent) and Kerala (39 percent). In Delhi, more of the couples used modern temporary methods (particularly condoms) prior to the sterilization, but couples in the other three states relied more on the use of traditional methods. In Andhra Pradesh, Bihar, Rajasthan, Uttar Pradesh and Orissa, very few of the sterilized couples (less than 12 percent) had any prior experience with contraceptive use.

Table 6.19 Methods used before sterilization

Percentage of sterilized persons who used specific contraceptive methods before the sterilization, by state, India, 1992-93

State	Method used before sterilization							
	None	Pill	IUD	Injec-tion	Condom	Periodic absti-nence	With-drawal	Other
India	81.9	4.2	4.3	0.2	5.5	7.2	3.8	0.6
North								
Delhi	49.7	10.1	17.8	0.5	30.0	11.0	7.0	2.7
Haryana	76.7	3.7	5.0	0.2	9.9	9.0	7.2	0.9
Himachal Pradesh	67.6	4.5	8.2	0.4	13.0	12.6	7.4	1.6
Jammu Region of J & K	64.7	8.1	5.8	--	15.1	12.7	11.2	0.4
Punjab	73.1	3.7	7.1	0.3	9.6	8.4	5.1	0.4
Rajasthan	91.3	2.5	2.2	0.4	2.5	2.0	1.9	0.1
Central								
Madhya Pradesh	86.7	3.6	2.4	0.3	6.4	3.4	0.9	0.2
Uttar Pradesh	88.9	3.5	3.5	0.1	3.7	3.1	1.0	0.5
East								
Bihar	91.6	2.3	0.8	--	2.9	2.5	1.0	0.2
Orissa	88.2	3.4	3.9	--	1.9	4.3	0.8	0.8
West Bengal	57.3	10.9	2.2	0.6	7.1	27.8	15.9	1.4
Northeast								
Arunachal Pradesh	62.9	19.1	13.5	1.1	5.6	10.1	3.4	1.1
Assam	46.2	13.8	5.8	0.4	5.8	37.2	17.6	2.5
Manipur	70.7	2.4	9.8	--	2.4	17.1	--	2.4
Meghalaya	77.0	10.0	5.0	--	2.0	4.0	2.0	4.0
Mizoram	85.4	5.7	6.7	0.2	0.7	1.7	1.5	--
Nagaland	86.4	7.6	4.5	7.6	7.6	3.0	4.5	--
Tripura	33.3	22.9	4.7	--	7.3	39.1	24.0	1.6
West								
Goa	84.4	3.3	4.7	--	5.3	5.6	3.1	0.7
Gujarat	86.0	2.5	4.1	0.1	4.0	5.6	1.3	0.2
Maharashtra	86.9	4.7	5.2	0.1	5.6	2.5	0.5	--
South								
Andhra Pradesh	93.0	2.3	2.0	0.3	2.1	1.1	0.2	0.3
Karnataka	83.1	3.2	7.5	0.2	3.4	5.9	0.6	1.1
Kerala	60.6	4.8	8.6	0.2	14.9	18.1	16.4	0.5
Tamil Nadu	81.3	3.1	5.6	0.2	5.1	6.7	4.9	0.8

Note: Percentages may add to more than 100.0 because all prior methods are included
-- Less than 0.05 percent

6.3 Source of Supply of Contraception

Family planning methods and services in India are provided through a network of government hospitals and urban family welfare centres in urban areas and Primary Health. Centres and sub-centres in rural areas. Besides these government outlets, family planning services are also provided by a few private hospitals and clinics as well as by nongovernmental organizations. Sterilization operations and IUD insertions are carried out mostly in government hospitals and Primary Health Centres. Sterilization camps, organized from time to time, also provide sterilization services. Modern spacing methods such as the IUD, the pill and condoms are available through both the government and private sectors.

In order to assess the relative importance of various sources of contraceptive methods, the NFHS included a question about where current users of contraception obtained their methods. Overall, the public sector, consisting of government/municipal hospitals, Primary Health Centres and other governmental health infrastructure, provide services to 79 percent of the current users of all modern methods, while the private medical sector, including private hospitals and clinics, private doctors, and pharmacies/drugstores serve 15 percent of current users (Table 6.20 and Figure 6.5). Only 6 percent of users obtain their methods from other sources, such as shops, friends or relatives.

The mix of public and private sector sources varies substantially according to the method used. For clinical methods (sterilizations and the IUD), the government is by far the major source of supply - 93 percent of male sterilizations, 86 percent of female sterilizations and 63 percent of IUD insertions were done at a government source. The pill is obtained from both the government sector (31 percent) and the private medical sector (42 percent). More than one-quarter of pill users obtain the pill from shops, friends and relatives. One-fifth of condom users obtain their supplies from the private medical sector, and another 65 percent of condom users obtain their supplies from other sources, such as shops, friends or relatives.

With regard to specific sources of contraception, Primary Health Centres and government/municipal hospitals (the main institutions that provide contraceptive services) are the most important sources. Seventy-seven percent of female sterilization acceptors, 81 percent of male sterilization acceptors, 56 percent of IUD users, and 21 percent of pill users are served by

Table 6.20   Source of supply of modern contraceptive methods

Percent distribution of current users of modern contraceptive methods by most recent source of supply, according to specific method and residence, India, 1992-93

Source of supply	Pill	Copper T/ IUD	In- jec- tion	Con- dom	Female steril- ization	Male steril- ization	All modern methods
URBAN							
Public sector	17.3	52.2	*	7.8	74.6	86.1	62.4
Government/municipal hospital	11.3	44.3	*	5.0	62.5	66.6	51.6
Primary Health Centre	4.1	5.0	*	1.6	7.0	8.7	6.1
Sub-centre	0.3	0.4	*	0.4	0.2	--	0.2
Family planning clinic	0.3	0.8	*	0.3	0.7	2.5	0.8
Public mobile clinic	0.1	0.2	*	0.2	0.1	0.4	0.1
Camp	--	--	*	--	3.6	7.8	3.0
Government paramedic	0.9	0.5	*	0.1	--	--	0.1
Other	0.3	1.1	*	0.2	0.5	0.2	0.5
Private medical sector	49.9	46.1	*	21.8	24.9	9.8	26.3
Private hospital or clinic	5.0	32.8	*	0.8	22.8	7.3	19.0
Pharmacy/drugstore	35.6	--	*	19.4	--	--	4.0
Private doctor	8.8	13.2	*	1.5	2.0	2.4	3.2
Other	0.5	--	*	0.2	0.1	--	0.1
Other source	32.8	1.7	*	70.3	0.6	4.1	11.2
Shop	30.3	--	*	46.3	--	--	7.2
Husband	--	--	*	19.7	--	--	2.5
Friend/relative	1.9	--	*	0.8	--	--	0.2
Other	0.6	1.7	*	3.5	0.6	4.1	1.3
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	425	865	5	1280	6702	715	9992

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Table 6.20 Source of supply of modern contraceptive methods (Contd.)

Percent distribution of current users of modern contraceptive methods by most recent source of supply, according to specific method and residence, India, 1992-93

Source of supply	Pill	Copper T/ IUD	Injec- tion	Con- dom	Female steril- ization	Male steril- ization	All modern methods
RURAL							
Public sector	41.0	74.9	*	27.4	90.8	95.7	87.0
Government/municipal hospital	8.0	31.5	*	7.9	54.2	47.2	49.6
Primary Health Centre	16.3	32.1	*	11.7	26.5	36.2	26.9
Sub-centre	11.5	8.0	*	6.6	0.7	1.5	1.6
Family planning clinic	0.9	0.7	*	0.2	0.7	0.7	0.7
Public mobile clinic	0.2	0.2	*	0.1	0.4	0.5	0.4
Camp	--	--	*	--	8.2	9.5	7.5
Government paramedic	3.5	2.3	*	0.9	--	--	0.2
Other	0.5	0.1	*	--	0.1	0.1	0.1
Private medical sector	35.5	23.6	*	17.8	8.6	2.6	9.6
Private hospital or clinic	1.6	13.0	*	0.9	7.7	2.0	6.9
Pharmacy/drugstore	26.6	--	*	13.8	--	--	1.3
Private doctor	5.0	10.3	*	1.5	0.8	0.5	1.3
Other	2.4	0.4	*	1.6	0.1	0.1	0.2
Other source	23.5	1.4	*	54.8	0.6	1.7	3.4
Shop	19.9	--	*	26.8	--	--	1.6
Husband	--	--	*	23.6	--	--	0.9
Friend/relative	3.1	--	*	0.9	--	--	0.1
Other	0.6	1.4	*	3.5	0.6	1.7	0.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	588	725	28	775	16434	2201	20750
TOTAL							
Public sector	31.0	62.6	(54.8)	15.2	86.1	93.4	79.0
Government/municipal hospital	9.3	38.4	(31.8)	6.1	56.6	52.0	50.2
Primary Health Centre	11.2	17.4	(17.8)	5.5	20.8	29.4	20.1
Sub-centre	6.8	3.9	(0.7)	2.7	0.6	1.1	1.1
Family planning clinic	0.7	0.7	(--)	0.2	0.7	1.2	0.7
Public mobile clinic	0.1	0.2	(4.5)	0.2	0.3	0.5	0.3
Camp	--	--	(--)	--	6.9	9.1	6.0
Government paramedic	2.4	1.3	(--)	0.4	--	--	0.2
Other	0.4	0.6	(--)	0.1	0.2	0.1	0.2
Private medical sector	41.5	35.8	(45.2)	20.3	13.3	4.3	15.0
Private hospital or clinic	3.0	23.8	(14.5)	0.8	12.1	3.3	10.8
Pharmacy/drugstore	30.4	--	(--)	17.3	--	--	2.2
Private doctor	6.6	11.9	(25.6)	1.5	1.1	1.0	1.9
Other	1.6	0.2	(5.1)	0.7	0.1	0.1	0.2
Other source	27.4	1.6	(--)	64.5	0.6	2.3	6.0
Shop	24.3	--	(--)	38.9	--	--	3.4
Husband	--	--	(--)	21.2	--	--	1.4
Friend/relative	2.6	--	(--)	0.9	--	--	0.1
Other	0.6	1.6	(--)	3.5	0.6	2.3	1.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	1013	1589	33	2055	23136	2916	30741

( ) Based on 25-49 unweighted cases
* Percent not shown; based on fewer than 25 unweighted cases
-- Less than 0.05 percent

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Figure 6.5
Sources of Family Planning Among Current
Users of Modern Contraceptive Methods

Private Medical Sector 15%

Other Source 6%

Government 79%
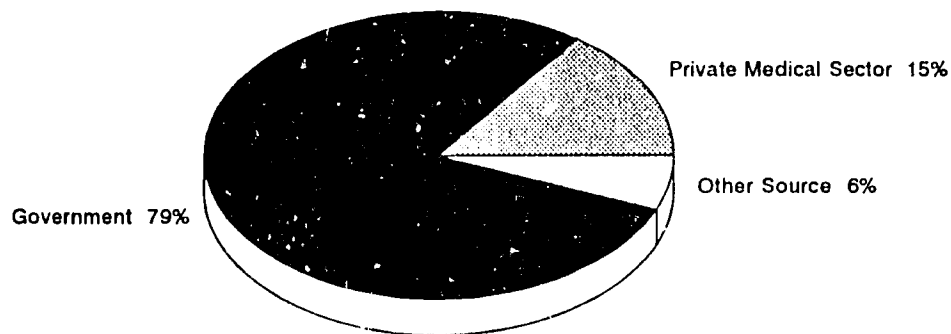
NFHS, India, 1992-93

these institutions. Private shops are major sources for condoms (39 percent of condom users), and they also are the sources for 24 percent of pill users. Pharmacies and drugstores serve 30 percent of pill users. Twenty-four percent of IUD insertions are done at private hospitals or clinics and 12 percent by private doctors. Seven percent of female sterilizations and 9 percent of male sterilizations were done in sterilization camps.

Urban and rural areas differ regarding the sources of contraceptive methods. In rural areas, the public sector is the source of supply for 87 percent of users, while in urban areas, the public sector is the source of supply for only 62 percent of all users. In urban areas, private medical sources provide contraception to 26 percent of users and other nonmedical sources to 11 percent of them; together, they supply 25 percent of female sterilizations, 48 percent of the IUD users, and 83 percent of the pill users. As expected, other (non-medical) sources provided condoms for a sizeable percentage of users (70 percent) in urban areas. Thus while government sources are important in urban as well as rural areas, their importance is particularly great in rural areas. In rural areas, the predominance of the public sector is particularly evident in the case of female and male sterilizations (91 and 96 percent, respectively).

Interstate variations in the extent to which the public sector supplies contraceptive services are shown in Table 6.21. The public sector is the major source for sterilization in both urban and rural areas (particularly the latter) in all the states. In general, sterilization acceptors in the northern, central and eastern states rely more on the public sector for the services than

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Table 6.21 Public sector as source of modern contraceptives

Percentage of current users of modern contraceptive methods who reported the public sector as the source of supply, according to specific method, residence and state, India, 1992-93

State	Pill	Copper T/ IUD	Con- dom	Female steril- ization	Male steril- ization	All modern methods
			URBAN			
India	17.3	52.2	7.8	74.6	86.1	62.4
North						
Delhi	21.7	56.5	7.6	75.4	87.5	45.2
Haryana	*	57.7	14.7	91.6	(97.9)	65.8
Himachal Pradesh	*	83.5	14.2	96.9	98.8	75.2
Jammu Region of J & K	*	69.8	6.8	91.1	(95.6)	62.8
Punjab	*	69.4	9.6	89.1	*	62.7
Rajasthan	*	(80.0)	12.0	96.5	(100.0)	85.6
Central						
Madhya Pradesh	*	73.2	9.2	89.7	90.8	74.9
Uttar Pradesh	(26.2)	49.2	4.4	86.7	93.0	55.2
East						
Bihar	(8.0)	*	4.0	67.7	(66.0)	55.0
Orissa	(22.2)	(85.7)	*	88.0	(81.8)	79.7
West Bengal	(5.0)	*	(6.0)	77.2	*	57.9
Northeast						
Arunachal Pradesh	*	*	*	*	*	(72.2)
Assam	(2.6)	*	12.7	74.5	*	55.8
Manipur	*	(80.0)	*	(93.8)	*	. 80.4
Meghalaya	*	*	*	(64.9)	*	58.5
Mizoram	*	*	*	94.1	*	87.4
Nagaland	*	*	*	(84.6)	*	(68.9)
Tripura	*	*	*	(93.6)	*	69.6
West						
Goa	*	(43.2)	11.5	76.7	*	62.7
Gujarat	*	44.9	(4.3)	72.6	(85.7)	63.6
Maharashtra	(13.9)	38.9	8.6	62.7	(90.9)	55.2
South						
Andhra Pradesh	*	*	*	62.9	78.9	61.8
Karnataka	*	52.9	(10.3)	75.2	*	68.9
Kerala	*	(65.4)	(13.6)	75.6	86.2	72.1
Tamil Nadu	*	41.0	(2.6)	72.4	*	63.3

those in the western and southern states. In Himachal Pradesh, Jammu, Punjab, Rajasthan, Orissa, Tripura and Haryana, more than 95 percent of sterilized women reported having obtained their services from the public sector, whereas in Andhra Pradesh, Kerala, Maharashtra and Gujarat, 77-80 percent of sterilized women received the services from the public sector. For the modern temporary methods, the utilization of public sector services is relatively low, but there are interstate variations. Ninety-two percent of IUD insertions in Orissa were done in the public sector, whereas this sector provided services to only 48 percent of the IUD users in Maharashtra and Tamil Nadu.

Table 6.21 Public sector as source of modern contraceptives (Contd.)

Percentage of current users of modern contraceptive methods who reported the public sector as the source of supply, according to specific method, residence and state, India, 1992-93

	Pill	Copper T/ IUD	Con- dom	Female steril- ization	Male steril- ization	All modern methods
		RURAL				
India	41.0	74.9	27.4	90.8	95.7	87.0
North						
Delhi	*	*	8.6	(87.0)	*	4&.2
Haryana	*	(76.2)	(22.5)	96.3	98.9	90.1
Himachal Pradesh	*	(84.6)	42.9	98.6	95.8	92.5
Jammu Region of J & K	*	(87.9)	9.2	98.2	100.0	86.2
Punjab	(39.6)	78.2	19.9	98.8	(100.0)	83.1
Rajasthan	*	(81.6)	*	97.1	96.5	95.1
Central						
Madhya Pradesh	(54.1)	*	61.7	96.4	98.4	94.9
Uttar Pradesh	55.5	(72.3)	20.8	95.4	96.6	83.6
East						
Bihar	(17.1)	*	(15.6)	91.2	(92.0)	83.7
Orissa	*	(94.4)	*	98.4	96.9	96.8
West Bengal	23.8	(90.0)	(17.6)	95.0	96.8	87.5
Northeast						
Arunachal Pradesh	*	(96.8)	*	92.6	*	89.6
Assam	(26.1)	*	*	89.8	(90.7)	76.2
Manipur	*	(76.0)	*	93.8	*	83.7
Meghalaya	*	*	*	78.9	*	73.5
Mizoram	*	(92.3)	*	95.0	*	94.0
Nagaland	*	*	*	(82.1)	*	71.6
Tripura	(15.6)	*	*	98.3	*	77.4
West						
Goa	*	(65.7)	(41.7)	85.3	*	80.7
Gujarat	*	(67.5)	*	84.1	89.7	82.3
Maharashtra	*	*	(57.7)	86.7	99.0	87.8
South						
Andhra Pradesh	*	*	*	84.7	92.0	85.6
Karnataka	*	72.6	*	92.4	(97.9)	90.9
Kerala	*	78.0	23.6	77.3	91.9	76.0
Tamil Nadu	*	58.8	*	88.7	92.5	85.8

6.4   Reasons for Discontinuation

All currently married women who had ever used contraception but who were not using any method at the time of the survey and were not currently pregnant were asked why they had discontinued their use of contraception. Their responses to this question are presented in Table 6.22. Apart from "other" reasons such as the onset of menopause or the absence of the husband (mentioned by 31 percent), the most commonly mentioned reasons for discontinuing a method are the desire to have a child (28 percent of discontinuers) and health problems (15 percent). Another 7 percent of the discontinuers reported that they discontinued the use because the method created menstrual problems. Method failure was the reason for discontinuation for 5 percent of the women. With a little motivation and improvement in services, these women may be successfully brought under the programme again.

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Table 6.21 Public sector as source of modern contraceptives (Contd.)

Percentage of current users of modern contraceptive methods who reported the public sector as the source of supply, according to specific method, residence and state, India, 1992-93

State	Pill	Copper T/ IUD	Con- dom	Female steril- ization	Male steril- ization	All modern methods
TOTAL						
India	31.0	62.6	15.2	86.1	93.4	79.0
North						
Delhi	21.9	56.0	7.7	76.2	86.9	45.2
Haryana	(43.3)	67.9	17.2	95.3	98.6	83.1
Himachal Pradesh	*	84.3	35.3	98.4	96.0	90.6
Jammu Region of J & K	(40.0)	79.9	8.3	97.1	99.1	81.1
Punjab	30.6	75.1	15.2	96.5	98.6	77.1
Rajasthan	(48.0)	81.0	28.4	97.0	97.5	92.3
Central						
Madhya Pradesh	(40.2)	76.6	25.9	94.7	96.9	89.2
Uttar Pradesh	46.7	58.6	11.8	93.4	95.4	74.5
East						
Bihar	14.3	(30.6)	9.7	85.8	82.8	76.1
Orissa	(42.8)	91.6	(22.9)	96.5	94.1	93.4
West Bengal	16.2	(82.3)	10.3	90.7	93.9	79.6
Northeast						
Arunachal Pradesh	(66.7)	(97.4)	*	90.7	*	85.7
Assam	22.2	(89.4)	16.6	86.6	90.8	72.0
Manipur	*	78.3	*	93.8	(100.0)	82.3
Meghalaya	*	*	*	73.4	*	68.2
Mizoram	*	(80.4)	*	94.5	*	90.6
Nagaland	*	*	*	83.1	*	70.7
Tripura	15.6	*	*	97.0	*	75.3
West						
Goa	*	53.2	21.1	81.5	(82.8)	72.0
Gujarat	(43.2)	53.2	6.2	80.4	88.4	75.5
Maharashtra	36.5	47.9	21.9	77.7	97.4	74.8
South						
Andhra Pradesh	*	*	(31.0)	78.0	88.3	78.1
Karnataka	*	62.3	(14.6)	86.9	95.1	83.4
Kerala	*	75.0	19.8	76.8	90.0	74.9
Tamil Nadu	*	48.1	5.3	83.6	91.5	78.0

Note: Public sector includes government/municipal hospital, Primary Health Centre, sub-centre, family planning clinic, public mobile clinic, camp and government paramedic.
( ) Based on 25-49 unweighted cases
* Percentage not shown; based on fewer than 25 unweighted cases
-- Less than 0.05 percent

6.5 Intention to Use Family Planning in the Future

In the NFHS, all currently married women who were not using contraception at the time of the interview (including those who were currently pregnant) were asked about their future intentions regarding the use of family planning and their method preference if they intended to use contraception. This type of information can assist family planning programme administrators in identifying potential groups of users and in providing the types of contraception that are likely

Table 6.22 Reasons for discontinuation

Percent distribu·'on of nonpregnant, currently married ever users who are not currently usi ₁ a contraceptive method by main reason for stopping use and residence, India, 1992-93

Reason for stopping use	Urban	Rural	Total
Method failed/got pregnant	3.4	6.4	5.3
Lack of sexual satisfaction	1.4	2.1	1.8
Created menstrual problem	7.6	6.0	6.6
Created health problem	20.2	11.6	14.6
Inconvenient to use	3.6	2.2	2.7
Hard to get method	0.7	1.2	1.0
Put on weight	0.6	0.3	0.4
Did not like the method	3.8	4.1	4.0
Wanted to have a child	24.7	30.3	28.4
Wanted to replace dead child	0.2	0.7	0.5
Lack of privacy for use	2.2	1.0	1.4
Other	29.1	32.0	31.0
Don't know/missing	2.6	2.1	2.3
Total percent	100.0	100.0	100.0
Number	1462	2718	4180

to be in demand. Responses to the questions on future use according to past use, place of residence, and number of living children are given in Table 6.23.

Overall, 58 percent of currently married nonusers reported that they do not intend to use contraception in the future. Twenty-nine percent said that they would use in the future, and another 13 percent were unsure of their intentions. The high proportion of women who do not intend to use family planning suggests that it will be difficult for the family planning programme to succeed without a strong Information, Education and Communication (IEC) component to motivate couples to use contraception.

Among those intending to use family planning, 48 percent said they would use contraception within the next 12 months, almost an equal proportion said they would use it at a later stage, and 5 percent were unsure when they would start using contraception. Among women who have never used contraceptive methods before, the majority (60 percent) reported that they do not intend to use them in the future, and 14 percent were not sure of their intentions. In contrast, 55 percent of the smaller number of women who have used contraception in the past, but are not currently using, intend to use contraception again in the future; another 7 percent are not sure of their intentions.

The proportion of women who intend to use family planning in the future increases gradually with each additional living child up to two, then declines slightly among women with three or more children. For instance, whereas only 15 percent of women with no living children expressed an intention to use contraceptives in the future, this percentage reaches 36 for those with two living children and then declines to 27 percent of women with four or more living children. This drop-off in the percentage intending to use family planing among women with four or more children may reflect their relatively advanced ages and consequent infecundability.

Table 6.23 Future use

Percent distribution of currently married women who are currently not using any contraceptive method by intention to use in the future, according to number of living children, residence and whether ever used contraception, India, 1992-93

Past use/ intention to use in future	Number of living children[1]					
	0	1	2	3	4+	Total
URBAN						
Never used contraception						
Intends to use in next 12 months	2.2	11.9	13.9	16.1	14.6	11.8
Intends to use later	13.4	16.9	12.8	10.5	3.5	11.7
Intends to use, unsure when	0.4	1.0	1.7	0.6	1.0	1.0
Unsure as to intention	15.0	9.3	6.9	7.7	8.0	9.3
Does not intend to use	64.0	47.3	38.3	42.1	53.8	48.7
Missing	0.2	0.6	0.3	0.1	0.5	0.4
Previously used contraception						
Intends to use in next 12 months	0.1	3.2	9.1	8.1	6.0	5.3
Intends to use later	1.6	4.2	4.7	2.7	1.2	3.0
Intends to use, unsure when	0.2	0.2	0.8	0.4	0.3	0.4
Unsure as to intention	0.9	1.0	1.5	1.6	1.3	1.2
Does not intend to use	2.0	4.2	9.9	10.1	9.8	7.1
Missing	--	0.1	0.2	0.1	0.1	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
All currently married nonusers						
Intends to use in next 12 months	2.3	15.2	23.0	24.2	20.6	17.1
Intends to use later	15.0	21.1	17.5	13.2	4.7	14.7
Intends to use, unsure when	0.7	1.2	2.6	1.0	1.3	1.4
Unsure as to intention	15.9	10.3	8.3	9.4	9.3	10.5
Does not intend to use	65.9	51.5	48.2	52.1	63.6	55.8
Missing	0.2	0.7	0.5	0.1	0.6	0.5
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	1858	2757	2456	1501	2239	10812
RURAL						
Never used contraception						
Intends to use in next 12 months	1.6	6.7	10.4	14.6	15.3	10.0
Intends to use later	11.2	17.7	14.8	9.6	5.0	11.5
Intends to use, unsure when	0.4	0.9	1.4	1.4	0.9	1.0
Unsure as to intention	17.9	13.6	10.6	12.0	11.8	13.0
Does not intend to use	66.2	54.1	51.1	51.3	55.1	55.3
Missing	0.2	0.1	0.2	0.2	0.3	0.2
Previously used contraception						
Intends to use in next 12 months	0.2	1.8	3.8	4.5	4.5	3.0
Intends to use later	0.8	2.2	2.7	1.9	0.9	1.7
Intends to use, unsure when	--	0.2	0.6	0.5	0.4	0.3
Unsure as to intention	0.3	0.5	0.9	0.6	0.8	0.7
Does not intend to use	1.2	2.0	3.6	3.4	4.9	3.2
Missing	--	--	--	0.1	0.1	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
All currently married nonusers						
Intends to use in next 12 months	1.8	8.5	14.2	19.1	19.8	13.1
Intends to use later	12.0	19.9	17.4	11.4	5.9	13.1
Intends to use, unsure when	0.4	1.2	1.9	1.8	1.3	1.3
Unsure as to intention	18.2	14.2	11.4	12.6	12.7	13.7
Does not intend to use	67.3	56.1	54.7	54.7	59.9	58.5
Missing	0.2	0.1	0.2	0.3	0.5	0.3
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	6584	8868	7676	6054	10321	39502

Table 6.23 Future use (Contd.)

Percent distribution of currently married women who are currently not using any contraceptive method by intention to use in the future, according to number of living children, residence and whether ever used contraception, India, 1992-93

Past use/ intention to use in future	Number of living children[1]					
	0	1	2	3	4+	Total
TOTAL						
Never used contraception						
Intends to use in next 12 months	1.7	8.0	11.3	14.9	15.2	10.4
Intends to use later	11.7	17.5	14.3	9.8	4.7	11.5
Intends to use, unsure when	0.4	0.9	1.5	1.2	0.9	1.0
Unsure as to intention	17.3	12.6	9.7	11.1	11.1	12.2
Does not intend to use	65.7	52.5	48.0	49.5	54.8	53.9
Missing	0.2	0.2	0.2	0.2	0.4	0.3
Previously used contraception						
Intends to use in next 12 months	0.2	2.1	5.1	5.2	4.7	3.5
Intends to use later	1.0	2.7	3.2	2.0	1.0	2.0
Intends to use, unsure when	0.1	0.2	0.6	0.5	0.4	0.4
Unsure as to intention	0.5	0.7	1.0	0.8	0.9	0.8
Does not intend to use	1.4	2.6	5.2	4.8	5.7	4.0
Missing	--	--	0.1	0.1	0.1	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
All currently married nonusers						
Intends to use in next 12 months	1.9	10.1	16.3	20.1	19.9	13.9
Intends to use later	12.6	20.2	17.5	11.8	5.7	13.5
Intends to use, unsure when	0.5	1.2	2.1	1.7	1.3	1.3
Unsure as to intention	17.7	13.3	10.7	11.9	12.1	13.0
Does not intend to use	67.0	55.0	53.1	54.2	60.6	57.9
Missing	0.2	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	8441	11625	10132	7555	12560	50314

-- Less than 0.05 percent
[1] Includes current pregnancy, if any

Intentions to use a contraceptive method in the future do not vary substantially between urban and rural areas.

There are considerable interstate variations in the proportion of women (currently married nonusers) who expressed an intention to use family planning in the future (Table 6.24). In the four large states of Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan only 19-25 percent of the current nonusers intend to use a method in the future. It is worth noting that these are the states where the current use of contraception is also low. On the other hand, in Haryana, Himachal Pradesh, Punjab, Gujarat and Kerala, where the contraceptive prevalence rate is 50 percent or more, a greater proportion of the current nonusers expressed an intention to use contraception in the future.

6.6 Reasons for Nonuse of Contraception

Currently married women who are not using any contraceptive method and who say that they do not intend to use contraception at any time in the future are asked the main reason they

Table 6.24 Future use by state

Percentage of currently married women not currently using contraception who intend to use any time in future, by number of living children, according to state, India, 1992-93

| State | Number of living children[1] | | | | | |
	0	1	2	3	4+	Total
India	15.0	31.5	35.9	33.6	26.9	28.8
North						
Delhi	20.4	41.1	39.7	41.1	42.1	37.4
Haryana	38.1	65.9	68.0	64.1	52.3	58.7
Himachal Pradesh	30.9	56.9	63.0	51.0	40.7	50.0
Jammu Region of J & K	32.3	60.4	61.4	66.5	50.3	54.0
Punjab	23.5	52.7	57.0	49.1	42.9	46.8
Rajasthan	8.6	17.2	26.0	24.9	22.2	19.8
Central						
Madhya Pradesh	11.8	24.6	30.2	32.2	27.5	25.1
Uttar Pradesh	7.1	15.0	20.5	21.9	23.0	18.7
East						
Bihar	11.9	23.4	26.6	28.5	24.9	23.3
Orissa	13.5	28.2	34.0	37.6	29.6	28.8
West Bengal	27.7	55.6	56.3	58.9	37.8	47.1
Northeast						
Arunachal Pradesh	7.9	23.6	29.8	25.0	23.1	23.4
Assam	15.0	39.7	53.8	53.5	47.0	44.4
Manipur	(2.6)	24.0	36.1	41.9	26.6	28.4
Meghalaya	21.4	19.6	20.6	19.8	12.9	17.5
Mizoram	23.8	35.5	36.1	43.7	12.6	30.1
Nagaland	(2.3)	13.6	12.4	9.2	14.6	12.5
Tripura	35.6	58.7	59.6	55.9	43.4	50.9
West						
Goa	27.6	42.0	39.2	31.0	15.5	32.9
Gujarat	31.8	56.3	55.5	40.0	30.5	44.3
Maharashtra	11.1	31.0	38.1	41.6	34.8	31.5
South						
Andhra Pradesh	22.3	32.1	40.9	32.2	24.2	30.5
Karnataka	17.3	37.1	45.3	41.3	21.5	33.0
Kerala	25.5	52.8	51.1	43.1	15.0	41.3
Tamil Nadu	11.9	36.1	39.3	34.1	13.6	28.9

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

do not intend to use a method. Information on reasons for nonuse is crucial for designing successful information programmes and for understanding the obstacles to further increases in contraceptive prevalence. Reasons for not intending to use any method are indicated in Table 6.25. The largest proportion of women (52 percent) say they do not intend to use contraception because they want more children, either in general or because they want a child of a specific sex, particularly a son. Not surprisingly, this reason is more common among women under age 30 (80 percent) than among those 30 or older (19 percent). It is worth noting that this reason for intended nonuse is almost as prevalent among urban women as among rural women. A small proportion (8 percent) of women reported that contraception is either against their religion or that they or their husbands are against the use of family planning. A higher proportion of older women (10 percent) gave these as reasons for not intending to use family planning than younger

Table 6.25 Reasons for nonuse

Percent distribution of currently married women who are not using any contraceptive method and who do not intend to use in the future by main reason for not intending to use, according to age and residence, India, 1992-93

Reason	Urban			Rural			Total		
	Age <30	Age 30+	Total	Age <30	Age 30+	Total	Age <30	Age 30+	Total
Wants children	64.2	13.8	36.9	63.0	12.5	41.4	63.2	12.8	40.5
Wants a son	12.1	4.2	7.8	15.0	5.7	11.0	14.5	5.3	10.4
Wants a daughter	2.0	0.5	1.2	1.8	0.8	1.4	1.8	0.7	1.4
Worry about side effects	1.8	2.5	2.2	1.2	2.4	1.7	1.3	2.4	1.8
Can't work after sterilization	0.5	1.2	0.9	1.1	3.1	1.9	1.0	2.6	1.7
Lack of knowledge	1.8	2.3	2.1	3.8	6.2	4.8	3.5	5.3	4.3
Afraid of sterilization	1.6	2.6	2.2	1.6	4.5	2.9	1.6	4.0	2.7
Hard to get methods	0.2	0.4	0.3	0.1	0.4	0.2	0.2	0.4	0.3
Cost too much	0.3	0.4	0.4	0.4	0.6	0.5	0.4	0.5	0.4
Against religion	3.2	4.3	3.8	2.7	4.4	3.5	2.8	4.4	3.5
Opposed to family planning	0.3	1.3	0.9	0.9	2.0	1.4	0.8	1.9	1.3
Husband opposed	3.2	3.7	3.4	2.5	4.3	3.2	2.6	4.1	3.3
Other people opposed	0.6	0.5	0.6	0.4	0.4	0.4	0.5	0.4	0.4
Difficult to get pregnant	1.7	14.3	8.5	0.8	8.1	3.9	1.0	9.6	4.9
Menopausal/had hysterectomy	0.4	25.3	13.9	0.1	25.7	11.0	0.2	25.6	11.6
Health does not permit	1.5	7.0	4.5	1.1	7.1	3.7	1.2	7.1	3.9
Inconvenient	0.3	2.9	1.7	0.1	0.9	0.5	0.2	1.4	0.7
Doesn't like existing methods	2.2	5.0	3.7	1.8	4.9	3.1	1.8	4.9	3.2
Other	1.8	7.7	5.0	1.4	6.0	3.3	1.4	6.4	3.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	2763	3271	6034	13250	9858	23108	16013	13129	29142

women (6 percent). A significant proportion of older women (26 percent) also reported their actual or perceived sterility as the main reason for not intending to use contraception in the future. Four percent of all the women do not intend to use family planning methods due to a lack of knowledge. Therefore, there is still some scope for the family planning programme to increase contraceptive use through providing contraceptive information, particularly in rural areas.

6.7 Preferred Future Method of Family Planning

Women currently not using contraception who said they intend to use a method in the future were asked to specify the method of family planning that they want to use. Although female sterilization remains the most preferred method in the future (59 percent), a sizeable proportion of women (31 percent) intend to use a modern temporary method (Table 6.26). Among the temporary methods, the pill is the most preferred method (19 percent), followed by the IUD (6 percent) and condoms (4 percent). Only 1 percent of the intended future users prefer male sterilization.

The choice of preferred methods is slightly different for those who intend to use within 12 months than those who intend to use later, with the modern temporary methods being more popular in the former group and female sterilization being most popular in the latter. The

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Table 6.26 Preferred method

Percent distribution of currently married women who are not using a contraceptive method but who intend to use in the future by preferred method, according to whether they intend to use in the next 12 months or later, by residence, India, 1992-93

Preferred method	Timing of intended use			All women
	Next 12 months	Later	Unsure when	
URBAN				
Pill	18.9	7.4	7.8	13.3
Copper T/IUD	12.8	5.2	7.4	9.2
Injection	2.8	0.7	0.2	1.8
Condom	9.5	3.6	6.9	6.7
Female sterilization	45.3	72.7	54.2	57.8
Male sterilization	1.2	0.5	0.6	0.9
Periodic abstinence	3.0	1.5	3.0	2.4
Withdrawal	0.6	0.7	0.8	0.6
Other	1.9	1.9	2.9	1.9
Unsure	3.9	5.8	16.1	5.3
Total percent	100.0	100.0	100.0	100.0
Number	1848	1594	153	3606
RURAL				
Pill	30.7	11.5	12.5	20.7
Copper T/IUD	7.4	2.2	4.8	4.8
Injection	3.0	1.4	1.5	2.1
Condom	5.3	1.6	2.7	3.4
Female sterilization	43.7	74.8	51.5	58.9
Male sterilization	0.8	1.1	1.0	0.9
Periodic abstinence	3.3	1.4	4.2	2.4
Withdrawal	0.8	0.3	0.5	0.5
Other	1.8	0.8	3.7	1.4
Unsure	3.2	5.1	17.5	4.8
Total percent	100.0	100.0	100.0	100.0
Number	5166	5189	522	10911
TOTAL				
Pill	27.6	10.5	11.5	18.9
Copper T/IUD	8.8	2.9	5.4	5.9
Injection	3.0	1.2	1.2	2.1
Condom	6.4	2.1	3.6	4.2
Female sterilization	44.1	74.3	52.1	58.6
Male sterilization	0.9	0.9	0.9	0.?
Periodic abstinence	3.2	1.4	4.0	2.4
Withdrawal	0.8	0.4	0.6	0.6
Other	1.8	1.1	3.5	1.5
Unsure	3.4	5.3	17.2	4.9
Total percent	100.0	100.0	100.0	100.0
Number	7013	6782	675	14516

pattern of preferred future methods is generally similar in both urban and rural areas, although the pill is more popular among intended users in rural areas, and condoms and IUDs are more popular in urban areas.

The contraceptive method mix that intended future users say they would prefer is substantially different from the methods selected by current users. Modern temporary methods

are being used by only 14 percent of current users (Table 6.5), but 31 percent of intended future users say they would like to use modern temporary methods. These results suggest that the potential demand for modern temporary methods is relatively strong among intended future users and that the family welfare programme should pay increasing attention to these methods as part of a balanced programme to satisfy the contraceptive needs of women.

6.8 Exposure to Family Planning Messages on Radio and Television

For many years, the family welfare programme has been utilizing the electronic mass media to promote family planning. In order to explore the spread of family planning messages through various mass media, respondents were asked whether they had heard such messages on radio or television in the month prior to the survey. Table 6.27 shows the percentage of women

Table 6.27 Exposure to family planning messages on radio and television

Percent distribution of ever-married women by whether they heard a radio or television message about family planning in the month prior to the interview, according to selected background characteristics, India, 1992-93

	Heard family planning message on radio or television						
Background characteristic	Neither	Radio only	Television only	Both	Missing	Total percent	Number
Age							
13-19	63.2	17.9	4.2	14.6	--	100.0	9448
20-29	56.6	15.3	5.8	22.2	--	100.0	35424
30-39	56.4	13.4	6.6	23.6	--	100.0	27121
40-49	59.2	13.1	5.9	21.8	0.1	100.0	17784
Residence							
Urban	31.5	8.3	12.7	47.5	--	100.0	23455
Rural	67.0	16.8	3.5	12.7	--	100.0	66322
Education							
Illiterate	72.5	14.6	3.4	9.5	--	100.0	56656
Lit., < middle complete	44.0	18.3	8.5	29.1	--	100.0	16475
Middle school complete	30.3	15.5	11.5	42.7	--	100.0	6508
High school and above	15.3	7.9	12.0	64.7	--	100.0	10138
Religion							
Hindu	58.3	14.7	5.6	21.4	--	100.0	73648
Muslim	60.0	15.0	5.4	19.6	0.1	100.0	10806
Christian	47.8	17.5	6.3	28.4	--	100.0	2142
Sikh	43.3	5.6	21.4	29.7	--	100.0	1673
Jain	16.5	3.8	11.1	68.5	--	100.0	428
Buddhist	50.1	11.8	8.9	29.1	--	100.0	734
Other	75.3	9.2	3.2	12.2	--	100.0	345
Caste/tribe							
Scheduled caste	65.9	14.8	4.9	14.3	--	100.0	10970
Scheduled tribe	77.9	11.9	2.1	8.0	--	100.0	7934
Other	54.2	14.8	6.5	24.4	--	100.0	70872
Use of contraception							
Ever used	47.7	14.8	8.0	29.6	--	100.0	41172
Never used	66.3	14.4	4.1	15.1	--	100.0	48604
Total	57.8	14.6	5.9	21.7	--	100.0	89777

-- Less than 0.05 percent

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who report seeing or hearing a family planning message according to various background characteristics. The effort to disseminate family planning information through the electronic mass media has succeeded in reaching less than half (42 percent) of ever-married women. This is not surprising, given that only 21 percent of households in India own televisions and only 39 percent own radios (Table 3.13). About one in four women (22 percent) reported hearing a message on both the radio and television in the month preceding the survey. One in seven (15 percent) reported hearing a family planning message only on the radio, and 6 percent of women only on television. This suggests-that there is substantial scope for electronic media to play a more significant role in reaching potential users of family planning in the future.

Urban-rural differences in exposure to family planning messages are substantial. While two-thirds (68 percent) of urban women reported exposure to family planning messages on the radio or television, only one-third (33 percent) of rural women did so. In urban areas, television and radio are about equally important in conveying family planning messages, but in rural areas, radio is far more important than television.

Women's exposure to family planning messages on the radio and television is positively related with educational attainment. Only 27 percent of illiterate respondents reported having heard a family planning message on the radio or television, whereas 85 percent of women with at least a high school education have heard a message. The proportion having heard a message on television or on both the radio and television increases sharply with increasing education.

There are almost no differences in the extent of exposure to family planning messages between Hindus and Muslims (40-42 percent). The exposure to family planning messages on the radio or television is much higher among Christians (52 percent), Sikhs (57 percent) and especially Jains (84 percent). The percentage who recall having heard a family planning message on the radio or television is lowest among scheduled tribe women (22 percent) and highest among non-SC/ST women (46 percent). All of these differentials are likely to reflect some combination of greater access to broadcast signals in urban than in rural areas, the greater ability of higher-income groups to own receivers, and the differential attentiveness to media messages associated with differing levels of education and leisure. Media messages on family planning are particularly unlikely to have reached women who have never used contraception, which is the group most in need of obtaining family planning information.

6.9 Acceptability of Family Planning Messages on Radio and Television

Regardless of whether women had heard a family planning message on the radio or television, they were asked whether they considered it acceptable for family planning information to be provided over the airwaves. Two-thirds of the sample women say it is acceptable to have family planning messages on the radio and television. Only 8 percent say it is not acceptable and the rest (23 percent) are not sure (Table 6.28). Younger women (under age 20) and older women (over age 39), rural residents, illiterate women, and women belonging to scheduled tribes are less likely than other women to think that it is acceptable to broadcast family planning messages on the radio or television. The acceptance of family planning messages on the electronic media is particularly high among women with at least a middle school education. A higher percentage of Christian, Sikh, Jain and Buddhist women find family planning messages on the radio and television to be acceptable than do the women belonging to other religions.

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Table 6.28 Acceptability of media messages on family planning

Percent distribution of ever-married women by their attitude toward having messages about family planning on the radio or television, according to selected background characteristics, India, 1992-93

Background characteristic	Acceptability of media messages				Total percent	Number of women
	Acceptable	Not acceptable	Unsure	Missing		
Age						
13-14	55.0	10.7	34.3	--	100.0	352
15-19	63.4	7.9	28.7	0.1	100.0	9095
20-24	69.6	7.7	22.7	--	100.0	17983
25-29	70.5	7.2	22.2	--	100.0	17441
30-34	70.2	8.1	21.7	--	100.0	14660
35-39	69.9	8.4	21.7	--	100.0	12461
40-44	66.8	9.7	23.4	0.1	100.0	9748
45-49	62.8	10.0	27.1	0.1	100.0	8036
Residence						
Urban	81.3	8.5	10.2	--	100.0	23455
Rural	63.7	8.1	28.1	--	100.0	66322
Education						
Illiterate	57.3	9.4	33.3	0.1	100.0	56656
Lit., < middle complete	83.9	6.2	9.9	--	100.0	16475
Middle school complete	90.2	4.6	5.1	--	100.0	6508
High school and above	90.6	7.0	2.3	--	100.0	10138
Religion						
Hindu	68.3	7.6	24.1	--	100.0	73648
Muslim	64.3	12.5	23.2	0.1	100.0	10806
Christian	76.8	8.0	15.2	--	100.0	2142
Sikh	79.6	5.3	15.1	--	100.0	1673
Jain	84.5	13.7	1.8	--	100.0	428
Buddhist	79.3	8.9	11.8	--	100.0	734
Other	49.0	14.6	36.4	--	100.0	345
Caste/tribe						
Scheduled caste	63.8	6.7	29.4	0.1	100.0	10970
Scheduled tribe	51.4	11.0	37.5	--	100.0	7934
Other	70.9	8.1	20.9	--	100.0	70872
Total	68.3	8.2	23.4	--	100.0	89777

-- Less than 0.05 percent

The responses suggest a considerable amount of ambivalence regarding the acceptability of media messages on family planning among illiterate women and those belonging to scheduled tribes and scheduled castes.

6.10 Discussion of Family Planning Among Couples

Among nonsterilized couples, all currently married women who know a contraceptive method were asked how often they talked with their husbands about family planning in the year before the survey. The extent of such communication is fairly high. Overall, 51 percent of women said they had discussed this topic with their husbands in the previous year (Table 6.29). Thirty-seven percent discussed family planning once or twice and 13 percent discussed it more often. A relatively high percentage (58 percent) of women age 25-34 reported that they had

Table 6.29 Discussion of family planning with husband

Percent distribution of nonsterilized currently married women knowing a contraceptive method by the number of times they discussed family planning with their husbands in the past year, according to selected background characteristics, India, 1992-93

Background characteristic	Number of times family planning discussed				Total percent	Number of women
	Never	Once or twice	More often	Missing		
Age						
13-14	68.5	24.1	7.4	--	100.0	273
15-19	56.6	33.3	10.0	0.1	100.0	7927
20-24	45.2	41.1	13.6	0.2	100.0	14747
25-29	40.8	42.9	16.1	0.2	100.0	11280
30-34	43.2	40.3	16.2	0.3	100.0	7483
35-39	50.9	34.5	13.9	0.7	100.0	5436
40-44	62.1	26.2	11.2	0.5	100.0	4189
45-49	71.2	21.2	7.2	0.4	100.0	3700
Residence						
Urban	39.9	42.6	17.1	0.4	100.0	14369
Rural	52.7	35.1	12.0	0.2	100.0	40667
Respondent's education						
Illiterate	57.5	33.0	9.2	0.3	100.0	34187
Lit., < middle complete	42.2	41.7	15.9	0.3	100.0	9218
Middle school complete	35.0	44.3	20.5	0.2	100.0	4167
High school and above	29.0	45.9	24.9	0.2	100.0	7464
Religion						
Hindu	50.1	37.0	12.6	0.3	100.0	43837
Muslim	49.7	35.3	14.8	0.2	100.0	8153
Christian	43.8	34.7	21.0	0.5	100.0	1171
Sikh	32.8	46.6	20.5	--	100.0	1070
Jain	24.6	53.5	20.9	0.9	100.0	266
Buddhist	41.3	47.9	10.8	--	100.0	365
Other	49.5	39.0	11.5	--	100.0	173
Caste/tribe						
Scheduled caste	54.4	34.9	10.5	0.3	100.0	6914
Scheduled tribe	58.0	32.0	9.7	0.2	100.0	4207
Other	47.8	37.8	14.1	0.3	100.0	43915
Use of contraception						
Ever used	24.2	48.4	27.2	0.2	100.0	13687
Never used	57.7	33.2	8.7	0.3	100.0	41350
Husband's education						
Illiterate	59.1	31.7	8.9	0.3	100.0	18697
Lit.,< primary complete	53.5	33.7	12.4	0.3	100.0	4954
Primary school complete	51.2	36.7	11.9	0.2	100.0	7982
Middle school complete	44.9	40.1	14.8	0.2	100.0	7016
High school complete	41.2	42.7	15.8	0.3	100.0	10606
Above high school	31.9	43.7	24.2	0.2	100.0	5673
Missing	48.7	30.4	14.1	6.8	100.0	109
Total	49.4	37.0	13.3	0.3	100.0	55036

Note: Table excludes women who are sterilized or whose husbands are sterilized.
-- Less than 0.05 percent

discussed family planning with their husbands. Women in the early and late reproductive years are least likely to have communicated with their husbands on family planning, probably because younger women are still early in the family building process and hence are not yet interested in limiting family size, and older women no longer believe themselves to be at high risk of pregnancy (see Table 6.25).

Substantial differences in the extent of discussion of family planning among couples are also observed according to the place of residence, respondent's level of education, her husband's education, and the ever use of family planning. Women in urban areas are more likely to have discussed family planning with their husbands than those in rural areas (60 percent compared to 47 percent). As expected, the extent of husband-wife communication about family planning is positively related to the educational attainment of women, as well as the education of their husbands. For example, 71 percent of women who completed high school had discussed family planning with their husbands compared to only 42 percent of illiterate women. Similarly, interspousal communication was more common among women whose husbands had continued schooling beyond high school (68 percent) than among those whose husbands were illiterate (41 percent).

Around one-half of Hindus, Muslims and women belonging to "other" religions have discussed family planning with their husbands, compared to 56-75 percent of Christian, Buddhist, Sikh and Jain women. The non-SC/ST women are more likely than scheduled caste and scheduled tribe women to have discussed family planning in the year preceding the survey.

A large majority (76 percent) of the women who have ever used a family planning method discussed the topic with their husbands in the last year, 48 percent having discussed it once or twice and 27 percent having discussed it more often. Among those who have never used family planning, however, only 42 percent have discussed family planning with their husbands in the past year.

6.11 Attitudes of Couples Toward Family Planning

Information on attitudes toward family planning was obtained by asking women whether they and their husbands approved or disapproved of couples using a method to delay or avoid pregnancy. Table 6.30 shows the degree of consensus between women's attitudes and those of their husbands. Of course, women may not accurately report their husband's actual attitudes toward contraception. However, a wife's perception of her husband's attitude is important since it may affect her own decisions.

Table 6.30 shows that 77 percent of currently married, nonsterilized women who know of a contraceptive method approve of family planning use and only 22 percent disapprove. Whereas 21 percent of women say they do not know their husband's attitude, 19 percent think that their husbands disapprove of family planning. There is a substantial amount of consensus between individual husbands and wives regarding the approval of family planning. In fact, 58 percent of female respondents reported that both they and their husbands approve of family planning and 12 percent said they both disapprove. This pattern of consensus among couples in favour of family planning makes the task of family planning administrators much easier.

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Table 6.30 Attitudes of couples toward family planning

For nonsterilized currently married women who know of a contraceptive method, the percentage who approve of family planning by their perception of their husband's attitude, according to selected background characteristics, India, 1992-93

Background characteristic	Respondent approves Husband approves	Respondent approves Husband disapproves	Respondent approves Husband's attitude unknown[1]	Respondent disapproves Husband approves	Respondent disapproves Husband disapproves	Respondent disapproves Husband's attitude unknown[1]	Respondent unsure[2]	Total percent	Number of women
Respondent's age									
13-14	42.0	3.7	24.2	2.2	8.8	16.9	2.2	100.0	273
15-19	56.5	5.6	16.9	1.2	8.9	10.0	0.8	100.0	7927
20-24	63.2	6.2	11.7	1.1	9.3	7.5	0.9	100.0	14747
25-29	63.9	6.7	9.3	1.3	10.2	7.7	0.9	100.0	11280
30-34	59.2	7.6	8.6	1.2	13.4	8.9	1.2	100.0	7483
35-39	55.1	8.4	9.8	1.6	14.0	10.0	1.1	100.0	5436
40-44	46.9	9.1	12.1	1.6	16.9	12.5	1.0	100.0	4189
45-49	44.4	8.2	14.0	1.7	15.7	14.8	1.2	100.0	3700
Residence									
Urban	70.7	7.4	7.7	1.3	8.6	3.6	0.7	100.0	14369
Rural	54.1	6.8	13.0	1.3	12.5	11.3	1.1	100.0	40667
Respondent's education									
Illiterate	47.9	7.3	14.4	1.4	14.6	13.4	1.1	100.0	34187
Lit., < middle complete	67.7	8.3	8.9	1.5	8.9	4.0	0.8	100.0	9218
Middle school complete	76.6	6.5	7.3	1.2	5.3	2.1	1.0	100.0	4167
High school and above	85.2	4.2	4.7	0.8	3.7	0.9	0.6	100.0	7464
Religion									
Hindu	59.2	6.6	12.0	1.3	10.2	9.6	1.0	100.0	43837
Muslim	49.3	9.2	10.1	1.6	19.5	9.4	0.9	100.0	8153
Christian	65.3	8.1	10.8	1.5	9.1	4.2	1.0	100.0	1171
Sikh	83.4	2.5	9.1	0.9	2.6	1.4	0.1	100.0	1070
Jain	83.3	3.8	3.9	1.7	5.0	1.3	1.1	100.0	266
Buddhist	60.0	12.0	7.4	1.2	12.1	6.2	1.1	100.0	365
Other	54.2	3.3	11.4	1.9	18.5	10.4	0.3	100.0	173
Caste/tribe									
Scheduled caste	55.0	6.9	14.1	1.2	10.1	11.7	1.0	100.0	6914
Scheduled tribe	50.0	4.8	14.3	2.2	13.0	14.7	1.0	100.0	4207
Other	59.8	7.2	10.9	1.2	11.5	8.4	1.0	100.0	43915
Use of contraception									
Ever used	85.4	5.8	2.8	1.3	3.4	0.8	0.6	100.0	13687
Never used	49.5	7.4	14.5	1.3	14.1	12.1	1.1	100.0	41350
Family planning discussed with husband in last year									
Never	37.6	7.0	20.1	1.4	16.1	17.0	0.9	100.0	27177
Once or twice	77.3	7.7	3.7	1.3	7.8	1.6	0.7	100.0	20377
More often	84.6	4.8	2.4	1.2	4.3	2.1	0.5	100.0	7331
Don't know/missing	1.8	3.1	3.0	1.6	0.8	2.0	87.7	100.0	151
Husband's education									
Illiterate	45.9	7.9	14.7	1.3	14.9	14.4	1.0	100.0	18697
Lit., < primary complete	54.1	8.6	11.6	1.9	14.1	8.7	1.0	100.0	4954
Primary school complete	56.6	8.2	12.0	1.5	11.6	9.0	1.1	100.0	7982
Middle school complete	62.7	6.9	11.3	1.3	9.8	7.1	0.9	100.0	7016
High school complete	68.5	5.3	9.3	1.3	8.6	5.9	1.0	100.0	10606
Above high school	82.0	3.9	5.5	0.9	4.9	2.0	0.7	100.0	5673
Missing	47.5	9.4	14.0	--	7.1	14.7	7.3	100.0	109
Total	58.4	7.0	11.6	1.3	11.5	9.3	1.0	100.0	55036

Note: Table excludes women who are sterilized or whose husbands are sterilized.
-- Less than 0.05 percent
[1] Respondent does not know her husband's attitude
[2] Includes women with missing information on approval of contraception

The percentage of women approving family planning decreases slowly with the age of the woman. Urban women are more likely to approve of family planning than rural women (86 percent versus 74 percent). The approval of family planning by both husband and wife is 71 percent in urban areas and 54 percent in rural areas. Rural women are less likely to know their husband's attitude than urban women, a fact which is consistent with the lower level of interspousal communication about family planning in rural areas.

Education of women as well as their husbands is an important determinant of the approval of family planning by both husband and wife. Overall, 70 percent of illiterate women approve of family planning compared to 94 percent of women who have completed high school. Approval by both husband and wife is the lowest (48 percent) among illiterate women. A similar relationship is observed with the level of husband's education. As the education of the husband increases, the proportion of women who reported that both they and their husbands approve of family planning increases, from 46 percent in the case of illiterates to 82 percent for those having more than a high school education.

Approval is lower among those belonging to scheduled tribes than among other groups. Eighty-five percent of the women who have ever used family planning reported that both they and their husbands approve of family planning, compared with 50 percent of never users. Among never users who approve of family planning, only 10 percent said their husbands do not approve of family planning.

Table 6.30 also reveals that as expected, the approval of family planning by both the husband and wife is positively related to the number of times family planning was discussed between the husband and the wife in the past year. The percentage of women who reported that both they and their husbands approve family planning is 38 for those who did not discuss family planning, 77 for those who discussed the topic once or twice and 85 for those who had more frequent discussions about family planning with their husbands. The percentage of women who are not aware of their husband's attitude is greatest (37 percent) among those who did not discuss family planning with their husbands in the last year.

Interstate variations in exposure to mass media, acceptance of media messages, discussion of family planning between husband and wife and approval of family planning are summarized in Table 6.31. States differ widely on each of these indices. There is a particularly pressing need to evolve state-specific Information, Education and Communication (IEC) activities in the larger, demographically backward states of Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan. Exposure to family planning messages is limited in these states (only 27-34 percent of women heard recent family planning messages on the radio or television), a relatively small proportion of women feel that media messages are acceptable (38-55 percent), husband-wife communication is low (36-48 percent having discussed family planning with their husband in the last year) and a relatively small proportion of the couples approve of family planning (42-59 percent). The situation is much better in Punjab, Haryana, Delhi, Himachal Pradesh, and Jammu where a larger proportion of women than the national average have heard family planning messages and are favourable toward such media messages. Husband-wife communication is also relatively high in these states as is the approval of family planning. All of the states in the southern and western regions also score above average on the two media indicators and most of them are also well above average on the indicators of interspousal communication and the approval of family planning.

CHAPTER 7

FERTILITY PREFERENCES

Fertility behaviour is a complex phenomenon resulting from an interplay of various social and cultural patterns related to marriage, childbirth, child rearing and familial or kinship affiliation. In the case of India, the cultural importance of the kinship network, coupled with high mortality among children, is considered to be one of the main obstacles to rapid fertility decline. The traditional desire for a large family is embedded in the perceived values and roles that children perform in their families. Children are valued for their role in perpetuating tradition and the ancestral line, providing economic and social support for parents in their old age, and strengthening the marital bond. Although Indian couples traditionally desire many children, with a particular preference for sons, fertility preferences are not immutable. In fact, the two to three child norm is becoming firmly established in many parts of India, as indicated by the NFHS findings on the fertility preferences of women.

Interpretation of data on fertility preferences as a measure of women's future childbearing intentions is a subject of considerable controversy. Survey questions have been criticized on the grounds that answers may be misleading for a number of reasons. Attitudes toward childbearing may not be fully formed, they may be held with little conviction, and they may change over time. Moreover, the responses may not take into account the effect of social or community pressures or the attitudes of the husband and other family members, who may have a strong influence on a woman's reproductive decisions. Finally, a woman's preference for limiting her family size can only be implemented if she has the means to fulfil her desires. Nevertheless, in the aggregate, data on fertility preferences can be useful as an indicator of general fertility attitudes and the possible future course of fertility. Fertility preferences data also facilitate the assessment of the need for family planning and the extent of unwanted fertility.

The National Family Health Survey included several questions on women's desire for children in the future. Specifically, these questions dealt with: a) whether a woman wanted another child, and if so, how soon she wanted her next child; and b) how many children she would want in her lifetime if she could start all over again. The extent of sex preference was ascertained from questions on the preferred sex of the next child and the ideal number of children by sex. These questions are analyzed in this chapter.

7.1 Desire for More Children

In the NFHS, information on future childbearing intentions was sought from currently married women, who were asked, "Would you like to have another child or would you prefer not to have any more children?" Women who did not have any children were asked whether or not they wanted to have any children. If a woman was pregnant, she was asked whether or not she wanted another child after the one she was expecting. Women who wanted another child were then asked about the preferred timing and sex of their next child.

The fertility preferences of currently married women are presented in Table 7.1 and illustrated in Figure 7.1. Overall, only 34 percent of women say they want another child at some time in the future and more than half of these women say they would like to wait at least

two years before having their next birth. Less than two-fifths of women who desire an additional child say they would like another child soon (that is, within two years). Four percent of women believe decisions pertaining to the number of children are "up to God". More than one-quarter of women (26 percent) say they do not want any more children and 31 percent of women (or their husbands) are sterilized. These two groups together constitute 57 percent of all currently married women in India.

Table 7.1 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, 1992-93

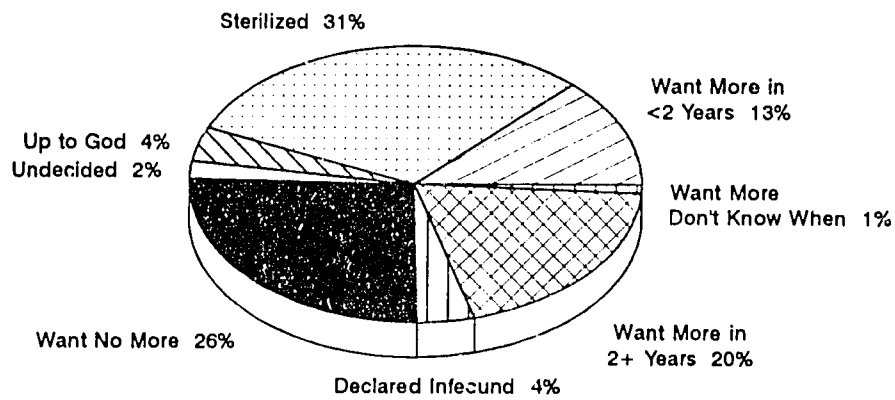| Desire for children	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
URBAN								
Desire for additional child								
Have another soon[2]	59.6	18.4	5.2	2.8	2.0	1.0	0.3	11.1
Have another later[3]	20.3	49.0	13.6	5.7	3.1	1.6	2.0	16.0
Have another, undecided when	4.2	1.7	0.4	0.3	0.2	0.1	0.1	0.9
Undecided	1.3	2.6	1.7	1.1	0.8	0.8	0.4	1.4
Up to God	4.0	2.4	1.9	1.7	2.2	2.7	2.3	2.3
Want no more	1.7	18.4	44.9	31.6	30.9	33.1	45.6	30.8
Sterilized	1.0	3.9	29.7	54.2	57.3	55.6	39.6	33.6
Declared infecund	7.3	3.4	2.4	2.4	3.2	4.9	9.5	3.7
Missing	0.6	0.1	0.1	0.1	0.3	0.2	0.2	0.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	2014	4000	3586	4601	2954	1506	1416	22077
Preferred sex of additional child								
Boy	25.0	34.6	54.4	68.1	78.2	59.6	(63.3)	39.1
Girl	4.5	18.8	17.1	12.6	7.1	16.0	(9.1)	13.8
Doesn't matter	49.4	32.3	17.1	11.1	6.7	15.7	(14.5)	32.1
Up to God	21.2	14.3	11.4	8.1	8.0	8.7	(13.0)	15.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number wanting more	1695	2767	1075	407	157	42	35	6177
RURAL								
Desire for additional child								
Have another soon[2]	57.4	22.8	10.2	4.9	2.3	1.3	0.9	13.7
Have another later[3]	21.7	55.4	26.7	11.8	6.7	4.1	2.6	20.9
Have another, undecided when	4.7	3.0	1.3	0.7	0.5	0.3	0.3	1.5
Undecided	2.5	1.3	2.0	1.7	1.2	1.5	1.8	1.7
Up to God	5.7	3.8	4.1	3.9	3.8	3.9	5.0	4.2
Want no more	1.8	6.9	23.6	26.4	33.4	40.2	51.1	24.2
Sterilized	0.9	4.3	29.7	47.5	47.6	43.0	29.9	29.8
Declared infecund	5.2	2.3	2.4	3.1	4.4	5.4	8.0	3.9
Missing	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	6902	10292	12705	13094	8933	5401	5273	62601
Preferred sex of additional child								
Boy	39.7	45.7	60.9	69.4	71.1	70.1	54.0	51.1
Girl	1.6	13.7	14.7	11.8	10.1	5.6	4.9	10.3
Doesn't matter	36.6	23.7	12.6	8.3	7.6	9.6	18.7	22.2
Up to God	22.2	16.9	11.8	10.5	11.2	14.7	22.4	16.3
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number wanting more	5786	8360	4840	2266	855	310	201	22617

Table 7.1 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, 1992-93

Desire for children	Number of living children[1]							
	0	1	2	3	4	5	6+	Total

TOTAL

Desire for additional child								
Have another soon[2]	57.9	21.6	8.7	4.3	2.3	1.2	0.8	13.0
Have another later[3]	21.4	53.6	22.7	10.2	5.8	3.6	2.4	19.6
Have another, undecided when	4.6	2.6	1.0	0.6	0.5	0.3	0.3	1.4
Undecided	2.2	1.7	1.9	1.5	1.1	1.3	1.5	1.6
Up to God	5.3	3.4	3.5	3.4	3.4	3.6	4.4	3.7
Want no more	1.8	10.1	30.1	27.7	32.8	38.6	49.9	25.9
Sterilized	0.9	4.2	29.7	49.2	50.0	45.7	31.9	30.8
Declared infecund	5.7	2.6	2.4	2.9	4.1	5.3	8.3	3.8
Missing	0.2	0.1	0.1	0.1	0.2	0.3	0.3	0.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	8916	14292	18292	17695	11887	6907	6690	84678
Preferred sex of additional child								
Boy	36.3	42.9	59.7	69.2	72.2	68.9	55.4	48.6
Girl	2.2	15.0	15.1	11.9	9.6	6.9	5.5	11.0
Doesn't matter	39.5	25.8	13.4	8.7	7.5	10.3	18.1	24.3
Up to God	21.9	16.2	11.8	10.2	10.7	14.0	21.0	16.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number wanting more	7481	11126	5915	2673	1011	352	236	28795

( ) Based on 25-49 unweighted cases
[1] Includes current pregnancy, if any
[2] Wants next birth within 2 years
[3] Wants to delay next birth for 2 or more years

In the NFHS, it is assumed that women do not want any more children if they or their husbands are sterilized. However, some dissatisfaction is expected with sterilization and has been observed among the sterilized populations in other countries, although the extent of sterilization regret is usually less than 10 percent (Loaiza, 1995). The NFHS included questions on sterilization regret and the reasons for the regret. Overall, 6 percent of sterilized women (or women whose husbands are sterilized) regret that the sterilization was performed (Table 7.2). However, less than half of these women regret the sterilization because they or their husbands want more children or because they want to replace a dead child. A major cause of sterilization regret is side effects of the operation. Therefore, the assumption that women (or their husbands) who are sterilized do not want any more children will only slightly underestimate preferences to have another child and overestimate the desire to stop childbearing.

From the point of view of understanding the total desire to limit or space births, it is of interest to add together women who do not want any more children (including those who have already been sterilized) and women who want to delay their next birth for two years or longer (as well as women who are unsure of the preferred timing of their next child). Overall, as shown in Table 7.1, 78 percent of women fall in this category (81 percent in urban areas and 76 percent in rural areas).

Figure 7.1
Fertility Preferences Among
Currently Married Women Age 13-49

Sterilized 31%

Want More in
<2 Years 13%

Up to God 4%
Undecided 2%

Want More
Don't Know When 1%

Want No More 26%

Want More in
2+ Years 20%

Declared Infecund 4%

NFHS, India, 1992-93

Table 7.2 Sterilization regret

Percentage of sterilized couples who regret sterilization (according to the wife's report) and percent distribution of reasons for regretting sterilization, India, 1992-93

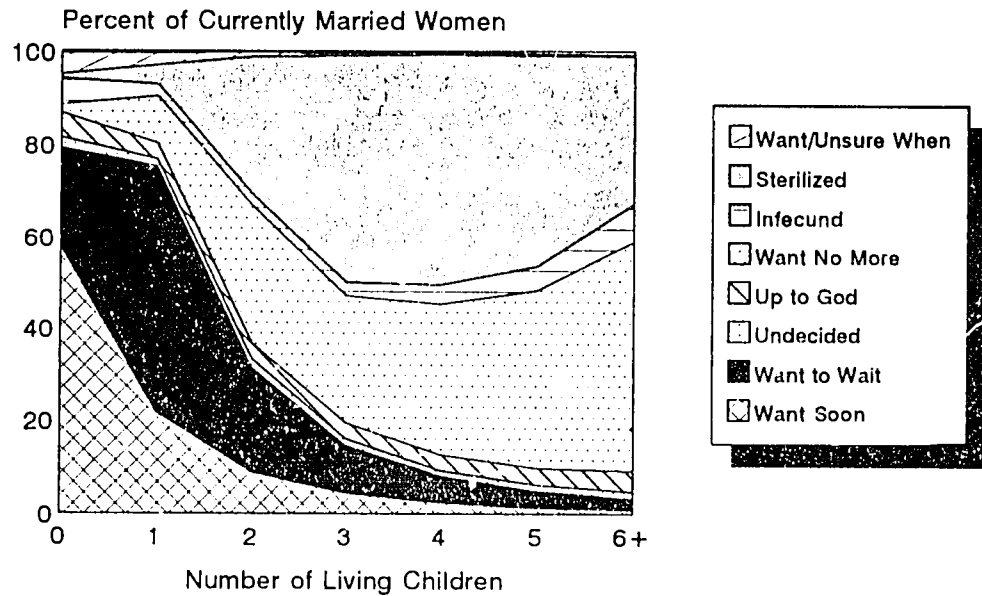| Sterilization regret/reasons	Urban	Rural	Total
Percentage of sterilized couples who regret sterilization	4.0	6.1	5.5
Number of sterilized couples	7417	18635	26051
Reasons for regret			
Respondent wants another child	35.2	27.1	28.8
Wants to replace child who died	13.8	13.3	13.4
Husband wants another child	5.7	4.5	4.8
Side effects	40.7	49.2	47.4
Other	4.5	5.8	5.6
Total percent	100.0	100.0	100.0
Number of couples who regret sterilization	300	1140	1439

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Among women who want another child, there is a strong preference for having a son as the next child. Forty-nine percent say they want a son, only 11 percent express a desire for a daughter, and the rest say that the sex of the child does not matter (24 percent) or that it is "up to God" (16 percent). The desire for a son is particularly strong in rural areas and among high parity women. Women who do not have any children are extremely unlikely to want a daughter for their first child, with 2 percent expressing a desire for a daughter compared to 36 percent who want a son.

As expected, the desire for more children declines rapidly as the number of children increases (Table 7.1 and Figure 7.2). Eighty-four percent of women with no children say they want a child and less than 3 percent say they do not want any children or are sterilized. The proportion who want another child drops to 32 percent for women who have two living children and 15 percent for those with three living children. The desire to have a child within two years drops even more rapidly, from 58 percent for women without any living children to 9 percent or less for women with two or more living children. Interestingly, the desire to space is very strong for women who have fewer than three children. Twenty-one percent of women with no children say that they would like to wait at least two years before having their first child. The proportion more than doubles to 54 percent among women with one child. Similarly, 23 percent of women with two children would like to wait at least two years before having their next child. Since nearly 50 percent of all women have fewer than three living children, the strong expressed desire for spacing among these women cannot be ignored. The family planning programme in India needs to increase access to temporary methods if it is to satisfy the needs of a large segment of the population who wish to space their births. Increasing access to spacing methods for women who want more children is likely to lower overall fertility and population growth, as well as provide health benefits to both mothers and their children.

Table 7.3 shows variations in fertility preferences by state. The percentage of currently married women who want to have another child varies considerably from a high of 53 in Arunachal Pradesh and Meghalaya to a low of 25 in Himachal Pradesh and Punjab. In every state except Andhra Pradesh and Maharashtra, the majority of women who want another child would like to wait two years or more to have their next child. Interestingly, among those states where the desire for an additional child is low, there is little difference in the percentage of currently married women who would like to have a child within two years and those who express a desire to wait for two years or more to have another child. For example, in Goa, Maharashtra and Tamil Nadu the difference between these two groups is only 1-3 percentage points. With the exception of Uttar Pradesh, Bihar, Arunachal Pradesh, Meghalaya and Nagaland, more than one out of two currently married women in all states say they do not want any more children or they or their husbands are sterilized. At least two out of three currently married women in Delhi, Himachal Pradesh, Punjab, Tripura, Kerala and Tamil Nadu do not want any more children (including sterilized women and women whose husbands are sterilized). Nineteen percent of women in Nagaland believe that decisions pertaining to childbearing are "up to God", but this response is rare in most other states.

Table 7.4 provides information about subgroup variations in the potential demand for family planning. As before, women who are sterilized (or whose husbands are sterilized) are added to those who say they want no more children to derive this measure. Overall, there is little subgroup variation among women who have no children, except that older women are more

Figure 7.2
Fertility Preferences by Number of Living Children

Percent of Currently Married Women

Legend:
- Want/Unsure When
- Sterilized
- Infecund
- Want No More
- Up to God
- Undecided
- Want to Wait
- Want Soon

Number of Living Children

NFHS, India, 1992-93

likely to express a desire not to have any children. Differences by subgroups emerge as the number of living children increases and are especially marked for women who have 2-3 children. As expected, the desire to have no more children increases with age, from 2 percent among women age 13-14 to 84 percent among women age 35-44 and then falls slightly to 77 percent among women age 45-49. Urban women are more likely to want to stop childbearing than rural women, and this difference is especially marked among women with fewer than three children. Educational attainment is strongly related to fertility desires for women who have at least 2 children, but this difference narrows as the number of living children increases. The desire to have no more children is lowest among Muslim women (49 percent) and highest among Sikhs and Jains (70 percent). Scheduled tribe women are least likely to want no more children, but even in this group nearly one out of two women do not want any more children. It is also evident from Table 7.4 that the sex composition of living children is strongly related to the fertility preferences of women. For example, the desire to have no more children among women with three children is twice as high for those who have all sons as for those who have all daughters. The table shows a strong desire for at least one son, but the inverted U-shaped pattern for women with three or more living children also snows a weak desire to have at least one daughter. The desire to have a daughter may be related to the importance of the Hindu religious obligation of *kanyadan*, which provides an opportunity to make merit by giving one's daughter away at the time of her marriage.

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Table 7.3 Fertility preferences by state

Percent distribution of currently married women by desire for children, according to state, India, 1992-93

State	Want within 2 years	Want after 2 years	Want, undecided when	Undec- ided	Up to God	Want no more	Steril- ized	Declared infecund	Miss- ing	Total percent
India	13.0	19.6	1.4	1.6	3.7	25.9	30.8	3.8	0.2	100.0
North										
Delhi	9.8	16.6	0.5	1.4	1.6	45.4	23.3	1.3	0.1	100.0
Haryana	14.8	17.3	0.5	1.9	0.5	29.3	34.8	0.9	--	100.0
Himachal Pradesh	9.3	15.9	0.2	1.4	0.3	25.7	45.8	1.4	--	100.0
Jammu Region of J & K	14.8	17.5	0.1	1.3	0.1	35.6	29.7	0.9	--	100.0
Punjab	11.4	13.3	0.2	1.3	0.4	37.8	34.0	1.6	--	100.0
Rajasthan	12.7	20.3	1.2	3.1	7.1	24.2	27.7	3.5	0.2	100.0
Central										
Madhya Pradesh	12.3	25.3	2.8	2.2	4.2	19.6	31.5	1.8	0.2	100.0
Uttar Pradesh	12.4	25.6	1.0	1.6	9.7	31.5	13.1	4.9	0.3	100.0
East										
Bihar	16.7	24.0	1.1	1.8	6.3	24.1	18.6	7.2 ·	0.2	100.0
Orissa	13.7	18.1	1.9	3.1	2.2	25.9	31.6	3.5	--	100.0
West Bengal	10.0	20.5	0.8	0.7	0.8	34.5	30.6	2.1	--	100.0
Northeast										
Arunachal Pradesh	20.5	30.3	2.4	3.5	5.4	24.0	10.7	3.4	--	100.0
Assam	11.2	22.7	0.9	1.0	1.1	47.8	14.4	0.8	--	100.0
Manipur	8.5	29.1	0.6	1.5	2.4	41.4	13.8	2.8	--	100.0
Meghalaya	14.7	35.0	3.5	4.6	8.7	17.0	10.0	6.6	--	100.0
Mizoram	12.9	24.3	0.7	2.2	2.4	10.2	44.6	2.8	--	100.0
Nagaland	5.6	18.7	1.8	6.4	19.0	35.1	6.4	7.0	--	100.0
Tripura	12.6	15.2	0.7	1.1	0.3	50.2	19.1	0.8	--	100.0
West										
Goa	12.9	13.8	0.8	2.7	0.6	33.3	30.5	5.3	0.1	100.0
Gujarat	13.7	17.2	0.7	1.4	1.8	20.6	41.0	3.5	0.1	100.0
Maharashtra	11.7	13.5	2.3	1.2	0.7	20.4	46.1	4.0	--	100.0
South										
Andhra Pradesh	17.7	12.8	2.6	1.6	1.4	13.6	44.8	5.3	0.4	100.0
Karnataka	12.4	16.7	0.9	1.5	1.7	20.6	42.5	3.4	0.3	100.0
Kerala	10.8	16.1	1.1	1.3	1.1	19.3	48.3	1.8	0.2	100.0
Tamil Nadu	12.0	14.6	1.0	0.7	0.6	27.1	39.5	4.2	0.2	100.0

-- Less than 0.05 percent

Table 7.4 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, 1992-93

Background characteristic	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
Age								
13-14	1.1	4.4	*	NC	NC	NC	NC	1.8
15-19	1.1	3.0	31.9	60.5	*	*	NC	6.9
20-24	1.4	5.9	39.0	59.0	67.3	79.9	89.2	27.3
25-29	2.0	17.0	60.1	70.0	75.5	78.4	79.2	57.4
30-34	5.7	39.4	79.0	82.7	83.0	82.9	81.7	76.5
35-39	11.2	54.7	84.1	90.4	90.4	87.3	84.7	83.5
40-44	15.7	58.3	85.7	89.0	88.9	89.1	83.8	83.9
45-49	13.8	58.8	78.1	80.4	81.6	81.7	77.4	76.6
Residence								
Urban	2.7	22.3	74.6	85.8	88.2	88.6	85.1	64.3
Rural	2.7	11.2	53.2	73.9	81.0	83.2	80.9	53.9
Education								
Illiterate	2.6	11.4	45.8	70.0	79.6	82.2	80.7	54.0
Literate, < middle complete	2.9	13.1	67.2	86.3	90.9	92.3	86.3	63.0
Middle school complete	2.5	14.0	75.3	90.3	89.0	89.3	87.9	58.5
High school and above	2.6	24.0	83.0	91.4	91.1	92.9	90.2	59.7
Religion								
Hindu	2.8	14.7	60.9	78.3	84.2	85.6	83.2	57.2
Muslim	2.3	9.5	38.6	60.1	70.5	76.6	77.8	49.2
Christian	2.3	15.7	74.2	79.8	78.9	79.6	76.4	60.2
Sikh	1.2	10.2	74.4	89.0	94.7	96.4	95.0	69.6
Jain	(0.8)	39.5	82.7	90.8	(94.6)	*	*	70.4
Buddhist	(2.6)	17.1	67.1	86.1	94.4	(95.9)	(99.2)	64.5
Other	0.4	23.2	60.1	72.6	74.0	66.8	65.1	50.0
Caste/tribe								
Scheduled caste	2.2	9.6	46.1	72.5	81.0	85.4	86.0	53.1
Scheduled tribe	2.9	10.8	47.1	65.3	77.0	79.3	77.4	49.4
Other	2.7	15.4	62.8	78.9	83.8	84.8	81.6	58.0
Number of living sons[2]								
None	2.7	13.7	36.9	41.3	56.5	55.3	56.0	15.6
1	NA	18.6	66.0	73.4	76.1	81.9	79.4	57.6
2	NA	NA	71.5	88.0	88.4	87.9	84.6	83.8
3	NA	NA	NA	82.6	69.5	86.7	84.1	86.0
4	NA	NA	NA	NA	82.5	87.4	81.8	83.6
5	NA	NA	NA	NA	NA	83.2	82.7	82.8
6+	NA	NA	NA	NA	NA	NA	82.4	82.4
Number of living daughters[2]								
None	2.7	18.6	71.5	82.6	82.5	83.2	75.3	32.5
1	NA	13.7	66.0	88.0	89.5	87.4	85.7	64.6
2	NA	NA	36.9	73.4	88.4	86.7	81.7	73.0
3	NA	NA	NA	41.3	76.1	87.9	83.6	75.3
4	NA	NA	NA	NA	56.5	81.9	83.3	78.9
5	NA	NA	NA	NA	NA	55.3	81.6	77.8
6+	NA	NA	NA	NA	NA	NA	79.0	79.0
Total	2.7	14.3	59.7	77.0	82.8	84.4	81.8	56.7

Note: Women who have been sterilized, or whose husbands have been sterilized, are considered to want no more children.
NA: Not applicable
NC: Not calculated because there are no cases on which to base a percentage
() 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

7.2 Need for Family Planning Services

Assessing the demand for family planning is crucial to the success of a country's population and family planning programmes. It enables policymakers and programme planners to estimate the market for family planning services and assess programme effectiveness. In this report the demand for family planning is estimated as the sum of the unmet need for family planning and the current prevalence of contraceptive use. Unmet need has been measured in various ways in past studies (Westoff and Ochoa, 1991). Here, currently married women who say that they either do not want any more children or that they want to wait two or more years before having another child, but are not using contraception, are defined as having an *unmet need* for family planning. Current users of family planning methods 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 for family planning. Table 7.5 shows the unmet need, met need and total demand for family planning, according to whether there is a need for spacing or limiting births[1]. The table also contains detailed definitions of these concepts.

According to these definitions, 20 percent of women in India have an unmet need for family planning. The unmet need for spacing births (11 percent) is slightly greater than the unmet need for limiting births (9 percent). Together with the 41 percent of currently married women who are using contraception, a total of 60 percent of currently married women have a demand for family planning. 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 41 percent to 60 percent of married women. This means that 68 percent of the demand for family planning is being met by current programmes, as seen in the last column of Table 7.5. If the level of unmet need indicated in the table is assumed to reflect the needs of all currently married women age 13-49 in India, then about 30 million women in India have an unmet need for family planning.

The unmet need for limiting childbearing increases steadily until age 30-34 and decreases thereafter. The unmet need for spacing, on the other hand, is particularly strong for women under age 25. This is the segment of the population whose family planning needs are least likely to be met by current programmes. Only 12 percent and 19 percent of the family planning needs of currently married women age 13-14 and 15-19, respectively, are being met. Although this percent increases steadily from 43 percent for women age 20-24 to 85 percent for women age 40-44, it is only being nearly fully satisfied for women age 45-49.

Rural areas have a slightly greater unmet need for family planning than urban areas, with a greater unmet need for spacing than limiting in rural areas. Although the use of and demand for family planning is higher in urban than in rural areas, the percent of demand satisfied is also somewhat higher in urban areas. There is little difference in the unmet need for family planning by educational attainment of women, but both the use of and the demand for family planning is lower among illiterate women than among women with some education. Accordingly, the total needs of illiterate women are less likely to be satisfied by current family planning programmes.

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[1] Women with an unmet need or a met need are allocated to the "spacing" or "limiting" group depending on their fertility preference responses, not according to the contraceptive method being used or preferred.

Table 7.5   Need for family planning services

Percent of currently married women with unmet need, met need, and total demand for family planning (FP) services by selected background characteristics, India, 1992-93

Background characteristic	Unmet need for FP[1]			Met need-currently using[2]			Total demand for FP			Percent of need satis-fied
	To space	To limit	Total	To space	To limit	Total	To space	To limit	Total	
Age										
13-14	29.6	3.6	33.2	3.9	0.8	4.7	33.5	4.4	37.9	12.4
15-19	28.2	2.3	30.4	5.1	2.1	7.1	33.2	4.3	37.6	18.9
20-24	22.8	5.1	27.9	7.0	14.0	21.0	29.8	19.1	48.9	43.0
25-29	11.2	10.5	21.6	4.9	37.5	42.4	16.1	47.9	64.0	66.2
30-34	4.4	13.2	17.6	1.8	54.1	55.9	6.2	67.3	73.5	76.0
35-39	1.5	12.0	13.5	0.7	60.3	61.0	2.2	72.3	74.5	81.9
40-44	0.7	9.0	9.7	0.1	56.2	56.3	0.7	65.2	65.9	85.3
45-49	0.2	4.1	4.4	0.1	45.7	45.8	0.3	49.8	50.2	91.3
Residence										
Urban	8.6	8.4	17.1	5.2	45.8	51.0	13.8	54.2	68.1	74.9
Rural	11.9	8.5	20.3	2.7	34.2	36.9	14.6	42.6	57.2	64.5
Education										
Illiterate	11.0	9.3	20.3	1.5	32.4	33.9	12.5	41.6	54.1	62.6
Lit., < middle complete	10.8	7.2	18.1	4.0	46.4	50.4	14.8	53.6	68.4	73.6
Middle school complete	12.7	6.5	19.3	6.8	44.0	50.8	19.5	50.6	70.1	72.5
High school and above	10.5	7.3	17.8	10.2	44.5	54.7	20.7	51.8	72.5	75.5
Religion										
Hindu	10.9	8.0	18.9	3.1	38.6	41.6	14.0	46.5	60.5	68.8
Muslim	12.9	12.9	25.8	4.6	23.2	27.8	17.5	36.1	53.6	51.8
Christian	8.6	6.7	15.3	5.5	42.9	48.4	14.1	49.6	63.7	76.0
Sikh	7.9	6.2	14.1	5.6	51.9	57.5	13.5	58.1	71.6	80.3
Jain	5.8	5.4	11.2	8.5	54.2	62.7	14.3	59.6	73.8	84.9
Buddhist	7.3	7.3	14.6	2.9	47.9	50.9	10.2	55.2	65.5	77.7
Other	15.7	6.5	22.1	3.8	30.0	33.8	19.5	36.5	56.0	60.5
Caste/tribe										
Scheduled caste	12.3	9.5	21.8	2.2	32.4	34.5	14.5	41.9	56.3	61.3
Scheduled tribe	11.2	7.2	18.4	1.6	31.4	33.0	12.8	38.6	51.4	64.1
Other	10.8	8.4	19.3	3.8	38.6	42.4	14.6	47.0	61.6	68.8
Number of living children										
None	16.0	1.6	17.6	3.4	0.8	4.2	19.4	2.4	21.8	19.3
1	24.4	2.5	27.0	11.0	8.3	19.3	35.4	10.8	46.2	41.7
2	12.6	7.7	20.3	3.6	42.5	46.1	16.2	50.2	66.4	69.5
3	6.7	8.4	15.1	1.2	57.7	58.9	7.9	66.2	74.1	79.6
4	4.0	11.5	15.5	0.6	58.2	58.8	4.6	69.7	74.3	79.1
5	2.6	15.8	18.4	0.5	52.8	53.2	3.0	68.6	71.6	74.3
6+	2.2	22.3	24.5	0.3	39.9	40.2	2.5	62.1	64.7	62.1
Total	11.0	8.5	19.5	3.4	37.2	40.6	14.4	45.7	60.1	67.6

[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 say they want to wait 2 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 and who are not using any method of family planning and who want no more children.

[2] *Using 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. *Using for limiting* refers to women who are using and who want no more children. Note that the specific methods used are not taken into account here.

Among the religious groups, unmet need is highest among Muslim women, who are least likely to have their total demand satisfied. Differences in the unmet need for family planning services by caste/tribe are not marked. The final panel in Table 7.5 indicates that current family planning services are particularly inadequate for satisfying the childspacing needs of women with fewer than two living children. Consequently, the percentage of total need satisfied is much lower among women with no living children (19 percent) or one living child (42 percent) than among those who have two or more living children.

The most populous state, Uttar Pradesh, has the highest total unmet need for family planning (30 percent), followed closely by Nagaland, Bihar and Meghalaya (Table 7.6 and Figure 7.3). In fact, more than one-quarter of all Indian women with an unmet need for family planning reside in Uttar Pradesh. The total unmet need is lowest in Andhra Pradesh (10 percent). With the exception of Delhi, Punjab, Nagaland, Tripura and Goa, the unmet need for spacing is greater than the unmet need for limiting in every state. There is no difference in the unmet need for spacing and limiting in Punjab. Less than 20 percent of currently married women in Nagaland and Uttar Pradesh are using family planning and women in these two states are also least likely to have their demand for family planning satisfied. On the other hand, more than 80 percent of the overall demand for family planning in Punjab, Mizoram, Tripura, Andhra Pradesh and Kerala is being met by current programmes.

7.3   Ideal Number of Children

The above analysis has focused on the respondent's reproductive desires for the future, implicitly taking into account the number of sons and daughters that she already has. Another measure of fertility preferences is a woman's ideal family size. In determining the *ideal* number of children, the respondent is asked to perform a more difficult abstract task of stating the number of children she would like to have if she could start childbearing all over again. In the NFHS, 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 often the questions had to be repeated to ensure that they were understood by the respondent. Despite the widespread criticism that asking women to quantify the number of children they would like to have may be an alien concept in many developing countries, 90 percent of respondents were able to give a numeric response when asked for their ideal number of children.

Table 7.7 shows that for a large majority (66 percent) of women, the ideal number of children falls within the narrow range of 2-3 children. A relatively small percentage of women (3 percent) think that one child is ideal and one in five women consider four children or more as ideal. For those who gave numeric responses, the average number of children considered ideal is 2.9. The Third All India Survey conducted in 1988-89 found the ideal family size to be 3.0 (Operations Research Group, 1990). The mean ideal number of children in the NFHS ranges from 2.4 to 2.6 for women with fewer than three children to 4.0 for women who already have six or more children, and is slightly higher in rural areas than in urban areas. Thus, although the "two-child family" norm can not be said to exist in India at this time, the majority of women giving a numeric response to the ideal family size questions consider a small or

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## Table 7.6 Need for family planning services by state

Percent of currently married women with unmet need, met need, and total demand for family planning (FP) services by state, India, 1992-93

State	Unmet need for FP[1]			Met need-currently using[2]			Total demand for FP			Percent of need satisfied
	To space	To limit	Total	To space	To limit	Total	To space	To limit	Total	
India	11.0	8.5	19.5	3.4	37.2	40.6	14.4	45.7	60.1	67.6
North										
Delhi	7.6	7.9	15.4	10.7	49.6	60.3	18.2	57.5	75.7	79.6
Haryana	8.8	7.6	16.4	4.4	45.2	49.7	13.2	52.8	66.0	75.2
Himachal Pradesh	9.2	5.6	14.9	3.7	54.7	58.4	12.9	60.3	73.2	79.7
Jammu Region of J & K	8.9	8.6	17.5	5.4	44.0	49.4	14.3	52.6	66.9	73.9
Punjab	6.5	6.5	13.0	5.4	53.4	58.7	11.8	59.9	71.7	81.9
Rajasthan	10.8	9.0	19.8	1.6	30.2	31.8	12.4	39.2	51.6	61.7
Central										
Madhya Pradesh	13.1	7.4	20.5	2.0	34.6	36.5	15.1	42.0	57.1	64.0
Uttar Pradesh	16.7	13.4	30.1	2.0	17.8	19.8	18.6	31.2	49.9	39.7
East										
Bihar	14.4	10.6	25.1	1.9	21.1	23.1	16.4	31.8	48.1	47.9
Orissa	12.7	9.7	22.4	1.5	34.7	36.3	14.3	44.4	58.6	61.8
West Bengal	9.4	8.0	17.4	10.2	47.2	57.4	19.6	55.2	74.8	76.7
Northeast										
Arunachal Pradesh	12.9	7.4	20.4	5.3	18.3	23.6	18.2	25.7	44.0	53.7
Assam	11.0	10.7	21.7	8.6	34.2	42.8	19.5	44.9	64.5	66.3
Manipur	11.7	10.0	21.7	7.4	27.5	34.9	19.1	37.5	56.6	61.7
Meghalaya	20.6	4.6	25.1	5.0	15.7	20.7	25.5	20.3	45.8	45.1
Mizoram	9.2	2.8	11.9	7.1	46.7	53.8	16.2	49.4	65.7	81.8
Nagaland	12.9	13.8	26.7	1.9	11.1	13.0	14.7	25.0	39.7	32.7
Tripura	5.3	8.2	13.5	9.8	46.4	56.1	15.1	54.5	69.6	80.7
West										
Goa	7.8	7.9	15.7	5.7	42.1	47.8	13.5	49.9	63.5	75.3
Gujarat	7.6	5.5	13.1	2.6	46.7	49.3	10.2	52.2	62.4	79.0
Maharashtra	7.3	6.8	14.1	3.1	50.7	53.7	10.4	57.5	67.9	79.2
South										
Andhra Pradesh	6.3	4.1	10.4	0.9	46.1	47.0	7.2	50.3	57.4	81.9
Karnataka	11.8	6.4	18.2	2.3	46.8	49.1	14.1	53.2	67.3	73.0
Kerala	7.2	4.5	11.7	6.6	56.6	63.3	13.9	61.1	75.0	84.4
Tamil Nadu	7.8	6.7	14.6	3.3	46.5	49.8	11.1	53.2	64.4	77.4

[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 say they want to wait 2 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 and who are not using any method of family planning and who want no more children.

[2] *Using 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. *Using for limiting* refers to women who are using and who want no more children. Note that the specific methods used are not taken into account here.

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Figure 7.3
Unmet Need for Family Planning by State

Percent of Currently Married Women
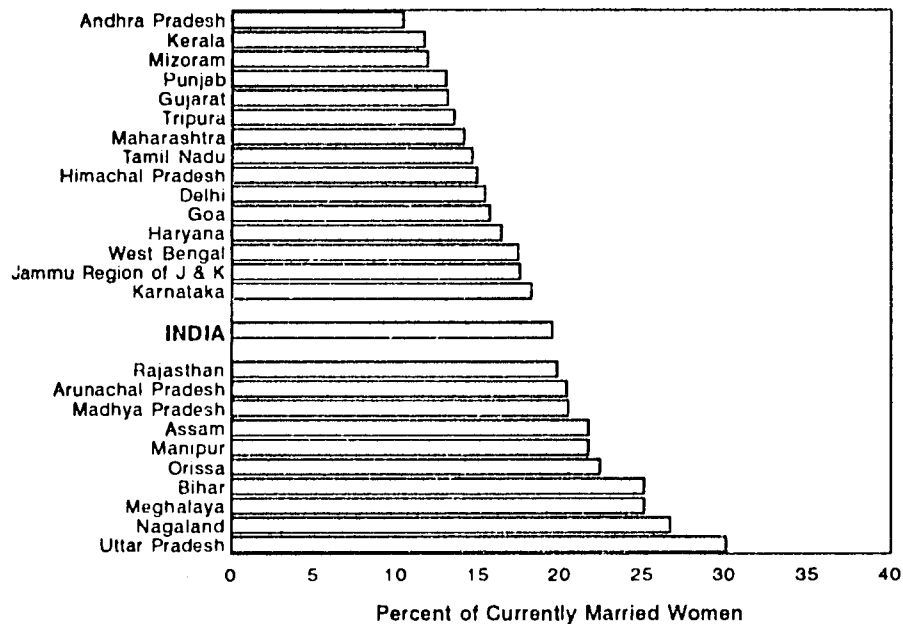
NFHS, India, 1992-93

moderate size family as ideal rather than a very large one.

Some critics argue that women tend to adjust their fertility ideals upwards in keeping with increases in their actual family size (Lightbourne and MacDonald, 1982). However, it is evident that in India a large proportion of women say that their ideal number of children is less than the number they already have. For example, among women who have six living children or more, 65 percent state that their ideal family would consist of fewer than six children. Similarly, 66 percent of women with five living children think that fewer than five children is ideal. Thus, family size norms are relatively low and nearly half of women with more than two children actually have more children than they consider ideal. This may be taken as another indicator of surplus or unwanted fertility.

Table 7.8 shows the mean ideal number of children for ever-married women by age and selected background characteristics. The mean ranges between 2.7 and 2.8 for women below age 30 and then increases steadily to 3.2 for women age 45-49. Rural women in India on average desire half a child more than urban women. The mean ideal family size declines as educational attainment increases, from 3.1 for illiterate women to 2.1 for women with at least a high school education. The ideal family size for Muslims is one child higher than for Jains and about half a child higher than for Hindus and Christians. Similarly, women belonging to scheduled tribes have an ideal family size that is half a child larger than the non-SC/ST women. There is little difference in the ideal family size by women's work status. Women whose husbands are illiterate desire one child more than women whose husbands have studied beyond

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Table 7.7   Ideal and actual number of children

Percent distribution of ever-married women by ideal number of children, and mean ideal number of children for ever-married women and currently married women, according to number of living children and residence, India, 1992-93

Ideal number of children	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
URBAN								
None	0.2	--	--	--	0.1	--	0.1	--
1	10.9	15.9	6.3	3.2	1.7	1.2	0.5	6.5
2	58.3	62.4	69.5	40.3	35.1	24.8	16.2	50.1
3	16.1	12.7	16.2	40.9	28.0	31.3	23.6	23.7
4	4.0	3.2	3.9	7.8	24.0	16.0	24.5	9.4
5	1.3	0.6	0.4	1.4	2.0	10.1	5.3	1.9
6+	0.4	0.3	0.3	0.5	1.1	2.8	10.9	1.3
Non-numeric responses	8.9	4.9	3.4	5.9	8.1	13.8	18.8	7.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	2250	4266	5880	4828	3110	1619	1503	23455
Mean ideal number[2]								
Ever-married women	2.2	2.1	2.2	2.6	2.9	3.2	3.7	2.5
Currently married women	2.2	2.1	2.2	2.6	2.9	3.2	3.7	2.5
RURAL								
None	0.1	--	--	--	--	--	--	--
1	3.3	4.6	1.5	1.4	0.8	0.5	0.5	2.0
2	40.6	46.2	47.6	25.6	21.3	14.8	10.1	32.4
3	28.1	28.3	29.7	44.2	25.3	26.7	20.7	30.6
4	11.4	9.6	11.1	15.3	33.0	22.1	24.5	16.9
5	2.1	2.1	2.1	3.0	5.1	13.0	7.9	4.1
6+	0.7	0.8	0.9	1.3	2.9	5.5	14.6	2.7
Non-numeric responses	13.7	8.4	7.0	9.0	11.6	17.4	21.7	11.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	7622	11123	13407	13676	9352	5625	5518	66322
Mean ideal number[2]								
Ever-married women	2.7	2.6	2.7	3.0	3.4	3.6	4.1	3.0
Currently married women	2.7	2.6	2.7	3.0	3.4	3.6	4.1	3.0
TOTAL								
None	0.1	--	--	--	--	--	--	--
1	5.0	7.7	3.0	1.9	1.0	0.6	0.5	3.1
2	44.6	50.7	54.3	29.5	24.7	17.0	11.5	37.0
3	25.3	23.9	25.6	43.3	25.9	27.7	21.3	28.8
4	9.7	7.8	8.9	13.4	30.8	20.8	24.5	14.9
5	1.9	1.7	1.6	2.6	4.3	12.4	7.3	3.6
6+	0.6	0.7	0.7	1.1	2.4	4.9	13.8	2.4
Non-numeric responses	12.6	7.4	5.9	8.2	10.7	16.6	21.1	10.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	9872	15389	19286	18503	12461	7244	7021	89777
Mean ideal number[2]								
Ever-married women	2.6	2.4	2.5	2.9	3.2	3.5	4.0	2.9
Currently married women	2.6	2.4	2.5	2.9	3.2	3.5	4.0	2.9

-- Less than 0.05 percent
[1] Includes current pregnancy, if any
[2] Means are calculated excluding the women giving non-numeric responses

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Table 7.8 Ideal number of children by background characteristics

Mean ideal number of children for ever-married women by age and selected background characteristics, India, 1992-93

Background characteristic	Current age								
	13-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	Total
Residence									
Urban	(2.5)	2.5	2.4	2.4	2.5	2.6	2.7	2.8	2.5
Rural	2.9	2.7	2.8	2.9	3.1	3.1	3.3	3.4	3.0
Education									
Illiterate	2.9	2.9	2.9	3.1	3.2	3.3	3.4	3.5	3.1
Lit., < middle complete	2.5	2.5	2.5	2.6	2.7	2.7	2.8	2.9	2.6
Middle school complete	*	2.4	2.3	2.3	2.4	2.5	2.5	2.6	2.4
High school and above	*	2.2	2.1	2.1	2.1	2.2	2.2	2.3	2.1
Religion									
Hindu	2.8	2.7	2.6	2.7	2.8	2.9	3.0	3.2	2.8
Muslim	(2.9)	3.0	3.0	3.3	3.5	3.6	3.8	3.8	3.3
Christian	*	2.7	2.8	2.8	2.8	3.0	3.1	3.4	2.9
Sikh	*	2.4	2.4	2.4	2.5	2.6	2.8	2.8	2.5
Jain	NC	*	2.1	2.0	2.1	2.5	(2.6)	2.7	2.3
Buddhist	*	2.6	2.3	2.4	2.8	2.7	2.7	(3.3)	2.6
Other	*	3.0	2.9	3.3	3.0	3.7	4.1	4.3	3.3
Caste/tribe									
Scheduled caste	(2.8)	2.7	2.8	2.9	3.1	3.1	3.3	3.3	3.0
Scheduled tribe	(3.0)	2.9	3.0	3.3	3.4	3.5	3.6	3.8	3.3
Other	2.8	2.7	2.6	2.7	2.8	2.9	3.0	3.2	2.8
Work status									
Not working	2.8	2.7	2.7	2.8	2.9	3.0	3.2	3.3	2.9
Working in family farm/business	(2.7)	2.7	2.8	2.9	3.0	3.0	3.2	3.4	3.0
Employed by someone else	(2.9)	2.7	2.7	2.7	2.8	2.8	2.8	3.0	2.8
Self employed	*	2.6	2.7	2.8	2.8	2.9	2.9	3.3	2.8
Husband's education									
Illiterate	3.0	2.9	3.0	3.1	3.3	3.3	3.5	3.5	3.2
Lit., < primary complete	(3.0)	2.7	2.8	2.8	2.9	3.0	3.1	3.2	2.9
Primary school complete	(2.4)	2.6	2.6	2.8	2.9	3.0	3.1	3.1	2.9
Middle school complete	*	2.6	2.6	2.6	2.8	2.9	3.0	3.2	2.8
High school complete	(2.7)	2.6	2.5	2.6	2.6	2.7	2.7	2.8	2.6
Above high school	*	2.3	2.2	2.2	2.2	2.3	2.4	2.6	2.3
Don't know, missing	*	*	*	(2.8)	*	*	*	*	2.9
Total	2.8	2.7	2.7	2.8	2.9	3.0	3.1	3.2	2.9

Note: Means are calculated excluding women who gave non-numeric responses.
NC: Not calculated because there are no cases on which to base a mean.
( ) Based on 25-49 unweighted cases
* Mean not shown; based on fewer than 25 unweighted cases

high school.

The ideal family size varies considerably by state, as shown in Table 7.9. Women in four of the seven northeastern states (Arunachal Pradesh, Meghalaya, Mizoram and Nagaland) state that at least four children are ideal. In contrast, two children are considered ideal in Tamil Nadu. In general, states in the southern, western and northern regions of the country have a lower ideal family size than states in the central, eastern and northeastern regions of the country.

Table 7.9 Ideal number of children by age and state

Mean ideal number of children for ever-married women by age and state, India, 1992-93

State	Current age								
	13-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	Total
India	2.8	2.7	2.7	2.8	2.9	3.0	3.1	3.2	2.9
North									
Delhi	NC	2.5	2.4	2.4	2.5	2.6	2.6	2.8	2.5
Haryana	*	2.4	2.5	2.5	2.6	2.6	2.7	2.8	2.6
Himachal Pradesh	NC	2.2	2.2	2.3	2.3	2.5	2.6	2.7	2.4
Jammu Region of J & K	*	2.7	2.5	2.7	2.7	2.9	3.1	3.1	2.8
Punjab	*	2.4	2.3	2.4	2.5	2.7	2.9	2.8	2.6
Rajasthan	*	2.6	2.7	3.0	3.1	3.2	3.4	3.4	3.0
Central									
Madhya Pradesh	*	2.7	2.8	3.1	3.2	3.4	3.5	3.8	3.1
Uttar Pradesh	*	3.0	3.1	3.3	3.5	3.6	3.7	3.8	3.4
East									
Bihar	(3.2)	3.2	3.1	3.3	3.5	3.5	3.8	3.8	3.4
Orissa	*	2.9	2.8	2.9	3.0	3.1	3.5	3.6	3.0
West Bengal	(2.8)	2.5	2.5	2.5	2.6	2.7	2.8	2.8	2.6
Northeast									
Arunachal Pradesh	*	3.8	4.3	4.5	4.8	4.9	5.6	(5.9)	4.7
Assam	*	3.0	2.9	3.1	3.2	3.3	3.5	3.7	3.2
Manipur	NC	*	3.2	3.5	3.7	4.0	4.2	4.4	3.7
Meghalaya	*	3.6	4.2	4.4	4.7	5.1	5.2	5.4	4.6
Mizoram	NC	(3.5)	3.8	3.8	4.1	4.5	4.9	5.1	4.3
Nagaland	NC	(3.0)	3.4	3.7	4.2	4.5	4.7	4.2	4.0
Tripura	*	2.5	2.4	2.5	2.5	2.7	2.9	2.6	2.6
West									
Goa	*	(2.6)	2.4	2.3	2.4	2.8	3.0	3.1	2.7
Gujarat	*	2.6	2.5	2.5	2.6	2.5	2.7	2.8	2.6
Maharashtra	(3.0)	2.5	2.4	2.5	2.5	2.6	2.6	2.8	2.5
South									
Andhra Pradesh	(2.6)	2.5	2.5	2.7	2.8	2.9	3.2	3.3	2.7
Karnataka	*	2.5	2.4	2.4	2.5	2.6	2.8	2.9	2.5
Kerala	*	2.7	2.5	2.4	2.5	2.7	2.9	3.2	2.6
Tamil Nadu	*	2.1	2.1	2.0	2.0	2.1	2.1	2.2	2.1

Note: Means are calculated excluding women who gave non-numeric responses.
NC: Not calculated because there are no cases on which to base a mean.
( ) Based on 25-49 unweighted cases
* Mean not shown; based on fewer than 25 unweighted cases

In the NFrS, women who gave a numerical response to the question about the ideal number of children were further asked how many of these children they would like to be boys and how many they would like to be girls. Parental attitudes and aspirations regarding the sex of their children have attracted considerable research interest because of the belief that sex preference may sustain higher fertility levels than would be the case if parents are indifferent to the sex of their children (Cleland et al., 1983). Researchers argue that childbearing may continue beyond a preferred family size if women (or couples) desire a particular combination of sons and daughters. Empirical support for a strong influence of son preference on fertility, however, is rather weak (Arnold, 1987; Bairagi and Langsten, 1986). Numerous research studies in India have found a strong preference for sons, particularly in North India (Das Gupta, 1987; Miller, 1981; Population Research Centre, CRRID, 1993; Rastogi and Raj Kumari, 1992;

Basu, 1989; Khan et al., 1989).

Stated preferences about the sex composition of children in the ideal family (Table 7.10) confirm the existence of a strong son preference in India that was observed earlier in the discussion of the preferred sex of the next child. Overall, the ideal family size consists of 1.6 sons, 1.1 daughters and 0.2 children of either sex. Son preference is stronger in rural areas than in urban areas. Sons are preferred to daughters in both urban and rural areas irrespective of the number and sex composition of a woman's living children. There is a general tendency for women who have more daughters at each parity to indicate a weaker preference for sons.

Table 7.10 Ideal sex composition of children by actual sex composition of living children

Mean ideal number of sons and daughters for ever-married women by sex composition of living children, according to residence, India, 1992-93

Sex composition of living children	Urban			Rural			Total		
	Sons	Daughters	Doesn't matter	Sons	Daughters	Doesn't matter	Sons	Daughters	Doesn't matter
None	0.9	0.7	0.5	1.4	1.0	0.3	1.3	0.9	0.3
1 child	0.9	0.7	0.4	1.4	0.9	0.2	1.3	0.9	0.3
1 son	1.0	0.7	0.4	1.4	0.9	0.2	1.3	0.8	0.3
No sons	0.9	0.8	0.4	1.4	1.0	0.2	1.3	0.9	0.3
2 children	1.0	0.8	0.4	1.5	1.0	0.2	1.3	0.9	0.3
2 sons	1.1	0.7	0.5	1.5	0.8	0.3	1.4	0.8	0.3
1 son	1.0	0.9	0.3	1.5	1.0	0.2	1.3	1.0	0.2
No sons	1.0	0.9	0.4	1.4	1.2	0.2	1.3	1.1	0.3
3 children	1.4	1.0	0.3	1.7	1.1	0.2	1.6	1.1	0.2
3 sons	1.5	0.8	0.3	1.9	0.9	0.2	1.8	0.9	0.2
2 sons	1.5	0.9	0.3	1.7	1.0	0.2	1.7	1.0	0.2
1 son	1.3	1.0	0.3	1.6	1.2	0.2	1.5	1.2	0.2
No sons	1.2	1.1	0.4	1.6	1.3	0.2	1.5	1.2	0.2
4+ children	1.7	1.2	0.3	2.1	1.4	0.2	2.0	1.3	0.2
2 or more sons	1.8	1.2	0.3	2.1	1.4	0.2	2.1	1.3	0.2
1 son	1.5	1.2	0.2	1.8	1.3	0.2	1.7	1.3	0.2
No sons	1.4	1.2	0.4	1.8	1.4	0.2	1.7	1.3	0.2
Total	1.2	0.9	0.4	1.7	1.1	0.2	1.6	1.1	0.2

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

7.4 Fertility Planning

Another way to gauge the extent of unwanted fertility is to focus on recent births. For each child born in the four years before the survey and for each current pregnancy, women were asked whether the pregnancy was wanted at that time (planned), wanted at a later time (mistimed), or not wanted at all (unwanted). Information from these questions may result in underestimation of unplanned pregnancy due to rationalization. A woman may retrospectively declare an unplanned pregnancy as one that was wanted at that time. Nevertheless, these questions form a potentially powerful indicator of the degree to which couples successfully control their childbearing.

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Table 7.11 shows the percentage distribution of births during the four years preceding the survey and current pregnancies by fertility planning status, according to selected background characteristics. Almost one out of four births in India (including current pregnancies) in the four years preceding the survey was not wanted at the time the woman became pregnant. Nine percent were unwanted and 14 percent were mistimed. Differentials in fertility planning by

Table 7.11 Fertility planning

Percent distribution of births during the four years preceding the survey and current pregnancies by fertility planning status, according to selected background characteristics, India, 1992-93

Background characteristic	Planning status of pregnancy				Total percent	Number of births
	Wanted then	Wanted later	Wanted no more	Missing		
Residence						
Urban	75.2	15.2	9.3	0.3	100.0	12878
Rural	77.4	13.4	8.6	0.5	100.0	44299
Education						
Illiterate	78.2	11.7	9.6	0.5	100.0	37845
Lit., < middle complete	72.4	18.2	9.1	0.3	100.0	9509
Middle school complete	73.8	19.6	6.5	0.2	100.0	4089
High school and above	78.2	16.8	4.7	0.2	100.0	5734
Religion						
Hindu	77.4	13.6	8.5	0.5	100.0	45412
Muslim	73.6	14.7	11.4	0.2	100.0	8765
Christian	76.2	17.2	6.3	0.3	100.0	1174
Sikh	82.7	11.3	6.0	--	100.0	970
Jain	84.1	11.2	4.7	--	100.0	177
Buddhist	80.1	13.4	6.4	0.1	100.0	398
Other	75.6	19.0	5.3	0.1	100.0	281
Caste/tribe						
Scheduled caste	77.0	13.0	9.2	0.8	100.0	7750
Scheduled tribe	82.6	10.7	6.1	0.6	100.0	5483
Other	76.2	14.4	9.0	0.4	100.0	43944
Birth order[1]						
1	89.0	10.2	0.4	0.4	100.0	15934
2	79.1	19.0	1.5	0.4	100.0	13754
3	75.8	15.9	7.9	0.4	100.0	9983
4	71.7	14.0	13.6	0.6	100.0	6621
5	66.7	12.1	20.7	0.5	100.0	4293
6+	56.6	9.7	33.0	0.6	100.0	6592
Mother's age at birth[2]						
13-14	83.4	16.0	0.4	0.2	100.0	471
15-19	83.3	14.9	1.2	0.6	100.0	12699
20-24	79.6	15.7	4.3	0.4	100.0	21675
25-29	75.0	13.3	11.4	0.3	100.0	13206
30-34	68.0	9.3	22.3	0.4	100.0	6136
35-39	57.6	7.3	34.2	0.9	100.0	2245
40-44	53.5	6.1	39.3	1.0	100.0	645
45-49	54.6	6.3	36.4	2.8	100.0	98
Total	76.9	13.8	8.8	0.5	100.0	57177

-- Less than 0.05 percent
[1] Includes current pregnancy, if any
[2] For current pregnancy, estimated maternal age at birth

residence and caste/tribe are not very substantial. Although fertility planning does not show a clear trend by education, more educated women are less likely to have unwanted births. However, mistimed births are more common among literate than illiterate women. Muslim women are most likely to have unwanted births and Christian women and women belonging to other religious groups not otherwise classified are most likely to have mistimed births. Major differences are apparent by birth order and the age of the mother at the time of the birth. First births are relatively well planned, second and third births are most likely to be mistimed, and fourth and higher order births are particularly likely to be unwanted. Similarly, the percentage of pregnancies that were unplanned increases steadily with increasing age to a level of 45 percent for women age 40-44. Mistimed births are more common among younger women (below age 30), whereas older women are more likely to have unwanted births.

The impact of unwanted fertility can be estimated by comparing *wanted fertility rates* with the total fertility rates presented in Chapter 5. The wanted fertility rate is calculated in the same way as the total fertility rate, except that unwanted births are excluded from the numerator. A birth is considered unwanted if the number of living children at the time of conception was greater than or equal to the current ideal number of children, as reported by the respondent. Women who gave a non-numeric response to the question on the ideal number of children were assumed to want all their births. The wanted fertility rate represents the level of fertility that theoretically would result if all unwanted births were prevented. A comparison of the total fertility rate with the total wanted fertility rate indicates the potential demographic impact of the elimination of all unwanted births. Table 7.12 provides information on wanted fertility rates.

The wanted TFR for India of 2.6 is lower by three-quarters of a child (or 22 percent) than the TFR of 3.4. Large differences between these two measures are evident for all population subgroups, and especially Muslims, scheduled castes, illiterate women, and rural women.

Table 7.13 provides similar information for each state. In Haryana, Assam and Uttar Pradesh, the wanted TFR is at least one child less than the TFR. On the other hand, the smallest differences between the wanted TFR and TFR are seen in Kerala and Mizoram (0.2 child). In general, the northern states show the largest percentage difference between the two rates (23-31 percent). In contrast, the difference between the two rates is 10 percent or less in Kerala and in four of the seven northeastern states (Arunachal Pradesh, Meghalaya, Mizoram and Nagaland).

For India as a whole, the total fertility rate would drop by 22 percent if unwanted pregnancies could be eliminated. A reduction of this magnitude would bring the TFR down more than halfway between its current level and the replacement level of approximately 2.1 children per woman. Similarly, the contraceptive prevalence rate would increase from 41 percent to 60 percent if the unmet need for family planning could be totally satisfied. These underlying facts (based on women's stated preferences) provide a clear opportunity for improving the results of the family welfare programme. If women's expressed needs can be satisfied, then the quality of their lives and their children's lives will improve and considerable progress will be made toward achieving the country's population goals.

Table 7.12 Wanted fertility rates

Total wanted fertility rates and total fertility rates for the three years preceding the survey, by selected background characteristics, India, 1992-93

Background characteristic	Total wanted fertility rate	Total fertility rate
Residence		
Urban	2.09	2.70
Rural	2.86	3.67
Education		
Illiterate	3.15	4.03
Literate, < middle complete	2.31	3.01
Middle school complete	1.95	2.49
High school and above	1.78	2.15
Religion		
Hindu	2.58	3.30
Muslim	3.35	4.41
Christian	2.41	2.87
Sikh	1.79	2.43
Other	2.20	2.77
Caste/tribe		
Scheduled caste	2.93	3.92
Scheduled tribe	2.94	3.55
Other	2.57	3.30
Total	2.64	3.39

Note: Rates are calculated based on births in the period 1-36 months before the interview to women age 15-49. The total fertility rates are the same as those presented in Table 5.3.

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Table 7.13 Wanted fertility rates by state

Total wanted fertility rates and total fertility rates for the three years preceding the survey, by state, India, 1992-93

State	Total wanted fertility rate	Total fertility rate
India	2.64	3.39
North		
Delhi	2.20	3.02
Haryana	2.81	3.99
Himachal Pradesh	2.04	2.97
Jammu Region of J & K	2.21	3.13
Punjab	2.15	2.92
Rajasthan	2.78	3.63
Central		
Madhya Pradesh	3.21	3.90
Uttar Pradesh	3.82	4.82
East		
Bihar	3.18	4.00
Orissa	2.32	2.92
West Bengal	2.20	2.92
Northeast		
Arunachal Pradesh	3.84	4.25
Assam	2.52	3.53
Manipur	2.29	2.76
Meghalaya	3.39	3.73
Mizoram	2.09	2.30
Nagaland	2.95	3.26
Tripura	1.98	2.67
West		
Goa	1.60	1.90
Gujarat	2.33	2.99
Maharashtra	2.13	2.86
South		
Andhra Pradesh	2.09	2.59
Karnataka	2.18	2.85
Kerala	1.82	2.00
Tamil Nadu	1.76	2.48

Note: Rates are calculated based on births in the period 1-36 months before the interview to women age 15-49. The total fertility rates are the same as those presented in Table 5.2.

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CHAPTER 8

MORBIDITY AND MORTALITY

This chapter presents data on the prevalence of certain diseases as well as mortality rates, especially for infants and young children. This type of information is relevant both to the demographic assessment of the population and to health policies and programmes. Mortality estimates are also useful (in conjunction with fertility estimates) for projecting the future size of the population. Detailed information on the mortality of children can be used to identify sectors of the population that are at high risk and in need of health services.

The NFHS collected information on mortality and morbidity in both the Household and Woman's Questionnaires. The Household Questionnaire includes questions on individuals in the household suffering from blindness, tuberculosis, leprosy, physical impairment of the limbs, and malaria. The Household Questionnaire also includes a question on deaths occurring in the household during the past two years. The Woman's Questionnaire collects information on the survival status of all births, the age at death if the child died, and the prevalence of common childhood diseases for children under 4 years of age. The prevalence and treatment of childhood diseases are discussed in Chapter 9.

8.1 Morbidity and Physical Impairments

Because demographic sample surveys generally do not include questions on the prevalence of diseases, there is little experience on which to base an assessment of the validity and reliability of such questions. The patterns shown by the morbidity data analyzed in this section are generally plausible, suggesting that the questions have provided useful information. At the same time, there is little to indicate whether the overall prevalence levels are correct. It is certainly possible that the results of the survey substantially understate the prevalence of certain conditions because some survey respondents fail to report them.

It is worth noting some of the possible reasons for failure to report particular health conditions. Conditions carrying a stigma, such as leprosy, may be underreported due to intentional concealment by respondents or embarrassment on the part of interviewers about asking these questions. Respondents are aware of certain conditions, such as blindness and physical impairment, but may be unaware of others unless they have been diagnosed by medical personnel. Moreover, given the linguistic diversity in India, locally as well as nationally, respondents may know that a household member suffers from a given condition but fail to report it because they do not recognize the words used by the interviewer in asking the question.

Table 8.1 shows, for all India, the prevalence in the household population of the five health conditions listed in the Household Questionnaire. Of the five, malaria has the highest incidence, afflicting 3,324 per 100,000 population during the three months prior to the survey. Blindness (partial or complete), reported for 3,001 per 100,000 population, is second most prevalent. The remaining diseases all show an overall incidence of less than 700 per 100,000.

Table 8.1 Morbidity and physical impairments

Number of persons per 100,000 household population suffering from blindness, tuberculosis, leprosy, physical impairment of the limbs, and malaria, according to age, sex and residence, India, 1992-93

Demographic characteristic	Number of persons per 100,000 suffering from:						
	Blindness		Tuberculosis	Leprosy	Physical impairment of limbs	Malaria during the last three months	Number of usual residents
	Partial	Complete					
URBAN							
Age							
0 - 4	97	164	140	42	366	2072	13964
5 -14	366	698	181	74	512	1789	31174
15-59	2055	177	368	104	521	1634	77904
60-69	12747	877	998	150	900	1800	5669
70+	17772	2035	1033	72	2141	1817	3341
Sex							
Male	1972	366	397	104	671	1655	68595
Female	2666	386	286	79	439	1810	63456
Total	2306	375	344	92	559	1729	132051
RURAL							
Age							
0 - 4	220	195	81	29	461	3650	47207
5 -14	324	525	117	68	688	4026	96109
15-59	2210	204	617	152	598	3749	195415
60-69	15096	1244	1812	371	1183	5005	18666
70+	21222	3252	1731	297	1721	4546	11044
Sex							
Male	2482	411	625	162	814	3984	188843
Female	2900	450	393	95	513	3804	179599
Total	2686	430	512	130	667	3896	368441
TOTAL							
Age							
0 - 4	192	188	95	32	440	3290	61172
5 -14	334	567	132	69	645	3478	127283
15-59	2166	196	546	138	576	3146	273319
60-69	14549	1159	1623	320	1117	4258	24335
70+	20421	2970	1569	245	1818	3912	14384
Sex							
Male	2346	399	564	147	776	3363	257438
Female	2839	433	365	91	494	3283	243055
Total	2585	416	467	120	639	3324	500492

Note: Table excludes persons with missing information on sex.

Malaria

In the NFHS, more than 3 percent of the population was reported to have malaria in the three months before the survey. It should be noted that the NFHS was not undertaken at the same time of the year in all states and, hence, the calendar dates of the reference period (three months prior to the survey) for the assessment of the prevalence of malaria vary from state to state. Since there is seasonal variation in the incidence of malaria, the prevalence rates of malaria for any state cannot be assumed to reflect the situation throughout the year in that state. However, the data collection was conducted in three phases throughout the year, and hence the

prevalence rate for total India may be taken as more representative of the situation throughout the year.

The prevalence of malaria is more than twice as high in rural areas (3,896 per 100,000) than in urban areas (1,729 per 100,000), and is slightly higher for males than for females (3,363 per 100,000 compared with 3,283 per 100,000). The sex differential is very small in both urban and rural areas. Differences in prevalence among age groups are modest but suggest that prevalence is higher for those age 60 and over than for those below age 60 for India as a whole. This is also true for rural areas, which constitute the bulk of India's population, but in urban areas the prevalence of malaria is highest among children age 0-4.

Partial and Complete Blindness

The overall prevalence of partial blindness is 2,585 per 100,000 population, with slightly lower prevalence in urban than in rural areas (2,306 compared with 2,686 per 100,000). Prevalence rates range from 192 per 100,000 for persons age 0-4 to 20,421 per 100,000 for persons age 70 and over. The much higher prevalence among older persons is striking and probably reflects a combination of historical improvements in the prevention of blindness and the tendency for blindness to increase with age at all periods in history. In both urban and rural areas, females are more prone to partial blindness than are males. In the country as a whole, the prevalence of partial blindness is 2,839 per 100,000 for females and 2,346 per 100,000 for males.

The overall prevalence of complete blindness is 416 per 100,000 population. The NFHS estimate of total blindness is considerably higher than the 1981 Census estimate of 73 per 100,000 (Office of the Registrar General and Census Commissioner, 1983). This is probably indicative of relatively high underenumeration in the census rather than a substantial increase in blindness between 1981 and 1992-93.

The prevalence of complete blindness is slightly higher in rural areas (430 per 100,000) than in urban areas (375 per 100,000). Females are more prone than males to total blindness in both urban and rural areas, although the differences between the sexes are small. As expected, complete blindness is also far more prevalent among the old than among the young or middle-aged.

Physical Impairment of the Limbs

The overall prevalence of persons with physically impaired limbs is 639 per 100,000, with a slightly higher prevalence in rural areas than in urban areas. Physical impairment of the limbs is more common among males (776 per 100,000) than among females (494 per 100,000). The sex differential is similar in urban and rural areas. As with blindness, impairment of the limbs is much more prevalent among those age 60 and over than among younger people: 440 to 645 per 100,000 at ages 0-4 and 5-14 compared with 1,818 per 100,000 at age 70 and over.

Tuberculosis

Tuberculosis, which is becoming an increasing problem worldwide has an overall prevalence of 467 per 100,000, with rural areas once again having a higher prevalence than urban areas (512 per 100,000 compared with 314 per 100,000). The prevalence of tuberculosis is higher among males (564 per 100,000) than among females (365 per 100,000). Age differences are marked, ranging from 95 per 100,000 at age 0-4 to about 1,600 per 100,000 at ages 60 and over.

Leprosy

The reported prevalence of leprosy is only 120 per 100,000. The observed sex difference is small, with higher prevalence for males than for females in both urban and rural areas. The prevalence of leprosy tends to rise with age, but is slightly lower at age 70 and over than at age 60-69. This pattern prevails in both urban and rural areas. It is not clear why prevalence falls off after age 70, but it could be due to lower probabilities of survival for persons who contracted leprosy further in the past.

Comparisons by State

Table 8.2 shows comparisons of prevalence rates for morbidity and physical impairments by state. The prevalence of partial blindness varies considerably by state, from a low of 557 per 100,000 in Meghalaya to a high of 5,142 per 100,000 in Andhra Pradesh. The states with prevalence rates below 1,000 per 100,000 are Meghalaya, Jammu, Tamil Nadu, Punjab, Haryana, Arunachal Pradesh, West Bengal, Assam and Himachal Pradesh. The states with prevalence rates above 2,500 per 100,000 are Andhra Pradesh, Karnataka, Rajasthan, Madhya Pradesh, Maharashtra, Orissa, Gujarat and Uttar Pradesh.

Variation in the prevalence rate for complete blindness is also large. In this case the prevalence rate ranges from 115 per 100,000 in Mizoram to 842 per 100,000 in Andhra Pradesh. The states with prevalence rates below 200 per 100,000 are Mizoram, Manipur, Nagaland, Haryana, West Bengal, Assam and Punjab. The states with prevalence rates above 400 per 100,000 include Andhra Pradesh, Uttar Pradesh, Rajasthan, Bihar, Madhya Pradesh, Himachal Pradesh and Gujarat. The prevalence of partial blindness and the prevalence of complete blindness are positively correlated at 0.75; in most cases, the higher the prevalence of partial blindness, the higher the incidence of complete blindness.

State differentials are also substantial for the other conditions examined. Physical impairment of the limbs is most common in Nagaland but it is also a substantial problem in Punjab and the southern states of Andhra Pradesh, Karnataka and Tamil Nadu. Levels of tuberculosis are particularly high in Manipur, Arunachal Pradesh and Rajasthan and leprosy is reported to be relatively high in Uttar Pradesh and Manipur. 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 the belt extending from Rajasthan through Uttar Pradesh and Madhya Pradesh to Orissa. On the other hand, there were very few reports of malaria in Kerala, Goa and Delhi. No state is worse than the national average for all of the

Table 8.2 Morbidity and physical impairments by state

Number of persons per 100,000 household population suffering from blindness, tuberculosis, leprosy, physical impairment of the limbs, and malaria by state, India, 1992-93

	Number of persons per 100,000 suffering from:					
	Blindness				Physical impairment	Malaria during the last three
State	Partial	Complete	Tuberculosis	Leprosy	of limbs	months
India	2585	416	467	120	639	3324
North						
Delhi	1269	208	192	101	240	554
Haryana	679	145	327	14	681	933
Himachal Pradesh	929	455	242	56	562	1141
Jammu Region of J & K	620	249	245	18	663	853
Punjab	664	199	238	28	841	2546
Rajasthan	4182	479	724	128	593	5103
Central						
Madhya Pradesh	3353	478	435	136	733	4728
Uttar Pradesh	2557	544	560	222	632	7395
East						
Bihar	2270	479	595	123	712	1428
Orissa	2842	319	555	96	583	5148
West Bengal	753	161	357	47	386	678
Northeast						
Arunachal Pradesh	718	294	938	110	460	4213
Assam	914	192	638	36	406	2707
Manipur	1319	123	951	199	460	1641
Meghalaya	557	202	321	17	590	4723
Mizoram	1409	115	311	33	459	4636
Nagaland	1237	136	491	153	1101	2778
Tripura	1141	289	289	0	482	2619
West						
Goa	2456	258	179	16	532	243
Gujarat	2819	447	308	29	539	3228
Maharashtra	3214	320	293	72	573	3742
South						
Andhra Pradesh	5142	842	407	118	785	1944
Karnataka	4517	383	136	132	795	457
Kerala	1104	300	586	18	662	112
Tamil Nadu	632	204	703	209	759	576

diseases or medical conditions, but three states (West Bengal, Tripura and Goa) consistently have lower prevalence than the national average.

8.2 Crude Death Rates and Age-Sex-Specific Death Rates

Table 8.3 shows crude death rates (CDRs) and age-sex-specific death rates by residence for the usual resident population of India, as estimated from both the NFHS and the Sample Registration System (SRS), which is maintained by the Office of the Registrar General. The death rates from the NFHS are based on deaths occurring to usual residents of the household

Table 8.3 Crude death rates and age-sex specific death rates

Crude death rates (CDR) and age-sex specific death rates from the NFHS and the SRS, by residence, India, 1991-92

Age	NFHS (1991-92)			SRS (1991-92)		
	Male	Female	Total	Male	Female	Total
URBAN						
0 - 4	14.4	15.8	15.1	15.4	16.3	15.8
5 - 9	1.6	1.9	1.7	1.4	1.6	1.5
10-14	1.6	0.3	1.0	0.8	0.9	0.9
15-19	1.3	1.7	1.5	1.3	1.6	1.4
20-24	1.8	1.4	1.6	1.8	2.1	2.0
25-29	2.5	2.4	2.5	2.2	2.2	2.3
30-34	2.3	2.8	2.5	2.5	2.1	2.3
35-39	4.0	2.1	3.1	3.5	2.9	3.3
40-44	4.5	2.3	3.5	4.9	3.2	4.1
45-49	5.7	4.9	5.4	8.3	4.2	6.4
50-54	11.7	5.4	8.9	12.6	7.9	10.5
55-59	16.5	10.1	13.2	20.2	13.7	17.1
60-64	33.6	15.5	24.3	31.4	20.6	26.0
65-69	41.2	22.9	32.3	41.2	34.3	37.6
70+	95.8	94.1	95.0	88.7	78.2	83.1
CDR	8.3	6.9	7.6	7.4	6.8	7.1
RURAL						
0 - 4	25.4	25.9	25.7	27.7	30.7	29.1
5 - 9	2.3	2.6	2.5	2.8	3.5	3.2
10-14	1.6	2.2	1.9	1.5	1.8	1.6
15-19	2.2	3.4	2.8	2.0	2.8	2.4
20-24	2.9	3.2	3.0	2.6	3.6	3.1
25-29	2.4	3.1	2.8	2.8	3.5	3.1
30-34	2.7	3.4	3.0	3.5	3.4	3.4
35-39	4.0	3.3	3.7	4.3	3.9	4.1
40-44	5.3	3.9	4.7	5.9	4.7	5.3
45-49	8.2	4.6	6.5	9.5	6.1	7.8
50-54	10.1	10.9	10.5	13.5	9.8	11.7
55-59	14.0	9.8	11.7	20.8	14.9	17.9
60-64	24.2	20.3	22.3	33.1	25.3	29.2
65-69	30.8	29.7	30.3	48.0	40.1	44.0
70+	91.0	99.9	94.9	98.1	89.7	93.7
CDR	10.6	10.3	10.4	10.7	10.8	10.8
TOTAL						
0 - 4	23.0	23.6	23.3	25.3	27.9	26.5
5 - 9	2.1	2.5	2.3	2.5	3.1	2.8
10-14	1.6	1.7	1.6	1.4	1.6	1.5
15-19	2.0	2.9	2.5	1.9	2.6	2.2
20-24	2.5	2.7	2.6	2.4	3.2	2.8
25-29	2.4	2.9	2.7	2.7	3.2	2.9
30-34	2.6	3.2	2.9	3.3	3.1	3.2
35-39	4.0	3.0	3.5	4.1	3.6	3.9
40-44	5.1	3.4	4.3	5.4	4.2	5.0
45-49	7.5	4.7	6.2	9.2	5.7	7.5
50-54	10.6	9.4	10.0	13.3	9.4	11.4
55-59	14.7	9.9	12.1	20.7	14.6	17.7
60-64	26.2	19.1	22.8	32.7	24.3	28.6
65-69	33.2	28.0	30.8	46.7	39.0	42.7
70+	92.1	98.5	95.0	96.1	87.3	91.5
CDR	10.0	9.4	9.7	10.0	10.0	10.0

Note: Crude death rates and age-sex specific death rates from the NFHS are based on the annual number of deaths reported for the *de jure* population during the two years prior to the survey. The SRS rates are the average rates for 1991-92, based on the *de jure* population.
Source for the SRS: Office of the Registrar General (1993a, 1994)

during the two years preceding the survey (approximately 1991-92) as obtained from the Household Questionnaire, and the death rates from the SRS are the average rates for 1991-92. The death rates from the NFHS are calculated as the annual number of deaths in each age group in the two-year period before the date of interview per 1,000 usual residents. The denominator of this measure is calculated by projecting the number of usual residents at the time of the survey back to the mid-point of the time period on the basis of the intercensal population growth rate in the state. The urban intercensal growth rate is assumed to be the same for all age and sex groups in urban areas. Similarly, the rural intercensal growth rate is applied to all rural age and sex groups and the total intercensal growth rate is applied to the total population in each age and sex group.

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 generally resulted in a substantial understatement of deaths. We, therefore, begin by considering the evidence on the completeness of reporting of deaths. The Sample Registration System (SRS) provides a useful comparison.

Table 8.3 shows an estimated CDR for India of 9.7 per 1,000 in the NFHS, compared with 10.0 per 1,000 from the SRS. Therefore, overall estimates from the two sources agree quite well. The rural estimates are also quite similar (10.4 per 1,000 in the NFHS and 10.8 per 1,000 in the SRS). The NFHS estimate for urban areas (7.6 per 1,000) is slightly higher than the SRS estimate (7.1 per 1,000). The urban CDR estimated by the NFHS is 27 percent lower than the rural CDR. The NFHS estimate of the CDR may be subtracted from the earlier NFHS estimate of the crude birth rate from the household birth record (Table 5.1 in Chapter 5) to calculate the rate of natural increase of the population of India. The rate of natural increase so estimated is 18.3 per 1,000 population per year for the two-year period before the survey. These estimates imply a doubling time of 38 years for India's population in the absence of net international migration. At this rate of growth, India's population will reach one billion in the year 2000 and 1.5 billion in 2022.

By sex, the male CDR (10.0 in both the NFHS and the SRS) is slightly higher than the female CDR in the NFHS (9.4) and the same as the female CDR in the SRS (10.0). Table 8.3 also compares age-sex-specific death rates by residence from the NFHS and the SRS. On the whole, the two sets of estimates agree rather well, with a tendency for age-specific death rates from the NFHS to be slightly lower than corresponding rates from the SRS. In both cases, death rates are relatively high for the youngest children (age 0-4), uniformly low at ages 5-44, and rapidly increasing at ages 45 and above.

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 (Preston, 1990; Ghosh, 1987). In the NFHS, females have higher age-specific death rates up to age 35, after which males generally have higher rates.

Comparisons among the NFHS estimates of the CDR by state (Table 8.4) show that the CDR ranges from 1.9 per 1,000 in Nagaland to 11.9 per 1,000 in Uttar Pradesh, with most estimates falling in the range of 8-12 per 1,000. The estimates for Nagaland and Mizoram seem implausibly low, as does the estimate for urban residents of Arunachal Pradesh. It should be

Table 8.4 Crude death rates by state

Crude death rates from the NFHS and the SRS, by state and residence, India, 1991-92

State	NFHS (1991-92)			SRS (1991-92)		
	Urban	Rural	Total	Urban	Rural	Total
India	7.6	10.4	9.7	7.1	10.8	10.0
North						
Delhi	8.0	4.1	7.8	6.2*	7.9*	6.3*
Haryana	8.1	9.3	9.0	6.9	8.9	8.5
Himachal Pradesh	6.5	8.6	8.4	6.5b	8.7b	8.6b
Jammu Region of J & K	8.9	8.6	8.7	U	U	U
Punjab	7.2	7.0	7.1	6.1	8.7	8.0
Rajasthan	7.2	7.9	7.8	7.7	10.6	10.1
Central						
Madhya Pradesh	9.1	10.7	10.3	9.2b	14.9b	13.8b
Uttar Pradesh	7.7	13.0	11.9	8.3	12.0	11.3
East						
Bihar	9.0	12.0	11.5	6.3	10.2	9.8
Orissa	7.4	11.6	11.0	6.5	13.5	12.8
West Bengal	8.6	10.2	9.7	6.7b	8.9b	8.3b
Northeast						
Arunachal Pradesh	0.8	9.1	8.2	3.3*	12.8*	9.3*
Assam	7.0	11.9	11.3	6.9	11.8	11.5
Manipur	5.3	6.1	5.8	6.1*	5.5*	5.6*
Meghalaya	6.6	6.1	6.2	3.4*	9.4*	8.4*
Mizoram	4.2	2.7	3.4	U	U	U
Nagaland	1.7	2.0	1.9	0.8*	4.4*	3.7*
Tripura	13.0	11.6	11.8	5.3*	7.6*	7.4*
West					•	
Goa	5.9	7.1	6.5	6.0*	7.8*	7.2*
Gujarat	7.2	10.2	9.1	7.9	8.8	8.5
Maharashtra	7.3	8.1	7.7	6.2	9.3	8.2
South						
Andhra Pradesh	7.4	9.2	8.7	6.7b	10.5b	9.7b
Karnataka	6.2	8.1	7.5	6.9	9.8	9.0
Kerala	6.1	6.3	6.2	5.3	6.2	6.0
Tamil Nadu	7.3	11.0	9.7	7.6b	9.5b	8.8b

Note: Crude death rates from the NFHS are based on the annual number of deaths reported for the *de jure* population during the two years prior to the survey. The SRS rates are the average rates for 1991-92, based on the *de jure* population.
U: Not available
*Three years moving average, 1990-92
bAverage rates for 1990-91
Source for the SRS: Office of the Registrar General (1993a, 1993b, 1994)

pointed out, however, that the sampling errors are relatively large in these areas due to the small size of the samples. Delhi, Jammu, Punjab, Meghalaya, Mizoram and Tripura are the only exceptions to the general tendency of the rural CDR to exceed the urban CDR.

Table 8.4 also shows the average CDRs for the year 1991-92 from the SRS for 23 states for which the SRS has published estimates. The NFHS and SRS estimates differ by less than 1 per 1,000 in 9 of the 17 major states. In the remaining major states, the NFHS estimates are

higher than the SRS estimates for Delhi, Bihar and West Bengal and lower than the SRS estimates for Rajasthan, Madhya Pradesh, Orissa, Andhra Pradesh and Karnataka. In the six small states for which comparisons can be made, two states have estimates that differ by less than 1 per 1,000 and the SRS estimates are higher in three of the four remaining states.

8.3 Infant and Child Mortality

Definitions of Infant and Child Mortality

All respondents in the NFHS were asked to provide a complete birth history, including sex, date of birth, survival status, and age at the time of the survey or age at death for each live birth. For children who had died, age at death was recorded in days for children dying in the first month of life, in months for 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 difference between infant and neonatal mortality;
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 birthday;
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 deaths are accurately reported and recorded. Estimated rates of infant and child mortality are subject to both sampling and nonsampling errors. 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 long before the survey than for children born recently. Failure to report deaths will result in mortality figures that are too low. If underreporting is more severe for children born longer ago, the estimates will tend to

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[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 probabilities, calculated according to the conventional life table approach. For any calendar period, deaths and exposure in that 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 1.00:

$$_nq_x = 1 - \prod_i (1 - q_i)$$

understate any decline in mortality that has occurred.

Underreporting of infant deaths, in particular, is usually most severe for deaths which occur very early in infancy. If deaths in the early neonatal period are selectively underreported, then 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 hypothesis that underreporting of early infant deaths is more common for births that occurred longer before the survey. Results from Table D.5 (see Appendix D) suggest that early infant deaths have *not* been severely underreported in India as a whole in the NFHS, since 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 70 in the five years preceding the survey to 66 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 (see Appendix Table D.6) are also quite high, and again they increase slightly over time.

One problem that is inherent in most retrospective surveys is heaping of ages at death on certain digits, e.g., 6, 12 and 18 months. Misreporting of the 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 (i.e., at ages 12-23 months), may have actually occurred during infancy (i.e., at ages 0-11 months). In this case, heaping would bias the infant mortality rate ($_1q_0$) downward and child mortality ($_4q_1$) upward.

In the NFHS, there was some misreporting of age at death due to a preference for reporting age at death at 3, 6, 8, 10, 12, 15, 20 and 25 days (see Table D.5 in Appendix D). Examination of the distribution of deaths under age two years during the 15 years prior to the survey by month of death (Table D.6 in Appendix D) indicates that the calculated infant mortality rates for India as a whole are not likely to be understated by more than 1-2 percent because of age heaping. There was some heaping on 12 months of death, but due to strong emphasis during interviewer training[2], there were few deaths reported to have occurred at age one year. This brief check on internal consistency of the NFHS childhood mortality data for all India suggests that although there is some evidence of heaping in age at death at certain ages, the bias in infant and child mortality rates arising from this heaping is negligible.

However, an examination of the distribution of births and deaths since 1982 (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 13 percent in 1982-87 to 9 percent since 1987. Some of this decrease undoubtedly reflects a real reduction in mortality

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[2] Interviewers in the NFHS were instructed to probe for the exact number of months lived by the child if the age at death was reported as "1 year".

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 1987 and 1988 may be due partly to underreporting of deaths relative to births during the most recent period.

It is seldom possible to establish, with confidence, mortality levels for a period 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 systematically with time. Third, sampling variability for mortality rates is relatively high especially for groups with relatively few births. The fourth reason relates to truncation of mortality rates further back in time, because women currently age 50 and over who were bearing children during these periods were not included in the survey. This truncation particularly affects mortality trends. 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 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 levels for the period may be slightly underestimated. However, the estimates for later periods are less affected by the truncation bias since fewer older women are excluded. The extent of this bias depends on the proportion of births omitted, however, and Table 8.9 shows that among children born in the five years before the survey, only 5 percent were born to women over age 34 years. Given this 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 and Trends in Infant and Child Mortality

Table 8.5 and Figure 8.1 show various measures of infant and child mortality by residence group for the three quinquennial periods preceding the survey. Infant mortality rates in India declined by 22 percent during the 15 years prior to the NFHS. The infant mortality rate for the total population declined from 101 per 1,000 births 10-14 years prior to the survey (approximately 1978-82) to 79 per 1,000 births 0-4 years prior (approximately 1988-92), an average rate of decline of 2 infant deaths per 1,000 live births per year. There was a steady decline in all of the mortality measures over the three 5-year periods preceding the survey. The percentage decline in mortality was not the same for all five measures of mortality. The largest proportionate decline is observed for child mortality (31 percent) and the smallest for neonatal mortality (18 percent). Postneonatal mortality fell by 27 percent and under-five mortality by 24 percent. Most of the decline in child mortality occurred between the periods 10-14 years and 5-9 years preceding the survey, but for neonata' and postneonatal mortality, the rate of decline accelerated between the two most recent periods.

In all instances, urban mortality rates are lower than rural mortality rates. In the five-year period preceding the survey, infant mortality was 52 percent higher in rural areas than in urban areas and child mortality was nearly twice as high in rural areas. Urban-rural differences in the rate of decline of mortality depend on the mortality measure examined. Postneonatal mortality and infant mortality declined by a larger percentage in rural areas than in urban areas,

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Table 8.5   Infant and child mortality

Neonatal, postneonatal, infant, child and under-five mortality for five-year periods
preceding the survey, by residence, India, 1992-93

Years prior to survey	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
URBAN					
0-4 years	34.1	22.0	56.1	19.6	74.6
5-9 years	36.8	25.7	62.4	20.6	81.8
10-14 years	42.5	26.1	68.7	29.0	95.7
RURAL					
0-4 years	52.9	32.2	85.0	37.6	119.4
5-9 years	62.2	40.7	102.9	43.3	141.8
10-14 years	65.1	46.2	111.3	55.0	160.2
TOTAL					
0-4 years	48.6	29.9	78.5	33.4	109.3
5-9 years	56.4	37.2	93.6	37.7	127.8
10-14 years	59.5	41.2	100.7	48.2	144.0

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

whereas neonatal mortality and child mortality fell by about the same percentage in the two areas. Overall, under-five mortality fell slightly faster in rural areas (25 percent) than in urban areas (22 percent).

Despite the improvements in infant and child mortality, 1 in every 13 children still dies in the first year of life, and 1 in 9 dies before reaching age five. Clearly child survival programmes in India need to be intensified to produce further reductions in the level of infant and child mortality.

The estimated NFHS infant mortality rate of 79 in 1988-92 is virtually identical to the 1990 SRS value of 80 infant deaths per 1,000 live births, but slightly lower than the average SRS infant mortality rate of 85 for the period 1988-92 (Office of the Registrar General, 1993b, 1994). In rural areas, the NFHS estimate (85) is lower than the average SRS estimate of 92 for 1988-92, but in urban areas the NFHS rate of 56 is almost identical to the SRS rate of 55. For earlier periods also, the overall NFHS estimates of infant mortality are somewhat lower than the SRS estimates - 5 percent lower in 1983-87 (94 compared with 99) and 12 percent lower in 1978-82 (101 compared with 115).

Socioeconomic Differentials in Infant and Child Mortality

Table 8.6 and Figure 8.2 show infant and child mortality statistics for the 10-year period preceding the survey, by selected background characteristics. As one would expect, infant mortality declines sharply with increasing education of mothers, from a high of 101 per 1,000 for illiterate mothers to a low of 37 for mothers with at least a high school education. The other mortality indicators vary by education in a similar fashion. Scheduled castes have higher levels

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Figure 8.1
Infant Mortality Rates for Five-Year
Periods by Residence

Per 1,000 Births
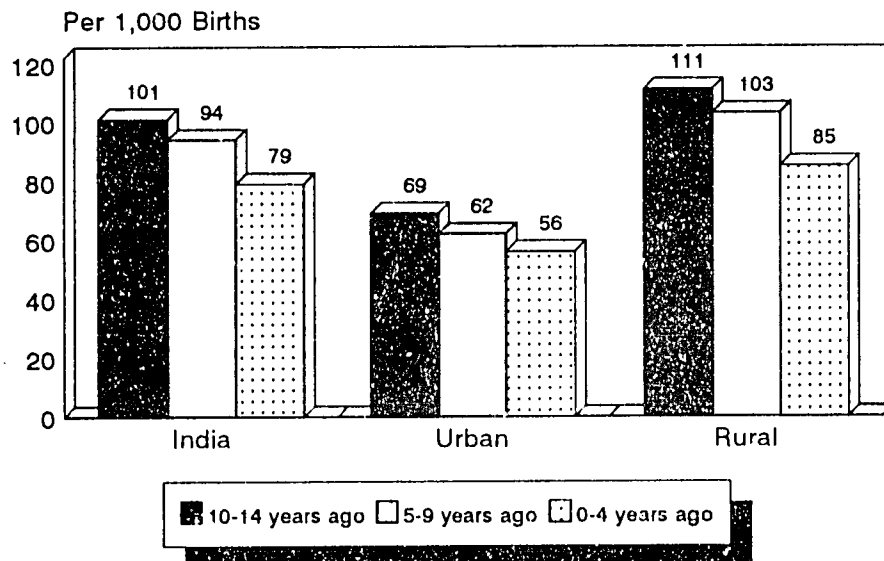
Note: Rates are for 5-year periods
preceding the survey

NFHS, India, 1992-93

of infant mortality than scheduled tribes, who in turn have higher levels than non-SC/ST women. Hindus have higher infant and child mortality than Muslims, and other religious groups (Christians, Sikhs, Jains and Buddhists) have substantially lower rates.

Antenatal or delivery care by a trained health professional is associated with greatly reduced infant and child mortality risks. Infant mortality rates range from 97 per 1,000 for births with neither antenatal or delivery care, to 64 per 1,000 for births with either type of care, and 44 per 1,000 for births with both types of care. One might expect the effect of antenatal and delivery care to be most pronounced for mortality risks immediately following birth (neonatal mortality), but this is not the case. The impact of antenatal and delivery care is considerably greater for child mortality (with a 76 percent reduction if both types of care are received, relative to neither type of care) than for neonatal mortality (48 percent reduction). It seems unlikely that the presence of antenatal or delivery care can explain fully its apparent impact. Utilization of antenatal and delivery care services is undoubtedly associated with other circumstances favourable to child survival, which might explain the apparently large effect of antenatal and delivery care on child mortality.

The impact of antenatal and delivery care on survival during the first month of life is nonetheless very large. Children of mothers who received no such care have a neonatal mortality rate that is almost twice that experienced by children whose mothers received both antenatal and delivery care, 58 compared with 30 per 1,000 live births. The differential is all the more impressive because women who have pregnancy-related complications (whose babies

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Table 8.6 Infant and child mortality by background characteristics

Neonatal, postneonatal, infant, child and under-five mortality by selected background characteristics for the 10-year period preceding the survey, India, 1992-93

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	46.2	34.4	80.6	31.0	109.1
Literate, < middle complete	29.0	20.6	49.7	18.7	67.4
Middle school complete	33.6	19.7	53.4	8.8	61.7
High school and above	22.3	8.8	31.1	5.2	36.2
Religion					
Hindu	38.6	25.4	64.0	20.6	83.2
Muslim	28.4	22.9	51.3	19.9	70.2
Christian	28.3	9.4	37.8	10.3	47.7
Sikh	14.1	22.0	36.0	6.0	41.8
Jain	(25.9)	(4.0)	(29.8)	(6.4)	(36.1)
Buddhist	(36.1)	(12.3)	(48.4)	*	(94.2)
Caste/tribe					
Scheduled caste	45.0	35.7	80.6	33.2	111.2
Scheduled tribe	43.9	11.7	55.5	25.2	79.3
Other	34.1	23.0	57.1	18.4	74.4
Medical maternity care[2]					
No antenatal or delivery care	55.9	35.1	90.9	57.9	143.6
Either antenatal or delivery care	27.5	22.3	49.8	9.7	59.0
Both antenatal and delivery care	25.8	13.1	38.8	8.3	46.8
Place of delivery[3]					
Public health facility	31.3	16.6	47.9	13.6	60.9
Private health facility	21.7	8.4	30.1	1.5	31.5
Home	34.1	27.1	61.2	30.9	90.2
Total	35.5	23.9	59.4	20.1	78.3
RURAL					
Mother's education					
Illiterate	63.1	40.9	104.0	46.7	145.9
Literate, < middle complete	43.0	25.0	68.0	24.8	91.1
Middle school complete	40.5	17.6	58.1	9.5	67.0
High school and above	30.4	17.2	47.6	8.0	55.2
Religion					
Hindu	59.1	38.0	97.1	41.3	134.4
Muslim	56.6	33.0	89.6	38.8	124.9
Christian	34.3	20.5	54.8	23.1	76.6
Sikh	31.9	18.7	50.6	22.7	72.2
Buddhist	(37.1)	(26.7)	(63.8)	(42.8)	(103.8)
Other	58.4	34.5	92.9	53.7	141.6
Caste/tribe					
Scheduled caste	66.9	46.0	112.9	50.0	157.2
Scheduled tribe	55.6	38.1	93.7	51.5	140.5
Other	56.3	34.5	90.8	36.9	124.4
Medical maternity care[2]					
No antenatal or delivery care	57.7	39.7	97.4	54.0	146.1
Either antenatal or delivery care	44.4	22.6	67.0	26.2	91.4
Both antenatal and delivery care	33.9	15.9	49.8	18.8	67.7
Place of delivery[3]					
Public health facility	48.4	20.7	69.1	25.2	92.5
Private health facility	35.3	14.6	49.8	7.4	56.8
Home	48.4	31.5	79.9	41.3	117.9
Total	57.7	36.6	94.3	40.4	130.9

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Table 8.6   Infant and child mortality by background characteristics (Contd.)

Neonatal, postneonatal, infant, child and under-five mortality by selected background characteristics for the 10-year period preceding the survey, India, 1992-93

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	60.6	40.0	100.6	44.3	140.5
Literate, < middle complete	38.8	23.7	62.5	22.8	83.9
Middle school complete	37.6	18.5	56.1	9.2	64.8
High school and above	25.3	11.9	37.2	6.2	43.2
Religion					
Hindu	55.0	35.4	90.4	36.9	124.0
Muslim	47.1	29.6	76.6	32.2	106.3
Christian	32.6	17.3	49.9	19.4	68.4
Sikh	27.7	19.5	47.2	18.5	64.8
Jain	(20.7)	(2.8)	(23.5)	(13.8)	(37.0)
Buddhist	36.6	19.8	56.4	45.4	99.3
Other	57.3	28.6	85.9	46.4	128.3
Caste/tribe					
Scheduled caste	63.1	44.2	107.3	46.9	149.1
Scheduled tribe	54.6	35.9	90.5	49.1	135.2
Other	50.6	31.6	82.2	32.0	111.5
Medical maternity care[2]					
No antenatal or delivery care	57.5	39.3	96.8	54.3	145.8
Either antenatal or delivery care	41.2	22.5	63.7	22.9	85.1
Both antenatal and delivery care	29.8	14.5	44.2	13.2	56.8
Place of delivery[3]					
Public health facility	40.3	18.7	59.1	19.3	77.2
Private health facility	27.5	11.0	38.5	3.9	42.3
Home	46.5	30.9	77.5	39.9	114.3
Total	52.7	33.7	86.3	35.5	118.8

Note: Total includes the mortality experience of "other" religious groups in urban areas and Jains in rural areas, which is not shown separately.
( ) Based on 250-499 unweighted children surviving to the beginning of the age interval
* Rate not shown; based on fewer than 250 unweighted children surviving to the beginning of the age interval
[1] Computed as the difference between the infant and neonatal mortality rates
[2] Rates for the four-year period preceding the survey. Medical care is that given by a doctor, nurse, trained midwife, or other health professional in a hospital, clinic, or health centre or care received at home from a health worker.
[3] Rates for the four-year period preceding the survey

have a relatively high risk of dying) are usually more likely to seek antenatal and delivery care in the first place (see Table 9.9 in Chapter 9).

Table 8.6 also shows that the place of delivery is associated with substantial differences in infant and child mortality. Births delivered at home have the highest infant and child mortality rates, followed by births delivered in public facilities. Births delivered in private facilities have considerably lower mortality rates. Again, these differences undoubtedly reflect socioeconomic differences as well as the direct effects of place of delivery. For example, those who give birth in private facilities tend to come from higher socioeconomic groups.

Figure 8.2
Infant Mortality Rates by Selected
Background Characteristics
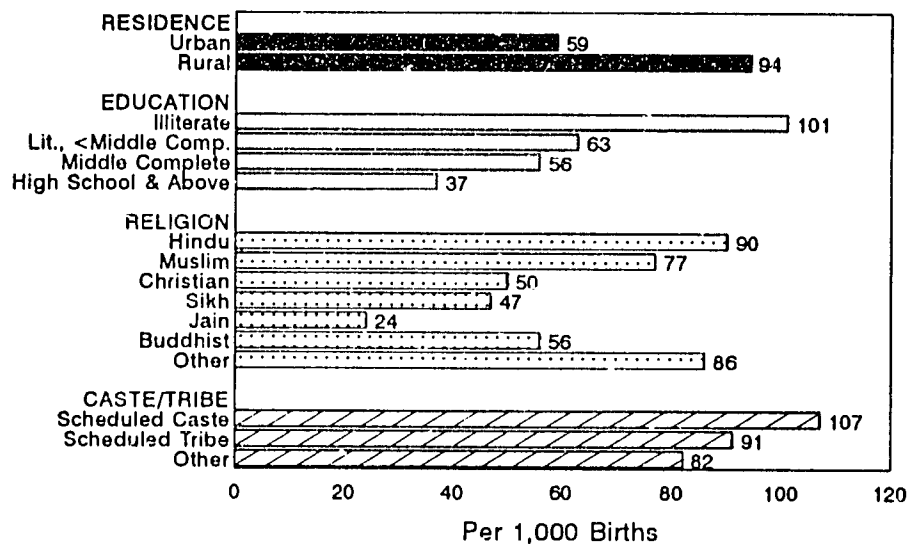
Note: Based on births in the
10 years preceding the survey

NFHS, India, 1992-93

The pattern of socioeconomic differentials in infant and child mortality just described typifies both urban and rural areas as well as the whole country. However, absolute levels of infant and child mortality are considerably lower in urban areas than in rural areas.

Demographic Differentials in Infant and Child Mortality

This section examines differentials in infant and child mortality by demographic characteristics of both the child and the mother. Table 8.7 and Figure 8.3 present mortality rates for the 10 years preceding the survey by sex of the child, age of the mother at the time of the child's birth, birth order, length of the previous birth interval and size of the child at birth.

The data on death rates in Table 8.3 indicated that the female death rate for the age group 0-4 exceeds the male rate by 3 percent. Table 8.7 suggests that, within this age group, excess female mortality occurs only after the neonatal period. During the neonatal period, males have a higher risk of dying than females (57 compared with 48 deaths per 1,000 births). Higher neonatal mortality among boys than girls is found in most populations and reflects greater underlying male frailty. Postneonatal mortality, however, is 13 percent higher for females than for males, and child mortality (ages 1-4) is 43 percent higher for females than for males. This reversal of sex differentials in mortality after the age of weaning has been observed in other studies conducted in South Asia and is thought to reflect the relative nutritional and medical neglect of girls after breastfeeding has ceased. In fact, child mortality is somewhat higher for females than males in most less developed countries, but the differentials are much larger in

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Table 8.7 Infant and child mortality by demographic characteristics

Neonatal, postneonatal, infant, child and under-five mortality by selected demographic characteristics for the 10-year period preceding the survey, India, 1992-93

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	39.7	23.4	63.1	15.3	77.5
Female	31.1	24.4	55.5	25.2	79.3
Mother's age at birth					
< 20	48.1	31.0	79.1	23.3	100.5
20-29	31.4	20.7	52.1	19.6	70.7
30-39	36.4	27.6	64.0	17.3	80.2
Birth order					
1	40.9	19.5	60.3	12.7	72.2
2	31.0	23.5	54.4	19.2	72.6
3	29.1	21.9	51.0	19.6	69.5
4	36.9	25.2	62.2	27.1	87.6
5	33.6	35.5	69.1	29.4	96.5
6	36.6	35.0	71.6	27.5	97.2
7+	49.5	32.6	82.1	33.5	112.9
Previous birth interval					
< 24	45.5	40.4	86.0	30.7	114.0
24-47	27.4	20.8	48.2	21.3	68.5
48+	23.0	11.3	34.2	12.5	46.3
Birth size[2]					
Large	26.9	15.8	42.7	13.9	56.0
Average	19.5	15.9	35.5	18.1	52.9
Small	61.5	30.6	92.1	18.7	109.1
Total	35.5	23.9	59.4	20.1	78.3
RURAL					
Sex of child					
Male	62.1	34.1	96.2	33.9	126.8
Female	53.1	39.2	92.2	47.3	135.1
Mother's age at birth					
< 20	76.0	37.8	113.8	41.2	150.3
20-29	49.3	34.5	83.8	40.0	120.4
30-39	58.4	40.1	98.5	39.2	133.8
40-49	53.5	63.9	117.4	62.5	172.5
Birth order					
1	71.3	33.2	104.5	31.0	132.3
2	52.3	31.9	84.2	36.7	117.8
3	46.5	32.1	78.7	42.7	118.0
4	49.5	38.9	88.5	42.8	127.5
5	53.0	43.0	96.0	49.7	140.9
6	58.6	44.2	102.8	42.4	140.9
7+	73.4	53.9	127.3	58.7	178.6
Previous birth interval					
< 24	84.8	57.4	142.2	62.7	196.0
24-47	41.3	31.4	72.7	39.1	109.0
48+	27.2	17.3	44.5	16.9	60.7
Birth size[2]					
Large	40.0	19.1	59.1	37.8	94.7
Average	32.2	25.5	57.8	35.7	91.4
Small	94.5	48.5	143.0	44.3	181.0
Total	57.7	36.6	94.3	40.4	130.9

Table 8.7 Infant and child mortality by demographic characteristics (Contd.)

Neonatal, postneonatal, infant, child and under-five mortality by selected demographic characteristics for the 10-year period preceding the survey, India, 1992-93

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	57.0	31.7	88.6	29.4	115.4
Female	48.1	35.8	83.9	42.0	122.4
Mother's age at birth					
< 20	70.8	36.5	107.3	37.6	140.9
20-29	44.8	31.0	75.8	34.6	107.8
30-39	53.7	37.4	91.1	34.3	122.3
40-49	51.0	60.8	111.8	57.5	162.9
Birth order					
1	63.4	29.6	93.0	26.0	116.6
2	46.9	29.7	76.6	32.0	106.2
3	42.6	29.8	72.4	37.1	106.7
4	46.9	36.1	83.0	39.4	119.1
5	49.4	41.6	90.9	45.7	132.5
6	55.0	42.7	97.7	39.8	133.6
7+	69.8	50.5	120.3	54.3	168.1
Previous birth interval					
< 24	76.0	53.6	129.6	55.0	177.5
24-47	38.4	29.2	67.6	35.2	100.5
48+	26.2	15.9	42.1	15.8	57.2
Birth size[2]					
Large	36.8	18.2	55.0	31.7	84.9
Average	29.3	23.3	52.7	31.7	82.7
Small	87.4	44.6	132.1	38.8	165.7
Total	52.7	33.7	86.3	35.5	118.8

Note: Total includes the mortality experience of children whose size at birth is unknown and urban children whose mothers were age 40-49 at the time of birth, which is not shown separately.
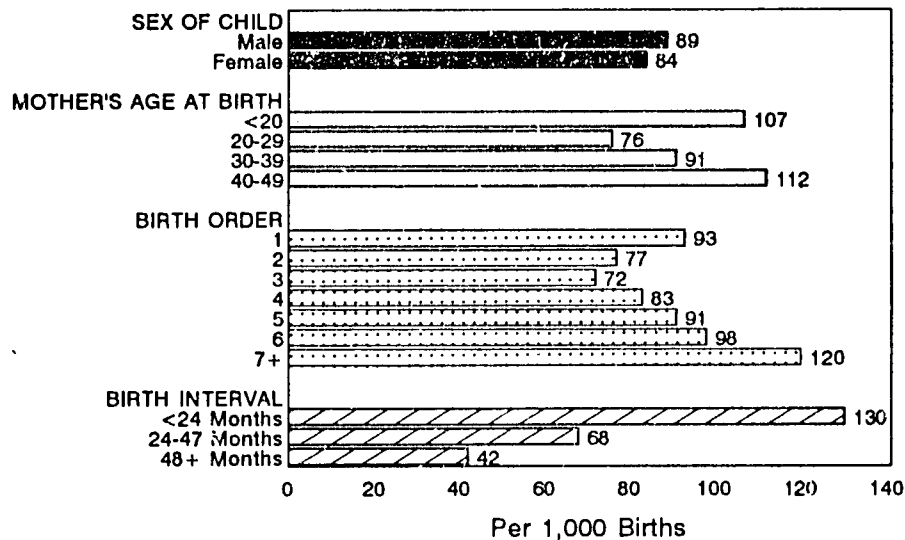[1] Computed as the difference between the infant and neonatal mortality rates
[2] Rates for the four-year period preceding the survey

India than elsewhere (United Nations Secretariat, 1988; Arnold, 1992). In fact, the maximum extent to which female child mortality exceeded male child mortality in any of the 28 Demographic and Health Surveys examined in a recent study was 23 percent (Sullivan et al., 1994).

For both social and biological reasons, infant and child mortality often exhibit a U-shaped pattern with respect to mother's age at childbirth, with children of both very young and very old mothers at higher risk of dying than children whose mothers are in the prime reproductive ages. This pattern is also seen in India. As Table 8.7 shows, infant mortality is higher for children of mothers under age 20 (107 per 1,000) or age 40-49 (112 per 1,000) and is lowest for children of mothers age 20-29 (76 per 1,000). A similar age pattern is also observed for the other infant and child mortality rates. It should be noted that infants 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 higher risk of

Figure 8.3
Infant Mortality Rates by Selected
Demographic Characteristics

SEX OF CHILD
Male — 89
Female — 84

MOTHER'S AGE AT BIRTH
<20 — 107
20-29 — 76
30-39 — 91
40-49 — 112

BIRTH ORDER
1 — 93
2 — 77
3 — 72
4 — 83
5 — 91
6 — 98
7+ — 120

BIRTH INTERVAL
<24 Months — 130
24-47 Months — 68
48+ Months — 42

0   20   40   60   80   100   120   140

Per 1,000 Births

Note: Based on births in the
10 years preceding the survey

NFHS, India, 1992-93

experiencing congenital malformations.

Birth order also has a U-shaped relationship to infant deaths. Neonatal mortality rates are relatively high for first births and high order births. However, postneonatal mortality and child mortality (ages 1-4) do not show a U-shaped pattern; for these measures, mortality tends to increase with birth order. The steady increase in child mortality with birth order may reflect the more intense competition for nutritious food faced by higher birth order children once they are weaned. It is also likely that higher birth order children are disproportionately from lower socioeconomic groups, in which mortality is higher.

Childspacing patterns have a powerful effect on the survival chances of children in India. Infant and child mortality risks increase sharply as the length of the preceding birth interval decreases. Infant mortality is more than three times as high for children with a preceding birth interval of less than 24 months as for children with a preceding interval of 48 months or more (130 compared with 42 per 1,000). Lengthening the birth interval from less than 24 months to 24-47 months has a much stronger association with child survival than does lengthening the interval from 24-47 months to 48 months or more. Note, however, that although the length of the preceding birth interval is likely to affect mortality risks directly, a substantial portion of the total association between birth intervals and mortality risks may reflect other risk factors that are correlated with birth intervals. For example, shorter intervals are likely to occur in larger families, and larger families tend to come from lower socioeconomic groups and also are more likely to reside in rural areas where medical facilities and other survival-enhancing resources are

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less readily available. Nevertheless, multivariate analyses of birth intervals and child survival that control for socioeconomic background commonly find short intervals (less than 24 months) to be damaging to a child's survival chances.

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, mothers were asked whether babies born during the four years preceding the interview were "large, average, or small" at birth. The last panel of Table 8.7 shows infant and child mortality statistics for births classified in this way. Children who are perceived by their mothers to be smaller than average at birth experience much higher mortality risks than children perceived to be average or larger. Once again, the pattern of demographic differentials in infant and child mortality just described typifies urban and rural areas as well as the whole country.

Infant mortality rates vary dramatically from one state to another, ranging from 15 in Mizoram to 112 in Orissa (Table 8.8 and Figure 8.4). Orissa also recorded the highest infant mortality rate in the SRS in every year between 1988 and 1992. Other large states with infant mortality rates above the national average are Uttar Pradesh (100), Bihar and Assam (89 each), and Madhya Pradesh (85). These same states have the highest under-five mortality rates in India. The infant mortality rates seem implausibly low in Nagaland and Mizoram (17 and 15, respectively), but the NFHS rate for Nagaland is consistent with the SRS estimate of 18 for 1989-91 (the SRS did not report an infant mortality rate for Mizoram for those years). All of the mortality rates are also relatively low in Kerala and Goa, the two states with the lowest levels of fertility.

8.4   High-Risk Fertility Behaviour

In theory, the mother's age at the time of birth, the interval between births, and the order of a birth (all factors with a high risk of mortality for the children) can be controlled by the parents if they want to increase the probability of survival of their children. Understanding the prevalence of high-risk births in India is, therefore, of interest for health and family planning policymakers and programme managers. Table 8.9 shows the percentages of births in the five years preceding the interview that fall into different child survival risk categories, as well as the distribution of all currently married women across these categories. It also shows the relative risks of children dying across the different risk categories. The purpose of this table is to identify areas in which changed reproductive behaviour would be likely to effect a reduction in infant and child mortality. Mortality risks are represented here by the proportion of children born during the five years prior to the survey who had died by the time of the survey. The "risk ratio" is the ratio of the proportion of deceased children in a given high-risk category to the proportion of deceased children not in any high-risk category.

The numbers in Table 8.9 may be considered either from the point of view of a prospecti. parent or from the point of view of the health and family planning policymaker. For the prospective parent, the critical issue is the magnitude of each relative risk, since parents will presumably want to avoid having births under circumstances that are more likely to result in the child's death. For policymakers, not only is the magnitude of each risk important; so, too, is

Table 8.8 Infant and child mortality by state

Neonatal, postneonatal, infant, child and under-five mortality by state for the 5-year period preceding the survey, India, 1992-93
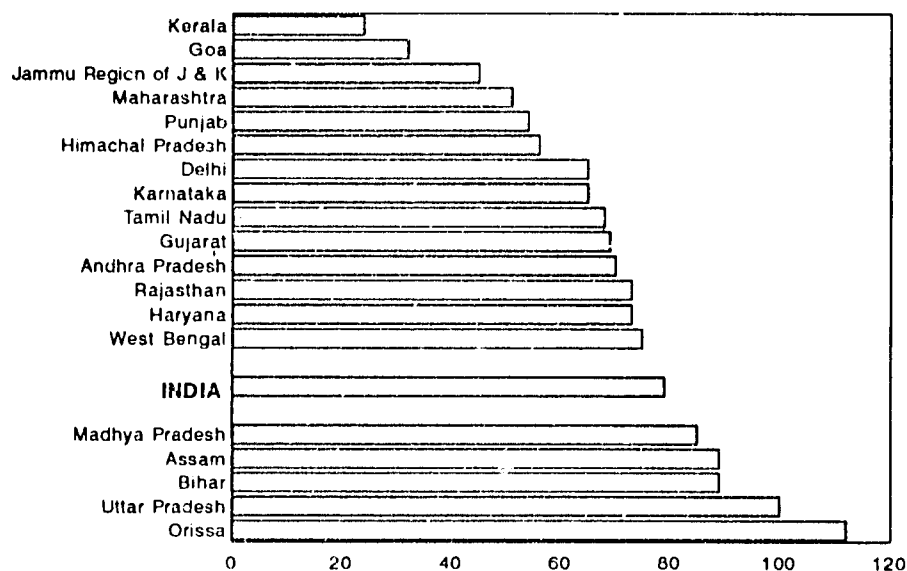
State	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality $(_1q_0)$	Child mortality $(_4q_1)$	Under-five mortality $(_5q_0)$
India	48.6	29.9	78.5	33.4	109.3
North					
Delhi	34.9	30.5	65.4	19.0	83.1
Haryana	38.4	34.9	73.3	27.4	98.7
Himachal Pradesh	34.2	21.7	55.8	14.1	69.1
Jammu Region of J & K	31.9	13.5	45.4	14.3	59.1
Punjab	31.2	22.5	53.7	15.0	68.0
Rajasthan	37.2	35.4	72.6	32.3	102.6
Central					
Madhya Pradesh	53.2	32.0	85.2	49.3	130.3
Uttar Pradesh	59.9	40.0	99.9	46.0	141.3
East					
Bihar	54.8	34.4	89.2	42.0	127.5
Orissa	64.7	47.4	112.1	21.3	131.0
West Bengal	51.8	23.5	75.3	26.0	99.3
Northeast					
Arunachal Pradesh	17.5	22.5	40.0	33.3	72.0
Assam	50.9	37.8	88.7	58.7	142.2
Manipur	25.1	17.3	42.4	20.2	61.7
Meghalaya	37.8	26.3	64.2	24.3	86.9
Mizoram	8.3	6.3	14.6	14.9	29.3
Nagaland	10.0	7.2	17.2	3.6	20.7
Tripura	43.6	32.3	75.8	31.2	104.6
West					
Goa	20.6	11.3	31.9	7.2	38.9
Gujarat	42.3	26.4	68.7	37.9	104.0
Maharashtra	36.4	14.0	50.5	20.9	70.3
South					
Andhra Pradesh	45.3	25.0	70.4	22.4	91.2
Karnataka	45.3	20.2	65.4	23.5	87.3
Kerala	15.5	8.2	23.8	8.4	32.0
Tamil Nadu	46.2	21.5	67.7	20.1	86.5

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

the percentage of births or women in each of the high-risk categories. The latter is important because it determines whether particular types of high-risk births are likely to occur frequently or only rarely; presumably, policymakers will want to target their efforts toward the types of high-risk births that occur most frequently.

In terms of the magnitudes of the risks associated with each risk factor, Table 8.9 suggests that the most vulnerable births are high order births that occur to older women within 24 months of a previous birth (risk ratio of 3.16). However, less than 1 percent of all births occur to women in this group. Although the risk ratio is smaller for women under 18 years of age, 9 percent of all births occur to women with this single risk factor. In the aggregate, therefore, infant mortality rates would undoubtedly decline if early childbearing could be

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Figure 8.4
Infant Mortality Rates by State

Kerala
Goa
Jammu Region of J & K
Maharashtra
Punjab
Himachal Pradesh
Delhi
Karnataka
Tamil Nadu
Gujarat
Andhra Pradesh
Rajasthan
Haryana
West Bengal

INDIA

Madhya Pradesh
Assam
Bihar
Uttar Pradesh
Orissa

0   20   40   60   80   100   120

*Note: Rates are for the 5-year period preceding the survey; excludes 6 small northeastern states

NFHS, India, 1992-93

curtailed. In addition, individual couples would be well advised to avoid having children until the wife reaches age 18, as the risks of a child dying if the mother is younger, are relatively high. Short birth intervals should also be discouraged (based on a consideration of both the risk ratios and the percentage of births in each category).

Although mortality risks to children can be reduced by changing women's childbearing behaviour, the risk ratios shown in Table 8.9 almost certainly overstate the magnitude of the potential effect. This is because a mother's demographic characteristics are not the only causal factors influencing the risks of mortality experienced by her children. Women who have many children at short birth intervals almost certainly tend, for example, to live in rural areas, which will raise mortality risks to their children independently of their childbearing behaviour. However, a multivariate analysis designed to assess the effects of the demographic factors, while controlling for the potentially confounding effects of residence, education, and other correlated socioeconomic factors, is beyond the scope of this report.

Table 8.10 shows how high-risk fertility behaviour varies by state. For India as a whole, 52 percent of children born during the last five years are in at least one elevated risk category. The percentage tends to be higher in high-fertility states, such as Uttar Pradesh (59 percent) and Bihar (58 percent). The low-fertility state of Kerala has the lowest percentage in any risk category (27 percent). The percentage of children born to mothers less than 18 years of age (10

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Table 8.9 High-risk fertility behaviour

Percentage of children born in the last five years at elevated risk of mortality and percentage of currently married women at risk of conceiving a child with an elevated risk of mortality, according to category of increased risk and residence, India, 1992-93

| High-risk category | Births in last 5 years | | Percentage of currently married women[*] |
	Percent of births	Risk ratio	
URBAN			
Not in any high-risk category	55.8	1.00	56.1[b]
Single high-risk category			
Age<18: Age under 18 years at birth	5.9	2.08	1.0
Age>34: Age over 34 years at birth	0.6	0.69	7.5
BI<24 : Birth interval under 24 months	12.2	1.48	8.7
BO>3 : Birth order higher than 3	15.0	1.17	7.7
Subtotal	33.8	1.43	25.0
Multiple high-risk category			
Age<18 & BI<24[c]	0.8	2.86	0.3
Age>34 & BI<24	--	*	0.1
Age>34 & BO>3	2.9	1.37	13.4
Age>34 & BI<24 & BO>3	0.4	1.57	0.8
BI<24 & BO>3	6.3	2.54	4.4
Subtotal	10.4	2.20	19.0
In any high-risk category	44.2	1.61	43.9
Total percent	100.0	NA	100.0
Number	13872	NA	22075
RURAL			
Not in any high-risk category	45.3	1.00	49.5[b]
Single high-risk category			
Age<18: Age under 18 years at birth	9.9	1.65	2.9
Age>34: Age over 34 years at birth	0.3	0.80	3.3
BI<24 : Birth interval under 24 months	9.6	1.74	8.6
BO>3 : Birth order higher than 3	20.5	1.07	10.6
Subtotal	40.3	1.37	25.3
Multiple high-risk category			
Age<18 & BI<24[c]	1.4	2.57	0.7
Age>34 & BI<24	--	*	--
Age>34 & BO>3	4.5	1.40	15.6
Age>34 & BI<24 & BO>3	0.7	3.17	1.4
BI<24 & BO>3	7.7	2.17	7.5
Subtotal	14.4	2.02	25.2
In any high-risk category	54.7	1.54	50.5
Total percent	100.0	NA	100.0
Number	47239	NA	62603

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Table 8.9 High-risk fertility behaviour (Contd.)

Percentage of children born in the last five years at elevated risk of mortality and percentage of currently married women at risk of conceiving a child with an elevated risk of mortality, according to category of increased risk and residence, India, 1992-93

High-risk category	Births in last 5 years		Percentage of currently married women[a]
	Percent of births	Risk ratio	
TOTAL			
Not in any high-risk category	47.7	1.00	51.2[b]
Single high-risk category			
Age<18: Age under 18 years at birth	9.0	1.78	2.4
Age>34: Age over 34 years at birth	0.4	0.73	4.4
BI<24 : Birth interval under 24 months	10.2	1.68	8.6
BO>3 : Birth order higher than 3	19.2	1.12	9.9
Subtotal	38.9	1.42	25.2
Multiple high-risk category			
Age<18 & BI<24[c]	1.3	2.72	0.6
Age>34 & BI<24	--	*	0.1
Age>34 & BO>3	4.1	1.45	15.0
Age>34 & BI<24 & BO>3	0.6	3.16	1.2
BI<24 & BO>3	7.4	2.28	6.7
Subtotal	13.5	2.11	23.5
In any high-risk category	52.3	1.59	48.8
Total percent	100.0	NA	100.0
Number	61111	NA	84678

Note: Risk ratio is the ratio of the proportion dead of births in a specific high-risk category to the proportion dead of births in the "not in any high-risk" category.
NA: Not applicable
* Risk ratio not shown; denominator of the upper proportion in the risk ratio is fewer than 50 unweighted births.
-- Less than 0.05 percent
[a]Women are placed into the categories according to the status they would have at the birth of a child if they were to conceive at the current time: current age less than 17 years and 3 months or older than 34 years and 2 months, last birth occurred less than 15 months ago, or last birth was order 3 or higher.
[b]Includes sterilized women and women whose husbands are sterilized
[c]Also includes category age under 18 and birth order greater than 3

percent for India as a whole)[3] reflects patterns in the age at marriage. The proportion exceeds 15 percent in Maharashtra, Andhra Pradesh and Karnataka, which are states with relatively low median ages at first marriage. The percentage born to mothers older than 34 is 5 percent for India and is highest in Meghalaya (12 percent). The percentage born with a previous birth interval less than 24 months is 20 percent for India and the percentage with a birth order higher than three is 31 percent. Overall, there is substantial scope in all states for improving child survival by avoiding high-risk births.

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[3] The percentage born to mothers less than 18 years of age is calculated by adding together the percentages in the two columns that include women in this age group. A similar procedure is used to calculate the percentage of women in the other risk groups.

Table 8.10 High-risk fertility behaviour by state

Percentage of children born in the last five years at elevated risk of mortality, according to category of increased risk and state, India, 1992-93

State	Not in any high-risk category	Single high-risk category					Multiple high-risk category						In any high-risk category	Total Percent
		Age<18	Age>34	BI<24	BO>3	Sub-total	Age<18 & BI<24*	Age>34 & BI<24	Age>34 & BO>3	Age>34 & BI<24 & BO>3	BI<24 & BO>3	Sub-total		
India	47.7	9.0	0.4	10.2	19.2	38.9	1.3	--	4.1	0.6	7.4	13.5	52.3	100.0
North														
Delhi	57.1	3.2	0.4	13.3	14.9	31.8	0.6	--	2.5	0.5	7.4	11.0	42.9	100.0
Haryana	46.7	8.0	0.3	15.2	17.3	40.9	0.6	--	3.2	0.3	8.3	12.5	53.3	100.0
Himachal Pradesh	58.3	2.7	0.4	16.9	12.3	32.3	0.4	0.1	2.7	0.4	5.8	9.4	41.7	100.0
Jammu Region of J & K	55.8	3.3	0.4	14.0	16.6	34.4	0.3	--	3.6	0.3	5.5	9.7	44.2	100.0
Punjab	57.5	3.4	0.7	16.8	12.9	33.7	0.2	0.1	2.2	0.2	6.2	8.8	42.5	100.0
Rajasthan	47.8	8.1	0.5	9.1	21.4	39.0	1.0	--	4.5	0.8	6.9	13.2	52.2	100.0
Central														
Madhya Pradesh	46.1	10.6	0.2	8.8	20.7	40.4	0.9	--	4.0	0.6	8.0	13.5	53.9	100.0
Uttar Pradesh	41.3	6.0	0.3	9.7	23.6	39.6	0.7	--	7.4	1.2	9.9	19.2	58.7	100.0
East														
Bihar	41.7	8.6	0.4	9.0	25.2	43.1	1.1	--	5.6	0.6	7.9	15.2	58.3	100.0
Orissa	52.3	7.7	0.4	9.7	18.1	36.0	1.5	--	3.0	0.5	6.8	11.7	47.7	100.0
West Bengal	47.6	13.0	0.2	8.4	18.6	40.2	1.6	--	3.3	0.4	6.9	12.2	52.4	100.0
Northeast														
Arunachal Pradesh	42.9	7.4	1.1	10.9	21.1	40.5	1.0	--	5.5	2.4	7.7	16.6	57.1	100.0
Assam	36.0	11.7	0.3	8.2	24.1	44.3	2.4	--	4.5	1.0	11.9	19.8	64.0	100.0
Manipur	52.7	1.9	1.0	10.0	20.7	33.6	--	0.3	4.6	0.7	8.2	13.8	47.3	100.0
Meghalaya	43.1	5.3	0.2	12.9	16.9	35.3	0.9	0.1	8.3	3.0	9.3	21.6	56.9	100.0
Mizoram	53.0	3.1	0.5	18.1	14.4	36.2	--	0.2	4.2	0.7	5.7	10.8	47.0	100.0
Nagaland	48.8	4.1	0.8	13.0	17.4	35.3	0.3	0.3	5.0	2.2	8.2	15.9	51.2	100.0
Tripura	48.5	10.7	0.9	8.2	18.6	38.4	1.3	0.1	5.5	0.6	5.6	13.1	51.5	100.0
West														
Goa	66.6	2.3	3.4	11.2	10.3	27.2	0.4	0.1	2.7	0.8	2.2	6.3	33.4	100.0
Gujarat	56.6	4.6	0.1	12.9	15.8	33.4	0.6	--	2.7	0.4	6.2	10.0	43.4	100.0
Maharashtra	49.7	12.4	0.4	11.7	14.5	39.0	2.8	--	1.3	0.5	6.7	11.3	50.3	100.0
South														
Andhra Pradesh	49.1	17.0	0.3	8.5	15.9	41.7	2.5	--	1.9	0.1	4.7	9.2	50.9	100.0
Karnataka	47.1	13.1	0.6	10.3	17.2	41.1	2.1	0.1	1.9	0.4	7.2	11.7	52.9	100.0
Kerala	72.7	3.0	1.2	11.2	7.3	22.8	0.3	0.1	2.0	0.1	2.1	4.6	27.3	100.0
Tamil Nadu	62.3	7.6	0.6	12.9	10.3	31.4	0.9	0.2	2.1	0.2	2.9	6.3	37.7	100.0

BI: Birth interval, BO: Birth order
-- Less than 0.05 percent
*Also includes category age under 18 and birth order greater than 3.

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8.5   Maternal Mortality

It has been estimated by the World Health Organization that worldwide at least one-half million women die every year from causes related to pregnancy and childbirth and 99 percent of these deaths occur in developing countries (World Health Organization, 1991). 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 which are large enough to produce reliable estimates of maternal mortality. The NFHS sample, however, is sufficiently large to estimate maternal mortality at the national level for the two-year period preceding the survey. The NFHS estimates are based on a series of questions in the Household Questionnaire about deaths occurring to usual residents of the household and visitors since January (or since *Pongal* or *Makar Sankranti*) of the second calendar year preceding the start of the survey in each state. In the case of deaths to women age 13-49, a series of follow-up questions was asked about whether the woman 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 rate* (MMR), which is defined here as the number of maternal deaths 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 rate at the national level for the 2-year period preceding the NFHS is 437 deaths per 100,000 live births. The rural MMR (448) is 13 percent higher than the urban MMR (397). There is no way to assess the completeness and accuracy of these estimates, but it should be pointed out that direct survey estimates of this type often underenumerate maternal deaths. It should also be noted that despite the large size of the NFHS sample, sampling errors for the maternal mortality estimates are quite large. The 95 percent confidence interval for the maternal mortality rate ranges from 334 to 540 per 100,000 live births and the confidence intervals are even wider for the urban and rural estimates. Because of the large sampling errors, reliable maternal mortality rates can not be calculated for individual states or population subgroups.

The maternal mortality rate of 437 deaths per 100,000 live births implies that more than 100,000 women in India die every year from causes related to pregnancy and childbirth. This finding reinforces the urgency of insuring that all pregnant women receive adequate antenatal care during pregnancy and that deliveries take place under hygienic conditions with the assistance of a trained medical practitioner.

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CHAPTER 9

MATERNAL AND CHILD HEALTH

Safe motherhood practices and child survival programmes are critically important in a country that is experiencing high infant and child mortality and maternal mortality. Realizing the importance of maternal and child health care services, the Ministry of Health, Government of India, took concrete steps to strengthen maternal and child health services in the First and Second Five Year Plans (1951-56 and 1956-61). The integration of family planning services with maternal and child health services and nutrition services was introduced as a part of the Minimum Needs Programme during the Fifth Five Year Plan (1974-79). The primary objective was to provide basic public health services to vulnerable groups of pregnant women, lactating mothers, and preschool children (Kanitkar, 1979). Since then, the promotion of health of mothers and children has been one of the most important aspects of the Family Welfare Programme in India and has now been further strengthened by introducing the Child Survival and Safe Motherhood Programme (Ministry of Health and Family Welfare, 1992a). The Ministry of Health and Family Welfare has also sponsored special schemes, under the Maternal and Child Health Programme, including the programme of Oral Rehydration Therapy, development 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 Post-Partum Programme (Ministry of Health and Family Welfare, 1992a).

In the rural areas of India, maternal and child health services are delivered mainly by government-run Primary Health Centres and sub-centres. Services for pregnant women and children can also be obtained from private and public maternity homes or hospitals, as well as from private practitioners. In urban areas, maternal and child health (MCH) services are available mainly through government or municipal hospitals, urban health posts, hospitals and nursing homes operated by nongovernmental voluntary organizations, and various private nursing homes or maternity homes.

The Village Health Guide is a link between the community and MCH services in rural areas. The Female Health Worker, who is an Auxiliary Nurse Midwife, renders maternal and child health and family welfare services (Ministry of Health and Family Welfare, 1978). The Female Health Worker is supposed to assist the Medical Officer and Female Health Assistant in providing maternal and child health services. She is responsible for registering pregnant women and assessing their health throughout pregnancy in their homes or in the antenatal clinic. Another responsibility of the Female Health Worker is to refer pregnant women who have symptoms of abnormal pregnancy or labour, or who have gynaecological problems that are beyond her level of competence, to the Primary Health Centre. The basic maternal and child care services offered at Primary Health Centres are antenatal and postnatal care of mothers as well as care of infants and children.

A major objective of the NFHS was to provide information on maternal and child health care practices. The relevant information was collected in the Woman's Questionnaire from the mothers of all children born since 1 January 1988 for states where the NFHS was initiated in 1992, and 1 January 1989, where the NFHS was carried out in 1993 (see Table 2.1 for the dates

of fieldwork). The information covered matters related to pregnancy and childbirth; infant and child feeding practices, including breastfeeding; immunizations; episodes of illnesses such as acute respiratory infection, fever and diarrhoea, and the treatment received; mothers' knowledge and use of Oral Rehydration Salts (ORS); and the level of child nutrition assessed by measuring the weight and height of children.

This chapter analyzes the data collected on antenatal and delivery care, immunization coverage, prevalence of acute respiratory infection, fever and diarrhoea and their treatment, and mothers' knowledge and use of ORS. Chapter 10 deals with infant feeding and child nutrition.

Although information was obtained for each child born since January 1988/1989, the analysis in this chapter is restricted to children born during the four years before the date each woman was interviewed. If a woman had more than one live birth during this four-year period, information was collected for the three most recent live births; all of these births are used in the current analysis.

9.1   Maternal Care Indicators

Antenatal 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 but professional antenatal care (Harrison, 1990). Antenatal care can contribute significantly to the reduction of maternal morbidity and mortality because it also includes advice on the correct diet and the provision of iron and folic acid tablets to pregnant women, besides medical care. Improved nutritional status, coupled with improved antenatal care, can help to reduce the incidence of low birth weight babies and thus reduce perinatal, neonatal, and infant mortality.

A pregnant woman can receive antenatal care by visiting a doctor or other health professional in a medical facility, or by receiving a home visit from a health worker, or both. In the NFHS, each woman who had a live birth during the four years prior to the survey was initially asked whether any health worker visited her at home for an antenatal check-up when she was pregnant and, if so, at which month of pregnancy the first visit was made and how many such visits were made in all. Next she was asked whether she had gone for an antenatal check-up outside the home and whom she saw for the check-up. If she saw more than one person, information was collected on all persons seen. She was asked at which month of pregnancy she first went for an antenatal check-up and how many such visits she made.

Table 9.1 and Figure 9.1 show the percentage distribution of live births in the last four years by the source of antenatal care received during pregnancy, according to selected background characteristics. Although the interviewer was instructed to record all persons if more than one source of antenatal care outside the home was mentioned for the same pregnancy, for the purpose of this tabulation only the provider with the highest qualifications is considered. For 62 percent of births during the last four years, mothers received antenatal care during pregnancy. Allopathic doctors provided antenatal care for 40 percent of births and other health professionals (such as nurse/midwives, ayurvedic doctors and homoeopathic doctors) provided

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Table 9.1 Antenatal care

Percent distribution of live births during the four years preceding the survey by source of antenatal care (ANC) during pregnancy, according to selected background characteristics, India, 1992-93

Background characteristic	ANC only at home from health worker	Antenatal care provider (outside home)[1]			No ANC	Missing	Total percent	Number of births
		Doctor	Other health professional	Traditional birth attendant, other[2]				
Mother's age at birth								
<20	13.3	40.8	9.8	0.4	34.6	1.1	100.0	11514
20-34	12.6	40.8	9.4	0.3	36.0	0.9	100.0	35258
35+	13.1	22.5	5.9	0.3	57.2	1.1	100.0	2597
Birth order								
1	10.4	51.9	10.0	0.4	26.2	1.0	100.0	13594
2-3	12.8	42.7	10.0	0.3	33.3	0.9	100.0	20433
4-5	15.4	28.9	8.8	0.4	45.5	1.0	100.0	9542
6+	13.9	19.6	6.2	0.1	59.4	0.8	100.0	5800
Residence								
Urban	3.9	69.6	7.2	0.4	17.8	1.1	100.0	11242
Rural	15.4	31.1	10.0	0.3	42.4	0.9	100.0	38128
Education								
Illiterate	15.5	25.3	9.2	0.3	48.8	1.0	100.0	32770
Literate, < middle complete	10.1	57.6	11.3	0.3	19.9	0.7	100.0	8190
Middle school complete	6.5	72.1	10.5	0.3	9.8	0.7	100.0	3505
High school and above	3.6	84.2	6.5	0.2	4.2	1.2	100.0	4904
Religion								
Hindu	14.0	38.6	8.9	0.3	37.2	1.0	100.0	39223
Muslim	8.6	41.6	8.5	0.4	40.3	0.6	100.0	7613
Christian	6.5	61.4	7.3	0.2	23.9	0.6	100.0	981
Sikh	3.6	37.2	44.3	0.4	14.3	0.1	100.0	822
Jain	0.6	83.3	8.1	2.4	4.3	1.3	100.0	142
Buddhist	11.6	68.6	5.7	--	14.1	--	100.0	351
Other	15.6	34.9	9.7	0.6	38.5	0.8	100.0	237
Caste/tribe								
Scheduled caste	14.0	29.4	12.8	0.2	42.2	1.4	100.0	6590
Scheduled tribe	18.5	21.0	7.1	0.2	52.3	0.9	100.0	4703
Other	11.9	44.0	9.0	0.3	34.0	0.8	100.0	38076
Total	12.8	39.8	9.3	0.3	36.8	0.9	100.0	49369

Note: Table is based on births in the period 1-47 months prior to the survey. ANC refers to pregnancy related health care provided by a doctor or a health worker in a medical facility or at home.
-- Less than 0.05 percent
[1] Includes women who received ANC outside the home, whether or not they also received ANC at home from a health worker. If more than one source of ANC was mentioned, only the provider with the highest qualifications is considered.
[2] Includes *hakim* and "Don't know"

care for 9 percent of births. Mothers received antenatal care only at home from a health worker for 13 percent of births. Note that in this tabulation, those who received antenatal care outside the home, whether or not they also received care at home from a health worker, are classified as "outside home". A sizeable percentage of births (37 percent) were to mothers who did not receive any antenatal care.

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Figure 9.1
Sources of Antenatal Care (ANC)
During Pregnancy

Doctor 40%

ANC Only
at Home 13%

Health
Professional 9%

Missing 1%

No ANC 37%
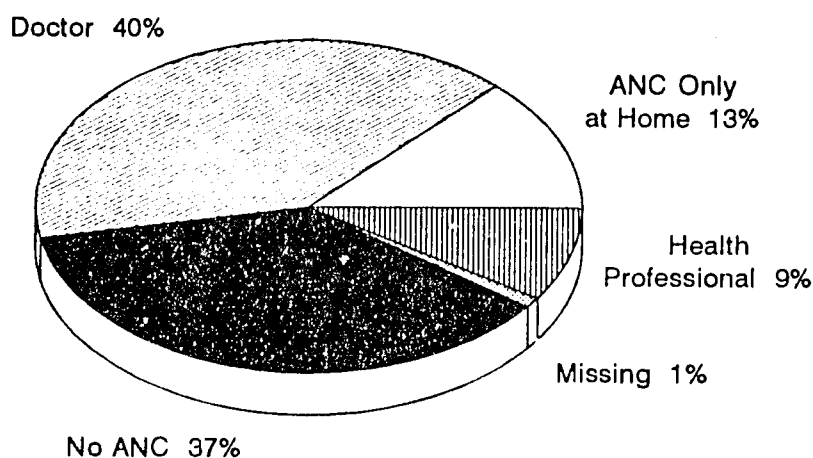
Note: Based on births in the period
1-47 months preceding the survey

NFHS, India, 1992-93

As expected, utilization of antenatal care services is substantially better in urban than in rural areas; mothers of 81 percent of births during the four years preceding the survey received antenatal care in urban areas compared with 57 percent in rural areas. Urban women are more than twice as likely to receive antenatal care from an allopathic doctor as rural women (70 percent compared with 31 percent), whereas rural women are more likely to receive antenatal care from a health worker or a health professional who is not a doctor.

The utilization of antenatal care during pregnancy decreases with the age of the mother. The coverage of antenatal care is greatest (64 percent) among births to young mothers below age 20 and lowest (42 percent) among births to mothers age 35 and over. A consistent negative relationship is also observed between the birth order and overall utilization of antenatal care services, especially care provided by allopathic doctors. While the mothers of 52 percent of first order births received antenatal care from allopathic doctors, this percentage is only 20 for births of order six or higher. The proportion of births whose mothers received antenatal care increases steadily with an increase in the educational level of the mother, from 50 percent for births to illiterate mothers to 90 percent for births to mothers who completed middle school and to 95 percent for births to mothers who completed at least high school. This relationship is produced entirely by variations in the antenatal care provided by allopathic doctors; antenatal care only at home from health workers is actually more common among births to illiterate mothers (16 percent) than among births to mothers with at least a high school education (4 percent).

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Jain, Buddhist, Sikh and Christian mothers are more likely to receive antenatal care, although Sikhs are the only group who are more likely to receive antenatal care from other health professionals (44 percent) than from allopathic doctors (37 percent). Hindus are slightly more likely to be covered by antenatal care than Muslims although Muslims are more likely to consult doctors than are Hindus. Mothers from scheduled tribes are less likely to receive antenatal care (47 percent) than mothers from either scheduled castes (56 percent) or nonscheduled castes/tribes (65 percent).

It is encouraging to note that mothers in India receive antenatal care for 62 percent of births and that a large majority of all births covered by antenatal care were to mothers who received antenatal care from allopathic doctors. However, more efforts are needed to achieve the goal of providing professional antenatal care to all pregnant women. The most pressing need is for the provision of professional antenatal care services in rural areas and the encouragement of pregnant women to avail themselves of the services provided, since 43 percent of births in rural areas were to mothers who did not receive any antenatal care.

Reasons for Not Seeking Antenatal Care Services

Mothers who had not sought antenatal care outside the home were asked about the main reason for not going for an antenatal check-up. The findings shown in Table 9.2 for women who did not receive any antenatal care are quite revealing. For this group, nearly three-fifths of the births were to mothers who stated that it was not necessary to go for an antenatal check-up. Thus, a large proportion of births are to mothers who do not realize the importance of safe motherhood. It is surprising to note that a higher proportion of urban births (66 percent) than rural births (58 percent) were to mothers who felt this way, but it must be remembered that the table includes only women whose births did not involve any antenatal care, a category that is far smaller among urban births (18 percent) than among rural births (42 percent). Other major factors contributing to the nonuse of antenatal care were lack of knowledge of antenatal care services (13 percent) and financial cost (7 percent). Mothers of 6 percent of births felt that it

Table 9.2 Reasons for not receiving antenatal care

Percent distribution of live births during the four years preceding the survey to mothers who did not receive antenatal care, by main reason for not receiving antenatal care and residence, India, 1992-93

Reason for not receiving antenatal care	Urban	Rural	Total
Lack of knowledge of services	7.6	13.4	12.8
Not necessary	66.4	57.6	58.5
Not customary	4.4	5.7	5.5
Financial cost	7.3	6.8	6.9
Inconvenient	1.7	2.6	2.5
Poor quality service	1.0	1.4	1.3
No time to go	3.0	5.5	5.3
Not permitted to go	5.3	5.2	5.2
Other	2.7	1.6	1.7
Don't know, missing	0.6	0.1	0.2
Total percent	100.0	100.0	100.0
Number	1996	16171	18168

is not customary in the community to go for an antenatal check-up. Five percent of births were to women who had no time to go for antenatal care and another 5 percent were to women who were not permitted to go for an antenatal check-up. One to 3 percent of births were to mothers who said it was inconvenient to go for antenatal care and that the services were of poor quality. Thus, the most important barriers to the utilization of antenatal check-up services are the lack of conviction regarding the necessity of having an antenatal check-up, lack of knowledge of services and social customs not encouraging the utilization of antenatal care services. These findings underline the importance of developing a strong information, education and communication programme with respect to antenatal care and safe motherhood.

Number and Timing of Antenatal Care Visits

The number of antenatal care visits and the timing of the first antenatal check-up are important for the health of the mother and the outcome of the pregnancy. Ideally, for normal cases antenatal care visits after confirmation of pregnancy should be scheduled at intervals of four weeks throughout the first seven months, then every two weeks until the last month and weekly thereafter (MacDonald and Pritchard, 1980). However, working women, particularly those from lower socioeconomic groups, often find it difficult to make frequent visits to an antenatal clinic because they face a loss of wages whenever they attend. Under these circumstances, a minimum of four antenatal visits are recommended during the third, sixth, eighth, and ninth months of the pregnancy (Park and Park, 1989). The Child Survival and Safe Motherhood Programme has a slightly more modest goal of providing at least three antenatal check-ups to all pregnant women (Ministry of Health and Family Welfare, 1992b).

Table 9.3 and Figure 9.2 show the percentage distribution of live births in the last four years by the number and timing of antenatal visits. Among the births for which the mother received any form of antenatal care, the median frequency of antenatal care visits either in the home or elsewhere is 3.7; the median number of home visits is 3.2 and of visits outside the home is 3.6. These medians make it clear that women who receive antenatal care are meeting the recommended minimum of 3 visits during pregnancy but they are far behind the expanded recommendation of 12 visits during a normal pregnancy. The median number of visits is larger in urban areas (4.6) than in rural areas (3.5), but even in urban areas the expanded recommendations are not being met. No home visits were made by health workers to the mothers of 79 percent of births; only 24 percent of births in rural areas and 10 percent of births in urban areas received antenatal care through home visits.

Obstetricians advise that antenatal care should begin, at the latest, six weeks after the last menstrual period. However, studies of the impact of the initial antenatal visit show that, even when antenatal care is initiated as late as the third trimester, there is a substantial reduction in perinatal mortality (Ramachandran, 1992). The median gestational age for the first antenatal visit of either type (home or outside) is 5.0 months. It is 4.2 months in urban areas and 5.1 months in rural areas. The median gestational age in urban areas is higher for home visits (5.2 months) than outside visits (4.2 months). No such difference is observed in rural areas. The proportion of births whose mothers received antenatal care in the first trimester is 39 percent in urban areas, 20 percent in rural areas, and 24 percent in the country as a whole. Thus, in both urban and rural areas a substantial majority of mothers who receive antenatal care receive it for the first time at a later gestational age than is recommended.

Table 9.3 Number of antenatal care visits and stage of pregnancy

Percent distribution of live births during the four years preceding the survey by number of antenatal care (ANC) visits, and by the stage of pregnancy at the time of the first visit, according to residence, India, 1992-93

ANC visits/ months pregnant	Home visits	Outside visits	Any type
URBAN			
Number of ANC visits			
None	89.9	21.6	17.8
1 visit	1.9	4.2	4.1
2-3 visits	5.0	30.4	30.7
4 or more visits	2.7	43.5	46.9
Don't know/missing	0.5	0.3	0.5
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	3.2	4.5	4.6
Months pregnant at the time of the first ANC visit			
No antenatal care	89.9	21.6	17.8
First trimester	2.9	37.4	39.3
Second trimester	4.7	26.4	28.1
Third trimester	2.0	14.3	14.4
Don't know/missing	0.4	0.3	0.3
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	5.2	4.2	4.2
Number of live births	11242	11242	11242
RURAL			
Number of ANC visits			
None	75.2	57.8	42.4
1 visit	4.1	5.7	6.7
2-3 visits	13.2	23.0	28.9
4 or more visits	6.6	13.0	21.0
Don't know/missing	0.9	0.5	0.9
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	3.2	3.3	3.5
Months pregnant at the time of the first ANC visit			
No antenatal care	75.2	57.8	42.4
First trimester	7.0	13.9	19.5
Second trimester	12.4	18.7	26.9
Third trimester	4.7	9.0	10.5
Don't know/missing	0.8	0.5	0.7
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	5.3	5.3	5.1
Number of live births	38128	38128	38128

Percent distribution of live births during the four years preceding the survey by number of antenatal care (ANC) visits, and by the stage of pregnancy at the time of the first visit, according to residence, India, 1992-93

ANC visits/ months pregnant	Home visits	Outside visits	Any type
	TOTAL		
Number of ANC visits			
None	78.6	49.6	36.8
1 visit	3.6	5.3	6.1
2-3 visits	11.3	24.7	29.3
4 or more visits	5.7	19.9	26.9
Don't know/missing	0.8	0.5	0.8
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	3.2	3.6	3.7
Months pregnant at the time of the first ANC visit			
No antenatal care	78.6	49.6	36.8
First trimester	6.0	19.2	24.0
Second trimester	10.6	20.5	27.2
Third trimester	4.1	10.2	11.4
Don't know/missing	0.7	0.5	0.6
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	5.3	5.0	5.0
Number of live births	49369	49369	49369

Note: Table is based on births in the period 1-47 months prior to the survey.

Tetanus Toxoid Vaccination

Tetanus is an important cause of death among neonates in India. Neonatal tetanus is a particular problem in Madhya Pradesh, Orissa, and Uttar Pradesh, where the proportion of all deaths due to neonatal tetanus is higher than the state's share in the total population of India (Central Bureau of Health Intelligence, 1991).

Neonatal tetanus is caused by infection of the newborn (usually at the umbilical stump) with tetanus organisms. Neonatal tetanus is most common when the delivery takes place in an unhygienic environment and nonsterilized instruments are used for cutting the umbilical cord. Tetanus typically develops during the first or second week of life and is fatal in 70 to 90 percent of cases (Foster, 1984). Where this disease is most common, such as in rural areas of several states, expert medical help is also rarely available, thereby leading to a particularly high fatality rate. Neonatal tetanus is a preventable disease, however. Two doses of tetanus toxoid vaccine given to the pregnant woman one month apart during early pregnancy are nearly 100 percent effective in preventing tetanus among newborns (and among mothers).

In India, the tetanus immunization programme for expectant mothers was initiated in 1975-76 and was integrated with the Expanded Programme on Immunization (EPI) in 1978

Figure 9.2
Number and Timing of Antenatal Visits

NUMBER OF VISITS

	Percent
None	37
1 Visit	6
2-3 Visits	29
4 or More Visits	27

TIME OF FIRST VISIT

	Percent
No Antenatal Care	37
First Trimester	24
Second Trimester	27
Third Trimester	11

Percent
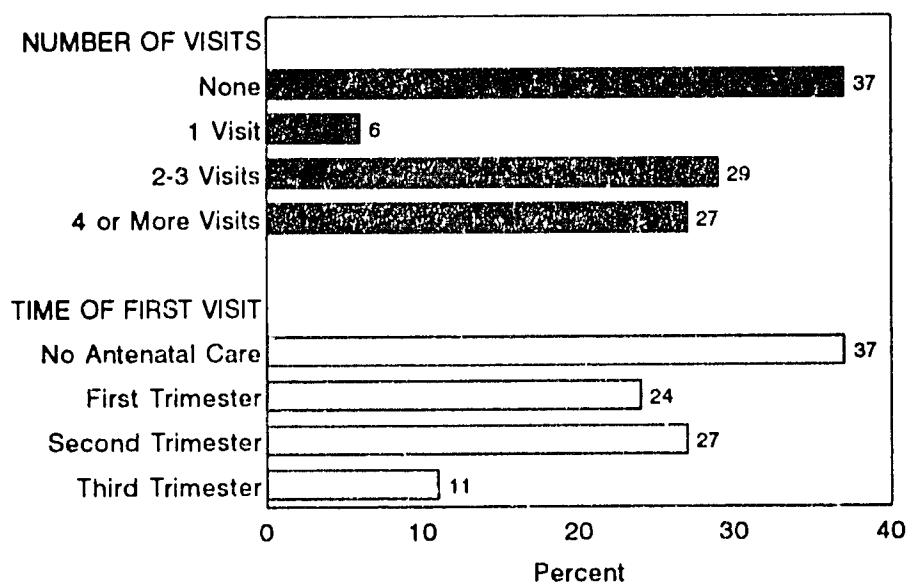
Note: Based on births in the period
1-47 months preceding the survey

NFHS, India, 1992-93

(Ministry of Health and Family Welfare, 1991). In order to hasten implementation of the immunization programme the Government of India started a special programme called the Universal Immunization Programme (UIP) in 1985-86. In 1986, the UIP was recognized as one of the seven Technology Missions. 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). Reinoculation is recommended every three years. If the initial doses were received less than three years ago a single booster injection is recommended.

In the NFHS, each mother who had a live birth during the four years prior to the survey was asked whether she was given an injection in the arm to prevent her and her baby from getting tetanus and, if so, how many times she received such an injection. The distribution of births by the number of tetanus toxoid injections given to the mother according to selected background characteristics is shown in Table 9.4. Fifty-four percent of births were to mothers who had received two or more doses of tetanus toxoid vaccine, 7 percent were to those who had received one dose, and 39 percent were to those who did not receive even a single dose.

The receipt of two doses of tetanus toxoid vaccine is significantly higher in urban than in rural areas (74 percent compared with 48 percent). For births in the last four years, tetanus toxoid coverage is lower for older mothers and decreases consistently with an increase in birth order. The proportion of births whose mothers received two doses of tetanus toxoid vaccine increases steadily from 40 percent for illiterate mothers to 84 percent for mothers who completed

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Table 9.4 Tetanus toxoid vaccinations

Percent distribution of live births during the four years preceding the survey by number of tetanus toxoid injections and whether the respondent was given iron/folic tablets during pregnancy, according to selected background characteristics, India, 1992-93

Background characteristic	Number of tetanus toxoid injections					Percent given iron/ folic tablets	Number of births
	None	One dose	Two doses[1]	Don't know/ missing	Total percent		
Mother's age at birth							
< 20	37.0	7.7	55.1	0.1	100.0	51.8	11514
20-34	37.8	6.9	55.1	0.2	100.0	51.5	35258
35+	62.8	6.8	30.3	0.1	100.0	30.3	2597
Birth order							
1	28.1	6.2	65.5	0.2	100.0	60.6	13594
2	32.2	7.3	60.4	0.2	100.0	56.7	11794
3	38.5	7.6	53.7	0.2	100.0	50.6	8639
4	45.8	7.8	46.4	0.1	100.0	43.3	5797
5	50.6	8.5	40.7	0.1	100.0	38.9	3745
6+	64.6	6.6	28.8	0.1	100.0	28.5	5800
Residence							
Urban	19.4	6.0	74.4	0.3	100.0	68.7	11242
Rural	44.7	7.4	47.7	0.1	100.0	45.1	38128
Education							
Illiterate	51.7	7.8	40.3	0.1	100.0	38.3	32770
Literate, < middle complete	20.9	7.0	71.9	0.2	100.0	66.6	8190
Middle school complete	10.0	5.3	84.3	0.3	100.0	77.2	3505
High school and above	4.4	4.0	91.5	0.2	100.0	85.6	4904
Religion							
Hindu	39.6	7.2	53.0	0.2	100.0	50.5	39223
Muslim	41.2	6.8	51.8	0.2	100.0	44.3	7613
Christian	27.4	7.1	65.0	0.5	100.0	65.0	981
Sikh	15.1	4.7	80.2	--	100.0	71.0	822
Jain	6.4	1.0	91.8	0.8	100.0	89.7	142
Buddhist	14.7	9.5	75.6	0.1	100.0	74.5	351
Other	42.0	9.8	47.8	0.4	100.0	49.0	237
Caste/tribe							
Scheduled caste	45.4	7.0	47.4	0.2	100.0	44.2	6590
Scheduled tribe	56.2	9.4	34.1	0.3	100.0	40.2	4703
Other	35.7	6.8	57.3	0.2	100.0	52.8	38076
Total	39.0	7.1	53.8	0.2	100.0	50.5	49369

Note: Table is based on births in the period 1-47 months prior to the survey.
-- Less than 0.05 percent
[1] Includes women who received more than two doses

middle school and to 92 percent for mothers with at least a high school education. Vaccination against tetanus is highest among births to Jain mothers (92 percent), followed by births to Sikh mothers (80 percent), Buddhist mothers (76 percent), and Christian mothers (65 percent). Vaccination against tetanus is almost the same among births to Muslim mothers (52 percent) as among birth to Hindu mothers (53 percent). The coverage is considerably lower among scheduled tribe mothers (34 percent) than scheduled caste mothers (47 percent) or non-SC/ST mothers (57 percent).

Iron and Folic Acid Tablets

The size of a woman's baby, her preparation for lactation, and the iron and folate status of both the mother and the child depends upon the mother's nutritional status at the time of conception as well as her diet during pregnancy (World Health Organization, 1994a). Proper maternal care is important for the healthy intrauterine growth of the baby and may affect the baby's birth weight. Studies in various parts of India have indicated that the percentage of low birth weight babies (weighing less than 2,500 grams) ranged from 15 in Trivandrum to 46 in Baroda (Nutrition Foundation of India, 1993). Improved nutrition (coupled with improved health care in pregnancy) has, however, substantially improved birth weights in India (Ramachandran, 1992). The provision of iron and folic acid tablets as a prophylaxis against nutritional anaemia among pregnant women forms an integral part of the MCH activities of the Indian Family Welfare Programme (Ministry of Health and Family Welfare, 1991). It is recommended that a pregnant woman take 100 tablets of iron and folic acid during her pregnancy, and health workers are instructed accordingly.

In the NFHS, information was collected on whether the mother received iron and folic acid tablets during each pregnancy resulting in a live birth during the last four years. This information is presented in Table 9.4. Fifty-one percent of births were to mothers who had received iron and folic acid tablets. Because nearly one-third of new babies in India are of low birth weight (WHO-UNICEF, 1992), the performance with regard to the intake of iron and folic acid tablets by pregnant women is very inadequate. As expected, the receipt of iron and folic acid tablets is higher in urban areas (69 percent) than in rural areas (45 percent). The differentials in the distribution of iron and folic acid tablets by other background characteristics are almost the same as those for tetanus toxoid injections.

Place of Delivery and Assistance During Delivery

From the standpoint of child survival and health of the mother, the first priority for delivery care is that it is safe and clean (World Health Organization, 1994). The majority of maternal deaths and much of the chronic morbidity resulting from childbirth are due to the failure to get timely help for complications at delivery. It is essential that delivery be conducted under proper hygienic conditions with the assistance of a trained medical practitioner. Table 9.5 and Figure 9.3 present the percent distribution of live births occurring during the four years preceding the survey according to place of delivery and selected background characteristics. Only one-quarter of births during the last four years occurred in medical institutions, with 15 percent in public institutions and 11 percent in private health facilities. Overall, 74 percent of births in India took place at home - 62 percent in the woman's own home and 12 percent in the parents' home. The percentage of births that took place in medical institutions is three and a half times as high in urban areas (58 percent) as in rural areas (16 percent). Information on the percent distribution of births by place of delivery and type of attendance at birth (for home deliveries) is also available from the Sample Registration System (SRS) (Office of the Registrar General, 1993a, 1993b). The SRS information for 1990-91 (averaged) puts the percentage of births in India occurring in medical institutions at 24 percent (53 percent in urban areas and 17 percent in rural areas). The estimates from the NFHS and SRS for India as a whole are quite close. The estimates for urban areas differ by less than 5 percentage points and the estimates for rural areas are almost identical.
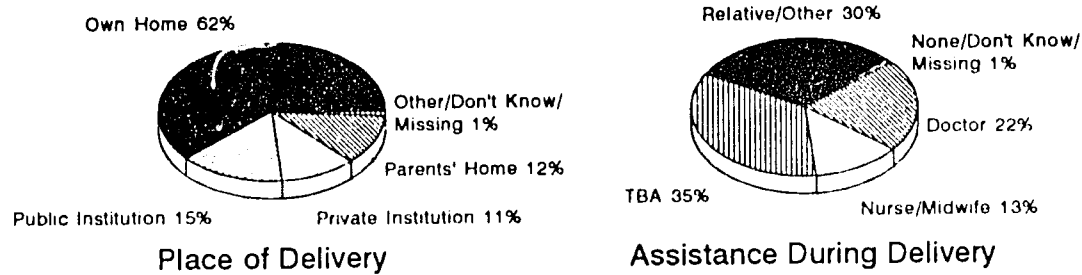
Table 9.5 Place of delivery

Percent distribution of live births during the four years preceding the survey by place of delivery, according to selected background characteristics, India, 1992-93

Background characteristic	Place of delivery							
	Health facility/ institution		Home			Don't know/ missing	Total percent	Number of live births
	Public	Private	Own home	Parents' home	Other			
Mother's age at birth								
< 20	15.2	8.8	54.1	20.7	0.6	0.7	100.0	11514
20-34	15.0	12.0	62.3	9.8	0.5	0.4	100.0	35258
35+	7.2	5.3	84.2	1.9	0.6	0.8	100.0	2597
Birth order								
1	21.1	17.1	42.7	18.1	0.5	0.5	100.0	13594
2-3	15.3	11.6	59.6	12.5	0.5	0.4	100.0	20433
4-5	9.3	5.2	77.1	7.2	0.6	0.6	100.0	9542
6+	5.9	3.0	87.1	3.0	0.5	0.5	100.0	5800
Residence								
Urban	30.2	27.4	34.6	6.9	0.5	0.4	100.0	11242
Rural	10.0	6.0	69.5	13.4	0.5	0.5	100.0	38128
Education								
Illiterate	8.6	3.2	74.5	12.7	0.5	0.6	100.0	32770
Lit., < middle complete	23.1	14.7	48.1	13.1	0.7	0.3	100.0	8190
Middle school complete	30.9	24.5	34.5	9.3	0.7	0.1	100.0	3505
High school and above	29.3	46.0	17.2	7.0	0.2	0.3	100.0	4904
Religion								
Hindu	14.8	10.0	62.0	12.1	0.5	0.5	100.0	39223
Muslim	11.9	11.8	64.8	10.8	0.5	0.2	100.0	7613
Christian	22.3	26.2	43.5	7.4	0.4	0.2	100.0	981
Sikh	12.9	16.1	54.9	15.7	0.5	--	100.0	822
Jain	21.3	59.8	8.8	10.1	--	--	100.0	142
Buddhist	40.2	12.9	30.4	15.9	0.6	--	100.0	351
Other	10.2	7.7	69.5	12.4	--	0.2	100.0	237
Caste/tribe								
Scheduled caste	10.9	5.1	71.5	11.2	0.6	0.8	100.0	6590
Scheduled tribe	6.7	2.4	77.9	11.7	0.6	0.8	100.0	4703
Other	16.3	12.9	57.8	12.1	0.5	0.4	100.0	38076
Antenatal care visits								
None	3.0	1.2	84.8	10.5	0.5	--	100.0	18168
1-3 visits	16.2	7.2	61.9	14.1	0.5	--	100.0	17513
4+ visits	28.8	29.2	30.2	11.2	0.6	0.1	100.0	13279
Don't know/missing	4.4	1.8	33.9	6.2	--	53.7	100.0	410
Total	14.6	10.9	61.6	11.9	0.5	0.5	100.0	49369

Note: Table is based on births in the period 1-47 months prior to the survey.
-- Less than 0.05 percent

Figure 9.3
Place of Delivery and
Assistance During Delivery

Place of Delivery

Own Home 62%
Other/Don't Know/ Missing 1%
Parents' Home 12%
Public Institution 15%
Private Institution 11%

Assistance During Delivery

Relative/Other 30%
None/Don't Know/ Missing 1%
Doctor 22%
Nurse/Midwife 13%
TBA 35%

Note: Based on births in the period
1-47 months preceding the survey

NFHS, India, 1992-93

The proportion of births taking place in medical institutions is lower among births to older women than among births to younger women and is likewise lower among higher order births than among lower order births. As is the case for antenatal visits, tetanus vaccination, and iron and folic acid supplements, institutional deliveries are also more common among births to well educated women than among births to poorly educated women. For example, only 12 percent of births to illiterate women occurred in medical institutions, compared to 75 percent of births to women with at least a high school education. Institutional births are most common among Jain women (81 percent), followed by Buddhist women (53 percent), Christian women (49 percent) and Sikh women (29 percent). There is not much difference in the proportion of institutional deliveries between Hindu and Muslim women. Institutional deliveries are less common among births to scheduled tribe women (9 percent) than among births to scheduled caste women (16 percent) or non-SC/ST women (29 percent).

In India, delivery in a medical institution (26 percent) is less common than antenatal care (62 percent), but the two are related. The percentage of institutional births is higher among women who had four or more antenatal visits (58 percent) than among women who had fewer than four antenatal visits (23 percent) or none (4 percent). This could be due to the availability of both antenatal and delivery care services in the same setting. It might also reflect complications during pregnancy which often lead women to seek antenatal care and to deliver in an institutional setting. It is also possible that pregnant women receiving antenatal care are encouraged by the antenatal care provider to have medical assistance during delivery.

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Table 9.6 and Figure 9.3 present information on assistance during delivery according to selected background characteristics. As in the case of antenatal care, the interviewer was instructed to record all responses if more than one person was reported to have assisted during delivery. In Table 9.6 and Figure 9.3, however, only the most highly qualified attendant is considered if there is more than one attendant. In all, slightly more than one-fifth of all births were attended by a doctor (22 percent) and 13 percent were attended by a nurse/midwife. Only 34 percent of births were attended by trained medical persons. Another 35 percent of deliveries were attended by traditional birth attendants, and 30 percent were attended only by relatives, friends or neighbours.

As one would expect, the proportion of deliveries attended by doctors is higher in urban areas (48 percent) than in rural areas (14 percent). Birth attendance by a nurse/midwife is also more common in urban areas (18 percent) than in rural areas (11 percent). Attendance by a trained medical person increases steadily with an increase in the educational attainment of women. The proportion of births delivered by a trained medical person is 20 percent among births to illiterate mothers, 65 percent among births to mothers who completed middle school and 83 percent among births to mothers who completed at least high school. Attendance during delivery by a trained medical person is most common among Jains (93 percent), Buddhists (60 percent), and Christians (56 percent). Fifty percent of births to Sikh mothers were attended by trained medical persons. However, the proportion of births delivered by traditional birth attendant is 45 percent among Sikh mothers (higher than any other religion). One-third of the births to Hindu women received assistance from a trained medical person, as did 30 percent of births to Muslim women. Attendance at birth by a trained medical person is less common among births to mothers of scheduled tribes (18 percent) and scheduled castes (25 percent) than among births to women in the non-SC/ST category (38 percent). Trained medical assistance during a birth is strongly related to the number of antenatal visits.

The type of assistance during delivery also varies according to the place of delivery. Among deliveries that occurred in private medical facilities, 86 percent were attended by a doctor and 13 percent by a nurse/midwife, whereas among deliveries in public health facilities, 67 percent were attended by a doctor and 31 percent by a nurse/midwife. Among deliveries taking place in the woman's home, 48 percent were attended by a traditional birth attendant, 40 percent by relatives or others, less than 3 percent by a doctor, and 8 percent by a nurse/midwife. Because nearly three-quarters of births take place at home, it is not surprising to find that traditional birth attendants, relatives, friends and neighbours play a major role in assisting deliveries in India.

Because only one-quarter of deliveries in India take place in medical institutions and two-thirds of deliveries are unattended by a trained medical professional, a large majority of deliveries are likely to take place without proper hygienic care and timely professional help when complications develop. The situation is particularly serious in rural areas where five out of every six births take place at home and medical assistance is not available for three-quarters of births.

Table 9.6 Assistance during delivery

Percent distribution of live births during the four years preceding the survey by type of assistance during delivery, according to selected background characteristics, India, 1992-93

	Attendant assisting during delivery[1]							
Background characteristic	Doctor	Nurse/ midwife	Traditional birth attendant	Relative/ other	None	Don't know/ missing	Total percent	Number of live births
Mother's age at birth								
< 20	20.3	13.5	35.1	29.7	0.4	0.5	100.0	11514
20-34	22.6	12.6	34.8	28.8	0.6	0.5	100.0	35258
35+	10.3	8.8	41.3	37.6	1.0	1.0	100.0	2597
Birth order								
1	33.6	14.4	28.9	22.3	0.2	0.4	100.0	13594
2-3	22.3	13.6	34.4	28.8	0.5	0.4	100.0	20433
4-5	11.7	10.7	41.0	35.1	0.9	0.6	100.0	9542
6+	6.9	8.0	43.7	39.5	1.2	0.7	100.0	5800
Residence								
Urban	47.6	17.7	22.0	12.0	0.4	0.3	100.0	11242
Rural	13.9	11.1	39.1	34.6	0.6	0.6	100.0	38128
Mother's education								
Illiterate	9.9	10.1	41.8	36.8	0.7	0.7	100.0	32770
Lit., < middle complete	29.6	18.9	30.2	20.6	0.5	0.2	100.0	8190
Middle school complete	45.5	19.3	20.4	14.5	0.1	0.2	100.0	3505
High school and above	68.7	14.5	10.5	5.9	0.2	0.2	100.0	4904
Religion								
Hindu	21.0	12.6	35.3	29.9	0.6	0.6	100.0	39223
Muslim	19.6	10.6	37.4	31.5	0.6	0.3	100.0	7613
Christian	41.7	14.3	18.7	24.3	0.8	0.2	100.0	981
Sikh	27.0	22.9	45.1	5.0	--	--	100.0	822
Jain	80.9	12.1	4.7	2.3	--	--	100.0	142
Buddhist	32.6	27.8	17.8	21.2	0.6	--	100.0	351
Other	15.9	10.4	40.7	31.7	1.4	--	100.0	237
Caste/tribe								
Scheduled caste	13.7	11.4	39.5	33.9	0.7	0.9	100.0	6590
Scheduled tribe	7.4	10.1	41.8	39.2	0.9	0.7	100.0	4703
Other	24.7	13.2	33.7	27.5	0.5	0.4	100.0	38076
Antenatal care								
None	3.9	5.2	45.6	44.3	0.7	0.2	100.0	18168
1-3 visits	18.5	15.7	36.6	28.6	0.6	0.1	100.0	17513
4+ visits	50.3	18.8	20.1	10.4	0.2	--	100.0	13279
Don't know/missing	5.8	6.0	14.1	22.6	4.8	46.7	100.0	410
Place of delivery								
Public health facility	67.1	31.1	0.9	0.7	0.1	--	100.0	7226
Private health facility	86.2	12.9	0.4	0.5	--	--	100.0	5368
Own home	2.5	8.2	48.1	40.3	0.7	0.2	100.0	30397
Parents' home	6.3	13.0	43.8	36.3	0.5	0.1	100.0	5887
Other	11.0	15.1	40.9	31.4	1.7	--	100.0	258
Don't know/missing	5.3	--	1.1	3.9	8.5	81.2	100.0	234
Total	21.6	12.6	35.2	29.5	0.6	0.5	100.0	49369

Note: Table is based on births in the period 1-47 months prior to the survey.
-- Less than 0.05 percent
[1] If the respondent mentioned more than one attendant, only the most qualified attendant is considered.

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Maternal Care Indicators by State

Table 9.7 provides information on several important maternal care indicators for Indian states. Interstate variations are substantial on each of the indicators of maternal care. The percentage of births for which mothers received antenatal care is highest in Kerala (97 percent), followed by Goa (95 percent), and Tamil Nadu (94 percent). Among the major states (states with more than 5 million population in 1991), Punjab, Andhra Pradesh, Karnataka, Maharashtra and Delhi have also achieved antenatal coverage for more than 80 percent of births. Among the

Table 9.7 Maternal care indicators by state

Percentage of live births during the four years preceding the survey by various maternal care indicators and state, India, 1992-93

State	Percentage receiving antenatal care	Percentage receiving two doses of tetanus toxoid vaccine[1]	Percentage receiving iron/ folic tablets	Percentage of births delivered in medical insti- tutions	Percentage of deliveries assisted by health professionals[2]
India	62.3	53.8	50.5	25.5	34.2
North					
Delhi	82.4	72.5	74.9	44.3	53.0
Haryana	72.7	63.3	59.9	16.7	30.3
Himachal Pradesh	76.0	47.4	71.7	16.0	25.6
Jammu Region of J & K	79.5	68.9	70.7	21.9	31.2
Punjab	87.9	82.7	73.6	24.8	48.3
Rajasthan	31.2	28.3	29.2	11.6	21.8
Central					
Madhya Pradesh	52.1	42.8	44.3	15.9	30.0
Uttar Pradesh	44.7	37.4	29.5	11.2	17.2
East					
Bihar	36.8	30.7	21.4	12.1	19.0
Orissa	61.6	53.8	49.9	14.1	20.5
West Bengal	75.3	70.4	56.3	31.5	33.0
Northeast					
Arunachal Pradesh	48.9	31.9	44.7	19.9	21.3
Assam	49.3	34.9	39.4	11.1	17.9
Manipur	63.4	48.0	35.5	23.0	40.4
Meghalaya	51.8	30.0	49.6	29.6	36.9
Mizoram	88.9	42.5	63.7	48.9	61.5
Nagaland	39.3	33.0	23.9	6.0	22.2
Tripura	64.9	58.7	53.2	30.7	33.5
West					
Goa	95.4	83.4	89.3	86.8	88.4
Gujarat	75.7	62.7	69.3	35.6	42.5
Maharashtra	82.7	71.0	7n.6	43.9	53.2
South					
Andhra Pradesh	86.3	74.8	76.4	32.8	49.3
Karnataka	83.5	69.8	74.9	37.5	50.9
Kerala	97.3	89.8	91.2	87.8	89.7
Tamil Nadu	94.2	90.1	84.1	63.4	71.2

Note: Table is based on births in the period 1-47 months prior to the survey.
[1]Includes women who received more than two doses
[2]Allopathic doctor or nurse/midwife

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smaller states, Mizoram and Jammu stand out with coverage rates of 89 and 80 percent, respectively. Utilization of antenatal care services is lowest in Rajasthan (only 31 percent of births during the last four years were to mothers who received antenatal care). The percentage of births for which mothers received antenatal care is also low in Bihar (37 percent), Uttar Pradesh (45 percent), Assam (49 percent), Madhya Pradesh (52 percent) and Orissa (62 percent). In the six small states in the northeastern region, there is substantial variation in the coverage of antenatal care, ranging from 39 percent in Nagaland to more than 60 percent in Mizoram, Tripura and Manipur.

Because tetanus toxoid vaccinations and iron/folic acid tablets are often given during antenatal check-ups, it is not surprising that the interstate variations in these two maternal care indicators are similar to the variations observed in the utilization of antenatal care services. The states which have a higher percentage of births covered by antenatal care also have higher percentages of births whose mothers received two doses of anti-tetanus injections and iron and folic acid tablets during pregnancy.

There are also large interstate variations in the proportion of institutional deliveries, ranging from 87-88 percent in Kerala and Goa to 11-12 percent in Rajasthan, Assam, Bihar and Uttar Pradesh. Only 6 percent of births in Nagaland are reported to have occurred in a health facility. Apart from Kerala and Goa, the only other state where more than half of all births take place in institutions is Tamil Nadu. It is surprising to note that in Punjab, which has achieved a strong performance in the provision of antenatal care services, only 25 percent of births are institutional. Between 13 and 17 percent of births take place in health facilities in Orissa, Madhya Pradesh, Himachal Pradesh and Haryana. Even in the predominantly urban state of Delhi, only 44 percent of births occur in institutions. In /ery state, more births are assisted by health professionals than take place in a medical institution, but the pattern of variations among the states is similar for these two indicators.

In sum, the provision of antenatal and delivery care services is better than average in all of the southern and western states in India. The northern states (with the major exception of Rajasthan) perform relatively well on the antenatal care indicators, but the situation with respect to delivery care is quite mixed. Maternal care is poor across the board in Rajasthan, Bihar, Uttar Pradesh, Assam and Nagaland. Renewed efforts to improve maternal care in these states should be a top priority.

Delivery Characteristics

Table 9.8 presents findings on complications during delivery, prematurity, birth weight and the mother's estimates of the baby's size at birth for live births in the four years preceding the survey. As reported by mothers, 88 percent of the deliveries had no complications, 6 percent were characterized by a long period of labour, 2 percent were accompanied by excessive bleeding, and 3 percent required a Caesarian section (C-section). Forceps were used for less than one percent of births and a similar proportion had the delayed delivery of the placenta. C-section deliveries were three and a half times as prevalent in urban areas (where institutional deliveries are more common) as in rural areas; otherwise, urban-rural differences in delivery complications are minor. A very small proportion of live births (3 percent) are reported as premature.

Table 9.8 Delivery characteristics

Percent distribution of live births during the four years preceding the survey by whether the delivery had complications, whether premature, and by birth weight and the mother's estimate of the baby's size at birth, according to residence, India, 1992-93

Delivery characteristic	Urban	Rural	Total
Complications at delivery[1]			
No complications	84.7	88.8	87.9
Caesarian section	5.7	1.6	2.5
Use of forceps	1.6	0.7	0.9
Excessive bleeding	1.6	1.8	1.8
Long period of labour	5.1	6.5	6.2
Delayed delivery of placenta	0.9	1.0	0.9
Other	1.4	0.7	0.9
Premature birth			
Yes	3.9	3.0	3.2
No	95.6	96.0	95.9
Don't know/missing	0.5	1.0	0.9
Total percent	100.0	100.0	100.0
Birth weight			
Less than 2.5 kg	10.0	1.9	3.8
2.5 kg or more	28.0	5.8	10.8
Don't know/missing	12.3	4.5	6.3
Not weighed	49.7	87.8	79.1
Total percent	100.0	100.0	100.0
Size at birth			
Large	15.3	13.4	13.8
Average	63.8	63.5	63.6
Small	20.0	21.4	21.1
Don't know/missing	0.9	1.6	1.5
Total percent	100.0	100.0	100.0
Number of births	11242	38128	49369

Note: Table is based on births in the period 1-47 months prior to the survey.
[1] All complications were recorded if there was more than one complication. Births with missing information on complications are not included.

A large majority of children (79 percent) were not weighed at birth. Fifty percent of children born in urban areas and 88 percent in rural areas were not weighed at birth, which is to be expected because of the large proportion of deliveries that take place at home, where scales for weighing babies are rarely available. Moreover, for 12 percent of births in urban areas and 5 percent in rural areas, the baby was weighed but the mother could not provide information on the birth weight at the time of the interview. Thus, the resulting sample of birth weights is small and subject to substantial selection bias. Twenty-six percent of babies whose weight at birth was known had a low birth weight (less than 2.5 kg.). The proportion of low birth weight babies is almost the same in urban and rural areas. The proportion of low birth weight babies observed in the NFHS is slightly smaller than observed in several previous studies conducted in India, according to which around 30 percent of babies have a low birth weight (WHO-UNICEF, 1992).

Because of the difficulty of weighing newborns in India due to the fact that most deliveries take place at home, a question on the size of the baby at the time of birth (small, average or large) was asked in the NFHS. Experience has shown that mothers can give useful information about the size of their newborns. Slightly more than one-fifth of newborns were reported by mothers to be small in size. As previously noted in Chapter 8, these children have a much higher risk of dying than children who are at least of average size at the time of birth.

Table 9.9 shows differentials in delivery characteristics by the type of antenatal care, length of the previous birth interval and the mother's age at birth. Complications and

Table 9.9 Delivery characteristics by background characteristics

Percent distribution of live births during the four years preceding the survey by whether the delivery had complications, whether premature, and by birth weight and the mother's estimate of the baby's size at birth, according to antenatal care, birth interval, and mother's age, India, 1992-93

Delivery characteristic	Antenatal care			Previous birth interval				Age of mother at birth		
	None	1-3 visits	4+ visits	Under 2 years	2-3 years	4+ years	First birth	<20	20-34	35+
Complications at delivery										
No complications	91.8	88.4	81.6	90.5	90.5	88.5	82.1	86.7	88.1	90.6
Caesarian section	0.3	1.4	7.0	1.2	1.4	2.2	5.2	2.1	2.7	1.4
Use of forceps	0.1	0.7	2.3	0.6	0.4	0.6	2.0	1.3	0.8	0.1
Excessive bleeding	1.9	1.7	1.7	1.9	1.8	1.5	1.9	1.8	1.8	2.2
Long period of labour	5.6	6.7	6.3	5.1	5.3	6.4	8.0	7.3	5.8	5.6
Delayed delivery of placenta	0.8	1.0	1.1	0.8	0.8	1.2	1.1	1.1	0.9	0.4
Other	0.6	1.0	1.2	0.9	0.7	0.9	1.1	1.0	0.9	0.4
Premature birth										
Yes	2.9	3.1	3.8	3.4	2.2	2.4	4.8	4.6	2.8	2.5
No	96.3	96.5	96.1	95.5	97.0	96.7	94.2	94.2	96.5	96.2
Don't know/missing	0.8	0.4	0.2	1.0	0.9	0.9	0.9	1.2	0.8	1.3
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Birth weight										
Less than 2.5 kg	0.4	3.3	9.1	3.2	2.4	2.9	6.6	3.8	3.9	1.4
2.5 kg or more	0.7	7.7	29.1	9.3	7.3	11.1	16.7	8.5	12.0	4.7
Don't know/missing	1.1	5.7	12.6	6.0	5.3	5.4	8.3	6.6	6.3	3.9
Not weighed	97.8	83.4	49.2	81.5	85.0	80.6	68.3	81.1	77.7	90.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Size at birth										
Large	11.8	13.0	18.0	13.9	13.3	14.7	14.0	14.6	13.8	10.9
Average	65.1	64.4	61.5	63.6	65.1	64.5	61.0	59.1	64.9	65.3
Small	21.6	21.8	19.9	20.6	20.2	19.5	23.6	24.5	19.9	22.1
Don't know/missing	1.5	0.8	0.6	1.9	1.4	1.3	1.3	1.8	1.3	1.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of births	13168	17513	13279	8912	19776	7012	13670	11514	35258	2597

Note: Table is based on births in the period 1-47 months prior to the survey. Cases with missing information on antenatal care visits are not shown separately.
[1]All complications were recorded if there was more than one complication. Births with missing information on complications are not included.

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premature births were more common for births to mothers who had four or more antenatal visits. This suggests that there is a tendency among pregnant women having complications to obtain antenatal care. Not surprisingly, antenatal care is also related to newborns being weighed. The proportion of newborns who were weighed was 2 percent for those whose mothers did not receive antenatal care, 17 percent for those whose mothers had 1-3 antenatal check-ups and 51 percent for those whose mothers had 4 or more antenatal visits. As indicated in Table 9.5, 58 percent of births to mothers who had four or more antenatal visits were delivered in institutions, where the probability of weighing children is very high.

There is little relationship between the previous birth interval and complications at delivery, but first births have a slightly higher complication rate, especially with respect to the period of labour. Perhaps because of the long period of labour, C-sections were carried out for 5 percent of first births compared with 1-2 percent of other births. First births are also slightly more likely to be premature (5 percent compared with 2-3 percent for other births), to have a low birth weight, and to be smaller than average at the time of birth. Births to mothers less than 20 years of age at the time of delivery are also more likely than other births to be premature, small in size and underweight.

9.2   Child Care Indicators

Immunization of Children

The immunization of children against six serious but preventable diseases (namely, 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 in India on a priority basis (Gupta and Murli, 1989). The Expanded Programme on Immunization (EPI) was started by the Government of India in 1978 with the objective of reducing morbidity, mortality, and disabilities due to these six diseases by making free vaccinations easily available to all eligible children. Immunization against polio was introduced to the programme in 1979-80 and tetanus toxoid for school children was added in 1980-81. BCG was brought under the EPI in 1981-82. The latest addition to the Programme is vaccination against measles, introduced in 1985-86 (Ministry of Health and Family Welfare, 1991).

In order to accelerate implementation of the immunization scheme, the Government of India started a special programme called the Universal Immunization Programme (UIP) in 1985-86. The UIP was designated as one of the seven Technology Missions and was charged with two objectives: i) to vaccinate at least 85 percent of all infants by 1990 against the six vaccine-preventable diseases; and ii) to achieve self-sufficiency in vaccine production and the manufacture of cold chain equipment (Ministry of Health and Family Welfare, 1991).

The standard immunization schedule developed for the immunization programme for children contains 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). Vaccinations received by infants and children are usually recorded on a vaccination card, which is given to the mother of each child.

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In the NFHS, every mother was asked whether she had a vaccination card for each child born since 1 January 1988 for surveys that started in 1992 and 1 January 1989 for surveys that started in 1993. If a card was available, the interviewer was required to copy carefully the dates on which the child received vaccinations against each disease. When the mother could not produce the vaccination card, she 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 injections or oral doses given. The date of vaccination was not asked of the mother.

Table 9.10 presents the percentage of children age 12-23 months who received each vaccine at any time before the interview and the percentage who received each vaccine before 12 months of age, according to whether a written vaccination record was shown to the interviewer or the mother was the source of all vaccination information. The proportion receiving vaccinations before 12 months is chosen for analysis because international guidelines specify that children should be fully immunized by the time they complete their first year of life. The denominator for any given row in each part of the table is the number of children age 12-23 months whose vaccination status was recorded from a card (Row 1), reported by the mother (Row 2), or determined from either source (Rows 3 and 4). The numerator of each entry in the row labelled "Vaccination card" is the number of children who received the specific vaccination or dose any time prior to the survey, as indicated in the vaccination card seen by the interviewer. The numerator for this row also includes those cases where a card was shown and (1) there was an indication on the card that the vaccination was given but the actual date was either missing or inconsistent, or (2) there was no record of receipt of the vaccination on the card, but the mother reported that the vaccination was given. The numerator for each entry in the row labelled "Mother's report" is the number of children whose mothers did not show a card to the interviewer but reported that the child had received the vaccination. The numerator for each entry in the row labelled "Either source" is the sum of the numerators in the preceding two rows for the vaccination under consideration. The numerator for each entry in the fourth row, "Vaccinated by 12 months of age", is derived from the numerators of the preceding two rows. Because the date of vaccination was not asked of the mother if she could not show the card, the proportion of vaccinations given during the first year of life among children whose information is based on the mother's report 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.

Of the 11,853 children age 12-23 months, vaccination cards were seen by the interviewers for only 31 percent. The percentage producing cards was 38 for urban areas and 29 for rural areas. As expected, the percentages vaccinated are much higher for children whose vaccination cards were seen by the interviewer than for children who either did not have a card or whose card was not seen.

Based on the information either recorded on cards or reported by the mother, only 35 percent of children in India are fully vaccinated[1]. Another 35 percent have received some

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[1] They have received BCG, measles, and three doses of DPT and polio (excluding polio 0). Polio 0 was introduced only recently and because it is a vaccination given at the time of birth (whereas polio 1 is typically given at the age of six weeks), mothers may not remember whether the first dose of the polio vaccine was given just after birth or later. Therefore, the coverage of polio 0 reported in the NFHS may be subject to response errors.

Table 9.10 Vaccinations by source of information

Among children age 12-23 months, the percentage who have received each vaccine at any time before the interview and before 12 months of age, according to whether the information is from the vaccination card or from the mother, India, 1992-93

Source of information	Percentage vaccinated among children age 12-23 months											Number of children
	BCG	Polio 0	DPT			Polio			Measles	All[1]	None	
			1	2	3	1	2	3				
URBAN												
Vaccinated at any time before interview												
Vaccination card	93.4	8.0	99.1	95.7	89.3	99.0	96.1	89.1	72.8	67.5	--	1027
Mother's report	68.0	7.7	69.0	62.7	56.3	69.8	65.1	58.8	48.2	40.5	26.4	1688
Either source	77.6	7.8	80.4	75.2	68.8	80.8	76.8	70.2	57.5	50.7	16.4	2715
Vaccinated by 12 months of age[2]	74.8	7.8	77.3	72.1	64.2	78.0	73.0	65.8	46.3	41.5	19.5	27'5
RURAL												
Vaccinated at any time before interview												
Vaccination card	89.4	4.2	98.8	91.3	82.3	98.3	91.2	82.8	64.4	57.9	0.1	2603
Mother's report	45.0	3.4	47.5	39.9	32.4	48.8	42.7	34.7	27.0	20.1	47.5	6535
Either source	57.6	3.6	62.1	54.5	46.6	62.9	56.5	48.4	37.7	30.9	34.0	9138
Vaccinated by 12 months of age[2]	54.0	3.6	58.0	50.3	41.8	58.8	52.1	43.2	28.7	23.4	38.0	9138
TOTAL												
Vaccinated at any time before interview												
Vaccination card	90.5	5.3	98.9	92.5	84.3	98.5	92.6	84.6	66.8	60.6	--	3630
Mother's report	49.7	4.3	51.9	44.6	37.3	53.1	47.3	39.6	31.3	24.3	43.2	8223
Either source	62.2	4.6	66.3	59.2	51.7	67.0	61.2	53.4	42.2	35.4	30.0	11853
Vaccinated by 12 months of age[2]	58.7	4.6	62.4	55.3	46.9	63.2	56.9	48.3	32.7	27.5	33.7	11853

-- Less than 0.05 percent
[1] Children who are fully vaccinated, i.e., those who have received BCG, measles and three doses of DPT and polio vaccine (excluding polio 0).
[2] For children whose information was based on the mother's report, the proportion of vaccinations given during the first year of life was assumed to be the same as for children with a written record of vaccination.

vaccinations and 30 percent have not received any vaccinations. Thus, India has a long way to go to achieve the goal of the universal immunization of children.

Analysis of vaccine-specific data shows that more than three-fifths (62 percent) of children have received BCG vaccine, and two-thirds have received the first dose of DPT (66 percent) and the first dose of polio vaccine (67 percent). The coverage of three doses of DPT and three doses of polio vaccine is 52 and 53 percent, respectively. The DPT and polio coverage rates are about the same because both vaccines are normally administered simultaneously. The continuation rate from the first to the third dose of the DPT and polio vaccines indicates considerable dropout (22 percent in the case of DPT and 20 percent in the case of polio). Only 42 percent of children age 12-23 months have been vaccinated against

measles. The low rate of measles vaccination is responsible for lowering the percentage of children fully vaccinated.

The urban-rural differences in coverage rates are substantial. More than half (51 percent) of children in urban areas have received all the vaccines compared to 31 percent in rural areas. The urban-rural difference is also marked for individual vaccines, with the urban coverage rates for BCG, three doses of DPT and polio, and measles being higher than the rural coverage rates by 20-22 percentage points.

According to the immunization schedule, all primary vaccinations, (including measles) should be completed by the time a child is 12 months old. The data presented in Table 9.10 indicate that most vaccinations that are given are administered within the first year of life. For example, 28 percent of children were fully vaccinated by age 12 months compared with 35 percent who were fully vaccinated by the time of the survey. Thus, 78 percent of children who were fully vaccinated received all vaccinations before their first birthday. The gap between on-time and late vaccination is particularly wide for measles. Only 77 percent of children who were vaccinated against measles by the time of the survey had received the measles vaccination before their first birthday. This contrasts with on-time rates of 94 percent for BCG, 91 percent for the third dose of DPT and 90 percent for the third dose of polio.

Table 9.11 and Figure 9.4 present vaccination coverage rates among children age 12-23 months by selected background characteristics. The proportion of children for whom the mother showed a vaccination card varies by background characteristics. Vaccination cards were seen for a higher percentage of male children, lower order births, children in urban areas, children of mothers with at least a middle school education, and Jain, Buddhist and Sikh and non-SC/ST children. There are marked differences in vaccination coverage by these characteristics as well. For every type of vaccination except polio 0, coverage is higher among male than among female children, although by only a relatively small amount. The difference in coverage rates for male and female children ranges from 3 percentage points for measles to 5 percentage points for polio 2. Thus, while there appears to be discrimination against female children with regard to immunizations, the level of this discrimination is relatively modest. Sex differentials in immunizations might nevertheless be an important factor underlying higher female than male mortality in childhood, as observed in Chapter 8.

The relationship between vaccination coverage and birth order is consistently negative for all vaccinations. The majority of first order births occur to younger women who have been observed to have a higher degree of utilization of health care services, such as antenatal and natal services. As in the case of utilization of maternal health care services, there is a consistent positive relationship between the educational level of the mother and utilization of immunization services. The percentage of children who are fully vaccinated increases from 24 percent for children whose mothers are illiterate to 70 percent for children whose mothers have completed high school.

The coverage rate for all vaccinations is highest among Jain children (74 percent) followed by Buddhist (68 percent), Sikh (60 percent) and Christian children (42 percent). Hindu children are much more likely to be fully vaccinated (36 percent) than Muslim children (26 percent), despite the fact that Muslim children are more concentrated in urban areas where

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Table 9.11 Vaccinations by background characteristics

Among children age 12-23 months, the percentage who had received each vaccine by the time of the survey (according to the vaccination card or the mother) and the percentage with a vaccination card which was shown to the interviewer, by selected background characteristics, India, 1992-93

| Background characteristic	BCG	Polio 0	DPT 1	DPT 2	DPT 3	Polio 1	Polio 2	Polio 3	Measles	All[1]	None	Percentage showing vaccination card	Number of children
Sex													
Male	64.0	4.6	68.2	61.3	53.5	69.1	63.4	55.0	43.7	36.7	27.8	32.4	6053
Female	60.3	4.6	64.4	57.1	49.8	64.8	58.9	51.7	40.6	34.1	32.3	28.7	5800
Birth order													
1	71.3	6.2	75.8	69.2	61.6	76.6	70.8	63.6	53.2	45.5	21.2	37.3	3312
2-3	66.4	5.0	69.5	63.2	56.3	70.5	65.3	57.3	44.6	38.3	26.6	31.8	4924
4-5	53.4	3.0	58.6	50.2	42.2	58.7	52.1	44.2	32.6	26.1	37.6	25.3	2342
6+	38.6	1.8	43.2	34.5	26.0	43.8	36.7	28.9	21.9	15.2	51.7	18.6	1275
Residence													
Urban	77.6	7.8	80.4	75.2	68.8	80.8	76.8	70.2	57.5	50.7	16.4	37.8	2715
Rural	57.6	3.6	62.1	54.5	46.6	62.9	56.5	48.4	37.7	30.9	34.0	28.5	9138
Mother's education													
Illiterate	50.8	2.9	55.4	47.5	39.0	56.4	49.5	41.0	30.8	24.0	40.1	23.4	7726
Lit., <middle complete	75.9	5.4	80.3	73.7	66.7	81.0	76.0	68.7	53.3	46.9	16.9	41.3	1965
Middle school complete	87.1	9.0	90.0	84.8	79.3	88.7	85.4	78.7	67.4	60.3	8.2	47.5	901
High school and above	92.8	10.4	94.2	90.5	86.3	94.6	91.9	87.7	76.7	70.0	4.2	46.1	1261
Religion													
Hindu	63.3	4.6	67.6	60.5	53.1	68.3	62.4	54.6	42.9	36.0	28.6	30.9	9467
Muslim	51.2	3.4	54.9	47.0	38.6	55.9	49.6	41.5	32.3	26.3	41.1	25.4	1769
Christian	70.7	13.4	72.3	66.9	60.3	72.9	67.7	60.6	50.0	42.4	23.4	39.1	229
Sikh	79.8	2.9	82.3	79.3	72.0	83.0	79.5	73.2	64.7	60.4	16.6	43.3	209
Jain	(99.7)	(14.9)	(99.7)	(99.7)	(92.5)	(99.7)	(98.1)	(90.9)	(81.8)	(73.7)	(0.3)	(48.9)	42
Buddhist	82.6	8.6	85.5	82.4	78.5	82.6	82.3	78.5	74.9	68.1	14.4	58.3	72
Other	67.8	0.8	69.1	64.6	49.9	73.1	68.9	57.6	42.9	36.4	23.6	19.3	66
Caste/tribe													
Scheduled caste	52.9	3.5	58.7	51.4	43.3	60.2	53.0	44.4	33.9	26.8	36.9	25.3	1565
Scheduled tribe	50.2	2.7	52.9	45.4	36.5	54.7	47.6	37.6	32.7	24.8	41.8	21.2	1104
Other	65.2	5.0	69.2	62.2	55.0	69.6	64.2	56.8	44.7	38.2	27.4	32.7	9184
Total	62.2	4.6	66.3	59.2	51.7	67.0	61.2	53.4	42.2	35.4	30.0	30.6	11853

( ) Based on 25-49 unweighted cases
[1]Children who are fully vaccinated, i.e., those who have received BCG, measles and three doses of DPT and polio vaccine (excluding polio 0).

vaccination rates are relatively high. Children from scheduled castes and scheduled tribes are much less likely to be fully vaccinated than non-SC/ST children.

Table 9.12 and Figure 9.5 show vaccination coverage rates for each type of vaccination and the percentage with a vaccination card among children age 12-23 months for each state. There is a considerable interstate variation in the coverage rates for different vaccinations and for children receiving all vaccinations. The percentage of children who are fully vaccinated ranges from 4 percent in Nagaland to 75 percent in Goa. Among the major states, the percentage of children who are fully vaccinated ranges from 11 percent for Bihar to 65 percent for Tamil Nadu. Bihar (11 percent), Assam (19 percent), Uttar Pradesh (20 percent), Rajasthan

Figure 9.4
Percentage of Children Age 12-23 Months
Who Have Received All Vaccinations
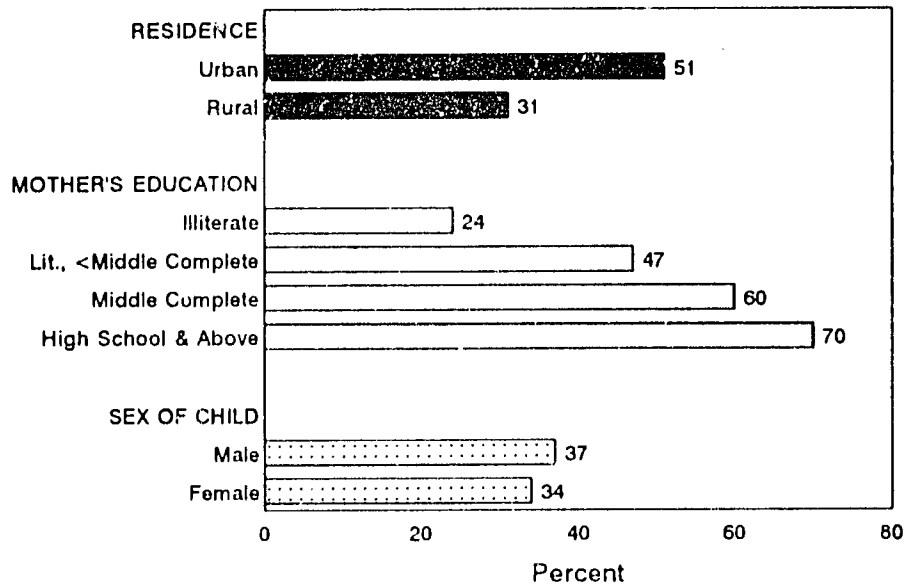
NFHS, India, 1992-93

(21 percent), and Madhya Pradesh (29 percent) stand out as having a much lower percentage of children fully vaccinated than the national average of 35 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 of the country as a whole. Generally, the northern states of Jammu, Himachal Pradesh, Punjab, Delhi and Haryana have fared well with regard to full coverage of vaccinations. Similarly, all of the western states and southern states have done relatively well with respect to full coverage of immunizations. All the northeastern states except Mizoram have a poor vaccination performance. With respect to individual vaccinations, a similar picture emerges for the various states in India. In the case of BCG, and three doses of DPT and polio, Goa and Tamil Nadu are the only states to attain the national goal of at least 85 percent immunization, although neither state has attained this goal for all of the recommended vaccinations. In every state, fewer children have received measles vaccine than any of the other vaccinations. The relatively low levels of coverage for measles is a major factor in the failure to achieve full immunization. However, even if the measles vaccine were not required to achieve full immunization every state except Goa and Tamil Nadu would still fall short of the national immunization goal.

Table 9.13 shows the percentage of children age 1-3 years with vaccination cards shown to the interviewer and the percentage receiving various vaccinations in the first year of life, according to the current age of the child and the place of residence. The table illustrates changes in vaccination coverage over time. The method of estimating vaccination coverage is the same as that used in Table 9.10. Among children without a vaccination card the proportion vaccinated

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Among children age 12-23 months, the percentage who have received each vaccine at any time before the interview and the percentage with a vaccination card which was shown to the interviewer, by state, India, 1992-93

State		Percentage vaccinated among children age 12-23 months										Percentage showing vaccin- ation card
	BCG	Polio 0	DPT 1	DPT 2	DPT 3	Polio 1	Polio 2	Polio 3	Measles	All[1]	None	
India	62.2	4.6	66.3	59.2	51.7	67.0	61.2	53.4	42.2	35.4	30.0	30.6
North												
Delhi	90.1	12.3	89.0	81.9	71.6	88.8	85.1	75.0	69.6	57.8	6.7	45.5
Haryana	77.4	2.1	80.5	75.0	66.8	80.5	75.4	67.7	60.9	53.5	17.5	31.3
Himachal Pradesh	84.5	2.2	90.1	83.8	78.2	90.1	85.9	77.7	71.5	62.9	8.7	53.6
Jammu Region of J & K	81.3	1.7	83.7	82.3	77.8	83.8	82.4	77.1	69.1	65.7	16.2	47.9
Punjab	77.4	1.7	81.9	78.5	73.6	82.2	78.2	73.4	64.8	61.9	17.5	37.8
Rajasthan	45.7	11.4	47.8	38.6	29.7	48.8	41.2	32.8	31.2	21.1	48.5	16.3
Central												
Madhya Pradesh	56.8	4.3	60.8	53.5	43.7	62.8	56.7	46.6	40.7	29.2	34.4	21.8
Uttar Pradesh	48.9	1.5	52.2	41.8	34.1	51.8	44.7	37.1	26.3	19.8	43.3	23.0
East												
Bihar	33.9	2.8	42.8	37.0	29.1	45.0	40.6	31.6	14.6	10.7	53.5	16.7
Orissa	63.3	3.1	69.0	63.6	56.3	70.3	64.8	56.7	40.2	36.1	28.0	41.7
West Bengal	63.1	0.9	73.7	62.9	51.9	75.2	66.6	56.0	42.5	34.2	22.4	47.7
Northeast												
Arunachal Pradesh	46.3	2.5	50.0	45.6	38.8	48.1	44.4	38.8	27.5	22.5	47.5	37.5
Assam	48.2	1.2	53.4	42.2	31.0	54.2	42.9	32.7	25.8	19.4	43.6	39.5
Manipur	63.8	3.1	66.1	55.9	43.3	63.8	51.2	39.4	37.0	29.1	32.3	42.5
Meghalaya	43.8	1.4	36.8	30.6	22.9	36.1	31.9	23.6	13.2	9.7	54.9	15.3
Mizoram	77.3	4.5	83.6	80.0	71.8	80.9	76.4	69.1	65.5	56.4	14.5	38.2
Nagaland	19.4	3.1	21.3	16.9	12.5	21.9	18.8	15.0	10.0	3.8	75.0	11.9
Tripura	39.7	0.8	57.0	43.8	32.2	57.0	43.0	32.2	28.9	19.0	42.1	43.0
West												
Goa	93.5	14.0	93.9	90.0	86.7	94.3	90.7	87.1	77.8	74.9	5.4	74.9
Gujarat	77.1	4.4	77.8	71.4	63.8	77.8	71.2	62.9	55.9	49.8	18.9	32.0
Maharashtra	86.9	5.9	90.0	85.9	83.1	90.2	85.5	81.6	70.2	64.1	7.5	39.2
South												
Andhra Pradesh	73.9	3.3	77.3	72.3	66.1	78.9	74.6	68.0	53.8	45.0	17.5	35.3
Karnataka	81.7	5.3	80.6	76.6	70.7	81.9	77.7	71.4	54.9	52.2	15.2	34.4
Kerala	86.1	11.9	84.8	81.5	73.7	85.1	82.3	75.2	60.5	54.4	11.4	56.2
Tamil Nadu	91.7	19.4	95.0	92.2	86.5	94.1	91.0	85.3	71.6	64.9	3.3	38.2

[1]Children who are fully vaccinated, i.e., those who have received BCG, measles and three doses of DPT and polio vaccine (excluding polio 0).

during the first year of life is estimated separately for children in each age group. The row "No vaccinations" indicates the percentage of children who have not received any vaccination by 12 months of age. In all cases, the percentage of children whose vaccination status was determined by seeing a vaccination card declines with age of the child. This may be a reflection of the increased use of vaccination cards in recent years as well as the increased overall coverage of vaccinations. In addition, in many cases the vaccination cards of older children are discarded once they have completed their vaccinations or the cards are lost.

Figure 9.5
Percentage of Children Age 12-23 Months Who
Have Received All Vaccinations by State
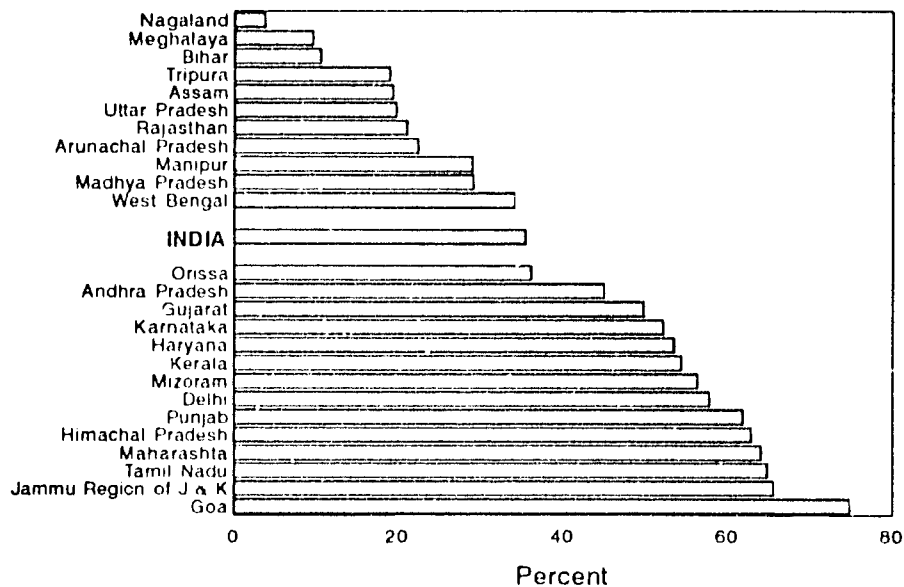
NFHS, India, 1992-93

The highest level of vaccination coverage for each vaccination except polio 0 is observed at age 12-23 months. The coverage then progressively declines with an increase in age in both urban and rural areas. The degree of progress has been substantial over this short period of time, but progress must be further accelerated if India's immunization goal is to be achieved in the near future.

Child Morbidity and Treatment Patterns

Because the two major causes of death among infants and children in India are acute respiratory infection and diarrhoea (Central Bureau of Health Intelligence, 1991), the NFHS collected information on the occurrence of the symptoms of these diseases. Information was also collected on recent episodes of fever. Acute respiratory tract infection (ARI), primarily pneumonia, is a common cause of illness and death in infancy and childhood. Early diagnosis and treatment with antibiotics can prevent a large proportion of these deaths. Fever is a major manifestation of malaria, although it also accompanies various other illnesses. The prevention of diarrhoea and its treatment with oral rehydration therapy are also necessary to improve the chances of survival of children and their quality of life. The goals of the National Child Survival and Safe Motherhood Programme are to prevent 70 percent of deaths due to diarrhoea and 25 percent of diarrhoea cases by 2000 and to prevent 40 percent of ARI deaths by the same year (Ministry of Health and Family Welfare, 1992b).

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Table 9.13   Vaccinations in the first year of life by current age

Among children one to three years of age, the percentage with a vaccination card which was shown to the interviewer and the percentage who have received each vaccine during the first year of life, according to the current age of the child and residence, India, 1992-93

Vaccination status	Current age of child in months			
	12-23	24-35	36-47	Total
URBAN				
Vaccination card shown to interviewer	37.8	27.4	17.7	27.7
Percent vaccinated at 0-11 months[1]				
BCG	74.8	70.2	68.2	71.1
Polio 0	7.8	9.5	7.2	8.1
DPT				
1	77.3	73.6	67.6	72.8
2	72.1	68.8	63.5	68.1
3	64.2	61.4	57.4	61.0
Polio				
1	78.0	73.9	68.6	73.5
2	73.0	70.7	65.7	69.8
3	65.8	63.0	60.5	63.1
Measles	46.3	43.7	39.4	43.1
All vaccinations[2]	41.5	37.0	33.2	37.2
No vaccinations	19.5	23.3	28.8	23.9
Number of children	2715	2531	2704	7949
RURAL				
Vaccination card shown to interviewer	28.5	19.8	11.7	20.2
Percent vaccinated at 0-11 months[1]				
BCG	54.0	46.9	36.6	46.0
Polio 0	3.6	3.9	3.6	3.7
DPT				
1	58.0	49.9	39.1	49.2
2	50.3	44.6	34.2	43.1
3	41.8	37.3	29.3	36.2
Polio				
1	58.8	50.6	40.2	50.0
2	52.1	46.1	35.9	44.8
3	43.2	38.8	30.3	37.5
Measles	28.7	24.7	19.2	24.3
All vaccinations[2]	23.4	20.3	15.4	19.8
No vaccinations	38.0	46.4	56.9	46.9
Number of children	9138	8116	8639	25892

Among children one to three years of age, the percentage with a vaccination card which was shown to the interviewer and the percentage who had received each vaccine during the first year of life, according to the current age of the child and residence, India, 1992-93

Vaccination status	Current age of child in months			
	12-23	24-35	36-47	Total
TOTAL				
Vaccination card shown to interviewer	30.6	21.6	13.2	21.9
Percent vaccinated at 0-11 months[1]				
BCG	58.7	52.4	44.0	51.8
Polio 0	4.6	5.2	4.4	4.7
DPT				
1	62.4	55.6	46.1	54.8
2	55.3	50.4	41.3	49.0
3	46.9	43.0	36.1	42.1
Polio				
1	63.2	56.3	47.1	55.6
2	56.9	52.0	43.1	50.8
3	48.3	44.6	37.6	43.6
Measles	32.7	29.3	24.1	28.7
All vaccinations[2]	27.5	24.2	19.5	23.8
No vaccinations	33.7	40.8	50.0	41.4
Number of children	11853	10646	11342	33841

[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 during the first year of life was assumed to be the same as for children with a written record of vaccinations.
[2] Children who have received BCG, measles and three doses of DPT and polio vaccines (excluding polio 0).

In the NFHS the mothers of children born during the past four years were asked a series of questions on the incidence of cough, fever and diarrhoea during the last two weeks and the type of treatment given to the child. Table 9.14 shows the percentage of children with cough accompanied by rapid breathing (symptoms of acute respiratory infection), fever and diarrhoea during the two weeks prior to the survey and the percentage with diarrhoea in the 24 hours before the survey by selected background characteristics. Fever was the most common of the three conditions examined, with 20 percent of children suffering from this problem during the two weeks prior to the survey. Children age 6-23 months were somewhat more prone to fever than were other children. Male children, Muslim and Christian children and children residing in rural areas also have slightly higher prevalence rates. Education generally makes little difference for the prevalence of fever.

Table 9.14 Prevalence of acute respiratory infection, fever and diarrhoea

Among all children under four years of age, the percentage who were ill with a cough accompanied by fast breathing, fever and diarrhoea during the two weeks before the survey, and the percentage with diarrhoea in the 24 hours before the survey, according to selected background characteristics, India, 1992-93

Background characteristic	Cough accompanied by fast breathing	Fever	Diarrhoea[1] Any[2]	Diarrhoea[1] Bloody	Any diarrhoea in previous 24 hours[2]	Number of children
Child's age						
<6 months	5.6	15.1	10.9	0.6	7.0	5641
6-11 months	8.4	25.9	16.3	1.1	8.6	5881
12-23 months	7.7	25.0	12.8	1.6	5.6	11853
24-35 months	6.0	18.7	8.4	1.6	3.5	10646
36-47 months	5.1	16.3	5.1	1.1	2.1	11342
Sex						
Male	7.1	21.1	10.3	1.4	5.0	23170
Female	5.9	19.4	9.8	1.2	4.6	22193
Birth order						
1	6.3	20.6	10.2	1.1	4.9	12369
2-3	6.5	19.7	9.7	1.2	4.7	19030
4-5	6.6	20.7	10.5	1.4	5.1	8756
6+	6.8	20.6	10.0	1.7	4.6	5208
Residence						
Urban	5.1	18.7	8.8	0.9	4.0	10611
Rural	6.9	20.7	10.4	1.4	5.0	34752
Mother's education						
Illiterate	6.5	19.9	10.3	1.5	4.9	29431
Lit., < middle complete	7.7	23.2	10.4	1.2	5.0	7680
Middle school complete	5.9	20.5	9.6	0.7	4.6	3328
High school and above	4.6	17.4	8.3	0.7	3.9	4724
Religion						
Hindu	6.4	19.4	10.3	1.3	4.9	35937
Muslim	7.3	24.0	8.9	1.3	4.3	7029
Christian	7.7	23.6	8.6	1.1	4.3	928
Sikh	3.8	20.9	10.1	1.2	3.9	784
Jain	1.2	9.5	5.0	--	0.4	140
Buddhist	6.5	22.7	13.2	1.9	8.4	326
Other	6.1	22.4	11.8	0.3	5.2	219
Caste/tribe						
Scheduled caste	6.8	19.0	11.4	1.8	5.5	5983
Scheduled tribe	6.1	20.2	9.9	1.7	4.7	4310
Other	6.5	20.4	9.8	1.1	4.7	35071
Source of drinking water						
Piped water	U	U	9.6	1.0	4.8	13079
Ground water	U	U	9.8	1.3	4.6	17442
Well water	U	U	10.3	1.5	5.0	12180
Surface water	U	U	12.9	1.5	5.9	1759
Other	U	U	11.2	1.7	4.0	905
Total	6.5	20.2	10.0	1.3	4.8	45363

Note: Table is based on children born in the period 1-47 months prior to the survey.
U: Not available
-- Less than 0.05 percent
[1]Includes diarrhoea in the past 24 hours
[2]Includes diarrhoea with blood

Seven percent of children suffered from the symptoms of ARI during the two weeks preceding the survey. The highest prevalence occurs among children age 6-11 months (8 percent). Small differences are observed according to the gender and birth order of the child, residence and educational level of the mother. Sikh and Jain children are least likely to have suffered from ARI during the two weeks preceding the survey.

Table 9.14 also provides two types of prevalence estimates for diarrhoea: (1) a period prevalence measure, namely the percentage of children under age four whose mothers reported that they had diarrhoea in the two-week period before the interview and (2) a point prevalence measure, namely the percentage of children under four years of age whose mothers reported that they had diarrhoea in the 24-hour period before the interview. Both of these measures are affected by the reliability of the mother's recall of when the diarrhoeal episode occurred. In addition, the NFHS questions allow estimation of the proportion of children under four years who had bloody diarrhoea, a symptom of dysentery, during the two weeks preceding the survey.

Before initiating the discussion on the incidence of diarrhoea during the two weeks preceding the survey, it should be noted that the NFHS was not undertaken synchronously (at one point of time) in all states in India and, hence, the calendar dates of the reference period (whether the past 24 hours or the past two weeks) for the assessment of the prevalence of diarrhoea vary from state to state. Since there is seasonal variation in the incidence of diarrhoea, the prevalence rates of diarrhoea for any state cannot be assumed to reflect the situation throughout the year in that state. However, the data collection was conducted in three phases throughout the year, and hence the prevalence rate for total India may be taken as more representative of the situation throughout the year.

During the two weeks before the survey, 10 percent of children suffered from any type of diarrhoea and less than 2 percent from bloody diarrhoea. Five percent of children had diarrhoea during the preceding 24 hours. The incidence of diarrhoea was the highest among children age 6-11 months after which it declines with increasing age. There is little difference in the prevalence of diarrhoea between male and female children and between urban and rural children. The prevalence of diarrhoea is slightly lower among children whose mothers completed high school (8 percent) than among those with less education (10 percent). The prevalence of diarrhoea is highest among Buddhist children (13 percent).

Surprisingly, the source of drinking water makes only a small difference in the prevalence of diarrhoea. As one would expect, the prevalence is highest among those using surface water (13 percent). There is little difference in the prevalence of diarrhoea among those obtaining drinking water from other sources. In fact, the prevalence of all three conditions varies very little except by the age of the child. These childhood diseases are almost equally likely to strike children in any of the groups examined.

Table 9.15 presents information on the incidence of acute respiratory infection, fever and diarrhoea by state. There is a considerable variation with respect to the incidence rate of all three illnesses among children. The difference among states may reflect differences in the prevalence of these conditions as well as differences in the timing of fieldwork in each state. The reported prevalence levels may also reflect differences in the way mothers in various states perceive diseases among their children. The highest prevalence rate for ARI is in Tripura (23

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Table 9.15 Prevalence of acute respiratory infection, fever and diarrhoea by state

Among all children under four years of age, the percentage who were ill with a cough accompanied by fast breathing, fever and diarrhoea during the two weeks before the survey, and the percentage with diarrhoea in the 24 hours before the survey, according to state, India, 1992-93

| State | Percentage of children suffering in previous two weeks from: | | | | |
	Cough accompanied by fast breathing	Fever	Diarrhoea[1] Any[2]	Bloody	Any diarrhoea in previous 24 hours[2]
India	6.5	20.2	10.0	1.3	4.8
North					
Delhi	4.8	11.4	9.8	0.6	4.5
Haryana	5.4	18.6	12.0	0.9	5.9
Himachal Pradesh	6.4	19.9	19.6	3.2	7.7
Jammu Region of J & K	4.4	21.6	22.3	3.3	9.2
Punjab	3.1	19.9	11.0	1.1	4.4
Rajasthan	4.9,	10.7	5.7	0.7	3.7
Central					
Madhya Pradesh	4.7	15.8	8.6	1.2	3.9
Uttar Pradesh	7.2	19.1	8.9	1.5	4.6
East					
Bihar	4.3	21.1	13.7	1.4	6.3
Orissa	10.4	32.1	21.4	2.7	9.3
West Bengal	10.2	29.4	2.5	0.3	0.4
Northeast					
Arunachal Pradesh	8.7	20.1	17.6	2.0	10.5
Assam	11.3	24.6	6.3	1.3	2.4
Manipur	14.5	25.3	12.4	1.7	7.6
Meghalaya	5.9	15.8	8.3	0.5	5.9
Mizoram	4.1	26.6	22.3	5.0	12.5
Nagaland	6.1	15.9	11.2	2.4	3.6
Tripura	22.8	35.5	3.6	0.6	1.2
West					
Goa	5.6	21.4	7.8	0.8	2.3
Gujarat	5.8	18.5	12.6	1.5	6.5
Maharashtra	5.9	21.7	9.7	1.0	5.1
South					
Andhra Pradesh	4.9	16.5	11.7	1.2	6.0
Karnataka	3.4	16.9	9.7	1.2	5.1
Kerala	9.7	35.4	9.2	1.5	3.4
Tamil Nadu	8.6	17.7	12.7	1.3	5.2

Note: Table is based on children born in the period 1-47 months prior to the survey.
[1] Includes diarrhoea in the past 24 hours
[2] Includes diarrhoea with blood

percent) and the lowest is in Punjab and Karnataka (3 percent each). The prevalence of fever is again highest in Tripura (36 percent) followed by Kerala (35 percent), Orissa (32 percent) and West Bengal (29 percent). Relatively low prevalence rates for fever are observed in Delhi and Rajasthan (11 percent each). The prevalence of diarrhoea with blood during the two weeks prior to the survey is low in all states, however Mizoram, Jammu and Himachal Pradesh (all small states) experienced relatively high prevalence rates (3 to 5 percent). A little more than 1 in 10

children experienced diarrhoea during the 24 hours before the survey in Mizoram (13 percent) and Arunachal Pradesh (11 percent). In addition to these two states, diarrhoea during the two weeks prior to the survey was relatively common in Jammu, Himachal Pradesh and Orissa. In each state, fever is the most prevalent of the three conditions examined, except for Jammu where the prevalence rates for fever and diarrhoea are almost the same.

Treatment of Acute Respiratory Infection (ARI)

Table 9.16 presents information on the type of treatment received by children suffering from symptoms of ARI by selected background characteristics. A sizeable majority of children (two-thirds) who suffered from ARI during the past two weeks were taken to a health facility for treatment or were treated by a doctor or other health professional. A little less than one-fifth did not receive any treatment. Sick children were most often treated with oral antibiotics, injections or cough syrups. Home remedies or herbal medicines were used for only 7 percent of the children. One-third of children received other types of treatment, which include non-antibiotic oral medicine or oral medicine which the respondent could not identify.

Children age less than 6 months or more than 23 months are slightly less likely to receive treatment for ARI from health professionals (60-64 percent) than children age 6 to 23 months (70 percent). The percentage of children taken for treatment to health professionals is much higher for boys (71 percent) than for girls (61 percent). Twenty-two percent of girls and 17 percent of boys did not receive any treatment. Thus, with respect to the provision and use of health care facilities for children suffering from ARI, discrimination against girls is observed. This finding is consistent with the results of previous studies, which have demonstrated that sons are often treated preferentially in receiving medical care (Jejeebhoy, 1991; Deolalikar and Vashishta, 1992; Miller, 1981). There is a negative relationship between birth order and the treatment received from a health professional. Three-quarters of first-born children suffering from ARI were taken to a health facility or treated by a doctor or a health professional, whereas only 56 percent of sixth or higher birth order children received treatment from a health professional. As expected, sick children in urban areas were more likely to receive treatment from health professionals than those in rural areas. A higher percentage of rural children (8 percent) than urban children (3 percent) received home remedies when suffering from ARI. The relationship between a mother's educational level and the treatment given to children by health professionals is consistently positive, with 62 percent of children of illiterate mothers receiving treatment from health professionals as against 85 percent of mothers with at least a high school education. Not much difference is observed between the children of Hindu mothers (66 percent) and Muslim mothers (67 percent). The children of scheduled tribe mothers are least likely to receive any treatment for ARI.

Treatment of Fever

Table 9.17 presents treatment patterns for children suffering from fever during the two weeks before the survey. A sizeable majority of children (67 percent) suffering from fever were taken to a health facility or received treatment from a doctor or other health professional. Eight percent of children were given antimalarial medication, 34 percent were treated with oral antibiotics, 22 percent were given injections and 5 percent were treated with home remedies. The patterns of differentials in the treatment of fever are very similar to those observed earlier

Table 9.16 Treatment of acute respiratory infection

Among all children under four years of age who had a cough accompanied by fast breathing during the two weeks before the survey, the percentage taken to a health facility or provider and the type of treatment given, according to selected background characteristics, India, 1992-93

Background characteristic	Percentage taken to a health facility or provider[1]	Percentage treated with							Number of children
		Anti- biotic pill or syrup	Injec- tion	Cough syrup	Home remedy/ herbal medicine	Other	None	Don't know/ missing	
Child's age									
<6 months	60.2	32.1	22.9	19.1	10.4	30.5	17.5	--	313
6-11 months	69.6	34.4	24.8	23.6	7.7	31.2	19.3	--	495
12-23 months	70.4	35.3	23.6	21.1	7.0	32.7	17.0	0.2	911
24-35 months	64.1	31.6	23.1	22.1	6.0	34.0	20.7	0.4	640
36-47 months	62.9	32.C	21.2	24.0	6.1	34.5	22.0	0.4	583
Sex									
Male	70.8	34.2	24.8	22.6	6.8	33.8	17.0	0.2	1636
Female	60.8	32.3	21.1	21.4	7.5	31.7	22.0	0.3	1307
Birth order									
1	74.6	36.4	26.3	25.1	5.4	30.3	17.1	0.6	778
2-3	64.5	34.0	21.3	21.7	7.6	33.2	18.8	0.1	1238
4-5	65.6	29.8	22.3	22.8	6.4	35.9	20.9	--	574
6+	56.0	30.4	24.0	15.8	10.2	32.4	22.7	--	352
Residence									
Urban	77.1	37.4	23.1	29.1	3.4	35.5	13.9	--	544
Rural	63.9	32.5	23.1	20.5	7.9	32.3	20.4	0.3	2399
Mother's education									
Illiterate	62.4	32.2	24.5	18.9	7.6	31.5	22.1	0.2	1937
Lit., < middle complete	70.4	31.5	19.8	26.1	7.3	37.7	16.1	0.5	592
Middle school complete	72.0	38.2	23.1	23.7	3.1	34.9	14.4	--	196
High school and above	84.9	44.2	20.1	38.5	5.2	30.1	6.5	--	218
Religion									
Hindu	65.8	34.0	24.8	20.0	7.0	33.2	18.9	0.2	2296
Muslim	66.7	32.3	17.5	26.9	7.9	31.8	20.0	0.5	510
Christian	70.8	28.5	16.8	42.4	5.9	20.8	25.7	--	71
Sikh	(82.8)	(12.2)	(27.4)	(34.0)	(7.1)	(59.7)	(6.1)	(--)	30
Other	(64.3)	(16.7)	(4.4)	(51.4)	(--)	(28.9)	(27.5)	(--)	13
Caste/tribe									
Scheduled caste	64.0	29.7	26.1	15.7	8.1	36.6	22.1	--	410
Scheduled tribe	59.1	27.3	25.1	16.0	6.4	34.1	24.8	0.2	265
Other	67.6	34.7	22.4	23.9	7.0	32.1	18.0	0.3	2269
Total	66.3	33.4	23.1	22.1	7.1	32.9	19.2	0.2	2943

Note: Table is based on children born 1-47 months prior to the survey. Total includes 2 Jain children and 21 Buddhist children who are not shown separately.
() Based on 25-49 unweighted cases
-- Less than 0.05 percent
[1] Includes government/municipal hospital, private hospital/clinic, Primary Health Centre, sub-centre, doctor or other health professional

Table 9.17 Treatment of fever

Among all children under four years of age suffering from fever during the two weeks before the survey, the percentage taken to a health facility or provider and the type of treatment given, according to selected background characteristics, India, 1992-93

Background characteristic	Percentage taken to a health facility or provider[1]	Among children with fever							
		Percentage treated with							Number of children
		Anti-malarial	Anti-biotic pill or syrup	Injec-tion	Home remedy/ herbal medicine	Other	None	Don't know/ miss-ing	
Child's age									
<6 months	60.4	6.6	30.7	17.7	6.7	35.7	25.0	0.7	854
6-11 months	68.6	7.3	35.2	21.7	7.5	39.3	18.1	0.4	1521
12-23 months	69.4	8.6	36.2	23.1	4.8	39.4	17.8	0.5	2967
24-35 months	66.5	8.9	32.5	24.4	4.0	39.6	19.9	0.7	1988
36-47 months	64.5	8.1	34.8	21.6	5.4	36.8	21.9	0.6	1849
Sex									
Male	70.1	8.4	36.1	23.5	5.0	39.5	17.8	0.4	4881
Female	63.1	7.9	32.6	21.1	5.7	37.4	22.0	0.7	4298
Birth order									
1	72.8	8.2	34.8	22.0	5.2	42.8	15.9	0.5	2543
2-3	66.8	8.2	34.8	22.0	4.8	39.5	19.2	0.6	3752
4-5	62.9	8.7	32.9	23.1	5.3	35.0	23.2	0.7	1813
6+	59.3	7.0	34.8	23.0	7.9	31.0	25.4	0.5	1071
Residence									
Urban	79.4	9.0	35.8	20.3	4.0	49.4	10.0	0.6	1986
Rural	63.4	7.9	34.1	22.9	5.7	35.6	22.5	0.6	7193
Mother's education									
Illiterate	62.9	7.9	34.6	24.2	5.5	34.3	23.8	0.5	5890
Lit., < middle complete	69.9	8.2	30.1	19.4	6.6	44.5	16.3	1.0	1784
Middle school complete	78.8	9.1	39.3	22.1	2.7	45.8	9.4	0.3	681
High school and above	78.4	9.5	38.7	15.3	4.1	50.0	7.6	0.5	824
Religion									
Hindu	66.7	7.9	35.6	24.0	5.4	37.0	20.0	0.7	6971
Muslim	65.8	9.4	31.7	17.1	5.9	39.3	21.2	0.3	1688
Christian	63.9	6.8	31.1	13.2	4.2	53.7	17.3	0.1	219
Sikh	87.3	12.0	15.5	25.2	3.5	67.0	6.1	--	164
Buddhist	74.9	--	39.0	17.2	--	57.1	16.3	--	75
Other	56.0	12.9	30.1	13.0	6.6	44.6	15.2	--	49
Caste/tribe									
Scheduled caste	67.7	7.8	35.0	27.0	5.7	36.2	20.5	0.8	1139
Scheduled tribe	55.0	6.4	31.2	21.2	5.6	31.8	27.2	0.9	871
Other	68.2	8.4	34.8	21.8	5.3	39.7	18.8	0.5	7169
Total	66.8	8.2	34.4	22.3	5.4	38.5	19.8	0.6	9179

Note: Table is based on children born 1-47 months prior to the survey. Total includes 13 Jain children, who are not shown separately.
-- Less than 0.05 percent
[1] Includes government/municipal hospital, private hospital/clinic, Primary Health Centre, sub-centre, doctor, or other health professional.

for the treatment of ARI. Children age 6-23 months, male children, children of lower birth orders, children from urban areas, children of educated mothers, children of Sikh and Buddhist mothers, and children of non-SC/ST mothers are more likely than other children to receive treatment from health professionals.

Treatment of Diarrhoea

Deaths from acute diarrhoea are most often due to the dehydration that results from the loss of water and electrolytes (Black, 1984). For this reason, nearly all diarrhoeal deaths can be prevented by prompt administration of rehydration solutions. Because deaths due to diarrhoea are a significant proportion of deaths to children in India, the government has launched the Oral Rehydration Therapy Programme as one of its priority activities for child survival. A major purpose of this programme is to increase awareness among women and in the community about the causes and treatment of diarrhoea. Mothers are instructed how to manage diarrhoea by using Oral Rehydration Salt (ORS) packets, which are made widely available. The programme also promotes use of a home made solution made from sugar, salt and water, which is referred to here as a Recommended Home Solution (RHS). This instruction is provided mostly through the electronic and print media and in adult literacy classes. Documentaries on diarrhoea among children and the use of ORS and preparation of RHS are regularly shown in cinema theatres. Spot announcements are also shown on Doordarshan, and All India Radio frequently airs messages on ORS and RHS. All the messages are in languages used in the states, with appropriate local terms for ORS and RHS.

In order to gauge the extent of knowledge and use of oral rehydration, the NFHS asked mothers of children born during the last four years a series of questions regarding the knowledge and use of ORS and RHS. Table 9.18 shows that only 43 percent of mothers in India know about ORS and an even smaller percent (26 percent) have used ORS packets at some time in the past. The differentials by selected background characteristics of mothers are quite pronounced. As expected, both knowledge and use of ORS are higher among urban than among rural mothers. Levels of knowledge and use of ORS are also strongly positively related to the educational attainment of mothers and to their exposure to mass media. Both knowledge and use of ORS are higher among mothers exposed to electronic mass media than among those with no such exposure. However, without conducting a multivariate analysis, it is difficult to say whether the differences in ORS knowledge and use are due to media exposure or due to the underlying correlation between women's educational levels and media exposure.

Marked differences are observed across the states in the knowledge and ever use of ORS packets (Table 9.19). Manipur has the highest proportion of mothers knowing about and ever using ORS packets (86 and 60 percent, respectively). Nagaland, a neighbouring state in the northeast region is at the opposite end of the spectrum with the lowest proportion of mothers knowing about and ever using ORS packets. Among the major states, the highest level of knowledge of ORS is in Delhi (74 percent) and the lowest in Rajasthan (20 percent). With respect to ever use of ORS packets, the highest level is observed for West Bengal (50 percent) and the lowest again is for Rajasthan (8 percent). In addition to Rajasthan, knowledge and use of ORS are particularly low in Madhya Pradesh and Andhra Pradesh.

Table 9.18 Knowledge and ever use of ORS packets

Percentage of mothers with births during the four years preceding the survey who know about and have ever used ORS packets, according to selected background characteristics, India, 1992-93

Background characteristic	Know about ORS packets	Have ever used ORS packets	Number of mothers
Mother's age			
13-19	36.1	20.6	4276
20-24	44.2	25.5	13342
25-29	46.3	29.1	11183
30-34	42.1	26.7	5839
35+	34.3	22.0	3521
Residence			
Urban	55.6	32.5	8727
Rural	38.9	23.9	29434
Mother's education			
Illiterate	31.8	19.0	25062
Literate, < middle school complete	56.4	36.0	6324
Middle school complete	62.7	36.8	2717
High school and above	75.4	45.0	4059
Religion			
Hindu	41.4	24.7	30560
Muslim	46.5	30.9	5634
Christian	52.6	28.5	780
Sikh	52.9	29.6	613
Jain	64.4	31.3	115
Buddhist	52.0	30.6	273
Other	40.9	25.9	188
Caste/tribe			
Scheduled caste	35.3	21.0	5050
Scheduled tribe	26.8	14.7	3646
Other	45.9	28.1	29465
Mother's exposure to media			
Exposed to media	55.3	32.8	18126
Watches television weekly	62.2	36.0	10185
Listens to radio weekly	55.9	33.2	14899
Visits cinema/theatre monthly	56.3	32.2	5248
Not exposed to any of the media	31.2	19.5	20036
Total	42.7	25.9	38162

Table 9.20 shows the type of treatment obtained for children who had diarrhoea during the two weeks before the survey. Sixty-one percent of children who suffered from diarrhoea were taken to a health facility or provider. Eighteen percent were treated with ORS packets and 19 percent received a Recommended Home Solution with a total of 31 percent receiving at least one of these treatments. In order to reduce dehydration due to diarrhoea, mothers are also taught to increase the supply of fluids to children with diarrhoea. An increase in the supply of fluids was reported for only 14 percent of children. Sixty-one percent of children with diarrhoea received neither ORS/RHS treatment nor increased fluids. Thus, although many Indian mothers have gotten the message that young children with diarrhoea must be treated with oral rehydration therapy, many others remain unaware of the importance of this treatment. The findings suggest that more efforts are needed to increase the understanding of parents regarding the treatment of diarrhoea.

| Table 9.19 Knowledge and ever use of ORS packets by state |

Percentage of mothers with births during the four years preceding the survey who know about and have ever used ORS packets, according to state, Ind. 1992-93

State	Know about ORS packets	Have ever used ORS packets
India	42.7	25.9
North		
Delhi	74.2	45.3
Haryana	52.8	28.4
Himachal Pradesh	69.3	46.8
Jammu Region of J & K	66.3	43.9
Punjab	51.7	28.5
Rajasthan	20.2	8.3
Central		
Madhya Pradesh	24.3	9.6
Uttar Pradesh	36.4	21.4
East		
Bihar	36.3	24.3
Orissa	43.7	28.8
West Bengal	64.3	50.1
Northeast		
Arunachal Pradesh	43.8	27.7
Assam	53.2	32.1
Manipur	85.5	60.1
Meghalaya	39.5	19.8
Mizoram	74.5	39.0
Nagaland	20.1	८ 1
Tripura	79.5	51.3
West		
Goa	55.1	31.9
Gujarat	41.2	22.7
Maharashtra	46.7	30.9
South		
Andhra Pradesh	31.1	16.3
Karnataka	49.3	31.0
Kerala	71.3	39.8
Tamil Nadu	61.4	32.0

Differentials in the treatment of diarrhoea depend in part on the type of treatment examined. Treatment at a health facility or from a health provider is more commonly sought for children age 12-23 months, male children, children of lower order births, children in urban areas, children of more educated mothers, and children of Sikh and Muslim women. While girls with diarrhoea are less likely than boys to receive ORS packets, no such distinction is observed in the provision of RHS. A consistent positive relationship is observed between the educational level of mothers and treatment with ORS or RHS. Children in urban areas are more likely to be taken to a health facility or provider, but they are also more likely to be treated with a Recommended Home Solution or other home remedy.

It is inappropriate to reduce a child's frequency of breastfeeding or the total intake of breast milk or other fluids when a child has diarrhoea. In the NFHS, the mothers of children who suffered from diarrl oca were asked about changes in feeding practices for those children

Table 9.20 Treatment of diarrhoea

Among all children under four years of age who had diarrhoea in the past two weeks, the percentage taken for treatment to a health facility or provider, and the type of treatment given, according to selected background characteristics, India, 1992-93

Background characteristics	Percent taken to a health facility or provider[1]	Oral Rehydration					Percent given				Number of children with diarrhoea
		Percent given				Percent not given ORS, RHS or increased fluids	Anti- biotics	Injec- tion	Home remedy, other	No treat- ment	
		ORS pack- ets	RHS at home	Either ORS or RHS	In- creased fluids						
Child's age											
<6 months	54.4	8.6	11.0	17.0	13.7	73.0	25.8	8.6	38.0	28.1	612
6-11 months	61.7	18.9	19.7	32.7	11.8	60.4	32.4	14.9	40.7	19.3	958
12-23 months	65.0	20.9	20.0	34.6	15.2	57.3	32.7	17.1	45.2	16.0	1516
24-35 months	61.8	17.7	19.2	30.3	14.6	60.5	32.4	14.8	41.3	18.8	889
36-47 months	56.7	15.6	20.4	31.3	12.4	60.9	31.3	12.0	37.0	19.4	583
Sex											
Male	63.0	19.6	18.8	32.4	13.4	59.9	32.1	15.1	42.2	17.8	2386
Female	59.2	15.3	18.5	28.5	14.3	62.5	30.7	13.7	40.8	21.0	2173
Birth order											
1	64.3	19.4	17.2	31.5	14.0	60.4	32.0	15.0	43.2	18.4	1267
2-3	61.4	17.8	20.7	32.4	13.2	60.1	29.3	14.9	43.5	18.9	1854
4-5	58.6	17.7	19.5	31.0	16.1	58.5	32.8	12.9	38.0	19.4	915
6+	57.7	11.7	13.3	21.3	11.5	71.7	35.5	14.0	36.4	22.6	522
Residence											
Urban	68.7	16.9	26.4	36.8	14.4	56.5	31.9	12.2	47.5	14.2	932
Rural	59.3	17.7	16.6	29.0	13.6	62.4	31.4	15.0	40.0	20.6	3626
Mother's education											
Illiterate	58.0	15.4	14.8	25.7	13.3	65.6	31.2	14.7	38.0	22.8	3044
Lit., <middle complete	66.0	20.9	22.4	36.7	12.8	55.9	28.7	13.7	47.4	15.2	799
Middle school complete	67.5	21.0	26.3	39.9	12.6	56.2	34.5	14.4	45.9	12.8	321
High school and above	70.9	24.3	34.2	48.6	21.0	41.6	36.7	13.3	52.8	6.1	394
Religion											
Hindu	60.3	17.5	17.7	29.8	13.9	61.8	31.7	15.2	40.3	20.1	3695
Muslim	66.0	16.2	22.8	32.6	13.0	59.1	33.0	12.2	44.4	16.1	629
Christian	50.3	19.9	19.5	30.0	14.9	62.3	31.9	4.4	35.2	18.6	80
Sikh	86.9	20.9	19.0	36.2	16.6	53.9	16.0	11.8	77.5	4.7	79
Buddhist	(51.0)	(21.9)	(29.8)	(46.8)	(14.6)	(48.2)	(14.3)	(9.5)	(53.4)	(33.9)	43
Other	55.7	32.5	7.3	33.7	3.3	63.8	39.6	2.7	36.0	10.8	26
Caste/tribe											
Scheduled caste	61.2	14.9	17.5	27.7	13.2	63.3	30.5	15.3	42.8	20.8	684
Scheduled tribe	51.5	20.7	16.6	30.8	12.1	62.2	24.9	12.5	36.5	28.1	426
Other	62.4	17.7	19.1	31.1	14.1	60.6	32.5	14.5	41.8	17.9	3448
Total	61.2	17.5	18.6	30.6	13.8	61.2	31.5	14.4	41.5	19.3	4558

Note: Table is based on children born in the period 1-47 months prior to the survey. Total includes 7 Jain children, who are not shown separately.
ORS: An oral rehydration solution made from a packet
RHS: A recommended home solution of sugar, salt and water
( ) Based on 25-49 unweighted cases
[1] Includes government/municipal hospital, private hospital/clinic, Primary Health Centre, sub-centre, doctor, or other health professional

during diarrhoea. Table 9.21 provides information on feeding practices during diarrhoea for children of different ages. For a large majority of children (85 percent), the frequency of breastfeeding remained the same or increased during the diarrhoea. In 12 percent of the cases, however, breastfeeding was actually reduced. Moreover, intake of fluids, although maintained as usual or increased in three-quarters of the cases, was actually reduced in one-fifth of the cases. Thus, contrary to medical recommendations with regard to fluid intake during diarrhoea, a substantial number of children in India have their fluid intake reduced when they are sick with diarrhoea.

Table 9.21   Feeding practices during diarrhoea

Percent distribution of children under four years of age who had diarrhoea in the past two weeks, according to feeding practices during diarrhoea and age, India, 1992-93

Feeding practices during diarrhoea	Age of the child		
	<1 year[1]	1-3 years	Total[2]
Breastfeeding frequency[3]			
Same as usual	81.8	75.2	77.9
Increased	6.5	7.8	7.3
Reduced	9.8	14.0	12.3
Stopped	1.1	2.1	1.7
Don't know/missing	0.8	0.9	0.9
Total percent	100.0	100.0	100.0
Number of children	1486	2200	3686
Amount of fluids given			
Same as usual	71.7	62.6	65.8
More	7.5	10.8	9.7
Less	15.1	21.9	19.6
Don't know	5.6	4.6	5.0
Total percent	100.0	100.0	100.0
Number of children with diarrhoea	1570	2989	4558

[1] Children born in the period 1-11 months prior to the survey
[2] Children born in the period 1-47 months prior to the survey
[3] Applies only to children who are still breastfed

Table 9.22 summarizes the treatment patterns for cough accompanied by fast breathing, fever and diarrhoea for each state. The utilization of health services for all three conditions is generally best in the northern region (with the notable exception of Rajasthan), in the western region, and in Kerala and Karnataka. On the other hand, only about half of sick children in Rajasthan and Orissa are taken to a health facility or health provider. The use of oral rehydration therapy for children with diarrhoea is quite limited, particularly in Haryana, Gujarat, Rajasthan, Uttar Pradesh and Bihar where more than three-quarters of children who had diarrhoea were not given either ORS or RHS. Even in states where at least 70 percent of children are taken to a health facility or provider for the treatment of diarrhoea (with the exception of West Bengal), the use of oral rehydration therapy is limited (between 33 and 45 percent). Thus, increased efforts are necessary to promote the use of oral rehydration therapy for children who are sick with diarrhoea.

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<u>Table 9.22 Treatment of childhood diseases by state</u>

Among all children under four years of age who were ill with a cough accompanied by fast breathing, fever and diarrhoea during the two weeks before the survey, the percentage taken to a health facility or provider, and among children who had diarrhoea in the past two weeks, the percentage who received either an oral rehydration solution made from a packet (ORS) or a recommended home solution (RHS), according to state, India, 1992-93

| State | Percentage taken to a health facility or provider[1] among children who were ill with: | | | Among children with diarrhoea, percentage given either ORS or RHS |
	Cough accompanied by fast breathing	Fever	Diarrhoea	
India	66.3	66.8	61.2	30.6
North				
Delhi	88.0	84.8	64.7	39.4
Haryana	83.2	86.1	65.5	19.5
Himachal Pradesh	77.7	81.7	70.6	44.9
Jammu Region of J & K	77.6	71.0	70.6	44.4
Punjab	(88.1)	91.5	86.0	32.7
Rajasthan	54.3	61.9	51.3	22.7
Central				
Madhya Pradesh	61.8	64.9	64.4	33.0
Uttar Pradesh	68.3	70.7	65.7	22.7
East				
Bihar	72.9	59.7	58.5	23.0
Orissa	56.4	52.7	47.0	41.1
West Bengal	61.7	59.4	82.1	74.7
Northeast				
Arunachal Pradesh	50.0	44.2	38.1	33.3
Assam	40.7	31.8	35.8	35.2
Manipur	39.5	34.6	40.0	63.1
Meghalaya	(86.8)	59.8	66.7	40.7
Mizoram	*	35.0	31.6	24.5
Nagaland	(31.6)	33.7	11.6	24.6
Tripura	59.6	55.4	*	*
West				
Goa	82.3	86.1	70.1	41.4
Gujarat	73.3	76.0	62.6	20.7
Maharashtra	72.6	75.4	60.9	41.7
South				
Andhra Pradesh	68.7	69.8	62.5	32.5
Karnataka	74.0	76.6	64.6	34.0
Kerala	81.3	74.1	70.6	37.8
Tamil Nadu	67.4	73.1	54.8	27.1

Note: Table is based on children born 1-47 months prior to the survey.
() Based on 25-49 unweighted cases
* Percentage not shown; based on fewer than 25 unweighted cases
[1] Includes government/municipal hospital, private hospital/clinic, Primary Health Centre, sub-centre, doctor, or other health professional

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CHAPTER 10

INFANT FEEDING AND CHILD NUTRITION

Infant feeding practices and child nutrition have significant effects on child survival, maternal health and fertility. Breastfeeding improves the nutritional status of young children and reduces morbidity and mortality. Breast milk not only provides the child with important nutrients but also protects the child against infections. The timing and type of supplementary foods introduced in the infant's diet also have significant effects on the nutritional status of the child. The duration and intensity (i.e., frequency) of breastfeeding have additional effects on the duration of postpartum amenorrhoea, birth intervals, and fertility. This chapter discusses the information collected on infant feeding, including both breastfeeding and supplementary feeding. Also included is a discussion of the nutritional status of children under four years of age as measured by the height and weight of children.

10.1 Breastfeeding and Supplementation

The Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding (1990) and the WHO Working Group on Infant Feeding (World Health Organization, 1991b) have made several recommendations on the feeding of infants and young children. These international recommendations state that infants should be given only breast milk up to 4-6 months of age. Aside from breast milk, no other foods or liquids are needed during this period. At age 4-6 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, up 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 having to do mainly with sanitation and the prevention of infections. In addition, the Baby Friendly Hospitals Initiative, launched by WHO, recommends the early initiation of breastfeeding, immediately after childbirth.

Several indicators of breastfeeding practices have been suggested by WHO to guide countries in the gathering of 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 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 being breastfed. The *continued breastfeeding rate through two years of age* is the proportion of children age 20-23 months who are still being breastfed. The *bottle feeding rate* is the proportion of infants who are fed using a bottle with a nipple. These indicators are highlighted in the presentation of the data on breastfeeding and other feeding practices in this chapter.

In the NFHS, information on breastfeeding and supplementation was obtained from a series of questions in Section 4 of the Woman's Questionnaire. These questions pertain to births in the year of the survey and in the preceding four calendar years. The tabulations, however,

are based on each woman's births in the four years prior to her date of interview. For any given woman, a maximum of three births was included in the analysis.

Table 10.1 contains information on the percentage of children ever breastfed, the timing of the initiation of breastfeeding, and the practice of squeezing the first milk from the breast before beginning breastfeeding. The results are based on 50,001 children born in the four years preceding the survey. Breastfeeding is nearly universal in India, with 95 percent of all children having been breastfed. This is not surprising since breast milk has traditionally been the main source of nutrition for infants and young children in India. The practice of breastfeeding is high in all population subgroups, ranging from 92 to 99 percent.

The 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 the expulsion of the placenta and reduce the risk of postpartum haemorrhage. Breast milk is sufficient for newborn infants; it is not necessary to give them anything else. When the neonate is given anything else, contaminants may cause infection, leading to diarrhoea.

It is also recommended that the first breast milk should be given to the child rather than squeezed from the breast and discarded because it contains colostrum, which provides natural immunity to the child. Table 10.1 shows how soon after birth breastfeeding was initiated. This information was collected for the most recent birth of each woman who had a birth in the four years before the survey (a total of 38,457 births). For a large majority of children in India, the timing of initiation of breastfeeding is later than recommended. Only 10 percent of children began breastfeeding within one hour of birth, and 26 percent began breastfeeding within 24 hours of birth. The practice of squeezing the first milk from the breast is also very common in India. A majority (64 percent) of women squeezed the first milk from the breast before they began breastfeeding their babies. This suggests the importance of launching an educational campaign to inform women about the benefits of providing the first breast milk to their children.

There is virtually no difference in the timing of initiation of breastfeeding by the sex of the child, but urban-rural differences are more substantial. Breastfeeding started within one day of birth for only one-quarter of babies in rural areas, but almost one-third of babies in urban areas. The early initiation of breastfeeding is most evident among women with more education, Christian and Jain women, and women from scheduled tribes. The early initiation of breast-feeding is also more common for children whose birth was assisted by health professionals and children born in a health facility. Even for these groups, however, no more than 4 in 10 children were first breastfed within 24 hours of birth. This is a surprising result since health professionals should be encouraging women to breastfeed their children right from the time of birth.

In general, groups that are less likely to start breastfeeding early are more likely to squeeze the first milk from the breast before breastfeeding begins. The practice of squeezing the first milk from the breast is particularly prevalent in Sikh families and for children whose birth was assisted by a traditional birth attendant.

Table 10.1 Initiation of breastfeeding

Percentage of all children who were ever breastfed, the percentage of last-born children who started breastfeeding within one hour and one day of birth, and percentage of last-born breastfed children whose mothers squeezed the first milk from the breast among children born during the four years preceding the survey, according to selected background characteristics, India, 1992-93

Background characteristic	Among all children: Percentage ever breastfed	Among all children: Number of children	Percent started breast-feeding within first 1 hour of birth	Percent started breastfeeding within 1 day of birth[1]	Number of children	Percent of breast-fed children whose mothers squeezed first milk from breast[2]	Number of children[2]
Sex of child							
Male	95.2	25541	9.4	26.3	19890	63.5	13812
Female	95.7	24460	9.6	26.4	18567	63.4	12845
Residence							
Urban	95.5	11359	11.1	32.0	8803	60.0	5929
Rural	95.4	38643	9.0	24.7	29654	64.4	20728
Mother's education							
Illiterate	95.4	33207	8.6	21.9	25248	64.9	17773
Lit., < middle complete	95.6	8298	10.5	31.6	6380	66.1	4187
Middle school complete	95.8	3537	12.1	37.8	2734	60.4	1800
High school and above	95.5	4959	11.6	37.9	4096	52.6	2897
Religion							
Hindu	95.3	39725	9.6	25.7	30789	63.5	20895
Muslim	95.8	7705	7.4	24.1	5679	61.4	4141
Christian	95.8	1001	19.7	58.3	786	58.3	545
Sikh	96.9	835	4.7	25.1	622	86.8	596
Jain	98.5	143	11.1	42.1	117	60.7	90
Buddhist	96.7	353	15.4	33.3	275	53.8	257
Other	95.3	240	14.0	40.4	189	56.8	132
Caste/tribe							
Scheduled caste	94.8	6695	8.5	22.2	5027	66.2	3492
Scheduled tribe	95.6	4764	16.5	35.9	3646	64.9	2283
Other	95.5	38543	8.8	25.9	29785	62.8	20881
Assistance at delivery							
Health professional	95.3	17146	11.7	34.8	13603	60.1	8505
Traditional birth attendant	96.4	17628	7.5	22.3	13416	68.2	9737
Other or none	95.7	14975	9.4	21.2	11319	61.4	8378
Place of delivery							
Public health facility	95.2	7309	12.3	37.2	5730	58.2	3341
Private health facility	95.5	5426	12.0	39.2	4406	54.4	2917
Own home	96.1	30796	8.5	22.6	23431	65.4	17251
Parents' home	96.0	5968	8.7	20.0	4599	67.3	3019
Other	92.0	265	5.9	23.8	205	64.2	126
Total	95.4	50001	9.5	26.3	38457	63.5	26657

Note: Table is based on children born in the four years preceding the survey, whether living or dead at the time of interview. Total includes children with missing information on place of delivery and assistance at delivery, who are not shown separately.
[1] Includes children who started breastfeeding within one hour of birth
[2] Excludes Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Tamil Nadu and West Bengal

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Table 10.2 shows state differentials in the timing of the initiation of breastfeeding and the practice of squeezing the first milk from the breast. There are substantial differentials in the timing of initiation of breastfeeding by state. The small northeastern states of Nagaland and Arunachal Pradesh come closest to meeting the international recommendations. At the other end of the spectrum, fewer than one in five children start breastfeeding the first day in Uttar Pradesh, Bihar, Maharashtra and Karnataka. In every state, the first milk is squeezed from the breast for more than two-fifths of breastfed children. This practice is most common in the

Table 10.2 Initiation of breastfeeding by state

Percentage of last-born children who started breastfeeding within one hour and one day of birth and percentage of last-born breastfed children whose mothers squeezed the first milk from the breast, according to state, India, 1992-93

State	Percent started breast-feeding within first 1 hour of birth	Percent started breastfeeding within 1 day of birth[a]	Percentage whose mothers squeezed first milk from breast
India	9.5	26.3	63.5[b]
North			
Delhi	6.1	39.5	71.2
Haryana	2.7	43.9	57.0
Himachal Pradesh	12.2	42.3	U
Jammu Region of J & K	7.1	41.0	88.0
Punjab	5.3	23.7	92.9
Rajasthan	7.9	30.3	56.6
Central			
Madhya Pradesh	11.0	27.7	U
Uttar Pradesh	4.7	11.6	60.9
East			
Bihar	1.5	11.8	60.1
Orissa	17.7	36.3	78.8
West Bengal	10.8	33.8	U
Northeast			
Arunachal Pradesh	40.6	79.8	43.7
Assam	20.0	53.2	70.3
Manipur	12.1	24.9	69.4
Meghalaya	8.3	69.1	64.4
Mizoram	29.9	68.1	78.8
Nagaland	64.3	83.8	49.3
Tripura	7.3	28.0	68.9
West			
Goa	28.8	44.1	61.9
Gujarat	14.0	25.7	57.2
Maharashtra	7.4	18.2	70.5
South			
Andhra Pradesh	20.0	27.5	U
Karnataka	5.4	18.2	61.9
Kerala	14.3	77.5	48.5
Tamil Nadu	21.8	54.5	U

Note: Table is based on children born in the four year preceding the survey, whether living or dead at the time of the interview.
U: Not available
[a]Includes children who started breastfeeding within one hour of birth
[b]Excludes Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Tamil Nadu and West Bengal

predominantly Sikh state of Punjab (93 percent), Jammu (88 percent), and Mizoram and Orissa (79 percent each). The practice is least evident in Arunachal Pradesh (44 percent), and Kerala and Nagaland (49 percent each).

For children currently being breastfed, mothers were asked if the child had been given other liquids or solid foods at any time during the day or night before the interview. The results are shown in Table 10.3 and Figure 10.1 according to the child's age. Children who received nothing but breast milk in the previous 24 hours are defined as being *exclusively breastfed*, while *full breastfeeding* refers to both those given only breast milk and those who received breast milk and plain water only. In India, exclusive breastfeeding is quite common for very young children, but even at age 0-1 month more than one-third of babies are given water or other supplements. On average, 51 percent of infants under four months are given only breast milk, while 73 percent receive full breastfeeding. The percentage of babies being exclusively breastfed drops off rapidly after the first few months of life, to less than 10 percent for children age 8 months and older. Supplements other than plain water are given in addition to breast milk to 16 percent of children less than 1 month of age. The percentage given supplements increases steadily to more than 80 percent at age 11 months. Breastfeeding typically continues for long durations. A majority of children are still being breastfed at the time of their second birthday and breastfeeding continues for three years or more for more than one-quarter of children. Even at four years of age (47 months), 14 percent of children are reported to be receiving some breast milk along with supplementary food.

Table 10.4 and Figure 10.2 show in more detail the types of food supplementation received by currently breastfeeding last-born children under four years of age during the 24 hours before the interview. The use of infant formula is rare in India. The percentage of children given infant formula increases steadily from less than 1 percent for children under 2 months of age to a maximum of only 11 percent at age 9 months. Overall, only 6 percent of breastfeeding children under four years of age are given infant formula in addition to breast milk. Supplementation of breast milk by other milk rises steadily with age to 46 percent at age 8 months and remains fairly constant (at 45-55 percent) in most of the older age groups. Supplementation by other liquids, such as juice or tea, rises steadily to 75 percent at 16 months of age and remains more or less constant at older ages. Supplementation by solid or mushy food shows a rise from only 17 percent at 6 months of age to 79 percent by age 15 months and a slower rise thereafter to more than 90 percent for children who are four years old. Less than one-third of infants age 6-9 months received both breast milk and solid/mushy foods, as recommended (derived from Tables 10.3 and 10.4). While 95 percent of the infants in this age group were being breastfed, most did not receive complementary foods.

The use of a bottle with a nipple to feed children is of interest to both demographers and health personnel. 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. In addition, because it is often difficult to sterilize the nipple properly, the use of feeding bottles with nipples exposes children to an increased risk of developing diarrhoea and other diseases. The use of bottles with nipples is relatively rare in India for breastfeeding children, increasing from 4 percent in the first month after birth to a high of 15 percent for children age 5-6 months, after which it declines slowly to near zero for children approaching four years of age.

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Table 10.3 Breastfeeding status by child's age

Percent distribution of living children by breastfeeding status, according to child's age in months, India, 1992-93

			Percentage among all living children				
				Breastfeeding and			
Age in months	Not breast-feeding	Exclu-sively breast-feeding	Plain water only	Supple-ments	DK supple-ments	Total percent	Number of living children
<1	4.9	60.5	18.2	15.9	0.5	100.0	605
1	0.7	58.0	20.5	20.4	0.4	100.0	1060
2	2.4	48.6	22.8	25.9	0.3	100.0	1141
3	0.9	41.9	24.5	32.2	0.6	100.0	1163
4	3.0	35.3	25.3	36.0	0.4	100.0	1190
5	3.8	23.2	28.9	43.7	0.4	100.0	1097
6	3.6	20.2	24.6	51.1	0.5	100.0	1157
7	4.1	11.9	21.8	61.8	0.5	100.0	1134
8	5.6	8.9	15.5	69.5	0.5	100.0	1024
9	5.3	6.8	15.2	72.1	0.5	100.0	959
10	5.1	4.4	11.5	79.0	--	100.0	839
11	7.1	4.4	7.9	80.4	0.1	100.0	767
12	12.2	2.8	8.7	76.3	--	100.0	956
13	9.6	2.5	4.9	82.3	0.7	100.0	1156
14	15.1	1.8	5.4	77.6	0.1	100.0	1108
15	13.1	1.4	3.5	81.9	0.1	100.0	1129
16	14.2	1.8	3.7	80.0	0.2	100.0	1144
17	17.2	1.2	2.8	78.4	0.3	100.0	1081
18	22.4	1.2	2.2	74.1	0.2	100.0	1064
19	25.4	0.6	1.9	71.3	0.8	100.0	954
20	29.1	0.5	3.4	66.9	0.1	100.0	907
21	34.1	0.7	1.6	63.2	0.3	100.0	865
22	31.7	1.3	4.2	62.0	0.9	100.0	740
23	39.2	0.4	1.0	58.4	1.1	100.0	749
24	43.4	--	0.8	55.0	0.8	100.0	937
25	49.7	0.4	0.9	48.5	0.6	100.0	1070
26	48.0	0.4	0.5	50.3	0.8	100.0	994
27	55.7	0.3	0.8	42.1	1.1	100.0	890
28	58.7	0.1	0.6	39.9	0.7	100.0	977
29	60.6	0.7	1.4	37.0	0.4	100.0	874
30	61.5	0.3	0.3	37.5	0.4	100.0	916
31	66.0	0.2	1.4	31.5	0.9	100.0	825
32	68.5	0.4	0.5	30.2	0.4	100.0	806
33	65.9	--	0.4	32.9	0.8	100.0	818
34	67.6	0.3	0.2	30.8	1.1	100.0	807
35	64.2	--	0.2	34.6	1.0	100.0	733
36	71.8	0.1	0.3	27.2	0.6	100.0	885
37	78.7	0.3	0.2	19.5	1.2	100.0	1101
38	77.7	0.2	0.4	21.5	0.3	100.0	1001
39	82.7	0.1	--	16.8	0.4	100.0	1051
40	83.7	--	0.2	15.3	0.8	100.0	908
41	80.0	0.2	0.2	19.2	0.6	100.0	961
42	84.2	0.1	0.1	14.5	1.1	100.0	1024
43	84.3	0.1	0.2	14.8	0.6	100.0	975
44	84.9	--	0.3	14.5	0.3	100.0	921
45	85.0	0.1	0.2	14.6	0.2	100.0	979
46	85.1	--	0.1	14.2	0.5	100.0	827
47	85.6	0.1	--	13.7	0.6	100.0	801

Note: Breastfeeding status refers to last 24 hours. Children classified as "Breastfeeding and plain water only" receive no supplements.
DK: Don't know
-- Less than 0.05 percent

Table 10.4 Type of supplementation by child's age

Percentage of last-born breastfeeding children receiving food supple-
mentation by type and percentage using a bottle with a nipple, accord-
ing to child's age in months, India, 1992-93

	Percentage of breastfeeding children who are:					
	Receiving supplement				Using bottle with a nipple	Number of breast-feeding children
Age in months	Infant formula	Other milk	Other liquid	Solid/ mushy food		
<1	0.5	8.1	10.9	0.4	4.0	575
1	1.0	12.0	12.3	0.8	7.3	1051
2	2.7	15.2	13.3	2.0	9.5	1114
3	3.9	21.2	15.0	2.0	11.5	1152
4	4.4	26.3	17.8	6.1	14.1	1152
5	6.6	30.6	24.7	9.3	15.3	1042
6	8.1	34.9	30.1	17.2	15.2	1114
7	8.3	39.3	37.3	30.2	14.5	1085
8	9.3	45.8	45.7	38.6	14.4	966
9	11.3	44.4	50.3	49.6	11.6	905
10	9.0	45.6	54.9	55.5	11.3	796
11	9.6	49.6	59.5	64.3	14.1	712
12	8.3	48.2	59.7	68.2	10.9	839
13	5.7	48.6	66.2	73.1	9.2	1043
14	5.2	48.1	67.3	73.7	7.8	939
15	5.0	51.6	71.8	79.0	6.1	981
16	7.6	49.0	74.8	81.3	7.3	980
17	6.4	50.9	72.7	82.3	5.9	892
18	5.7	48.3	73.3	83.2	4.0	825
19	6.0	52.1	73.8	84.7	5.7	707
20	5.8	48.8	73.7	81.8	4.7	643
21	7.8	46.1	72.9	85.9	5.9	568
22	4.7	51.7	72.7	80.2	4.2	503
23	6.4	50.0	75.3	88.3	6.9	448
24	4.1	49.2	78.4	89.2	2.8	524
25	3.7	50.9	77.0	88.7	5.9	533
26	4.5	54.0	82.2	90.9	3.4	509
27	4.8	53.0	81.5	90.5	5.1	387
28	4.9	46.1	71.9	89.2	4.2	397
29	4.8	48.0	75.3	89.4	3.1	342
30	3.5	51.9	83.1	90.8	2.4	351
31	4.4	55.6	79.3	92.0	4.6	274
32	8.8	47.3	75.1	87.9	5.5	250
33	3.0	55.9	76.4	94.5	3.2	275
34	3.3	45.6	80.5	91.9	1.9	253
35	3.6	53.8	81.1	94.7	3.2	255
36	2.5	47.1	77.6	88.6	2.1	244
37	5.0	55.5	73.8	94.9	2.7	204
38	2.4	46.8	76.2	91.6	2.0	220
39	3.3	53.2	82.6	96.3	4.3	177
40	3.2	53.0	76.8	93.4	0.1	143
41	1.5	45.5	78.3	94.8	--	187
42	4.1	33.6	79.9	95.0	2.0	152
43	3.0	41.3	71.9	95.9	1.6	148
44	3.6	42.9	76.1	95.7	1.5	137
45	6.0	45.2	79.7	93.6	0.1	146
46	5.7	45.8	76.6	94.0	2.0	119
47	1.9	38.7	79.8	96.7	0.3	111

Note: Supplementation refers to the last 24 hours. Percentage by type of
supplement among breastfeeding children may sum to more than 100.0
because children may have received more than one type of supplement.
-- Less than 0.05 percent

Fig ire 10.1
Distribution of Children by Breast-feeding (BF) Status According to Age

Percent

Age in Months

■ Exclusive BF ⊡ BF + Water Only ☐ BF + Supplements ◇ Not BF
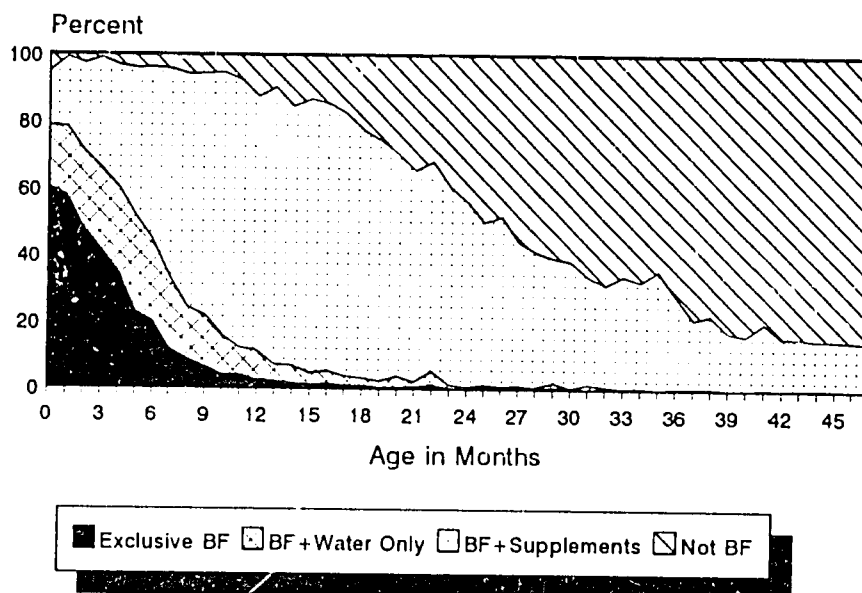
Note: BF + Supplements includes
BF + DK (Don't know) Supplements

NFHS, India, 1992-93

Figure 10.2
Percentage of Children Given Milk, Other Liquid, or Solid/Mushy Food the Day Before the Interview

Percent

Other Liquid

Milk

Solid/Mushy Food

Age in Months
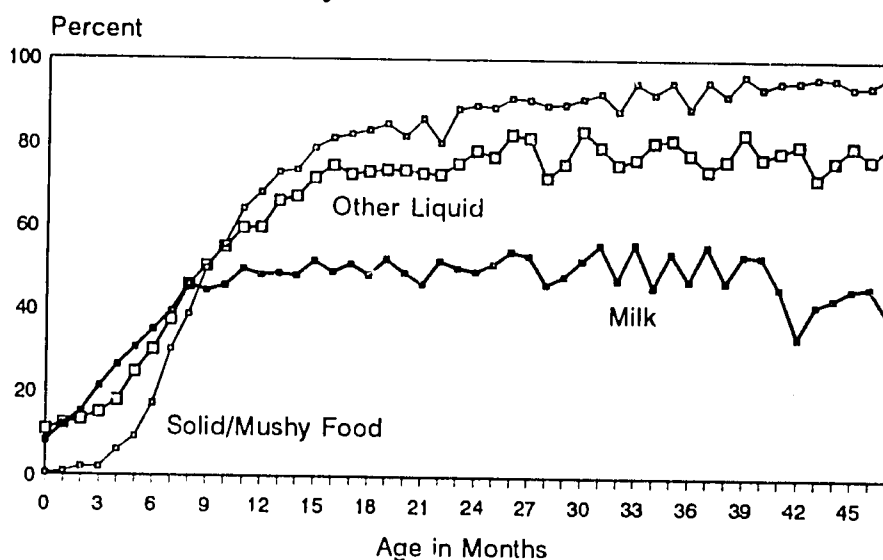
Note: Based on youngest child under age four being breastfed;
Milk refers to fresh milk and tinned/powdered milk

NFHS, India, 1992-93

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The duration of breastfeeding is a widely studied indicator of breastfeeding. Several statistics describing the length of breastfeeding (the median duration of exclusive breastfeeding, full breastfeeding and breastfeeding of any kind including partial breastfeeding) are shown by selected background characteristics in Table 10.5. Also shown is the percentage of children under 6 months of age who were breastfed six or more times in the 24 hours preceding the survey interview. The median length of breastfeeding overall is slightly over two years. Supplementation begins early, however. The median length of exclusive breastfeeding is only 1.4 months, and the median length of full breastfeeding is 4.7 months. The mean length of breastfeeding (26 months) is slightly longer than the median length, reflecting the fact that some children are breastfed for very long periods of time. Estimates of both the means and the medians are based on the current proportions of children breastfeeding in each age group rather than on the mother's recall, because current status information is usually more accurate.

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 48-month period to overcome problems of the seasonality of births and possible reference period errors). For each measure of breastfeeding, the prevalence-incidence mean is very close to the mean calculated in the conventional manner.

Children of more "modernized" women (urban women, educated women, and those who are exposed to mass media) have shorter durations of breastfeeding than other children, but children of working women have a slightly longer duration. It should be noted that working mothers come disproportionately from rural areas where breastfeeding durations are relatively long. Male children are breastfed slightly longer than female children (25.3 months compared to 23.6 months), but the duration of exclusive breastfeeding and full breastfeeding is slightly longer for female children because male children start receiving water or supplements at an earlier age. Other groups with relatively long breastfeeding durations include scheduled tribes and children whose birth was not attended by a health professional.

In addition to the length of breastfeeding, the frequency with which mothers breastfeed can affect the duration of postpartum amenorrhoea and also the health and nutritional status of the child. There is a high intensity of breastfeeding in India. Ninety-two percent of children under six months of age were breastfed six or more times on the day before the interview (Table 10.5). The frequency of breastfeeding is slightly lower in urban areas and for children whose mothers had received a high school education, but the differences among groups are not large.

State differentials in the duration and frequency of breastfeeding are shown in Table 10.6. The median duration of breastfeeding is exceptionally long in Tripura (34 months) and West Bengal (33 months). The shortest median durations of breastfeeding (17-18 months) are found in Goa, Tamil Nadu, Mizoram, Punjab and Meghalaya. Arunachal Pradesh is the only state in which the majority of children are exclusively breastfed for the recommended period of four months. The frequency of breastfeeding is high in every state. The percentage of children under six months of age who were breastfed six or more times the day before the interview varies from 75-76 percent in Goa and Tamil Nadu (the same states that have the shortest median durations of breastfeeding) to 100 percent in Nagaland.

Median durations of any, exclusive and full breastfeeding among children under four years and the percentage of children under six months of age who were breastfed six or more times in the 24 hours preceding the interview, by selected background characteristics, India, 1992-93

Background characteristic	Median durations (months)[1]				Children under 6 months	
	Any breast-feeding	Exclusive breast-feeding	Full breast-feeding[2]	Number of children	Breastfed 6+ times in last 24 hours	Number of children
Sex of child						
Male	25.3	1.3	4.3	25541	91.6	3116
Female	23.6	1.6	5.1	24460	91.5	3131
Residence						
Urban	20.9	0.6	2.9	11359	86.4	1293
Rural	25.4	1.9	5.2	38643	92.9	4953
Mother's education						
Illiterate	25.9	2.1	5.8	33207	92.9	4163
Literate., < middle complete	23.4	0.7	3.4	8298	89.2	1033
Middle school complete	22.0	1.2	2.4	3537	92.3	423
High school and above	18.2	0.5	2.0	4959	85.9	628
Religion						
Hindu	25.0	1.6	4.7	39725	91.6	4892
Muslim	22.8	1.3	4.8	7705	91.2	1011
Christian	19.4	1.7	3.4	1001	89.6	135
Sikh	18.5	0.4	3.0	835	91.5	107
Jain	11.7	0.5	0.7	143	*	20
Buddhist	25.4	0.6	6.6	353	(99.0)	55
Other	23.0	1.2	4.2	240	87.1	27
Caste/tribe						
Scheduled caste	24.8	2.0	5.4	6695	92.0	893
Scheduled tribe	26.3	2.0	6.8	4764	92.5	594
Other	24.1	1.3	4.3	38543	91.3	4760
Mother's work status						
Not working	23.6	1.3	4.5	36225	91.5	4948
Working in family farm/business	27.3	1.7	5.2	5893	91.6	581
Employed by someone else	26.2	1.9	5.4	6654	91.3	599
Self-employed	23.7	2.0	4.2	1229	94.7	119
Mother's exposure to media						
Exposed to media	22.4	0.9	3.4	23494	90.2	2802
Watches television weekly	20.4	0.7	2.6	13093	88.6	1542
Listens to radio weekly	22.5	1.2	3.5	19289	90.3	2360
Visits cinema/theatre monthly	21.5	0.8	3.1	6628	86.4	789
Not exposed to any of the media	25.9	1.9	5.9	26507	92.7	3445
Assistance at delivery						
Health professional	21.4	0.7	2.9	17146	88.0	2087
Traditional birth attendant	25.5	1.8	5.3	17628	93.0	2219
Other or none	26.3	2.3	6.0	14975	93.7	1933
Total	24.4	1.4	4.7	50001	91.6	6247
Mean for all children[1]	26.1	3.8	6.4	NA	NA	NA
P/I for all children[3]	26.1	3.3	6.2	NA	NA	NA

Note: Total includes children with missing information on assistance at delivery, who are not shown separately.
NA: Not applicable
() Based on fewer 25-49 unweighted cases
* Percentage not shown; based on fewer than 25 unweighted cases
[1] Medians and means are based on current status
[2] Either exclusively breastfed or received breast milk and plain water only
[3] Prevalence-incidence mean

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Median durations of any, exclusive and full breastfeeding among children under four years and the percentage of children under six months of age who were breastfed six or more times in the 24 hours preceding the interview, by state, India, 1992-93

| State | Median durations (months)[1] | | | Percentage of children under 6 months breastfed 6+ times in last 24 hours |
	Any breast-feeding	Exclusive breast-feeding	Full breast-feeding[2]	
India	24.4	1.4	4.7	91.6
North				
Delhi	20.9	0.5	1.7	87.6
Haryana	23.0	0.7	2.0	90.2
Himachal Pradesh	21.7	0.7	2.6	84.9
Jammu Region of J & K	22.1	0.5	1.4	88.2
Punjab	18.4	0.4	2.6	92.7
Rajasthan	24.2	2.9	6.5	91.2
Central				
Madhya Pradesh	24.7	0.6	5.7	82.7
Uttar Pradesh	24.9	2.5	5.4	95.5
East				
Bihar	26.6	1.5	7.5	94.9
Orissa	27.6	1.2	3.7	95.1
West Bengal	32.8	0.6	1.7	88.6
Northeast				
Arunachal Pradesh	27.8	4.0	5.1	98.8
Assam	27.8	3.1	3.6	95.5
Manipur	28.5	3.8	4.1	94.6
Meghalaya	18.4	0.5	0.5	88.6
Mizoram	18.2	1.6	5.0	97.3
Nagaland	21.2	0.7	5.4	100.0
Tripura	33.8	1.2	1.8	89.0
West				
Goa	16.5	0.4	0.6	75.2
Gujarat	19.7	0.6	5.1	95.3
Maharashtra	23.0	0.7	5.5	90.1
South				
Andhra Pradesh	26.4	2.6	4.9	88.9
Karnataka	21.4	3.2	4.6	93.9
Kerala	23.5	2.1	2.1	93.1
Tamil Nadu	16.9	1.9	2.6	75.6

[1]Medians and means are based on current status
[2]Either exclusively breastfed or received breast milk and plain water only

The extent to which feeding practices in India conform to the international recommendations is summarized in Table 10.7. The table presents a very mixed picture of infant and child feeding practices. On the positive side, the duration of breastfeeding is relatively long and the use of feeding bottles with nipples is infrequent. On the negative side, only half of children less than four months old are exclusively breastfed and the introduction of solid or mushy food to the diet is typically much later than recommended. The timely complementary feeding rate for India as a whole is only 31 percent. Even at one year of age (12 months), almost one-third of breastfeeding children are not receiving solid or mushy food in addition to breast milk (see Table 10.4). This poses a serious problem for the health and

development of India's children, which must be urgently addressed. Effective programmes to educate parents about proper feeding practices are essential if the situation is to improve.

The statewide indicators of feeding practices shown in Table 10.7 can help to identify important emphases for educational programmes in each state. For example, Goa has extraordinarily high usage of feeding bottles (almost twice as high as any other state) and very poor achievement of the goals for exclusive breastfeeding and a long duration of breastfeeding. Punjab, Jammu and Meghalaya also have an exceptionally low proportion of children under four months of age who are exclusively breastfed. Children in Rajasthan, Bihar and Uttar Pradesh are very unlikely to be given solid or mushy food at the appropriate age. Some feeding problems are universal, however. No state comes even close to achieving the recommendations

Table 10.7 Recommended feeding indicators

Recommended feeding indicators for children age 0-23 months by state, India, 1992-93

State	Recommended feeding indicators				
	Percent of children 0-3 months exclusively breastfed	Percent of children 6-9 months receiving breast milk and solid/mushy food	Percent of children 12-15 months breastfed	Percent of children 20-23 months breastfed	Percent of last-born children <12 months bottle fed
India	51.0	31.4	87.5	66.6	14.2
North					
Delhi	20.0	25.1	74.6	52.8	36.3
Haryana	37.5	38.5	89.0	58.3	20.0
Himachal Pradesh	36.4	39.9	80.2	54.7	24.6
Jammu Region of J & K	16.9	44.8	83.4	51.8	38.3
Punjab	3.3	37.3	77.9	40.4	27.1
Rajasthan	65.9	9.4	87.3	74.8	8.9
Central					
Madhya Pradesh	31.4	27.7	90.2	65.4	7.3
Uttar Pradesh	60.3	19.4	89.7	73.8	12.1
East					
Bihar	51.6	18.1	92.0	79.3	10.0
Orissa	45.7	30.2	91.5	78.9	14.5
West Bengal	40.0	53.6	91.9	83.6	21.7
Northeast					
Arunachal Pradesh	73.9	35.8	98.0	73.0	7.2
Assam	65.0	39.2	94.8	82.5	12.8
Manipur	70.4	50.0	89.5	61.5	7.2
Meghalaya	18.0	56.3	63.6	51.4	24.4
Mizoram	45.5	64.3	81.6	37.9	14.7
Nagaland	61.1	43.5	70.3	46.9	23.7
Tripura	47.9	65.0	98.1	74.2	29.5
West					
Goa	10.8	33.9	53.1	40.0	66.7
Gujarat	36.3	22.9	85.8	48.1	9.2
Maharashtra	37.1	25.0	85.2	62.2	11.2
South					
Andhra Pradesh	70.5	47.8	86.9	67.7	12.5
Karnataka	65.6	38.2	84.3	54.5	13.5
Kerala	59.2	69.3	84.0	61.7	26.2
Tamil Nadu	55.8	56.5	65.4	35.5	30.7

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for exclusive breastfeeding of children under 4 months of age or the supplementation of breast milk with solid or mushy food at age 6-9 months. These poor feeding practices are undoubtedly a factor in the nutritional deficiencies that are illustrated in the next section.

10.2 Nutritional Status of Children

One of the major contributions of the NFHS to the study of child health is the anthropometric data collected for children under four years of age. Both weight and height measurements were obtained for each child. For first phase states (Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Tamil Nadu and West Bengal), only weight was measured, because height measuring boards were not available at that time[1]. The weight of each child was measured using a Salter scale, which is a hanging spring balance. For the measurement of height/length, children under two years of age were measured lying down on an adjustable measuring board, while those age two years and above were measured in a standing position. The guidelines given in the United Nations Manual, "How to Weigh and Measure Children" (United Nations, 1986), were followed when training the field staff on measurement of the height and weight of children. Weight was measured to the nearest 100 grams. Height or length was measured to the nearest 0.1 centimetres. The data on weight and height were used to calculate three summary indices of nutritional status, which affects children's susceptibility to disease and their chances of survival. These indices are:

o weight-for-age
o height-for-age
o weight-for-height

The nutritional status of children calculated according to these measures is compared with the nutritional status of an international reference population that has been 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 recent scientific report from the Nutrition Foundation of India (Agarwal et al., 1991) has concluded that the WHO standard is applicable to Indian children as well.

The three nutritional status indices are expressed in standard deviation units (z-scores) from the median for the international reference population. Children who fall more than two standard deviations below the reference median are considered to be *undernourished*, while those who fall more than three standard deviations below the reference median are considered to be *severely undernourished*.

Each of the indices provides somewhat different information about the nutritional status of children. The height-for-age index measures linear growth retardation among children. Children who are more than two standard deviations below the median of the reference

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[1]The lack of height measurements for these states should not substantially bias the national estimates of height-for-age and weight-for-height since these five states cluster closely around the national estimate of the percentage of children who are underweight (which is the only nutritional index that can be calculated for these states).

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 leads to chronic or recurrent diarrhoea. Stunting is typically associated with inadequate food intake resulting from poor feeding practices or from the lack of sufficient food, as well as the existence of adverse environmental conditions for an extended period of time. Height-for-age, therefore, is a measure of the long-term effects of undernutrition.

The weight-for-height index measures 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 their weight-for-height are considered to be too thin or *wasted*. The percentage in this category indicates the prevalence of acute undernutrition. This condition is associated with the 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 (especially diarrhoea).

Weight-for-age is a composite measure which 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 *underweight*.

The validity of these indices is determined by many factors, including the coverage of the population of children and accurate anthropometric measurements. In the NFHS, about 16 percent of living children under age four were not weighed and measured (see Table D.3 in Appendix D), usually because the child was not at home or because the mother refused to allow the measurements to be taken. Also excluded from the analysis are children whose month and year of birth were not reported by the mother, and those with grossly improbable weight and height measurements. In addition, two of the three indices (height-for-age and weight-for-age) are sensitive to misreporting of children's ages, including heaping on preferred digits. The weight-for-height index is the only one which does not depend on accurate age reporting.

Table 10.8 presents the percentage of children classified as undernourished according to weight-for-age, height-for-age, and weight-for-height by selected demographic characteristics. Both chronic and acute undernutrition are prevalent in India. Slightly more than half (53 percent) of all children are underweight and a similar proportion (52 percent) are stunted. The proportion of children who are severely undernourished is also notable -- 21 percent in the case of weight-for-age and 29 percent in the case of height-for-age. Wasting is also quite evident in India, affecting more than one in every six children. These levels of undernutrition are among the highest in the world (see, for example, Sommerfelt and Stewart, 1994).

As the age of children increases, there is a marked increase in the prevalence of undernutrition in the first year of life that continues on into the second year of life and, for stunting, into the third and fourth year as well. Undernutrition is lowest in the first six months of life, when most babies are being fully breastfed. As indicated in Figure 10.3, the percentage of children who are underweight reaches its highest value (63 percent) at age 1 year and declines slightly thereafter. The prevalence of stunting, however, continues to grow, reaching a peak of 67 percent among three-year-old children. The prevalence of wasting, on the other hand, reaches a maximum (28 percent) for children who are one year old and declines rapidly thereafter.

Table 10.8 Nutritional status by demographic characteristics

Among children under four years of age, the percentage classified as undernourished according to three anthropometric indices of nutritional status, by demographic characteristics, India, 1992-93

Demographic characteristic	Weight-for-age			Height-for-age		Weight-for-height		
	Percentage below -3 SD	Percentage below -2 SD[1]	Number of children[2]	Percentage below -3 SD	Percentage below -2 SD[1]	Percentage below -3 SD	Percentage below -2 SD[1]	Number of children[3]
Child's age								
<6 months	2.8	15.6	4406	5.7	15.7	2.0	9.5	3225
6-11 months	14.1	43.3	4792	14.3	34.3	2.9	15.7	3176
12-23 months	26.3	63.4	9560	30.7	56.6	5.6	28.0	6945
24-35 months	25.9	62.2	8406	34.6	60.2	2.5	16.6	6033
36-47 months	21.8	58.5	8643	40.7	66.7	1.8	11.6	6204
Sex								
Male	20.2	53.3	18208	28.4	52.3	3.7	18.8	13040
Female	21.0	53.4	17599	29.4	51.7	2.6	16.1	12543
Birth order								
1	17.4	49.4	9719	24.8	48.1	3.0	16.5	6630
2-3	19.5	52.2	15209	27.3	49.8	3.2	17.4	10634
4-5	23.7	57.7	6848	32.6	56.6	3.6	19.1	5125
6+	26.8	59.8	4031	36.6	60.0	2.9	17.4	3194
Previous birth interval[4]								
First birth	17.5	49.5	9762	24.8	48.1	3.0	16.5	6664
< 24 months	23.3	56.9	6106	33.1	56.9	3.7	16.3	4549
24-47 months	21.5	55.2	14713	30.4	53.9	2.9	18.0	10677
48+ months	20.7	51.5	5227	26.4	47.3	3.6	19.2	3694
Total	20.6	53.4	35807	28.9	52.0	3.2	17.5	25584

Note: Figures are for children born 1-47 months prior to the survey. Each of the indices is expressed in standard deviation units (SD) from the median of the International Reference Population. The percentages of children who are more than three and more than two standard deviation units below the median of the International Reference Population (-3SD and -2SD) are shown according to selected characteristics.
[1]Also includes the children who are more than 3 standard deviations below the International Reference Population median
[2]Number of children for calculation of weight-for-age
[3]Number of children for calculation of height-for-age and weight-for-height, excluding Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Tamil Nadu and West Bengal
[4]In the case of first-born twins, both twins are counted as first births because neither has a previous birth interval.

Male and female children are about equally disadvantaged nutritionally, although males are slightly more subject to wasting. Undernourishment increases somewhat with increasing birth order. Young children in families with four or more children are the most nutritionally disadvantaged. The pattern of undernourishment associated with the length of the preceding birth interval depends on the particular measure which is being examined. For the two age-related measures, undernutrition is slightly higher for children with short birth intervals, but the opposite is true for the measure of wasting. For all three measures, however, the differentials are relatively small.

Table 10.9 shows nutritional status by selected background characteristics. All the measures indicate that undernutrition is more of a problem in rural areas than in urban areas (Figure 10.4). Even in urban areas, however, nearly half of young children are underweight

Figure 10.3
Percentage of Children Under Age Four
Who Are Underweight by Age
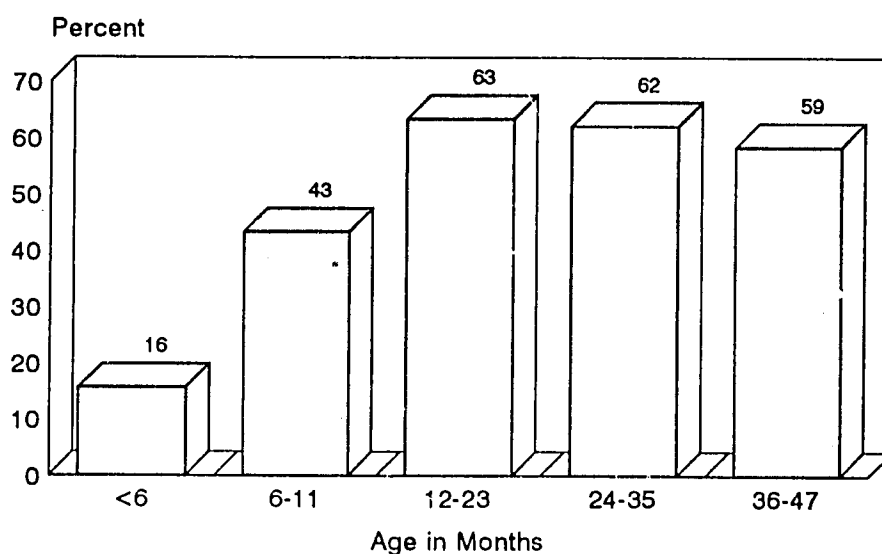
Percent

Age in Months

Note: Percentage of children more than 2 standard deviations
below the median of the International Reference Population

NFHS, India, 1992-93

and almost half are stunted. The most serious nutritional problem (wasting) is only slightly lower in urban areas than in rural areas. The differentials in undernutrition by mother's educational level are very large. Children whose mothers are illiterate are twice as likely to be underweight or stunted as children whose mothers have completed at least high school. According to these same measures, children whose mothers are illiterate are about three times as likely to be severely undernourished as those whose mothers have completed at least high school. The differentials are only half as large, but still substantial, in the case of wasting.

The other differentials in Table 10.9 are considerably smaller. Hindu, Muslim and Buddhist children are about equally likely to be undernourished. The levels of undernutrition are much lower for Christians, Sikhs and Jains. Scheduled caste and scheduled tribe children have slightly higher levels of undernutrition than other children, but the differences among these groups are generally small.

These results suggest that the mother's level of education is the most important characteristic associated with children's nutritional status. Unfortunately, a large majority of young children (65 percent) in India have mothers who are illiterate; they are consequently at a high risk of suffering undernutrition. Programmes designed to eliminate female illiteracy are, therefore, likely to be of crucial importance for improving the nutrition status and survival of children in India. Nevertheless, it should be noted that levels of undernutrition remain unacceptably high even for children whose mothers are highly educated. This finding suggests that targeted programmes about proper feeding practices for children are necessary for parents

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Among children under four years of age, the percentage classified as undernourished according to three anthropometric indices of nutritional status, by selected background characteristics, India, 1992-93

	Weight-for-age			Height-for-age		Weight-for-height		
Background characteristic	Percentage below -3 SD	Percentage below -2 SD[1]	Number of children[2]	Percentage below -3 SD	Percentage below -2 SD[1]	Percentage below -3 SD	Percentage below -2 SD[1]	Number of children[3]
Residence								
Urban	14.8	45.2	8464	22.0	44.8	2.9	15.6	5884
Rural	22.4	55.9	27343	30.9	54.1	3.2	18.0	19700
Mother's education								
Illiterate	24.7	59.2	22946	34.5	58.5	3.4	18.8	16639
Lit., < middle complete	16.7	50.4	6251	22.6	46.4	3.0	16.8	4260
Middle school complete	12.4	43.5	2765	17.9	39.3	2.7	14.7	1905
High school and above	7.8	30.3	3844	12.2	30.0	2.3	12.3	2780
Religion								
Hindu	21.0	53.7	28450	29.2	52.5	3.3	17.7	19897
Muslim	21.2	55.4	5440	31.4	54.5	3.0	17.2	4065
Christian	7.9	38.3	737	15.9	34.2	1.8	11.1	523
Sikh	12.6	40.2	670	13.1	34.9	2.4	17.4	656
Jain	9.6	29.9	106	12.6	25.8	0.3	6.4	78
Buddhist	22.8	54.3	262	31.7	59.5	2.0	22.2	251
Other	23.0	59.7	143	25.6	51.2	3.9	15.6	113
Caste/tribe								
Scheduled caste	23.7	57.5	4664	33.2	58.0	3.4	18.5	3347
Scheduled tribe	25.3	56.8	3203	28.8	52.8	4.1	22.0	2085
Other	19.5	52.3	27940	28.1	50.9	3.0	16.8	20152
Total	20.6	53.4	35807	28.9	52.0	3.2	17.5	25584

Note: Figures are for children born 1-47 months prior to the survey. Each of the indices is expressed in standard deviation units (SD) from the median of the International Reference Population. The percentages of children who are more than three and more than two standard deviation units below the median of the International Reference Population (-3SD and -2SD) are shown according to selected characteristics.
() Based on 25-49 unweighted cases
* Percentage not shown; based on fewer than 25 unweighted cases
[1]Also includes the children who are more than 3 standard deviations below the International Reference Population median
[2]Number of children for calculation of weight-for-age
[3]Number of children for calculation of height-for-age and weight-for-height, excluding Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Tamil Nadu and West Bengal

in all segments of the population.

Variations in nutritional status by state are shown in Table 10.10 and Figure 10.5. Even in the state with the best record on nutritional status for children (Kerala), more than one-quarter of young children are underweight and more than one-quarter are stunted. Other states with relatively low levels of undernutrition are Manipur, Mizoram, Nagaland and Goa. Nutritional problems are particularly serious in Bihar and Uttar Pradesh. The problem of wasting is most evident in Bihar and Orissa, which not coincidentally have among the highest infant mortality rates in India.

Table 10.10 Nutritional status by state

Among children under four years of age, the percentage classified as undernourished according to three anthropometric indices of nutritional status, by state, India, 1992-93

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	20.6	53.4	28.9	52.0	3.2	17.5
North						
Delhi	12.0	41.6	19.3	43.2	2.7	11.9
Haryana	9.0	37.9	19.3	46.7	0.6	5.9
Himachal Pradesh	12.9	47.0	U	U	U	U
Jammu Region of J & K	13.8	44.5	18.6	40.8	3.4	14.8
Punjab	14.2	45.9	15.7	40.0	2.8	19.9
Rajasthan	19.2	41.6	26.6	43.1	5.2	19.5
Central						
Madhya Pradesh	22.3	57.4	U	U	U	U
Uttar Pradesh	24.6	59.0	35.6	59.5	2.7	16.1
East						
Bihar	31.1	62.6	39.5	60.9	4.1	21.8
Orissa	22.7	53.3	25.2	48.2	3.6	21.3
West Bengal	18.4	56.8	U	U	U	U
Northeast						
Arunachal Pradesh	14.5	39.7	27.9	53.9	3.6	11.2
Assam	18.7	50.4	26.3	52.2	1.7	10.8
Manipur	7.2	30.1	16.0	33.6	1.2	8.8
Meghalaya	17.2	45.5	38.4	50.8	4.8	18.9
Mizoram	5.3	28.1	16.0	41.3	0.6	2.2
Nagaland	7.6	28.7	13.2	32.4	2.3	12.7
Tripura	18.6	48.8	21.3	46.0	0.7	17.5
West						
Goa	8.9	35.0	11.0	32.5	2.4	15.3
Gujarat	17.6	50.1	25.3	48.2	3.7	18.9
Maharashtra	21.3	54.2	23.5	48.5	4.2	20.2
South						
Andhra Pradesh	15.6	49.1	U	U	U	U
Karnataka	19.4	54.3	22.7	47.6	2.6	17.4
Kerala	6.1	28.5	9.0	27.4	1.3	11.6
Tamil Nadu	13.3	48.2	U	U	U	U

Note: Figures are for children born 1-47 months prior to the survey. Each of the indices is expressed in standard deviation units (SD) from the median of the International Reference Population. The percentages of children who are more than three and more than two standard deviation units below the median of the International Reference Population (-3SD and -2SD) are shown according to selected characteristics.

U: Not available because children's height/length was not measured
[1] Also includes the children who are below -3 standard deviations from the International Reference Population median

Figure 10.4
Undernutrition Among Children
Under Four Years of Age
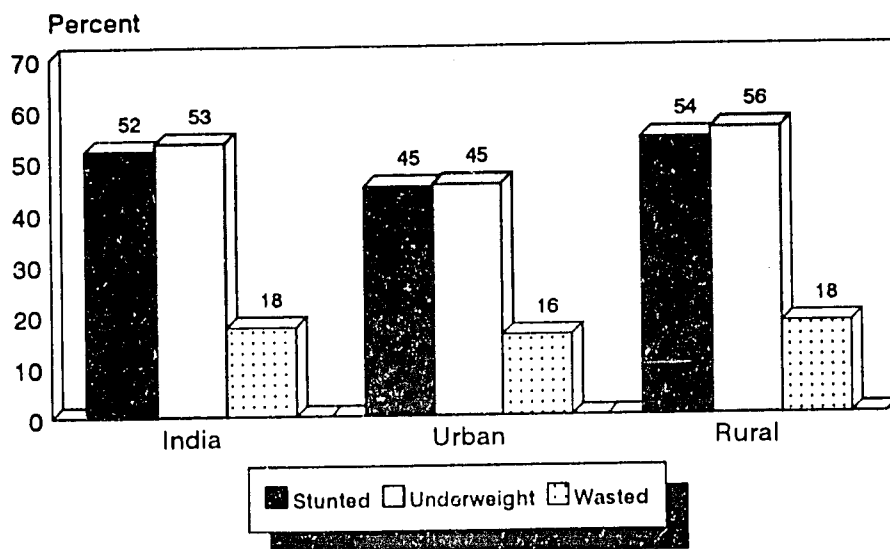
Percent

Note: Percentage of children more than 2 standard deviations
below the median of the International Reference Population

NFHS, India, 1992-93

Figure 10.5
Percentage of Children Under Age Four
Who Are Underweight by State
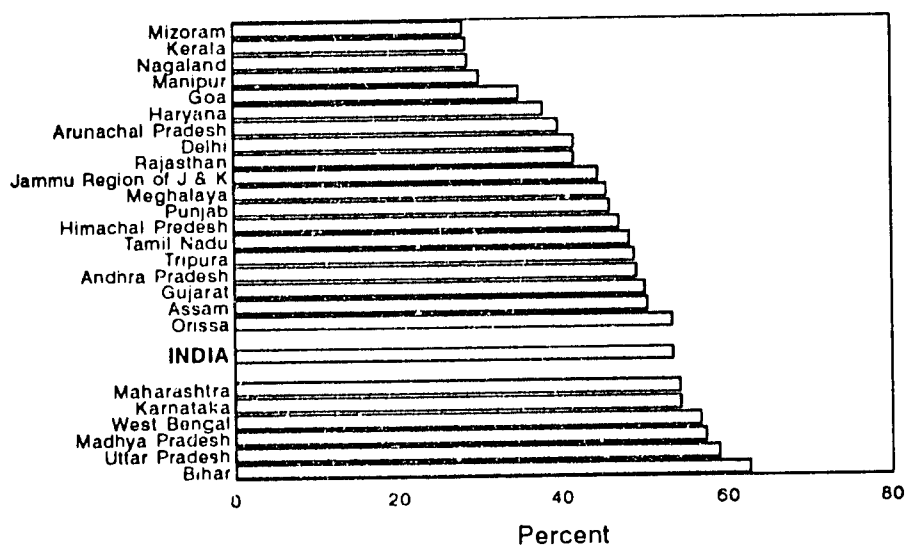
Note: Percentage of children more than 2 standard deviations
below the median of the International Reference Population

NFHS, India, 1992-93

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CHAPTER 11

KNOWLEDGE OF AIDS

Acquired Immune Deficiency Syndrome, or AIDS, as it is more commonly known, was first recognized in 1981. Since the beginning of the pandemic, it is estimated that over 16 million individuals throughout the world have been infected with the human immunodeficiency virus (HIV), which causes AIDS, and between mid-1993 and mid-1994 about 1.5 million people developed AIDS - three times as many as in the previous 12-month period (World Health Organization, 1994). The estimated total number of actual AIDS cases in adults and children since 1981 is four million, of which over 240,000 (6.0 percent) are from Asia. A large proportion (30-50 percent) of these infected individuals are expected to die within 5-10 years of acquiring the infection (World Health Organization, 1992). Because of the high case fatality rate and the lack of a curative treatment or vaccine, the HIV/AIDS pandemic is one of the most serious health problems in the world.

Within a few years after AIDS was first identified, its cause and mode of transmission were documented. The virus that causes AIDS may remain in a state of latency for some time without causing clinical disease. It is thought that once an individual becomes infected with the virus, he or she remains infected for life. The clinical manifestations of AIDS result primarily from critical injury to the immune system. Soon after becoming infected with HIV, some people have an acute self-limiting illness, indistinguishable from many other mild viral illnesses. After the healthy carrier state, which may last as long as 10 years (longer in some cases), most infected people progress to the full long-term clinical illness stage - the stage at which AIDS itself is contracted.

Epidemiological studies have demonstrated that the major routes of HIV transmission are sexual intercourse, intravenous injections (e.g., transfusions of HIV-contaminated blood or injections using HIV-contaminated needles) and transmission from infected mothers to unborn foetuses through the placenta. Female sex workers in India have significant levels of HIV infection, and a major route of transmission of the virus is along well-established truck routes of the country, where contact between sex workers and the drivers is common. The available evidence indicates that HIV cannot be transmitted through food, water, vectors, or casual contact. Increasingly, HIV is found in association with sexually transmitted diseases (STDs) and tuberculosis, compounding an already alarming public health problem. In urban areas of Tamil Nadu, Gujarat, Karnataka, Punjab, and West Bengal, HIV prevalence levels in STD patients are now estimated to be about 1 percent (World Health Organization, 1994b).

India established a National AIDS Control Organization (NACO) under the Ministry of Health and Family Welfare in 1989. Prior to this, attempts were made by various non-governmental organizations (NGOs) to raise awareness of the AIDS syndrome and implement small-scale prevention programmes, concentrating in the perceived higher-risk areas of Bombay, Calcutta, Madras, and Delhi. As the NGO work continues to make important contributions in the field of AIDS prevention, statistics compiled at the national level reveal the spread of HIV in India (based on NACO's monthly update on HIV infection in India, compiled from medical records submitted by 59 hospitals and major medical research centres throughout India).

The updates show that by June of 1988 nearly 120,000 persons from high-risk groups in India had been screened for the virus. Of these cases, 370 tested HIV-positive, and 22 of them (15 Indians and 7 foreigners) were diagnosed as having actually contracted AIDS. It was subsequently determined that 21 of these 22 AIDS cases were transmitted through sexual intercourse, and one through blood transfusion. According to another set of estimates, by 1988 16 patients (14 Indians and 2 foreigners) had died of AIDS in India (Khurana, 1989). Approximately 600,000 persons were HIV positive in India in 1992, and the number of HIV positive cases among those screened (who tend to be from high-risk groups) had shown an increase from 2.5 per 1,000 population in 1986 to 11.2 per 1,000 in 1992 (Ministry of Health and Family Welfare, 1993a).

Three-fourths of AIDS cases identified up to March, 1993, had reportedly acquired the virus through sexual intercourse, 12 percent through blood transfusions, and 7 percent through sharing unsterilized needles. It is estimated that if the transmission of HIV continues at the same pace, about five million persons in India will be infected by the year 2000, and the number of AIDS cases will exceed one million (Ministry of Health and Family Welfare, 1993b).

Recent estimates from the NACO monthly updates show that as of 31 March 1994 a total of 15,017 cases were confirmed HIV-positive (using the Western Blot test), out of 2,052,856 samples screened, resulting in a sero-positivity rate of 7.3 per 1,000 (National AIDS Control Organization, 1994b). The number of AIDS cases reported in India was 713 (551 males and 162 females), although according to WHO estimates, the actual number is substantially larger.

The prevalence of the HIV infection as measured in 1994 was substantially larger than in 1988, when high-risk groups were first screened. Unless serious interventions are undertaken in the area of prevention, there is great potential for a further acceleration in HIV prevalence. To summarize the recent situation in India: (1) HIV infection is rapidly spreading beyond those few areas in the country considered to be of especially high risk, and is at different epidemiological stages even within the same state; (2) the epidemic has begun to spread to the general population, mainly through heterosexual contact with those categorized as "high-risk" groups; and (3) the interaction of HIV infection with sexually transmitted diseases (STDs) and tuberculosis, both widely prevalent throughout India, presents an even more challenging public health problem. The correlation between HIV and tuberculosis may result in a resurgence of tuberculosis (56 percent of reported AIDS cases in India have tuberculosis). Stemming STDs is essential to slowing the transmission of HIV. Fewer than 10 percent of STD patients seek treatment from public health centres, and the quality of case management and care provided at public as well as private centres is generally low (Lal, 1994).

In 13 out of 25 states, the NFHS included a series of questions on knowledge of AIDS, which were added to the core questions used in all Indian states[1]. The AIDS questions enable measurement of the extent of knowledge about AIDS among women in different population subgroups, thus generating information that will be useful for planning and implementing AIDS prevention programmes. Ever-married women age 13-49 were first asked if they had ever heard

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[1] Because the AIDS questions were not included in 12 states, no national estimates are presented in the tables in this chapter.

of an illness called AIDS. Respondents indicating knowledge of AIDS were asked further questions about the sources of their knowledge, the mechanisms of AIDS transmission, whether they believe the transmission of AIDS is preventable, and if so, their perception of the precautions a person can take to avoid AIDS.

11.1 Knowledge of AIDS

Table 11.1 shows the percentage of women who have heard about AIDS. In general, the knowledge that there is an illness called AIDS is very low. Even in Delhi, where considerable media attention has been focussed on AIDS, only 36 percent of women have heard of the disease. Among the other major states where the knowledge of AIDS has been investigated (Assam, Gujarat, Maharashtra, Tamil Nadu and West Bengal), the level of knowledge is highest in Tamil Nadu, where only 23 percent of women reported having heard about the disease. In Assam and West Bengal, less than 10 percent of women are aware of AIDS. A relatively high proportion of women in Goa (42 percent) have heard of AIDS. In the northeastern states, the level of knowledge varies substantially. In Mizoram and Manipur, where the incidence of AIDS is reported to be high, a large majority of women (85 and 73 percent, respectively) reported having heard about the disease. In Arunachal Pradesh and Tripura, on the other hand, fewer than 1 in 6 women have heard of AIDS.

Table 11.1 Knowledge of Acquired Immune Deficiency Syndrome (AIDS)	
Percentage of ever-married women age 13-49 who have heard about AIDS, by state, India, 1992-93	
State	Percentage who have heard about AIDS
Delhi	35.8
West Bengal	9.8
Arunachal Pradesh	16.2
Assam	8.4
Manipur	72.5
Meghalaya	26.7
Mizoram	84.8
Nagaland	40.9
Tripura	13.2
Goa	41.7
Gujarat	10.6
Maharashtra	18.6
Tamil Nadu	23.4

11.2 Source of Knowledge About AIDS

As a part of the AIDS prevention programme, the Government of India has been using the mass media, especially the electronic media, to create awareness among the general public about AIDS and how to prevent its spread. In the NFHS, women who had heard about AIDS were asked about the information sources through which they came to know about AIDS. Television is the most important source of knowledge about AIDS in most states (Table 11.2). More than four-fifths of women who had heard about AIDS in Delhi, Goa and Maharashtra heard about it through the television. Television was a source of knowledge for 60-70 of women in Arunachal Pradesh, Assam, Tamil Nadu and Gujarat. The role of television in spreading the

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Table 11.2 Source of knowledge about AIDS

Among women who have heard about AIDS, the percentage obtaining knowledge of AIDS from different sources, by state, India, 1992-93

State	Among those who have heard about AIDS, percentage obtaining knowledge from:					
	Radio	Tele-vision	News-papers	Maga-zines	Friends/relatives	Other sources
Delhi	27.9	84.0	44.7	29.4	10.2	9.4
West Bengal	20.6	59.1	54.1	11.6	20.7	8.7
Arunachal Pradesh	45.5	60.1	28.0	23.8	34.3	11.9
Assam	48.2	66.3	42.9	21.2	18.8	6.1
Manipur	62.8	22.3	20.8	4.6	54.4	28.5
Meghalaya	37.5	31.9	44.7	21.7	68.3	14.1
Mizoram	58.7	10.8	50.8	16.0	69.4	26.3
Nagaland	73.4	43.2	34.3	19.8	57.9	39.6
Tripura	44.8	53.8	40.0	11.7	22.1	20.7
Goa	35.6	82.3	45.3	20.2	22.3	13.7
Gujarat	23.1	70.5	54.8	17.0	6.9	3.9
Maharashtra	27.7	86.8	36.3	14.3	6.9	7.6
Tamil Nadu	49.5	64.3	37.1	31.1	14.2	8.2

Note: Percentages may sum to more than 100.0 because multiple responses were allowed.

knowledge of AIDS is limited in Manipur (where radio plays a major role) and in Meghalaya and Mizoram (where the majority of women heard about AIDS through friends and relatives). In addition, newspapers are an important source of AIDS information in every state.

11.3 Misconceptions About AIDS

Misconceptions about the disease among the general public make it difficult to implement preventive measures against AIDS and to provide effective care and treatment of the persons affected with AIDS. NFHS respondents were asked if they thought that one could get AIDS from various commonly occurring social situations such as shaking hands with someone who has AIDS, hugging or kissing someone with AIDS, sharing clothing or eating utensils with someone with AIDS, or stepping on the urine or stools of a person who has AIDS. Respondents were also asked whether they thought they could get AIDS from mosquito, flea or bedbug bites. Medical professionals believe that these situations pose an extremely low risk of transmission of AIDS. Women were also asked if they thought AIDS is curable or if they thought that an AIDS vaccine exists. Results are shown in Table 11.3.

Women who have heard about AIDS have a number of misconceptions about the disease, and states differ markedly in the extent and type of misconceptions. The most common misconceptions are that AIDS can be transmitted through kissing and bug bites. Large proportions of women also believe that a person can get AIDS by sharing eating utensils or clothes with a person with AIDS or stepping on their urine or stools. Misconceptions about the transmission of AIDS through shaking hands or hugging are least widespread. In every state, the majority of women who have heard of AIDS correctly perceive that AIDS is not curable and that there is no vaccine against AIDS. Women in Maharashtra, Gujarat and Nagaland are

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Table 11.3 Misconceptions about AIDS

Among women who have heard about AIDS, the percentage having misconceptions about different ways of getting AIDS, and the percentage who think AIDS is curable or that there is a vaccine against AIDS, according to state, India, 1992-93

State	Percentage[1] who think it is possible to get AIDS from:							Percentage who think:	
	Shaking hands with someone with AIDS	Hugging someone with AIDS	Kissing someone with AIDS	Wearing clothes of someone with AIDS	Sharing eating utensils with someone with AIDS	Stepping on urine/ stools of someone with AIDS	Hos- quito, flea, bedbug bites	AIDS is cur- able	An AIDS vaccine exists
Delhi	16.8	18.7	40.8	28.7	33.8	31.5	25.4	19.7	5.6
West Bengal	19.8	29.5	59.6	53.8	67.7	62.1	76.7	34.9	2.0
Arunachal Pradesh	25.9	31.5	56.6	41.3	46.9	42.0	57.3	25.9	16.8
Assam	32.3	39.4	58.1	57.5	66.0	69.3	66.3	32.9	9.4
Manipur	11.4	16.9	55.4	32.9	28.2	16.9	30.2	14.9	14.6
Meghalaya	22.0	17.8	52.6	70.1	55.9	35.5	70.7	8.2	3.6
Mizoram	20.4	24.6	77.3	35.8	31.8	58.0	80.0	19.4	23.8
Nagaland	5.5	10.4	45.5	20.6	18.9	22.3	24.9	9.4	8.3
Tripura	34.5	45.5	64.8	69.7	73.1	76.6	82.1	41.4	3.4
Goa	17.4	24.0	38.4	28.5	31.1	31.1	31.5	20.7	14.7
Gujarat	13.8	15.2	26.0	21.9	23.3	16.7	20.6	19.2	4.4
Maharashtra	9.4	14.7	25.8	19.5	21.3	18.1	13.2	24.1	11.5
Tamil Nadu	29.5	36.5	48.1	42.0	42.6	51.5	47.4	33.0	22.2

[1]Percentages may sum to more than 100.0 since multiple responses were allowed.

relatively well informed about the transmission of AIDS. On the other hand, misconceptions about AIDS abound in West Bengal and Assam (where knowledge that the disease exists is lowest), as well as in Tripura.

11.4 Knowledge of Prevention of AIDS

The responses to an open-ended question on the precautions to be taken to avoid AIDS are shown in Table 11.4. In almost every state, "safe sex" is spontaneously mentioned most frequently as a means of avoiding AIDS[2]. More than half of women in Delhi, Meghalaya, Mizoram, Goa, Maharashtra and Tamil Nadu stated that AIDS can be avoided by practising safe sex. Relatively large proportions of women also specifically mentioned the use of condoms during intercourse as a means of avoiding AIDS. In every state, other precautionary measures such as checking blood prior to transfusion, sterilizing needles/syringes before injection, and avoiding pregnancy when infected with AIDS are mentioned by less than half of women who have heard about AIDS. In several of the northeastern states, where intravenous drug use is thought to be relatively common, substantial proportions of women mention that AIDS can be avoided by sterilizing needles and syringes.

[2] "Safe sex" was not defined for respondents, so different respondents might have had different prevention measures in mind when using that term.

Table 11.4 Knowledge about avoidance of AIDS

Among women who have heard about AIDS, the percentage who believe AIDS can be avoided by various means, according to state, India, 1992-93

State	Percentage who believe AIDS can be avoided by:				
	Using condoms during intercourse	Practising safe sex	Checking blood prior to trans-fusion	Sterilizing needles/ syringes for injections	Avoiding pregnancy when infected with AIDS
Delhi	40.1	52.0	13.0	10.7	1.3
West Bengal	35.6	42.7	16.9	6.8	4.3
Arunachal Pradesh	47.6	24.5	21.0	18.9	9.8
Assam	25.2	36.1	22.6	21.5	15.5
Manipur	18.1	48.6	6.7	24.3	9.1
Meghalaya	19.4	67.8	23.0	23.7	13.5
Mizoram	13.4	88.1	11.9	45.5	2.7
Nagaland	58.9	48.1	28.1	45.1	34.5
Tripura	29.7	35.2	13.1	13.1	--
Goa	31.9	56.0	36.4	42.0	27.3
Gujarat	32.7	32.7	14.0	10.6	5.4
Maharashtra	32.1	57.1	17.9	15.8	3.4
Tamil Nadu	14.3	70.6	5.8	6.9	0.8

Note: Percentages may sum to more than 100.0 since multiple responses were allowed.
-- Less than 0.05 percent

The small percentage of respondents having knowledge of AIDS, as well as the major misconceptions about transmission and prevention of the disease among women who have heard of the disease, indicate that public education campaigns about AIDS are very much needed in India. It will be difficult to contain the spread of AIDS unless both women and men are provided with accurate knowledge about the disease.

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REFERENCES

Agarwal, K.N., D.K. Agarwal, D.G. Benakappa, S.M. Gupta, P.C. Khanduja, S.P. Khatua, K. Ramachandran, P.M. Udani and C. Gopalan. 1991. *Growth Performance of Affluent Indian Children (Under-fives): Growth Standard for Indian Children*. New Delhi: Nutrition Foundation of India.

Agarwala, S.N. 1985. *India's Population Problems*. New Delhi: Tata McGraw Hill Publishing Company.

Agrawal, A.N. 1991. *Indian Economy: Problems of Development and Planning*. New Delhi: Wiley Eastern Limited.

Arnold, Fred. 1987. The effect of sex preference on fertility and family planning: Empirical evidence. *Population Bulletin of the United Nations* 23-24:44-45.

Arnold, Fred. 1992. Sex preference and its demographic and health implications. *International Family Planning Perspectives* 18(3):93-101.

Bairagi, Radheshyam and Ray L. Langsten. 1986. Sex preference for children and its implications for fertility in rural Bangladesh. *Studies in Family Planning* 17(6):302-307.

Basu, Alaka Malwade. 1989. Is discrimination in food really necessary for explaining sex differentials in childhood mortality? *Population Studies* 43(2):193-210.

Basu, Alaka Malwade. 1993. Cultural influences on the timing of first births in India: Large differences that add up to little difference. *Population Studies* 47:85-95.

Bhende, Asha and Tara Kanitkar. 1994. *Principles of Population Studies*. Reprint of the fifth revised edition. Bombay: Himalaya Publishing House.

Bittles, Alan H., A.T. Eaton and L.B. Jorde. 1992. Consanguinity and fertility: A global perspective. *American Journal of Physical Anthropology*, Vol. 87, Supplement 14.

Bittles, Alan H., W.M. Mason, J. Greene and N. Appaji Rao. 1991. Reproductive behaviour and health and consanguineous marriages. *Science* 252:789-794.

Black R.E. 1984. Diarrheal Diseases and Child Mortality. In W. Henry Mosley and Lincoln C. Chen (eds.), Child Survival: Strategies for Research. *Population and Development Review*, Supplement to Volume 10.

Bruce, Judith, 1990. Fundamental elements of the quality of care: A simple framework. *Studies in Family Planning*, Vol. 21, No. 2.

Central Bureau of Health Intelligence (CBHI). 1991. *Health Information of India-1991*. New Delhi: CBHI, Directorate General of Health Services, Ministry of Health and Family Welfare

Central Statistical Organisation (CSO). 1993. *Selected Socio-Economic Statistics for India: 1992.* New Delhi: CSO, Ministry of Planning and Programme Implementation.

Centre for Monitoring Indian Economy. 1992. *Basic Statistics Relating to the Indian Economy, Vol. 2: States.* Bombay: Centre for Monitoring Indian Economy.

Centre for Monitoring Indian Economy. 1994. *Basic Statistics Relating to the Indian Economy.* Bombay: Centre for Monitoring Indian Economy.

Cleland, John, Jane Verrall and Martin Vaessen. 1983. *Preferences for the Sex of Children and Their Influence on Reproductive Behaviour.* WFS Comparative Studies No.27. Voorburg: International Statistical Institute.

Das Gupta, Monica. 1987. Selective discrimination against female children in rural Punjab, India. *Population and Development Review* 13(1):77-101.

Datt, Ruddar and K.P.M. Sundharam. 1995. *Indian Economy.* New Delhi: S. Chand and Company Ltd.

Deolalikar, Anil B. and Prem Vashishtha. 1992. *The Utilization of Government and Private Health Services in India.* Report prepared under the Options Project, the Futures Group, Washington, D.C.

Dibley, M.J., J.B. Goldsby, N.W. Staehling and F.L. Trowbridge. 1987a. Development of normalized curves for the international growth reference: Historical and technical considerations. *American Journal of Clinical Nutrition* 46(5):736-748.

Dibley, M.J., N.W. Staehling, P. Neiburg and F.L. Trowbridge. 1987b. Interpretation of z-score anthropometric indicators derived from the international growth reference. *American Journal of Clinical Nutrition* 46(5):749-762.

Foster, Stanley. 1984. Immunizable and Respiratory Diseases and Child Mortality. In W. Henry Mosley and Lincoln C. Chen (eds.), Child Survival: Strategies for Research. *Population and Development Review*, Supplement to Volume 10.

Ghosh, Shanti. 1987. The female child in India: A struggle for survival. *Bulletin of the Nutrition Foundation of India*, Vol. 8, No. 4.

Government of India. 1946. *Report of the Health Survey and Development Committee.* Volumes I-IV. Delhi: Manager of Publications.

Government of India. 1994. *Economic Survey 1993-94.* New Delhi: Ministry of Finance, Economic Division.

Govindasamy, Pavalavalli, M. Kathryn Stewart, Shea O. Rutstein, J. Ties Boerma and A. Elisabeth Sommerfelt. 1993. *High-risk Births and Maternity Care*. DHS Comparative Studies No. 8. Columbia, Maryland: Macro International.

Goyal, R.P. 1988. *Marriage in India*. Delhi: B.R. Publishing Corporation.

Gupta, J.P. and Indira Murli. 1989. *National Review of Immunization Programme in India*. New Delhi: National Institute of Health and Family Welfare.

Hajnal, John. 1953. Age at marriage and proportions marrying. *Population Studies* 7(2):111-136.

Harrison, Kelsey A. 1990. The political challenge of maternal mortality in the Third World. *Maternal Mortality and Morbidity - A Call to Women for Action*. Special Issue, May 28.

Hobcraft, J., J. McDonald and S. Rutstein. 1983. Child-spacing effects on infant and early child mortality. *Population Index* 49(4):585-618.

Hooja, S.L. 1969. *Dowry System in India, A Case Study*. New Delhi: Asia Press.

Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding. 1990. Adopted by the WHO/UNICEF policymakers' meeting on "Breastfeeding in the 1990s: A Global Initiative", 30 July - 1 August, Innocenti, Florence, Italy.

Jejeebhoy, Shireen J. 1991. Women's Roles: Health and Reproductive Behaviour. Pp. 114-148 in J.K. Satia and Shireen J. Jejeebhoy (eds.), *The Demographic Challenge: A Study of Four Large Indian States*. Bombay: Oxford University Press.

Kanitkar, Tara. 1979. Development of Maternal and Child Health Services in India. In K. Srinivasan, P.C. Saxena and Tara Kanitkar (eds.), *Child in India*. Bombay: Himalaya Publishing House.

Kapadia, K.M. 1966. *Marriage and Family in India*. Calcutta: Oxford University Press.

Khan, M.E., Richard Anker, S.K. Ghosh Dastidar and Sashi Bairathi. 1989. Inequalities Between Men and Women in Nutrition and Family Welfare Services: An In-Depth Enquiry in an Indian Village. Pp. 175-199 in John C. Caldwell and Gigi Santow (eds.), *Selected Readings in Cultural, Social and Behavioural Determinants of Health*. Canberra: Highland Press.

Khlat, Miriam and Muin Khoury. 1991. Inbreeding and diseases: Demographic, genetic, and epidemiologic perspectives. *Epidemiologic Reviews* 13:28-41.

Khurana, Pushpa. 1989. *AIDS - Humanity's Gravest Challenge*. New Delhi: Hind Pocket Books.

Kosambi, D.D. 1981. *The Culture and Civilization of Ancient India in Historical Outline.* New Delhi: Vikas Publishing House.

Lal, Shiv. 1994. HIV Infection in India: Valuable Pointers. *CARC Calling, Bulletin of the Centre for AIDS Research and Control, Bombay,* Vol.7, No. 2.

Lightbourne, Robert E. and Alphonse L. MacDonald. 1982. *Family Size Preferences.* WFS Comparative Studies No.14. Voorburg: International Statistical Institute.

Loaiza, Edilberto. 1995. Sterilization regret in the Dominion Republic: Looking for quality-of-care issues. *Studies in Family Planning* 26(1): 39-48.

MacDonald, Paul C. and Jack A. Pritchard. 1980. *Williams Obstetrics.* Sixteenth Edition. New York: Appleton-Century-Crofts.

Martorell, R. and J.P. Habicht. 1986. Growth in Early Childhood in Developing Countries. Pp. 241-262 in Frank Falkner and J.M. Tanner (eds.), *Human Growth: A Comprehensive Treatise,* Vol. 3. New York: Plenum Press.

Miller, Barbara D. 1981. *The Endangered Sex: Neglect of Female Children in Rural North India.* Ithaca, New York: Cornell University Press.

Ministry of Health and Family Welfare (MOHFW). 1978. *Manual for Health Worker (Female),* Volume 1. New Delhi: MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1989. *Family Welfare Programme in India, Year Book, 1987-88.* New Delhi: Department of Family Welfare, MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1991. *Family Welfare Programme in India, Year Book, 1989-90.* New Delhi: Department of Family Welfare, MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1992a. *Family Welfare Programme in India, Year Book 1990-91.* New Delhi: Department of Family Welfare, MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1992b. *Module for Health Workers.* New Delhi: National Child Survival and Safe Motherhood Programme, MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1993a. *National AIDS Control Programme in India - Country Scenario: An Update.* New Delhi: National AIDS Control Organization, MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1993b. *Annual Report 1992-93.* New Delhi: Department of Family Welfare, MOHFW.

National AIDS Control Organization. 1994: AIDS Update. *CARC Calling, Bulletin of the Centre for AIDS Research and Control, Bombay,* Vol.7, No. 2.

Nutrition Foundation of India. 1993. *NFI Bulletin*, Vol.14, No.4.

Office of the Registrar General. 1982. *Sample Registration System 1970-75*. New Delhi: Office of the Registrar General.

Office of the Registrar General. 1985. *Sample Registration System 1981*. New Delhi: Office of Registrar General.

Office of the Registrar General. 1992. *Sample Registration System 1989*. New Delhi: Office of the Registrar General.

Office of the Registrar General. 1993a. *Sample Registration System: Fertility and Mortality Indicators 1991*. New Delhi: Office of the Registrar General.

Office of the Registrar General. 1993b. *Sample Registration System: Fertility and Mortality Indicators 1990*. New Delhi: Office of the Registrar General.

Office of the Registrar General. 1994. *Sample Registration System: Fertility and Mortality Indicators 1992*. New Delhi: Office of the Registrar General.

Office of the Registrar General and Census Commissioner. 1972. *Census of India, 1971, Series 1, India, Paper 2 of 1972, Religion*. New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 1974. *Census of India, 1971, Series-1, India, Part II-A(ii), Union Primary Census Abstract*. New Delhi: Office of the Registrar General and Censur Commissioner.

Office of the Registrar General and Census Commissioner. 1976. *Census of India, 1971, Series-1, India, Part II-C(ii), Social Cultural Tables*. New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 1983. *Census of India, 1981, Series-1, Part VII-B (ii), The Physically Handicapped: Report and Tables*. New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 1984a. *Census of India, 1981, Series-1, India, Paper-4 of 1984, Household Population by Religion of Head of Household*. New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 1984b. *Census of India, 1981, Series-1, India, Paper-2 of 1984, General Population and Population of Scheduled Castes and Scheduled Tribes*. New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 1984c. *Census of India, 1981, Series-1, India, Paper-5 of 1984, Age Tables Based on 5 Percent Sample Data*. New Delhi; Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 1987. *Census of India, 1981, Series-1, India, Part IV-A(ii), Social Cultural Tables*. New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 1988. *Census of India, 1981, Series-1, Part XII, Census Atlas, National Volume*. New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 1992. *Census of India, 1991, Series-1, India, Paper-2 of 1992, Final Population Totals, Brief Analysis of Primary Census Abstract*. New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 1995. *Census of India, 1991, Series-1, India, Paper 1 of 1995, Religion*. New Delhi: Office of the Registrar General and Census Commissioner.

Operations Research Group. 1990. *Family Planning Practices in India: Third All India Survey*. Baroda: Operations Research Group.

Park, Chai Bin and Nam Hoon Cho. 1995. Consequences of son preference in a low fertility society: Imbalance of the sex ratio at birth in Korea. *Population and Development Review* 21:59-84

Park, J.E. and K. Park. 1989. *Textbook of Preventive and Social Medicine*. Twelfth Edition. Jabalpur: M/S Banarsidas Bhanot Publishers.

Population Reference Bureau. 1994. *World Population Data Sheet 1994*. Population Reference Bureau, Washington, D.C.

Population Research Centre, CRRID. 1993. *People's Perception and Reproductive Behaviour in North West India: An Interdisciplinary Field Study of Eight Districts in Haryana, Himachal Pradesh and Uttar Pradesh*. Chandigarh: Centre for Research in Rural and Industrial Development.

Prabhu, P.H. 1963. *Hindu Social Organization*, Fourth Edition. Bombay: Popular Prakashan.

Premi, Mahendra K. 1991. *India's Population: Heading Towards a Billion - An Analysis of 1991 Census Provisional Results*. New Delhi: B.R. Publishing Corporation.

Preston, Samuel H. 1990. Mortality in India. Pp. 81-86 in International Union for the Scientific Study of Population (IUSSP), *International Population Conference, New Delhi, 1989*, Vol. 4. Liege: IUSSP.

Ramachandran, Prema. 1992. Need of organization of antenatal and intrapartum care in India. *Demography India* 21(2): 179-193.

Rao, P.S.S. and S.G. Inbaraj. 1977. Inbreeding in Tamil Nadu, South India. *Social Biology* 24:281-288.

Rao, P.S.S., S.G. Inbaraj and G. Jesudian. 1972. Rural-urban differentials in consanguinity. *Journal of Medical Genetics* 9:174-178.

Rastogi, S.R. and Raj Kumari. 1988. *Study of Family Welfare and MCH Programme in Azamgarh District*. Lucknow: Population Research Centre, Lucknow University.

Rastogi, S.R. and Raj Kumari. 1992. Son Preference and Effectiveness of the Family Welfare Programme in Uttar Pradesh. Pp. 165-179 in R.N. Patil (ed.), *Health, Environment and Population*. New Delhi: Ashish Publishing House.

Renou, Louis. 1959. *The Civilization of Ancient India*. Calcutta: Susil Gupta (India) Private Ltd.

Roberts, P.E. 1967. *History of British India*. London: Oxford University Press.

Roychoudhury, A.K. 1976. Incidence of inbreeding in different states of India. *Demography India* 5:108-119.

Rutstein, Shea Oscar. 1984. *Infant and Child Mortality: Levels, Trends, and Demographic Differentials*. Revised edition. WFS Comparative Studies No. 43. Voorburg: International Statistical Institute.

Rutstein, Shea Oscar and George T. Bicego. 1990. Assessment of the Quality of Data Used to Ascertain Eligibility and Age in the Demographic and Health Surveys. In *An Assessment of DHS-I Data Quality*. DHS Methodological Reports No.1. Columbia, Maryland: Institute for Resource Development/Macro Systems Inc.

Sanghvi, L.D. 1966. Inbreeding in India. *Eugenics Quarterly* 13:291-301.

Shryock, Henry S. and Jacob S. Siegel. 1980. *The Methods and Materials of Demography*, Volume 1 (fourth edition, revised). Washington, D.C.: U.S. Bureau of the Census.

Sommerfelt, A. Elisabeth and M. Kathryn Stewart. 1994. *Children's Nutritional Status*. DHS Comparative Studies No. 12. Calverton, Maryland: Macro International.

Stempbridge, H. Jasper. 1963. *The World: A General Regional Geography*. London: Oxford University Press.

Sullivan, Jeremiah M., Shea Oscar Rutstein, and George T. Bicego. 1994. *Infant and Child Mortality*. DHS Comparative Studies No. 15. Calverton, Maryland: Macro International.

Thorthwaite, C.W. 1933. The climates of the earth. *Geographic Review* 33:433-440.

United Nations. 1955. *Methods of Appraisal of Quality of Basic Data for Population Estimates*. New York: United Nations.

United Nations. 1986. *How to Weigh and Measure Children: Assessing the Nutritional Status of Young Children in Household Surveys*. Department of Technical Co-operation for Development and Statistical Office, United Nations. New York: United Nations.

United Nations Secretariat. 1988. Sex differentials in survivorship in the developing world: Levels, regional patterns and demographic determinants. *Population Bulletin of the United Nations* 25:51-64.

Verma, Ravi K., T.K. Roy and P.C. Saxena. 1994. *Quality of Family Welfare Services and Care in Selected Indian States*. Bombay: International Institute for Population Sciences.

Westoff, Charles F. and Luis Hernando Ochoa. 1991. *Unmet Need and the Demand for Family Planning*. DHS Comparative Studies No.5. Columbia, Maryland: Macro International.

World Health Organization. 1991a. *Maternal Mortality: A Global Factbook*. Geneva: World Health Organization.

World Health Organization. 1991b. *Indicators for Assessing Breast-feeding Practices: Report of an Informal Meeting*, 11-12 June, Geneva. Geneva: World Health Organization.

World Health Organization. 1992. *AIDS in Africa: A Manual for Physicians*. Geneva: World Health Organization.

World Health Organization. 1994a. *Care of Mother and Baby at the Health Centre: A Practical Guide*. Geneva: Maternal Health and Safe Motherhood Programme, Division of Family Health.

World Health Organization. 1994b. *Global AIDS News: The Newsletter of the World Health Organization Global Programme on AIDS*, No. 3.

World Health Organization and UNICEF. 1978. *Primary Health Care: Report of the International Conference on Primary Health Care, Alma Ata, USSR, 6-12 September 1978*. Geneva: World Health Organization.

World Health Organization-UNICEF. 1992. *Low Birth Weight: A Tabulation of Available Information*. Geneva: World Health Organization.

APPENDIX A

POPULATION RESEARCH CENTRES AND CONSULTING ORGANIZATIONS INVOLVED IN THE NFHS FIELDWORK

State	Population Research Centre (PRC)	Consulting Organization
Andhra Pradesh	PRC, Andhra University, Visakhapatnam	Administrative Staff College of India, Hyderabad
Assam	PRC, Gauhati University, Guwahati	MODE Research Private Limited, Calcutta
Arunachal Pradesh[1]	--	MODE Research Private Limited, Calcutta
Bihar	PRC, Patna University, Patna	Centre for Development Research and Training, Madras
Delhi	PRC, Institute of Economic Growth, Delhi	VIMARSH, The Consultancy Group, New Delhi
Goa	PRC, J.S.S. Institute of Economic Research, Dharwad, Karnataka	Centre for Management of Development Programmes, Hyderabad
Gujarat	PRC, Faculty of Science, M.S. University of Baroda, Vadodara	Indian Institute of Health Management Research, Jaipur
Haryana	PRC, Panjab University, Chandigarh	Centre for Research in Rural and Industrial Development, Chandigarh
Himachal Pradesh	PRC, Himachal Pradesh University, Shimla	Centre for Research in Rural and Industrial Development, Chandigarh
Jammu	PRC, Kashmir University, Srinagar	Centre for Research in Rural and Industrial Development, Chandigarh
Karnataka	PRC, Institute for Social and Economic Change, Bangalore	Centre for Development Research and Training, Madras
Kerala	PRC, Kerala University, Thiruvananthapuram	Centre for Development Research and Training, Madras

State	Population Research Centre (PRC)	Consulting Organization
Madhya Pradesh	PRC, Directorate of Economics and Statistics, Government of Madhya Pradesh, Bhopal	VIMARSH, The Consultancy Group, New Delhi
Maharashtra	PRC, Gokhale Institute of Politics and Economics, Pune	Centre for Management of Development Programmes, Hyderabad
Manipur[1]	--	MODE Research Private Limited, Calcutta
Meghalaya[1]	--	MODE Research Private Limited, Calcutta
Mizoram[1]	--	MODE Research Private Limited, Calcutta
Nagaland[1]	--	MODE Research Private Limited, Calcutta
Orissa	PRC, Utkal University, Bhubaneswar	Centre for Management of Development Programmes, Hyderabad
Punjab	PRC, Centre for Research in Rural and Industrial Development, Chandigarh	Centre for Research in Rural and Industrial Development, Chandigarh
Rajasthan	PRC, Mohanlal Sukhadia University, Udaipur	Indian Institute of Health Management Research, Jaipur
Tamil Nadu	PRC, The Gandhigram Institute of Rural Health and Family Welfare Trust, Ambathurai R.S., Tamil Nadu	Centre for Development Research and Training, Madras
Tripura[1]	--	MODE Research Private Limited, Calcutta
Uttar Pradesh	PRC, Lucknow University, Lucknow	VIMARSH, The Consultancy Group, New Delhi
West Bengal[1]	--	MODE Research Private Limited, Calcutta

[1]No PRCs were involved in the fieldwork in these states.

APPENDIX B

SAMPLE DESIGN FOR THE STATES

The basic sample design for the NFHS is described in Chapter 2 and more detailed information about the sample design in each state is contained in the individual state reports for the NFHS. Table B.1 summarizes the basic elements of the sample design in each state, including the target and achieved sample size, the number of area units selected, the variables used for rural stratification, and whether the sample is self-weighting. For India as a whole, the target sample size of 85,500 women was exceeded by 5 percent. A total of 1,405 urban area units and 2,117 rural area units were selected for the sample. The samples are self-weighting in 16 of the 25 states. In rural areas, the samples were stratified according to a variety of variables in each state, including regions, village size, geographic location, distance to the nearest town, female literacy, and the proportion of the population belonging to Scheduled Castes and Scheduled Tribes.

Table B.1 Sample characteristics

STATE	1991 POPULATION	TARGET SAMPLE OF WOMEN	ACHIEVED SAMPLE OF WOMEN	SELF-WEIGHTING	VARIABLES FOR RURAL STRATIFICATION	NUMBER OF AREA UNITS SELECTED	
Andhra Pradesh	66,508,008	4,000	4,276	Yes	Regions Distance from nearest town Village size Female literacy (implicit)	Urban: Rural:	58 100
Arunachal Pradesh	864,558	1,000	882	Yes	Regions Village size Geographic location	Urban: Rural:	8 56
Assam	22,414,322	3,000	3,006	No	Regions Village size Female literacy (implicit)	Urban: Rural:	50 68
Bihar[1]	86,374,465	5,550	5,949	No	Regions Proportion of SC/ST Village size Geographic location/female literacy (implicit)	Urban: Rural:	51 134
Goa	1,169,793	3,000	3,141	Yes	Village size Geographic location Female literacy (implicit)	Urban: Rural:	63 90
Gujarat	41,309,582	4,000	3,832	Yes	Regions Female literacy Proportion of SC/ST Village size (implicit)	Urban: Rural:	68 76
Haryana	16,463,648	3,000	2,846	No	Regions Village size Female literacy (implicit)	Urban: Rural:	50 68

Table B.1 Sample characteristics (Contd.)

STATE	1991 POPULATION	TARGET SAMPLE OF WOMEN	ACHIEVED SAMPLE OF WOMEN	SELF-WEIGHTING	VARIABLES FOR RURAL STRATIFICATION	NUMBER OF AREA UNITS SELECTED	
Himachal Pradesh	5,170,877	3,000	2,962	No	Regions Distance from nearest town Village size Female literacy (implicit)	Urban: Rural:	46 80
Jammu	3,504,290	3,000	2,766	No	Geographic location	Urban: Rural:	50 68
Karnataka	44,977,201	4,000	4,413	Yes	Regions Village size Distance from nearest town Female literacy (implicit)	Urban: Rural:	68 84
Kerala	29,098,518	4,000	4,332	Yes	Proportion of non- agricultutal workers Geographic location Village size (implicit)	Urban: Rural:	58 74
Madhya Pradesh[1]	66,181,170	6,400	6,254	No	Regions Village size Distance from nearest town Female literacy (implicit)	Urban: Rural:	76 168
Maharashtra	78,937,187	4,000	4,106	Yes	Regions Village size Distance from nearest town Proportion of SC/ST Female literacy (implicit)	Urban: Rural:	78 81
Manipur	1,837,149	1,000	953	Yes	Regions Village size Geographic location	Urban: Rural:	20 50

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Table B.1 Sample characteristics (Contd.)

STATE	1991 POPULATION	TARGET SAMPLE OF WOMEN	ACHIEVED SAMPLE OF WOMEN	SELF-WEIGHTING	VARIABLES FOR RURAL STRATIFICATION	NUMBER OF AREA UNITS SELECTED	
Meghalaya	1,774,778	1,000	1,137	Yes	Regions Village size Geographic location	Urban: Rural:	12 52
Mizoram	689,756	1,000	1,045	Yes	Regions Village size Geographic location	Urban: Rural:	30 34
Nagaland	1,209,546	1,000	1,149	Yes	Regions Village size Geographic location	Urban: Rural:	12 52
Orissa	31,659,736	4,000	4,257	No	Regions Proportion of SC/ST Village size Female literacy Geographic location (implicit)	Urban: Rural:	50 94
Punjab	20,281,969	3,000	2,995	Yes	Regions Village size Proportion of SC/ST (implicit)	Urban: Rural:	44 66
Rajasthan[1]	44,005,992	4,750	5,211	Yes	Regions Village size Distance from nearest town Proportion of SC/ST Geographic location (implicit)	Urban: Rural:	54 114
Tamil Nadu	55,858,946	4,000	3,948	Yes	Regions Village size Female literacy (implicit)	Urban: Rural:	74 100

Table B.1   Sample characteristics (Contd.)

STATE	1991 POPULATION	TARGET SAMPLE OF WOMEN	ACHIEVED SAMPLE OF WOMEN	SELF-WEIGHTING	VARIABLES FOR RURAL STRATIFICATION	NUMBER OF AREA UNITS SELECTED	
Tripura	2,757,205	1,000	1,100	Yes	Regions Village size Geographic location	Urban: Rural:	10 46
Uttar Pradesh[1]	139,112,287	9,800	11,438	No	Regions Backward/Non-backward districts Village size Distance from nearest town Female literacy (implicit)	Urban: Rural:	96 242
West Bengal[1]	68,077,965	4,000	4,322	No	Regions Female literacy (implicit)	Urban: Rural:	54 110
Delhi	9,420,644	3,000	3,457	Yes	Geographic location	Urban: Rural:	225 10

SC = Scheduled Caste
ST = Scheduled Tribe
[1]Has grouped backward districts.

APPENDIX C

ESTIMATES OF SAMPLING ERRORS

The estimates from a sample survey are affected by two types of errors: (1) nonsampling errors and (2) sampling errors. Nonsampling errors are the result of errors committed in implementing 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 the NFHS 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 the NFHS 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 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 the NFHS is the ISSA Sampling Error Module (ISSAS). This module uses the linear Taylor series approximation method for variance estimation, known as the CLUSTERS model, for survey estimates of means, proportions and ratios. The JACKKNIFE repeated replication method is used for variance estimation for more complex statistics such as fertility and mortality rates.

The ISSAS 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 or r is computed using the formula given below, with the standard error being the square root of the variance:

$$var(r) = \frac{1-f}{x^2} \sum_{h=1}^{H} \left[\frac{m_h}{m_h - 1} \left(\sum_{i=1}^{m_h} z_{hi}^2 - \frac{z_h^2}{m_h} \right) \right]$$

in which

$$z_{hi} = y_{hi} - r x_{hi}$$

$$z_h = y_h - r x_h$$

where

h	represents the stratum which varies from 1 to H,
m_h	is the total number of PSUs selected in the hth stratum,
y_{hi}	is the sum of the values of variable y in PSU i in the hth stratum,
x_{hi}	is the sum of number of cases in PSU i in the hth stratum, and
f	is the overall sampling fraction, which is so small that ISSAS ignores it.

In addition to the standard error, ISSAS 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. ISSAS also computes the relative error and confidence limits for the estimates.

Sampling errors for the NFHS are calculated for selected variables considered to be of primary interest. The results are presented in this appendix for the country as a whole and for urban and rural areas separately. 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 number of unweighted (N) and weighted (WN) cases, the standard error assuming a simple random sample (SER), the design effect (DEFT), the relative standard error (SE/R), and the 95 percent confidence limits (R±2SE), for each variable.

VARIABLE	ESTIMATE	BASE POPULATION
Sex ratio	Ratio	Household *de facto* population
Illiterate	Proportion	Household *de facto* population age 6 and older
Different sources of drinking water	Proportion	Households
Illiterate	Proportion	Ever-married women 13-49
With secondary education or higher	Proportion	Ever-married women 13-49
Currently married	Proportion	Ever-married women 13-49
Children ever born	Mean	Ever-married women 13-49
Children surviving	Mean	Ever-married women 13-49
Know at least one contraceptive method	Proportion	Currently married women 13-49
Know source for any modern method	Proportion	Currently married women 13-49
Have ever used any method	Proportion	Currently married women 13-49
Currently using any method	Proportion	Currently married women 13-49
Currently using any modern method	Proportion	Currently married women 13-49
Currently using pills	Proportion	Currently married women 13-49
Currently using Copper T/IUD	Proportion	Currently married women 13-49
Currently using injections	Proportion	Currently married women 13-49
Currently using condoms	Proportion	Currently married women 13-49
Currently using female sterilization	Proportion	Currently married women 13-49
Currently using male sterilization	Proportion	Currently married women 13-49
Currently using periodic abstinence	Proportion	Currently married women 13-49
Using public source for modern method	Proportion	Current users of modern methods
Do not want any more children	Proportion	Currently married women 13-49
Want to delay birth at least 2 years	Proportion	Currently married women 13-49
Ideal number of children	Mean	Ever-married women 13-49
Ideal number of sons	Mean	Ever-married women 13-49
Ideal number of daughters	Mean	Ever-married women 13-49
Received no antenatal care	Proportion	Births in the last 4 years
Received tetanus toxoid (2 doses)	Proportion	Births in the last 4 years
Received medical assistance at delivery	Proportion	Births in the last 4 years
Had diarrhoea in the last 24 hours	Proportion	Children under 4 years old
Had diarrhoea in the last 2 weeks	Proportion	Children under 4 years old
Treated with ORS packets	Proportion	Children under 4 with diarrhoea in last 2 weeks
Consulted medical personnel for diarrhoea	Proportion	Children under 4 with diarrhoea in last 2 weeks
Showing 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
Fertility rates	Rate	All women, population
Mortality rates	Rate	Births, population

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Table C.2 Sampling errors, India, 1992-93

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)	Relati error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
SEX RATIO (Household *de facto* population)									
Urban	932	6.3	79102	67833	3.860	1.641	0.007	919.8	945.1
Rural	966	3.6	171165	185052	2.614	1.366	0.004	959.1	973.4
Total	957	3.1	250267	252885	2.162	1.441	0.003	950.9	943.4
ILLITERATE (Household *de facto* population, age 6 and over)									
Urban	0.239	0.006	132992	113717	0.002	3.109	0.024	0.228	0.251
Rural	0.511	0.003	284089	305111	0.001	2.249	0.006	0.504	0.517
Total	0.437	0.003	417081	418828	0.001	2.432	0.007	0.431	0.443
PIPED WATER AS SOURCE OF DRINKING WATER (Households)									
Urban	0.695	0.009	28822	24424	0.003	3.454	0.013	0.677	0.714
Rural	0.193	0.006	59740	64138	0.002	3.844	0.032	0.180	0.205
Total	0.331	0.005	88562	88562	0.002	3.393	0.016	0.321	0.342
PUMPED WATER AS SOURCE OF DRINKING WATER (Households)									
Urban	0.181	0.006	28822	24424	0.002	2.817	0.035	0.168	0.194
Rural	0.416	0.006	59740	64138	0.002	3.176	0.015	0.403	0.429
Total	0.351	0.005	88562	88562	0.002	3.113	0.014	0.341	0.361
WELL WATER AS SOURCE OF DRINKING WATER (Households)									
Urban	0.092	0.006	28822	24424	0.002	3.258	0.060	0.081	0.103
Rural	0.321	0.007	59740	64138	0.002	3.489	0.021	0.307	0.334
Total	0.258	0.005	88562	88562	0.001	3.481	0.020	0.248	0.268
SURFACE WATER AS SOURCE OF DRINKING WATER (Households)									
Urban	0.010	0.002	28822	24424	0.001	3.445	0.207	0.006	0.013
Rural	0.051	0.003	59740	64138	0.001	3.644	0.065	0.044	0.057
Total	0.039	0.002	88562	88562	0.001	3.730	0.062	0.034	0.044
OTHER SOURCE OF DRINKING WATER (Households)									
Urban	0.022	0.003	28822	24424	0.001	3.446	0.136	0.016	0.028
Rural	0.020	0.001	59740	64138	0.001	2.047	0.059	0.018	0.022
Total	0.020	0.001	88562	88562	0.000	2.476	0.058	0.018	0.023
ILLITERATE (Ever-married women age 13-49)									
Urban	0.368	0.009	27534	23455	0.003	3.028	0.024	0.350	0.386
Rural	0.724	0.004	62243	66322	0.002	2.043	0.005	0.717	0.731
Total	0.631	0.004	89777	89777	0.002	2.324	0.006	0.624	0.639
WITH SECONDARY EDUCATION OR MORE (Ever-married women age 13-49)									
Urban	0.284	0.009	27534	23455	0.003	3.200	0.031	0.267	0.302
Rural	0.052	0.002	62243	66322	0.001	1.876	0.032	0.049	0.056
Total	0.113	0.003	89777	89777	0.001	2.533	0.024	0.108	0.118
CURRENTLY MARRIED (Ever-married women age 13-49)									
Urban	0.941	0.002	27534	23455	0.001	1.438	0.002	0.937	0.945
Rural	0.944	0.001	62243	66322	0.001	1.334	0.001	0.941	0.946
Total	0.943	0.001	89777	89777	0.001	1.365	0.001	0.941	0.945
MEAN NUMBER OF CHILDREN EVER BORN (Ever-married women age 13-49)									
Urban	2.842	0.023	27534	23455	0.012	1.855	0.008	2.796	2.888
Rural	3.174	0.014	62243	66322	0.009	1.473	0.004	3.147	3.202
Total	3.088	0.012	89777	89777	0.008	1.566	0.004	3.064	3.111

Table C.2 Sampling errors, India, 1992-93 (Contd.)

| Variable/residence | Value (R) | Standard error (SE) | Number of cases | | Standard error assuming SRS (SER) | Design effect (DEFT) | Relative error (SE/R) | Confidence limits | |
			Unweighted (N)	Weighted (WN)				R-2SE	R+2SE
MEAN NUMBER OF CHILDREN SURVIVING (Ever-married women age 13-49)									
Urban	2.546	0.019	27534	23455	0.011	1.730	0.007	2.509	2.583
Rural	2.651	0.011	62243	66322	0.008	1.378	0.004	2.630	2.672
Total	2.624	0.009	89777	89777	0.006	1.464	0.004	2.605	2.642
KNOW AT LEAST ONE CONTRACEPTIVE METHOD (Currently married women age 13-49)									
Urban	0.987	0.001	25904	22077	0.001	1.309	0.001	0.985	0.989
Rural	0.947	0.002	58654	62601	0.001	2.071	0.002	0.943	0.951
Total	0.958	0.001	84558	84678	0.001	2.073	0.001	0.955	0.960
KNOW SOURCE FOR ANY MODERN METHOD (Currently married women age 13-49)									
Urban	0.955	0.002	25904	22077	0.001	1.667	0.002	0.950	0.959
Rural	0.865	0.003	58654	62601	0.001	2.431	0.004	0.858	0.872
Total	0.888	0.003	84558	84678	0.001	2.413	0.003	0.883	0.894
HAVE EVER USED ANY METHOD (Currently married women age 13-49)									
Urban	0.594	0.005	25904	22077	0.003	1.763	0.009	0.583	0.605
Rural	0.425	0.004	58654	62601	0.002	1.898	0.009	0.418	0.433
Total	0.469	0.003	84558	84678	0.002	1.913	0.007	0.463	0.476
CURRENTLY USING ANY METHOD (Currently married women age 13-49)									
Urban	0.510	0.005	25904	22077	0.003	1.676	0.010	0.500	0.521
Rural	0.369	0.004	58654	62601	0.002	1.849	0.010	0.362	0.376
Total	0.406	0.003	84558	84678	0.002	1.837	0.008	0.400	0.412
CURRENTLY USING ANY MODERN METHOD (Currently married women age 13-49)									
Urban	0.453	0.005	25904	22077	0.003	1.514	0.010	0.443	0.462
Rural	0.331	0.004	58654	62601	0.002	1.840	0.011	0.324	0.339
Total	0.363	0.003	84558	84678	0.002	1.786	0.008	0.357	0.369
CURRENTLY USING PILLS (Currently married women age 13-49)									
Urban	0.019	0.001	25904	22077	0.001	1.451	0.064	0.017	0.022
Rural	0.009	0.000	58654	62601	0.000	1.247	0.053	0.008	0.010
Total	0.012	0.000	84558	84678	0.000	1.312	0.041	0.011	0.013
CURRENTLY USING COPPER T/IUD (Currently married women age 13-49)									
Urban	0.039	0.002	25904	22077	0.001	1.418	0.044	0.036	0.043
Rural	0.012	0.001	58654	62601	0.000	1.201	0.046	0.011	0.013
Total	0.019	0.001	84558	84678	0.000	1.293	0.032	0.018	0.020
CURRENTLY USING CONDOM (Currently married women age 13-49)									
Urban	0.058	0.002	25904	22077	0.001	1.421	0.036	0.054	0.062
Rural	0.012	0.001	58654	62601	0.000	1.269	0.047	0.011	0.014
Total	0.024	0.001	84558	84678	0.001	1.325	0.029	0.023	0.026
CURRENTLY USING FEMALE STERILIZATION (Currently married women age 13-49)									
Urban	0.304	0.004	25904	22077	0.003	1.534	0.014	0.295	0.312
Rural	0.263	0.003	58654	62601	0.002	1.820	0.013	0.256	0.269
Total	0.273	0.003	84558	84678	0.002	1.766	0.010	0.268	0.279
CURRENTLY USING MALE STERILIZATION (Currently married women age 13-49)									
Urban	0.032	0.001	25904	22077	0.001	1.315	0.045	0.029	0.035
Rural	0.035	0.001	58654	62601	0.001	1.912	0.041	0.032	0.038
Total	0.034	0.001	84558	84678	0.001	1.817	0.033	0.032	0.037

Table C.2 Sampling errors, India, 1992-93 (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 error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
CURRENTLY USING PERIODIC ABSTINENCE (Currently married women age 13-49)									
Urban	0.035	0.002	25904	22077	0.001	1.906	0.062	0.030	0.039
Rural	0.023	0.001	58654	62601	0.001	1.352	0.036	0.022	0.025
Total	0.026	0.001	84558	84678	0.001	1.534	0.032	0.025	0.028
USING PUBLIC SOURCE FOR MODERN METHOD (Current users of modern methods)									
Urban	0.624	0.008	11999	9992	0.004	1.880	0.013	0.608	0.641
Rural	0.870	0.004	19796	20750	0.002	1.715	0.005	0.861	0.878
Total	0.790	0.004	31795	30741	0.002	1.798	0.005	0.782	0.798
DO NOT WANT ANY MORE CHILDREN (Currently married women age 13-49)									
Urban	0.308	0.005	25904	22077	0.003	1.592	0.015	0.298	0.317
Rural	0.242	0.003	58654	62601	0.002	1.514	0.011	0.236	0.247
Total	0.259	0.002	84558	84678	0.002	1.541	0.009	0.254	0.264
WANT TO DELAY BIRTH AT LEAST TWO YEARS (Currently married women age 13-49)									
Urban	0.160	0.003	25904	22077	0.002	1.304	0.019	0.154	0.166
Rural	0.209	0.002	58654	62601	0.002	1.383	0.011	0.204	0.214
Total	0.196	0.002	84558	84678	0.001	1.384	0.010	0.193	0.200
IDEAL NUMBER OF CHILDREN (Ever-married women age 13-49)									
Urban	2.516	0.015	25779	21804	0.006	2.412	0.006	2.486	2.546
Rural	2.991	0.010	55878	58909	0.005	1.938	0.003	2.972	3.010
Total	2.862	0.008	81657	80713	0.004	2.045	0.003	2.846	2.879
IDEAL NUMBER OF SONS (Ever-married women age 13-49)									
Urban	1.231	0.012	25720	21738	0.005	2.245	0.010	1.207	1.255
Rural	1.682	0.007	55744	58748	0.004	1.879	0.004	1.667	1.696
Total	1.560	0.006	81464	80486	0.003	1.978	0.004	1.547	1.573
IDEAL NUMBER OF DAUGHTERS (Ever-married women age 13-49)									
Urban	0.912	0.008	25719	21737	0.004	1.921	0.008	0.897	0.927
Rural	1.105	0.005	55742	58745	0.003	1.763	0.004	1.096	1.115
Total	1.053	0.004	81461	80482	0.002	1.803	0.004	1.045	1.061
RECEIVED NO ANTENATAL CARE (Births in last 4 years)									
Urban	0.178	0.007	13032	11242	0.004	1.708	0.038	0.164	0.191
Rural	0.424	0.006	35336	38128	0.003	1.989	0.014	0.412	0.436
Total	0.368	0.005	48368	49369	0.003	1.989	0.014	0.358	0.378
RECEIVED TETANUS TOXOID (2 DOSES) (Births in last 4 years)									
Urban	0.744	0.008	13032	11242	0.004	1.740	0.010	0.728	0.759
Rural	0.477	0.006	35336	38128	0.003	1.931	0.012	0.465	0.489
Total	0.538	0.005	48368	49369	0.003	1.923	0.009	0.528	0.548
RECEIVED MEDICAL ASSISTANCE AT DELIVERY (Births in last 4 years)									
Urban	0.653	0.009	13032	11242	0.005	1.761	0.013	0.636	0.671
Rural	0.250	0.004	35336	38128	0.003	1.686	0.018	0.241	0.259
Total	0.342	0.004	48368	49369	0.002	1.717	0.012	0.333	0.350
HAD DIARRHOEA IN THE LAST 24 HOURS (Children under 4 years old)									
Urban	0.040	0.002	12311	10611	0.002	1.335	0.059	0.036	0.045
Rural	0.050	0.002	32399	34752	0.001	1.296	0.032	0.047	0.054
Total	0.048	0.001	44710	45363	0.001	1.316	0.028	0.045	0.051

Table C.2 Sampling errors, India, 1992-93 (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 error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
HAD DIARRHOEA IN THE LAST 2 WEEKS (Children under 4 years old)									
Urban	0.088	0.003	12311	10611	0.003	1.317	0.039	0.081	0.095
Rural	0.104	0.002	32399	34752	0.002	1.369	0.023	0.100	0.109
Total	0.100	0.002	44710	45363	0.001	1.375	0.020	0.097	0.104
TREATED WITH ORS PACKETS (Children with diarrhoea in the last 2 weeks)									
Urban	0.169	0.014	1200	932	0.012	1.195	0.082	0.141	0.196
Rural	0.177	0.008	3607	3626	0.007	1.246	0.047	0.160	0.194
Total	0.175	0.007	4807	4558	0.006	1.253	0.041	0.161	0.190
CONSULTED MEDICAL PERSONNEL FOR DIARRHOEA (Children with diarrhoea in the last 2 weeks)									
Urban	0.687	0.019	1200	932	0.014	1.310	0.027	0.650	0.724
Rural	0.593	0.011	3607	3626	0.009	1.302	0.019	0.570	0.615
Total	0.612	0.010	4807	4558	0.007	1.318	0.016	0.593	0.631
SHOWING VACCINATION CARD (Children age 12-23 months)									
Urban	0.378	0.013	3176	2715	0.009	1.558	0.035	0.351	0.405
Rural	0.285	0.007	8426	9138	0.005	1.387	0.024	0.271	0.298
Total	0.306	0.006	11602	11853	0.004	1.430	0.020	0.294	0.318
RECEIVED BCG VACCINATION (Children age 12-23 months)									
Urban	0.776	0.011	3176	2715	0.007	1.474	0.014	0.754	0.798
Rural	0.576	0.008	8426	9138	0.005	1.475	0.014	0.561	0.592
Total	0.622	0.007	11602	11853	0.004	1.478	0.011	0.609	0.635
RECEIVED DPT VACCINATION (3 DOSES) (Children age 12-23 months)									
Urban	0.688	0.012	3176	2715	0.008	1.491	0.018	0.663	0.712
Rural	0.466	0.008	8426	9138	0.005	1.391	0.016	0.451	0.481
Total	0.517	0.006	11602	11853	0.005	1.404	0.013	0.504	0.530
RECEIVED POLIO VACCINATION (3 DOSES) (Children age 12-23 months)									
Urban	0.702	0.012	3176	2715	0.008	1.439	0.017	0.679	0.726
Rural	0.484	0.008	8426	9138	0.005	1.406	0.016	0.469	0.499
Total	0.534	0.006	11602	11853	0.005	1.410	0.012	0.521	0.547
RECEIVED MEASLES VACCINATION (Children age 12-23 months)									
Urban	0.575	0.013	3176	2715	0.009	1.450	0.022	0.549	0.600
Rural	0.377	0.007	8426	9138	0.005	1.356	0.019	0.362	0.391
Total	0.422	0.006	11602	11853	0.005	1.367	0.015	0.410	0.434
FULLY VACCINATED (Children age 12-23 months)									
Urban	0.507	0.013	3176	2715	0.009	1.430	0.025	0.482	0.533
Rural	0.309	0.007	8426	9138	0.005	1.373	0.022	0.295	0.323
Total	0.354	0.006	11602	11853	0.004	1.374	0.017	0.342	0.367

Table C.2 Sampling errors, India, 1992-93 (Contd.)

Variable/residence	Value (R)	Standard error (SE)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
TOTAL FERTILITY RATE (Women age 15-49)					
Urban	2.698	0.039	0.015	2.620	2.777
Rural	3.671	0.039	0.011	3.594	3.749
Total	3.391	0.030	0.009	3.330	3.451
TOTAL FERTILITY RATE (Women age 15-44)					
Urban	2.679	0.038	0.014	2.603	2.755
Rural	3.642	0.038	0.010	3.567	3.718
Total	3.364	0.029	0.009	3.306	3.423
AGE-SPECIFIC FERTILITY RATE (Age group 15-19)					
Urban	0.075	0.002	0.029	0.071	0.080
Rural	0.131	0.002	0.014	0.127	0.135
Total	0.116	0.001	0.013	0.113	0.119
AGE-SPECIFIC FERTILITY RATE (Age group 20-24)					
Urban	0.203	0.003	0.017	0.196	0.210
Rural	0.243	0.002	0.010	0.238	0.248
Total	0.231	0.002	0.009	0.227	0.235
AGE-SPECIFIC FERTILITY RATE (Age group 25-29)					
Urban	0.154	0.004	0.024	0.147	0.162
Rural	0.177	0.003	0.017	0.171	0.183
Total	0.170	0.002	0.014	0.166	0.175
AGE-SPECIFIC FERTILITY RATE (Age group 30-34)					
Urban	0.071	0.003	0.044	0.065	0.077
Rural	0.108	0.003	0.027	0.102	0.113
Total	0.097	0.002	0.023	0.092	0.101
AGE-SPECIFIC FERTILITY RATE (Age group 35-39)					
Urban	0.027	0.002	0.077	0.023	0.031
Rural	0.051	0.002	0.043	0.047	0.056
Total	0.044	0.002	0.039	0.040	0.047
AGE-SPECIFIC FERTILITY RATE (Age group 40-44)					
Urban	0.006	0.001	0.168	0.004	0.008
Rural	0.019	0.001	0.072	0.016	0.022
Total	0.015	0.001	0.068	0.013	0.017
AGE-SPECIFIC FERTILITY RATE (Age group 45-49)					
Urban	0.004	0.001	0.328	0.001	0.006
Rural	0.006	0.001	0.153	0.004	0.008
Total	0.005	0.001	0.139	0.004	0.007
NEONATAL MORTALITY (5-year period preceding survey)					
Urban	34.139	1.916	0.056	30.307	37.970
Rural	52.859	1.478	0.028	49.904	55.814
Total	48.617	1.243	0.026	46.132	51.103
INFANT MORTALITY $_1q_0$ (5-year period preceding survey)					
Urban	56.148	2.544	0.045	51.061	61.236
Rural	85.040	1.837	0.022	81.366	88.714
Total	78.492	1.571	0.020	75.351	81.634

Table C.2 Sampling errors, India, 1992-93 (Contd.)

Variable/residence	Value (R)	Standard error (SE)	Relative error (SE/R)	Confidence limits R-2SE	R+2SE
CHILD MORTALITY $_4q_1$ (5-year period preceding survey)					
Urban	19.556	1.692	0.087	16.171	22.941
Rural	37.594	1.250	0.033	35.094	40.095
Total	33.407	1.048	0.031	31.311	35.504
UNDER-FIVE MORTALITY $_5q_0$ (5-year period preceding survey)					
Urban	74.606	3.077	0.041	68.453	80.760
Rural	119.437	2.233	0.019	114.971	123.903
Total	109.278	1.922	0.018	105.433	113.122
CRUDE BIRTH RATE (Based on Household Questionnaire)					
Urban	23.562	0.401	0.017	22.760	24.364
Rural	29.641	0.285	0.010	29.072	30.210
Total	28.047	0.245	0.009	27.557	28.537
CRUDE DEATH RATE (Based on Household Questionnaire)					
Urban	7.634	0.225	0.030	7.184	8.084
Rural	10.418	0.169	0.016	10.079	10.757
Total	9.688	0.142	0.015	9.404	9.972
CRUDE RATE OF NATURAL INCREASE (Based on Household Questionnaire)					
Urban	15.928	0.438	0.028	15.052	16.804
Rural	19.223	0.284	0.015	18.654	19.792
Total	18.359	0.242	0.013	17.875	18.843
CRUDE BIRTH RATE (Based on birth history)					
Urban	24.126	0.321	0.013	23.485	24.768
Rural	30.371	0.255	0.008	29.862	30.880
Total	28.656	0.205	0.007	28.246	29.066
MATERNAL MORTALITY RATE (Based on Household Questionnaire)					
Urban	396.663	95.067	0.240	206.529	586.797
Rural	447.926	60.303	0.135	327.321	568.531
Total	437.383	51.515	0.118	334.353	540.412

SRS: Simple random sample

APPENDIX D

DATA QUALITY TABLES

The purpose of this appendix is to provide the data user with an initial view of the general quality of the NFHS data. While 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 loads; noncooperation of the respondent in providing information; and refusal to have children measured and weighed. A description of the magnitude of such nonsampling errors is provided in the following paragraphs.

The distribution of the *de facto* household population by single year of age is presented in Table D.1 (see also Figure 3.1). In many (but not all) cases, the respondent was the head of the household. In cases where an eligible woman was later interviewed with the Woman's Questionnaire, her own reported age from the Woman's Questionnaire was substituted for the age in the household listing when there was a difference, because it was assumed that she would be better able than the household respondent to report her own age.

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 the NFHS, 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 the NFHS shares the same problems inherent in all Indian censuses and surveys. Heaping on ages ending in 0 and 5 is severe, particularly in the older age groups, and a pattern of heaping on ages ending in 2 and 8 is also evident. However, the NFHS 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 the NFHS with the 1981 Census, which is the most recent census that has already published data by single year of age (see Chapter 3, Section 3.1). The age reporting for females appears to be particularly good during the childbearing years, when interviewed women reported their own ages. Another measure of the quality of the NFHS age data is the negligible number of persons whose ages were recorded as not known or missing. In the country as a whole, age was missing for only 142 persons out of a total of 494,939 persons listed on the household schedule.

Table D.2 examines the possibility that some eligible women (that is, ever-married women age 13-49) were not properly identified in the NFHS. In some surveys, interviewers may try to reduce their work load 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 data. It can, therefore, be concluded that there was no concerted effort to misidentify eligible women in the NFHS.

Table D.1 Household age distribution

Single year age distribution of the *de facto* household population by sex (weighted), India, 1992-93

Age	Male Number	Male Percent	Female Number	Female Percent	Age	Male Number	Male Percent	Female Number	Female Percent
< 1	6645	2.6	6541	2.7	38	2669	1.1	2645	1.1
1	6502	2.6	6151	2.5	39	1182	0.5	2165	0.9
2	5852	2.3	5724	2.4	40	6948	2.7	3172	1.3
3	6586	2.6	6146	2.5	41	898	0.4	1771	0.7
4	6082	2.4	5476	2.3	42	2318	0.9	2254	0.9
5	7585	3.0	6736	2.8	43	873	0.3	1622	0.7
6	7127	2.8	6549	2.7	44	873	0.3	1755	0.7
7	6589	2.6	6295	2.6	45	5770	2.3	2505	1.0
8	7567	3.0	6976	2.9	46	1168	0.5	1630	0.7
9	5740	2.3	5388	2.2	47	826	0.3	1510	0.6
10	7830	3.1	7310	3.0	48	1637	0.6	1720	0.7
11	5157	2.0	4520	1.9	49	805	0.3	1369	0.6
12	7670	3.0	6841	2.8	50	4750	1.9	1735	0.7
13	5110	2.0	4993	2.1	51	611	0.2	1042	0.4
14	5404	2.1	5119	2.1	52	1512	0.6	1994	0.8
15	5762	2.3	5170	2.1	53	662	0.3	1215	0.5
16	5364	2.1	5367	2.2	54	698	0.3	971	0.4
17	3970	1.6	4496	1.9	55	3687	1.5	4327	1.8
18	6479	2.6	6551	2.7	56	978	0.4	1388	0.6
19	3379	1.3	4307	1.8	57	503	0.2	731	0.3
20	6421	2.5	6176	2.6	58	1215	0.5	1314	0.5
21	3090	1.2	4278	1.8	59	492	0.2	480	0.2
22	5593	2.2	4926	2.0	60	5079	2.0	4713	1.9
23	3153	1.2	4107	1.7	61	424	0.2	392	0.2
24	3157	1.2	4292	1.8	62	1077	0.4	1198	0.5
25	7348	2.9	5040	2.1	63	384	0.2	445	0.2
26	3585	1.4	3881	1.6	64	429	0.2	395	0.2
27	2772	1.1	3576	1.5	65	3521	1.4	2983	1.2
28	4432	1.8	4034	1.7	66	455	0.2	394	0.2
29	1701	0.7	3193	1.3	67	302	0.1	245	0.1
30	8059	3.2	4370	1.8	68	530	0.2	478	0.2
31	1263	0.5	2697	1.1	69	231	0.1	232	0.1
32	3827	1.5	3323	1.4	70+	7774	3.1	6434	2.7
33	1474	0.6	2748	1.1	Don't				
34	1582	0.6	2792	1.2	know/				
35	8243	3.3	3732	1.5	missing	57	--	85	--
36	2158	0.9	2654	1.1					
37	1290	0.5	2271	0.9	Total	252885	100.0	242055	100.0

Note: The *de facto* population includes residents and nonresidents who slept in the household the night before the interview.
-- Less than 0.05 percent

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 the data collection was not carried out with sufficient care. For India as a whole, the extent of missing information is very low on all of the measures shown except for the month and year of birth of the interviewed women and the measurement of the height and weight of young children (Table D.3). The data are exceptionally complete for month and year of birth for children listed in the birth history, age at death, age at first marriage, woman's education, child's size at birth and prevalence of diarrhoea in the two weeks preceding the NFHS. A large majority of eligible women (74 percent) did not report both the month and year of their birth. For women who did not know their month and year of birth, the information was imputed based

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on her reported age (or the age estimated by the interviewer after detailed probing). Data on height and weight are available for more than 80 percent of children, which is also acceptable 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, and no amount of persuasion could change their mind.

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, 98 percent of living children listed in the birth history had complete birth dates recorded as did 92 percent of children who had died. Thus, the completeness of data on birth dates is exceptionally good. Although the annual number of births does fluctuate somewhat, real annual fluctuations are to be expected and there is no evidence of the wholesale omission of births or displacement of birth dates which would substantially affect the fertility rate estimates for recent years.

It should be noted that 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 the NFHS began; therefore, interviewer training stressed this issue to try to avoid any biases due to age displacement. The cutoff date for asking the health questions was 1 January 1988 for surveys that began in 1992 and 1 January 1989 for surveys that began in 1993. Since the cutoff date was not the same for all states, it is difficult to assess whether there is any gross

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Table D.3  Completeness of reporting

Percentage of observations missing information for selected demographic and health
questions (weighted), India, 1992-93
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Subject	Reference group	Percentage missing information	Number of cases
Birth date	Ever-married women		
Year only		2.57	89777
Month only		7.96	89777
Month and year		73.60	89777
Birth date	Births in last 15 years		
Month only		2.38	187405
Month and year		0.07	187405
Age at death	Deaths to births in last 15 years	0.38	23027
Age at 1st marriage	Ever-married women	0.06	89777
Woman's education	Ever-married women	0.01	89777
Child's size at birth	Births in last 0-47 months	0.54	50001
Anthropometry[1]	Living children age 0-47 months		
Height[2]		16.26	33154
Weight		15.57	45982
Height or weight[2]		16.59	33154
Diarrhoea in last 2 weeks	Living children age 0-47 months	0.47	45969

```
[1]Child not measured
[2]Excludes children from states where height was not measured due to nonavailability of
measuring instruments
```

displacement of births across this boundary. However, an examination of calendar year ratios in Table D.4 indicates that the number of births reported for the year 1988 is slightly lower than births reported for the years 1987 and 1989; and some of the children recorded as being born in 1987 might have actually been born in 1988. This problem seems to be more pronounced in the case of dead children. But the magnitude of age displacement of births is small and has only a limited effect on the recent fertility estimates.

Another measure of completeness of reporting of births is the sex ratio at birth, which reflects the differences in completeness of reporting for male and female births. The expected sex ratio at birth is about 105-107 male births per 100 female births, and any tendency to omit female births would lead to a higher sex ratio. The sex ratio for all children ever born is 935 females per 1,000 males, or 107 male births per 100 female births. This estimate is at the top of the expected range. There is no consistent trend in the sex ratio at birth by calendar year, and it does not exceed 107 males per 100 females for any of the five-year periods shown, suggesting that female births have not been grossly underreported in the NFHS. However, the reported sex ratio at birth for births that occurred more than 20 years before the survey (1971 or earlier) is 112, which suggests that underreporting of female births is likely during that early period.

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Distribution of births by calendar year for living (L), dead (D), and all (T) children, according to reporting completeness, sex ratio at birth, and ratio of births by calendar year (weighted), India, 1992-93

Calendar year	Number of births			Percent with complete birth date[1]			Sex ratio at birth[2]			Calendar year ratio[3]		
	L	D	T	L	D	T	L	D	T	L	D	T
1993	1408	77	1485	100.0	100.0	100.0	878	708	868	NA	NA	NA
1992	10195	745	10940	99.9	98.4	99.8	1004	823	991	NA	NA	NA
1991	12051	1014	13066	99.7	97.1	99.5	939	859	933	115	112	113
1990	10683	1065	11748	99.3	96.5	99.1	974	1054	981	93	99	94
1989	10919	1148	12068	99.1	95.8	98.8	956	1006	960	101	98	100
1988	11015	1284	12299	99.0	95.8	98.7	887	1055	903	95	86	94
1987	12208	1842	14050	98.3	94.6	97.8	929	982	936	105	121	107
1986	12244	1771	14015	98.0	92.8	97.3	930	1032	942	104	98	103
1985	11442	1766	13207	97.5	93.4	97.0	961	946	959	94	100	95
1984	12135	1748	13883	97.4	91.2	96.6	934	951	936	111	101	109
1983	10482	1714	12197	97.6	92.9	96.9	899	965	908	88	95	89
1982	11596	1880	13476	97.3	92.9	96.7	954	967	956	117	112	117
1987-1991	56877	6354	63230	99.1	95.8	98.8	936	991	941	NA	NA	NA
1982-1986	57899	8879	66779	97.5	92.6	96.9	936	972	941	NA	NA	NA
1977-1981	45545	8542	54087	97.1	91.4	96.2	924	1020	938	NA	NA	NA
1972-1976	34010	7786	41796	96.3	90.2	95.2	925	998	938	NA	NA	NA
1971 or earlier	29601	9275	38876	95.4	87.9	93.6	903	861	893	NA	NA	NA
All	235535	41658	277192	97.5	91.5	96.6	930	960	935	NA	NA	NA

NA: Not applicable
[1]Both year and month of birth given
[2]$(B_f/B_m) \times 1000$, where B_f and B_m are the numbers of female and male births, respectively
[3]$(2B_x/(B_{x-1}+B_{x+1})) \times 100$, where B_x is the number of births in calendar year x

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 severely underreported in the NFHS, since 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 70 in the five years preceding the survey to 66 in the period 10-14 years preceding the survey. Although there was no severe underreporting of deaths in the NFHS, there was some misreporting of age at death due to a preference for reporting the age at death at 3, 6, 8, 10, 12, 15, 20 and 25 days (see Table D.5).

Table D.6 shows the percentages of infant deaths that occurred during the neonatal period. These ratios are also quite high, suggesting that there is no major omission of early deaths. Moreover, there is a slight increase over time from 60 to 65, indicating that reporting of early infant deaths is most complete for the five years preceding the survey. 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

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 ages 0-6 days, for five-year periods of birth preceding the survey (weighted), India, 1992-93

Age at death (days)	Years preceding survey			
	0-4	5-9	10-14	0-14
< 1	749	877	753	2379
1	434	491	456	1382
2	184	282	229	694
3	293	331	271	895
4	150	189	151	489
5	119	169	213	501
6	131	226	188	545
7	115	185	161	461
8	162	196	179	537
9	64	65	64	193
10	83	136	130	349
11	41	55	53	149
12	49	65	62	176
13	23	27	22	72
14	19	16	33	69
15	104	174	175	453
16	7	30	37	75
17	20	9	17	46
18	19	40	23	82
19	3	11	8	22
20	65	87	72	224
21	26	28	29	83
22	24	18	28	69
23	4	3	6	13
24	11	9	5	25
25	17	27	24	68
26	4	4	6	15
27	3	6	3	12
28	8	22	19	49
29	10	19	16	46
30	6	18	14	39
Missing	1	2	0	2
0-30	2946	3817	3449	10211
Percent early neonatal[1]	70	67	66	67

[1]Deaths during first 6 days divided by deaths during first 30 days

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 (that is, at age 12-23 months), may have actually occurred during infancy (that is, at age 0-11 months). In this case, heaping would bias the infant mortality rate downward and child mortality upward.

Examination of the distribution of deaths under age two years during the 15 years prior to the survey by month of death (Table D.6) indicates that there is some heaping of deaths at age 12 months, but few deaths were reported to have occurred at age one year. The calculated infant mortality rates for the country as a whole are not likely to be understated by more than

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 five-year periods of birth preceding the survey (weighted), India, 1992-93

Age at death (months)	Years preceding survey			
	0-4	5-9	10-14	0-14
< 1	2941	3800	3434	10175
1	294	449	400	1143
2	238	308	295	841
3	190	303	258	751
4	130	147	155	431
5	96	132	145	372
6	184	299	287	771
7	77	113	113	303
8	106	170	168	444
9	95	163	160	417
10	107	187	195	489
11	81	192	156	429
12	201	336	379	915
13	25	56	53	134
14	29	49	64	143
15	22	57	28	107
16	17	35	28	80
17	11	17	12	39
18	77	175	160	412
19	6	14	5	25
20	13	15	13	41
21	8	9	12	29
22	5	15	18	38
23	12	20	27	59
Missing	1	1	0	2
1 year	39	111	76	226
0-11	4539	6264	5765	16568
Percent neonatal[1]	65	61	60	61

[1]Deaths during first month divided by deaths during first year

1-2 percent due to these types of age misreporting[1].

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[1] For example, in the five years before the survey, even if the reported deaths at age 12 months were redistributed equally to 11, 12, and 13 months, and all of the deaths at age "1 year" were assumed to have occurred in the first year of life (which is an extreme assumption), then the infan' mortality rate would increase by only 2 percent.

APPENDIX E

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APPENDIX F

SURVEY INSTRUMENTS

The uniform core questionnaires that were used in all states are presented in this appendix. In addition to the core questions, state-specific questions on topics of special interest were added in most states. The topics of the state-specific questions are listed in Section 2.2 of Chapter 2. In addition, slight modifications were made to the core Household Questionnaire, Woman's Questionnaire and Village Questionnaire in individual states. These modifications are specified below.

Household Questionnaire

Questions 15-19: In the Phase 1 states (Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Tamil Nadu and West Bengal), these questions were asked individually for each person listed in the household schedule rather than for all persons together. In those states, Questions 14-18 began with the phrase "Does (NAME) suffer from...". Question 19 was worded as follows: "Did (NAME) suffer from malaria at any time during the last THREE months?"

Question 42: In the Phase 1 states, bullock cart, thresher, tractor and water pump were not included in the list of household items.

Questions 43, 45, 58, 60, and interviewer instructions before Questions 48 and 63: In states with fieldwork beginning in 1993, change 1990 to 1991.

Woman's Questionnaire

Question 155: In the Phase 1 states, bullock cart, thresher, tractor and water pump were not included in the list of household items.

Questions 225, 401, 402, 448, 617, and 701: In states with fieldwork beginning in 1993, change 1988 to 1989.

Questions 320, 331, 349 and 351: In Uttar Pradesh, two additional response codes were added for these questions (Code 17 = E.S.I. HOSPITAL/CLINIC and Code 26 = N.G.O. HOSPITAL/CLINIC).

Questions 322, 329 and 334: In Uttar Pradesh, two additional response codes were added for these questions (Code 17 = E.S.I. HOSPITAL/CLINIC and Code 24 = N.G.O. HOSPITAL/CLINIC).

Question 440: In the Phase 1 states, Code 95 = "STILL BREASTFEEDING" was not explicitly included for the next-to-last-birth.

Questions 705 and 706: In the Phase 1 states, these questions were omitted.

Question 708: In the Phase 1 states, the designation for this question was "DATE WEIGHED".

Question 709: In the Phase 1 states, Code 1 = CHILD WEIGHED.

INDIA 1992-1993

IDENTIFICATION

NAME OF STATE_____

PSU NUMBER...

NAME OF DISTRICT_____

NAME OF TEHSIL/TALUK_____

URBAN/RURAL (urban=1, rural=2)..........................

NAME OF TOWN AND TOWN BLOCK OR VILLAGE_____

LARGE CITY/SMALL CITY/TOWN/RURAL AREA...................
(large city=1, small city=2, town=3, rural area=4)
HOUSEHOLD NUMBER.......................................

NAME OF HOUSEHOLD HEAD_____

ADDRESS OF HOUSEHOLD_____
_____
_____

INTERVIEWER VISITS

	1	2	3	FINAL VISIT	
DATE	_____	_____	_____	DAY	
				MONTH	
				YEAR	
INTERVIEWER'S NAME	_____	_____	_____	NAME	
RESULT*	_____	_____	_____	RESULT	
NEXT VISIT: DATE TIME	_____ _____	_____ _____		TOTAL NUMBER OF VISITS	

*RESULT CODES:
1 COMPLETED
2 HOUSEHOLD PRESENT BUT NO COMPETENT RESP. AT HOME
3 HOUSEHOLD ABSENT
4 POSTPONED
5 REFUSED
6 DWELLING VACANT OR ADDRESS NOT A DWELLING
7 DWELLING DESTROYED
8 DWELLING NOT FOUND
9 OTHER _____
                  (SPECIFY)

TOTAL IN HOUSEHOLD

TOTAL ELIGIBLE WOMEN

LINE NO. OF RESP. TO HOUSE-HOLD SCHEDULE

	SPOT-CHECKED BY	FIELD EDITED BY	OFFICE EDITED BY	KEYED BY	KEYED BY
NAME					
DATE					

| 1 | RECORD THE TIME. | | | | | | HOUR...................... ☐☐
 MINUTES.................... ☐☐ | | | | |

LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD*	RESIDENCE		SEX	AGE	IF AGED 6 YEARS OR OLD			
							MARITAL STATUS**	EDUCATION		
										IF ATTEND
	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.	What is the relationship of (NAME) to the head of the household?	Does (NAME) usually live here?	Did (NAME) stay here last night?	Is (NAME) male or female?	How old is (NAME)?	What is the current marital status of (NAME)?	Can (NAME) read and write?	Has (NAME) ever been to school?	What is the highest grade (NAME) completed?***
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
			YES NO	YES NO	M F	IN YEARS	CM S W D NM	YES NO	YES NO	GRADE
01		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
02		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
03		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
04		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
05		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
06		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
07		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
08		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐

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Now I would like some information about the people
who usually live in your household or who are staying
with you now.

ER		OCCUPATION	AFTER COMPLETING COLUMNS 1-14 FOR ALL LISTED PERSONS, ASK:						ELIGI-BILITY
ED SCHOOL			Does anyone listed suffer from:						CIRCLE LINE NUMBER OF WOMEN ELIGIBLE FOR INDI-VIDUAL INTERVIEW (EVER MARRIED FEMALES AGED 13-49)
IF AGED LESS THAN 15 YEARS			Blindness? RECORD FOR EACH PERSON	Tuberculosis? RECORD FOR EACH PERSON	Leprosy? RECORD FOR EACH PERSON	Any physical impairment of limbs? RECORD FOR EACH PERSON	Did anyone listed suffer from malaria any time during the last THREE months?		
Is (NAME) still in school?		What kind of work does (NAME) do most of the time?							
(13)		(14)	(15)	(16)	(17)	(18)	(19)		(20)
YES NO			YES YES NO PARTIAL COMPLETE	YES NO	YES NO	YES YES YES NO HAN LEGS BOTH DS TH	YES NO		
1 2			1 2 3	1 2	1 2	1 2 3 4	1 2		01
1 2			1 2 3	1 2	1 2	1 2 3 4	1 2		02
1 2			1 2 3	1 2	1 2	1 2 3 4	1 2		03
1 2			1 2 3	1 2	1 2	1 2 3 4	1 2		04
1 2			1 2 3	1 2	1 2	1 2 3 4	1 2		05
1 2			1 2 3	1 2	1 2	1 2 3 4	1 2		06
1 2			1 2 3	1 2	1 2	1 2 3 4	1 2		07
1 2			1 2 3	1 2	1 2	1 2 3 4	1 2		08

2

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HOUSEHOLD SCHEDULE (CONTINUED)

(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
			YES NO	YES NO	M F	IN YEARS	M S W D NM	YES NO	YES NO	GRADE
09		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
10		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
11		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
12		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
13		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
14		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
15		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
16		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
17		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
18		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐

TICK HERE IF CONTINUATION SHEET USED ☐

21 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?

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?

3) Do you have any guests or temporary visitors staying here, or anyone else who stayed here last night?

* CODES FOR Q.4
RELATIONSHIP TO HEAD OF HOUSEHOLD:

01= HEAD	05= GRANDCHILD	09= BROTHER OR SISTER-IN-LAW
02= WIFE OR HUSBAND	06= PARENT	10= OTHER RELATIVE
03= SON OR DAUGHTER	07= PARENT-IN-LAW	11= ADOPTED/FOSTER CHILD
04= SON OR DAUGHTER-IN-LAW	08= BROTHER OR SISTER	12= NOT RELATED
		98= DK

(13)	(14)	(15)			(16)		(17)		(18)				(19)		(20)
YES NO		YES PART IAL	YES COMP LETE	NO	YES	NO	YES	NO	YES HANDS	YES LEGS	YES BOTH	NO	YES	NO	
1 2		1	2	3	1	2	1	2	1	2	3	4	1	2	09
1 2		1	2	3	1	2	1	2	1	2	3	4	1	2	10
1 2		1	2	3	1	2	1	2	1	2	3	4	1	2	11
1 2		1	2	3	1	2	1	2	1	2	3	4	1	2	12
1 2		1	2	3	1	2	1	2	1	2	3	4	1	2	13
1 2		1	2	3	1	2	1	2	1	2	3	4	1	2	14
1 2		1	2	3	1	2	1	2	1	2	3	4	1	2	15
1 2		1	2	3	1	2	1	2	1	2	3	4	1	2	16
1 2		1	2	3	1	2	1	2	1	2	3	4	1	2	17
1 2		1	2	3	1	2	1	2	1	2	3	4	1	2	18

TOTAL NUMBER OF ELIGIBLE WOMEN

YES ⟶ ENTER EACH IN TABLE   NO

YES ⟶ ENTER EACH IN TABLE   NO

YES ⟶ ENTER EACH IN TABLE   NO

** CODES FOR Q.9
 MARITAL STATUS:
 1= CURRENTLY MARRIED
 2= SEPARATED
 3= WIDOWED
 4= DIVORCED
 5= NEVER MARRIED

***CODES FOR Q.12
 GRADE:
 00=LESS THAN 1
 YEAR COMPLETED
 98=DK

3

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO

22	What is the main source of water your household uses for bathing and washing?	PIPED WATER
		  PIPED INTO
		     RESIDENCE/YARD/PLOT.........11———►24
		     PUBLIC TAP...................12
		
		GROUND WATER
		  HANDPUMP IN YARD/PLOT........21———►24
		  PUBLIC HANDPUMP..............22
		
		WELL WATER
		  WELL IN RESIDENCE/YARD/PLOT...23———►24
		  PUBLIC WELL..................24
		
		SURFACE WATER
		  SPRING......................31
		  RIVER/STREAM................32
		  POND/LAKE...................33
		  DAM.........................34
		
		RAINWATER....................41
		TANKER TRUCK.................51
		OTHER_____81
		      (SPECIFY)	

23	How long does it take to go there, get water, and come back in one trip?	MINUTES............. ☐☐☐	
24	Does your household get drinking water from this same source?	YES..........................1———►26 NO...........................2	

25	What is the main source of drinking water for members of your household?	PIPED WATER
		  PIPED INTO
		     RESIDENCE/YARD/PLOT.........11
		     PUBLIC TAP...................12
		
		GROUND WATER
		  HANDPUMP IN YARD/PLOT........21
		  PUBLIC HANDPUMP..............22
		
		WELL WATER
		  WELL IN RESIDENCE/YARD/PLOT...23
		  PUBLIC WELL..................24
		
		SURFACE WATER
		  SPRING......................31
		  RIVER/STREAM................32
		  POND/LAKE...................33
		  DAM.........................34
		
		RAINWATER....................41
		TANKER TRUCK.................51
		BOTTLED WATER................61
		OTHER_____81
		      (SPECIFY)	

26	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 _____41
		      (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
27	What is the main source of lighting for your household?	ELECTRICITY......................1 KEROSENE.........................2 GAS..............................3 OIL..............................4 OTHER_____5 (SPECIFY)	
28	How many rooms are there in your household?	ROOMS..................... ⊞	
29	Do you have a separate room which is used as a kitchen?	YES..............................1 NO...............................2	
30	What type of fuel does your household mainly use for cooking?	WOOD............................01 COW DUNG CAKES..................02 COAL/COKE/LIGNITE..............03 CHARCOAL.......................04 KEROSENE.......................05 ELECTRICITY....................06 LIQUID PETROLEUM GAS...........07 BIO-GAS........................08 OTHER_____09 (SPECIFY)	
31	TYPE OF HOUSE. ROOF _____ WALLS_____ RECORD OBSERVATION. FLOOR_____	PUCCA...........................1 KACHHA..........................2 SEMI-PUCCA......................3	
32	What is the religion of the head of the household?	HINDU..........................01 SIKH...........................02 BUDDHIST/NEO BUDDHIST..........03 CHRISTIAN......................04 JAIN...........................05 JEWISH.........................06 MUSLIM.........................07 ZOROASTRIAN....................08 NO RELIGION....................09 OTHER_____10 (SPECIFY)	
33	Does the head of the household belong to a scheduled tribe?	YES..............................1 NO...............................2	→35
34	What is the name of the tribe?	⊞⊞⊞ TRIBE_____ (NAME)	→36
35	To which caste does the head of the household belong?	⊞⊞⊞ CASTE_____ (NAME) NO CASTE.....................996	

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
36	Does this household own any agricultural land?	YES.............................1 NO..............................2	→39
37	What is the size of non-irrigated land under cultivation, in acres?	ACRES.................☐☐☐ NONE.........................000 LESS THAN ONE.................996	
38	What is the size of irrigated land under cultivation, in acres?	ACRES.................☐☐☐ NONE.........................000 LESS THAN ONE.................996	
39	Does this household own any livestock?	YES.............................1 NO..............................2	→42
40	What type of livestock do you own? RECORD ALL MENTIONED.	BULLOCK..........................A COW..............................B BUFFALO..........................C GOAT.............................D SHEEP............................E CAMEL............................F OTHER _____G (SPECIFY)	
41	Where do you usually keep the animals at night?	IN THE HOUSE.....................1 OUTSIDE THE HOUSE...............2	

42			
Does the household own any of the following?		YES	NO
A sewing machine?	SEWING MACHINE.............1		2
A clock or watch?	CLOCK/WATCH................1		2
A sofa set?	SOFA SET...................1		2
A fan?	FAN........................1		2
A radio or transistor?	RADIO/TRANSISTOR...........1		2
A refrigerator?	REFRIGERATOR...............1		2
A television?	TELEVISION.................1		2
A VCR or VCP?	VCR/VCP....................1		2
A bicycle?	BICYCLE....................1		2
A motorcycle or scooter?	MOTORCYCLE/SCOOTER.........1		2
A car?	CAR........................1		2
A bullock cart?	BULLOCK CART...............1		2
A thresher?	THRESHER...................1		2
A tractor?	TRACTOR....................1		2
A water pump?	WATER PUMP.................1		2

6

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
43	Now I would like to ask you about the births that have taken place to any number of your household or visitor during the last two years. Did any usual resident of this household give birth to a child since (Pongal/Makar Sankrenti/January) 1990 in this (city/town/village) or outside?	YES.............................1 NO................................2——►45	
44	How many births took place?	TOTAL BIRTHS.................. ☐	
45	Did any visitor to this household give birth to a child since (Pongal/Makar Sankranti/January) 1990?	YES.............................1 NO................................2——►47	
46	How many births took place?	TOTAL BIRTHS.................. ☐	
47	CHECK 44 AND 46: ONE OR MORE ☐ NO BIRTHS ☐ BIRTHS		►58

7

RECORD NAMES OF BIRTHS SINCE JANUARY 1990 IN 48.   RECORD TWINS AND TRIPLETS ON SEPARATE LINES.

48	49	50	51	52	53	54	55	56
What name was given to the baby born (first/next)?	Was the mother a usual resident of the household or a visitor?	RECORD LINE NUMBER OF MOTHER IN THE HOUSEHOLD SCHEDULE.	How old was the mother at the time of birth of (NAME)? RECORD AGE IN COMPLETED YEARS.	RECORD SINGLE OR MULTIPLE BIRTH STATUS.	Is (NAME) a boy or a girl?	In what month and year was (NAME) born? PROBE: What is his/her birthday? OR: In what season was he/she born?	Is (NAME) still alive?	IF DEAD: How old was he/she when he/she died? IF "1 YEAR", PROBE: How many months old was (NAME)? RECORD DAYS IF LESS THAN ONE MONTH
01 ___ (NAME)	RESIDENT..1 VISITOR...2	LINE NUM-BER ☐☐ MOTHER DIED.....95 LEFT HH..96	AGE OF MOTHER ☐☐	SINGLE..1 MULT....2	BOY...1 GIRL..2	MONTH.. YEAR... ☐☐☐☐	YES...1 (GO TO NEXT BIRTH) NO....2	DAYS....1 MONTHS..2 ☐☐☐☐
02 ___ (NAME)	RESIDENT..1 VISITOR...2	LINE NUM-BER ☐☐ MOTHER DIED.....95 LEFT HH..96	AGE OF MOTHER ☐☐	SINGLE..1 MULT....2	BOY...1 GIRL..2	MONTH.. YEAR... ☐☐☐☐	YES...1 (GO TO NEXT BIRTH) NO....2	DAYS....1 MONTHS..2 ☐☐☐☐
03 ___ (NAME)	RESIDENT..1 VISITOR...2	LINE NUM-BER ☐☐ MOTHER DIED.....95 LEFT HH..96	AGE OF MOTHER ☐☐	SINGLE..1 MULT....2	BOY...1 GIRL..2	MONTH.. YEAR... ☐☐☐☐	YES...1 (GO TO NEXT BIRTH) NO....2	DAYS....1 MONTHS..2 ☐☐☐☐
04 ___ (NAME)	RESIDENT..1 VISITOR...2	LINE NUM-BER ☐☐ MOTHER DIED.....95 LEFT HH..96	AGE OF MOTHER ☐☐	SINGLE..1 MULT....2	BOY...1 GIRL..2	MONTH.. YEAR... ☐☐☐☐	YES...1 (GO TO NEXT BIRTH) NO....2	DAYS....1 MONTHS..2 ☐☐☐☐
05 ___ (NAME)	RESIDENT..1 VISITOR...2	LINE NUM-BER ☐☐ MOTHER DIED.....95 LEFT HH..96	AGE OF MOTHER ☐☐	SINGLE..1 MULT....2	BOY...1 GIRL..2	MONTH.. YEAR... ☐☐☐☐	YES...1 (GO TO NEXT BIRTH) NO....2	DAYS....1 MONTHS..2 ☐☐☐☐
06 ___ (NAME)	RESIDENT..1 VISITOR...2	LINE NUM-BER ☐☐ MOTHER DIED.....95 LEFT HH..96	AGE OF MOTHER ☐☐	SINGLE..1 MULT....2	BOY...1 GIRL..2	MONTH.. YEAR... ☐☐☐☐	YES...1 (GO TO NEXT BIRTH) NO....2	DAYS....1 MONTHS..2 ☐☐☐☐

57	COMPARE SUM OF 44 AND 46 WITH NUMBER OF BIRTHS IN 48 AND MARK:
	NUMBERS ARE SAME ☐ NUMBERS ARE DIFFERENT ☐ ————————————→ PROBE AND RECONCILE

344

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
58	Now I would like to ask you about the deaths of any member of your household or visitor during the last two years. Did any usual resident of this household die since (Pongal/Makar Sankranti/January) 1990 in this (city/town/village) or outside?	YES...........................1 NO............................2——►60	
59	How many persons died?	TOTAL DEATHS.............. ☐	
60	Did any visitor to this household die since (Pongal/Makar Sankranti/January) 1990?	YES...........................1 NO............................2——►62	
61	How many deaths took place?	TOTAL DEATHS.............. ☐	
62	CHECK 59 AND 61: ONE OR MORE ☐ NO DEATHS ☐ DEATHS		——►75

9

RECORD NAMES OF DEATHS SINCE JANUARY 1990 IN 63.

63	64	65	66	67	68	69	70	71	72	73
What (was/were) the name(s) of the person(s) who died?	Was (NAME) a usual resident of the household or a visitor?	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?	CHECK 65 AND 66: DECEASED WAS FEMALE AGED 13-49 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?	What were the major symptoms observed before the death of (NAME)?
01 ⌐ ___ (NAME)	RESIDENT..1 VISITOR...2	MALE.....1 FEMALE...2	DAYS....1 ☐☐ MONTHS..2 ☐☐ YEARS...3 ☐☐	MONTH.. ☐☐ YEAR... ☐☐	YES......1 NO.......2⌐ (GO TO 73)↵	YES.......1⌐ (GO TO 72)↵ NO.......2	YES......1⌐ (GO TO NEXT DEATH)↵ NO.......2	YES.............1 NO..............2⌐ (GO TO 73)↵	YES............1⌐ (GO TO NEXT DEATH)↵ NO.............2	☐☐ ___ SYMPTOMS
02 ⌐ ___ (NAME)	RESIDENT..1 VISITOR...2	MALE.....1 FEMALE...2	DAYS....1 ☐☐ MONTHS..2 ☐☐ YEARS...3 ☐☐	MONTH.. ☐☐ YEAR... ☐☐	YES......1 NO.......2⌐ (GO TO 73)↵	YES.......1⌐ (GO TO 72)↵ NO.......2	YES......1⌐ (GO TO NEXT DEATH)↵ NO.......2	YES.............1 NO..............2⌐ (GO TO 73)↵	YES............1⌐ (GO TO NEXT DEATH)↵ NO.............2	☐☐ ___ SYMPTOMS
03 ⌐ ___ (NAME)	RESIDENT..1 VISITOR...2	MALE.....1 FEMALE...2	DAYS....1 ☐☐ MONTHS..2 ☐☐ YEARS...3 ☐☐	MONTH.. ☐☐ YEAR... ☐☐	YES......1 NO.......2⌐ (GO TO 73)↵	YES.......1⌐ (GO TO 72)↵ NO.......2	YES......1⌐ (GO TO NEXT DEATH)↵ NO.......2	YES.............1 NO..............2⌐ (GO TO 73)↵	YES............1⌐ (GO TO NEXT DEATH)↵ NO.............2	☐☐ ___ SYMPTOMS

74	COMPARE SUM OF 59 AND 61 WITH NUMBER OF DEATHS IN 63 AND MARK:
	NUMBERS ARE SAME ☐ NUMBERS ARE DIFFERENT ☐ ⟶ PROBE AND RECONCILE

75	RECORD THE TIME.	HOUR..................... ☐☐ MINUTES.................. ☐☐

10

CONFIDENTIAL
For Research
Purposes Only

INDIA 1992-1993

IDENTIFICATION

NAME OF STATE_____

PSU NUMBER..

NAME OF DISTRICT_____

NAME OF TEHSIL/TALUK_____

URBAN/RURAL (urban=1, rural=2)..............................

NAME OF TOWN AND TOWN BLOCK OR VILLAGE_____

LARGE CITY/SMALL CITY/TOWN/RURAL AREA....................
(large city=1, small city=2, town=3, rural area=4)
HOUSEHOLD NUMBER....................................

NAME AND LINE NUMBER OF WOMAN _____
ADDRESS OF HOUSEHOLD _____

INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE	____	____	____	DAY
				MONTH
				YEAR
INTERVIEWER'S NAME	____	____		NAME
RESULT*	____	____	____	RESULT
NEXT VISIT: DATE	____	____		TOTAL NUMBER OF VISITS
TIME	____	____		

*RESULT CODES:
  1 COMPLETED   3 POSTPONED   5 PARTLY COMPLETED
  2 NOT AT HOME 4 REFUSED   6 OTHER_____(SPECIFY)

LANGUAGE OF QUESTIONNAIRE**...............................

LANGUAGE OF INTERVIEW**..................................

NATIVE LANGUAGE OF RESPONDENT**...........................
TRANSLATOR USED...................... YES...1   NO...2
                   **LANGUAGE CODES:

01 Assamese	05 Hindi	09 Marathi	13 Sindhi
02 Bengali	06 Kannada	10 Oriya	14 Tamil
03 English	07 Kashmiri	11 Punjabi	15 Telugu
04 Gujarati	08 Malayalam	12 Sanskrit	16 Urdu
17 Other (SPECIFY)_____		18 Konkani	

	SPOT-CHECKED BY	FIELD EDITED BY	OFFICE EDITED BY	KEYED BY	KEYED BY
NAME	____	____	____	____	
DATE	____	____	____	____	

SECTION 1. RESPONDENT'S BACKGROUND

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
101	RECORD THE TIME.	HOUR....................... ☐☐ MINUTES.................... ☐☐	
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 or in a village?	CITY/TOWN.....................1 VILLAGE.......................2	
103	How long have you been living continuously in (NAME OF CURRENT PLACE OF RESIDENCE)?	YEARS...................... ☐☐ ALWAYS.........................95 VISITOR........................96 → 105	
104	Just before you moved here, did you live in a city or in a village?	CITY/TOWN.....................1 VILLAGE.......................2	
105	In what month and year were you born?	MONTH...................... ☐☐ DK MONTH......................98 YEAR....................... ☐☐ DK YEAR.......................98	
106	How old were you at your last birthday? COMPARE AND CORRECT 105 AND/OR 106 IF INCONSISTENT.	AGE IN COMPLETED YEARS..... ☐☐	
107	What is your current marital status?	CURRENTLY MARRIED.............1 SEPARATED.....................2 WIDOWED.......................3 → 111 DIVORCED......................4 NEVER MARRIED.................5 → END	
108	Are you living with your husband now or is he staying elsewhere?	LIVING WITH HIM..............1 → 111 STAYING ELSEWHERE............2	

2

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
109	During the last four weeks, did you stay with your husband at any time?	YES.............................1———►111 NO.................................2	
110	For how long have you and your husband not been living together? RECORD MONTHS OR YEARS.	MONTHS...................1 ⬚ YEARS......................2	
111	Now I would like to ask you some questions on your marriage. Have you been married only once or more than once?	ONCE...........................1———►115 MORE THAN ONCE..................2	
112	How old were you at the time of your _first_ marriage?	AGE IN COMPLETED YEARS..... ⬚	
113	How old were you when you started living with your _first_ husband?	AGE IN COMPLETED YEARS..... ⬚ GAUNA HAD NOT TAKEN PLACE...... 96	
114	How old were you when your first marriage dissolved?	AGE IN COMPLETED YEARS..... ⬚	
115	How old were you at the time of your [current] marriage?	AGE IN COMPLETED YEARS..... ⬚	
116	How old were you when you started living with your [current] husband?	AGE IN COMPLETED YEARS..... ⬚ GAUNA HAS NOT TAKEN PLACE.....96 ———►END	

3

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
117	Before you got married, was your [current] husband related to you in any way?	YES..........................1 NO...........................2 → 119	
118	What type of relationship was it?	FIRST COUSIN ON FATHER'S SIDE...1 FIRST COUSIN ON MOTHER'S SIDE...2 SECOND COUSIN...................3 UNCLE...........................4 OTHER BLOOD RELATIVE............5 BROTHER-IN-LAW..................6 OTHER NON-BLOOD RELATIVE........7	
119	What is the minimum legal age at marriage for a girl in India?	AGE IN YEARS.............. ☐☐ DK........................98	
120	What is the minimum legal age at marriage for a boy in India?	AGE IN YEARS.............. ☐☐ DK........................98	
121	Have you ever attended school?	YES..........................1 NO...........................2 → 124	
122	What is the highest grade you completed?	GRADE.................... ☐☐	
123	CHECK 122: GRADE 0-5 ☐ ↓	GRADE 6-12 ☐ ──────────→ 126 GRADE 13+ ☐ ──────────→ 125	
124	Can you read and write?	YES..........................1 NO...........................2 → 126	
125	What is the highest degree you have obtained?	DEGREE NOT COMPLETED..........01 NON-TECHNICAL DEGREE BACHELOR'S DEGREE............02 MASTER'S DEGREE..............03 Ph.D.........................04 TECHNICAL DEGREE BACHELOR'S DEGREE............05 MASTER'S DEGREE..............06 TECHNICAL DIPLOMA/CERTIFICATE NOT EQUIVALENT TO DEGREE......07 NON-TECHNICAL DIPLOMA/CERTIF. NOT EQUIVALENT TO DEGREE......08 OTHER DEGREE_____09 (SPECIFY)	

4

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
126	Do you usually listen to a radio at least once a week?	YES.............................1 NO..............................2	
127	Do you usually watch television at least once a week?	YES.............................1 NO..............................2	
128	Do you usually go to a Cinema Hall or Theatre to see a movie at least once a month?	YES.............................1 NO..............................2	

129	CHECK Q.5 IN THE HOUSEHOLD SCHEDULE:		
	THE WOMAN INTERVIEWED IS NOT A USUAL RESIDENT ☐	THE WOMAN INTERVIEWED IS A USUAL RESIDENT ☐ ──────→ 201	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
130	How long have you been visiting in this house?	DAYS....................1 MONTHS..................2 YEARS...................3	
131	How much longer do you intend to stay here?	DAYS....................1 MONTHS..................2 YEARS...................3 DK..........................998	
132	What is the main reason for your visiting this household?	VISITING FOR DELIVERY PURPOSE..1 VISITING FOR OTHER PURPOSE.....2	
133	Now I would like to ask about the place in which you usually live. Do you usually live in a city, in a town, or in a village? IF CITY: In which city do you live? _____	LARGE CITY (1 MILLION +)........1 SMALL CITY......................2 TOWN............................3 VILLAGE.........................4	

5

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO

134 In which state do you usually live?

ANDHRA PRADESH...................01
ARUNACHAL PRADESH...............02
ASSAM..........................03
BIHAR..........................04
GOA............................05
GUJARAT........................06
HARYANA........................07
HIMACHAL PRADESH...............08
JAMMU & KASHMIR................09
KARNATAKA......................10
KERALA.........................11
MADHYA PRADESH.................12
MAHARASHTRA....................13
MANIPUR........................14
MEGHALAYA......................15
MIZORAM........................16
NAGALAND.......................17
ORISSA.........................18
PUNJAB.........................19
RAJASHTAN......................20
SIKKIM.........................21
TAMIL NADU.....................22
TRIPURA........................23
UTTAR PRADESH..................24
WEST BENGAL....................25
ANDMAN & NICOBAR ISLANDS.......26
CHANDIGARH.....................27
DADRA & NAGAR HAVELI...........28
DAMAN & DIU....................29
DELHI..........................30
LAKSHADWEEP....................31
PONDICHERRY....................32
OUTSIDE INDIA..................33

135 Now I would like to ask about the household in which you usually live.

What is the main source of water your household uses for bathing and washing?

PIPED WATER
  PIPED INTO
    RESIDENCE/YARD/PLOT.........11——▸137
    PUBLIC TAP....................12

GROUND WATER
  HANDPUMP IN YARD/PLOT.........21——▸137
  PUBLIC HANDPUMP...............22

WELL WATER
  WELL IN RESIDENCE/YARD/PLOT...23——▸137
  PUBLIC WELL...................24

SURFACE WATER
  SPRING........................31
  RIVER/STREAM..................32
  POND/LAKE.....................33
  DAM...........................34

RAINWATER.......................41
TANKER TRUCK....................51
OTHER_____81
        (SPECIFY)

136 How long does it take to go there, get water, and come back in one trip?

MINUTES................ ☐☐☐

137 Does your household get drinking water from this same source?

YES............................1——▸139
NO.............................2

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
138	What is the main source of drinking water for members of your household?	PIPED WATER PIPED INTO RESIDENCE/YARD/PLOT.........11 PUBLIC TAP.....................12 GROUND WATER HANDPUMP IN YARD/PLOT.........21 PUBLIC HANDPUMP...............22 WELL WATER WELL IN RESIDENCE/YARD/PLOT...23 PUBLIC WELL...................24 SURFACE WATER SPRING........................31 RIVER/STREAM..................32 POND/LAKE.....................33 DAM..........................34 RAINWATER......................41 TANKER TRUCK...................51 BOTTLED WATER.................61 OTHER_____81 (SPECIFY)	
139	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 _____41 (SPECIFY)	
140	What is the main source of lighting for your household?	ELECTRICITY.....................1 KEROSENE........................2 GAS............................3 OIL............................4 OTHER_____5 (SPECIFY)	
141	How many rooms are there in your household?	ROOMS.....................☐☐	
142	Do you have a separate room which is used as a kitchen?	YES.............................1 NO.............................2	
143	What type of fuel does your household mainly use for cooking?	WOOD...........................01 COW DUNG CAKES.................02 COAL/COKE/LIGNITE.............03 CHARCOAL......................04 KEROSENE......................05 ELECTRICITY...................06 LIQUID PETROLEUM GAS..........07 BIO-GAS.......................08 OTHER_____09 (SPECIFY)	

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
144	What materials have been used for the construction of roof, walls and floor of the house where you usually live? ROOF_____ WALLS_____ FLOOR_____	PUCCA..........................1 KACHHA.........................2 SEMI-PUCCA.....................3	
145	What is the religion of the head of the household?	HINDU..........................01 SIKH...........................02 BUDDHIST/NEO BUDDHIST..........03 CHRISTIAN......................04 JAIN...........................05 JEWISH.........................06 MUSLIM.........................07 ZOROASTRIAN....................08 NO RELIGION....................09 OTHER_____10 (SPECIFY)	
146	Does the head of the household belong to a scheduled tribe?	YES............................1 NO.............................2——►148	
147	What is the name of the tribe?	☐☐☐ TRIBE_____——►149 (NAME)	
148	To which caste does the head of the household belong?	☐☐☐ CASTE_____ (NAME) NO CASTE.....................996	
149	Does your household own any agricultural land?	YES............................1 NO.............................2——►152	
150	What is the size of non-irrigated land under cultivation, in acres?	ACRES................☐☐☐ NONE.........................000 LESS THAN ONE................996	
151	What is the size of irrigated land under cultivation, in acres?	ACRES................☐☐☐ NONE.........................000 LESS THAN ONE................996	

8

354

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
152	Does your household own any livestock?	YES.............................1 NO..............................2 ——→155	
153	What type of livestock do you own? RECORD ALL MENTIONED.	BULLOCK........................A COW............................B BUFFALO........................C GOAT...........................D SHEEP..........................E CAMEL..........................F OTHER _____G (SPECIFY)	
154	Where do you usually keep the animals at night?	IN THE HOUSE....................1 OUTSIDE THE HOUSE...............2	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES		SKIP TO
155	Does the household own any of the following?		YES	NO
	A sewing machine?	SEWING MACHINE.............	1	2
	A clock or watch?	CLOCK/WATCH................	1	2
	A sofa set?	SOFA SET...................	1	2
	A fan?	FAN........................	1	2
	A radio or transistor?	RADIO/TRANSISTOR...........	1	2
	A refrigerator?	REFRIGERATOR...............	1	2
	A television?	TELEVISION.................	1	2
	A VCR or VCP?	VCR/VCP....................	1	2
	A bicycle?	BICYCLE....................	1	2
	A motorcycle or scooter?	MOTORCYCLE/SCOOTER.........	1	2
	A car?	CAR........................	1	2
	A bullock cart?	BULLOCK CART...............	1	2
	A tractor?	TRACTOR....................	1	2
	A thresher?	THRESHER...................	1	2
	A water pump?	WATER PUMP.................	1	2

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
156	How many people are there in your household?	NUMBER OF PERSONS.......... ☐☐	

9

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
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.................... ▯▯	

10

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO

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 ☐   NO ☐ → PROBE AND CORRECT 201-208 AS NECESSARY

---

210 Have you ever had a stillbirth?

YES..............................1
NO...............................2 → 212

---

211 How many stillbirths have you had?

NUMBER OF STILLBIRTHS.........☐

---

212 Have you ever had an abortion?

PROBE FOR SPONTANEOUS AND INDUCED ABORTIONS.

YES..............................1
NO...............................2 → 214

---

213 How many abortions have you had?

PROBE FOR NUMBER OF SPONTANEOUS AND INDUCED ABORTIONS. IF NONE, RECORD '0'.

SPONTANEOUS ABORTIONS.........☐
INDUCED ABORTIONS.............☐

---

214 CHECK 208:

ONE OR MORE ☐   NO BIRTHS ☐ ──────────── → 226
BIRTHS

11

357

215

How 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 BIRTHS IN 216. RECORD TWINS AND TRIPLETS ON SEPARATE LINES.

216	217	218	219	220	221 IF ALIVE:	222 IF ALIVE:	223 IF DEAD:
What name was given to your (first, next) baby?	RECORD SINGLE OR MULTIPLE BIRTH STATUS.	Is (NAME) a boy or a girl?	In what month and year was (NAME) born? PROBE: What is his/her birthday? OR: In what season was he/she born?	Is (NAME) still alive?	How old was (NAME) at his/her last birthday? RECORD AGE IN COMPLETED YEARS.	Is (NAME) living with you?	How old was he/she 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.
01 ___ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. ☐☐ YEAR... ☐☐	YES...1 NO....2 ↓ 223	AGE IN YEARS ☐☐	YES.....1⎤ NO......2⎦ ↓ (GO TO NEXT BIRTH)	DAYS....1 ☐☐ MONTHS..2 YEARS...3
02 ___ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. ☐☐ YEAR... ☐☐	YES...1 NO....2 ↓ 223	AGE IN YEARS ☐☐	YES.....1⎤ NO......2⎦ ↓ (GO TO NEXT BIRTH)	DAYS....1 ☐☐ MONTHS..2 YEARS...3
03 ___ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. ☐☐ YEAR... ☐☐	YES...1 NO....2 ↓ 223	AGE IN YEARS ☐☐	YES.....1⎤ NO......2⎦ ↓ (GO TO NEXT BIRTH)	DAYS....1 ☐☐ MONTHS..2 YEARS...3
04 ___ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. ☐☐ YEAR... ☐☐	YES...1 NO....2 ↓ 223	AGE IN YEARS ☐☐	YES.....1⎤ NO......2⎦ ↓ (GO TO NEXT BIRTH)	DAYS....1 ☐☐ MONTHS..2 YEARS...3
05 ___ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. ☐☐ YEAR... ☐☐	YES...1 NO....2 ↓ 223	AGE IN YEARS ☐☐	YES.....1⎤ NO......2⎦ ↓ (GO TO NEXT BIRTH)	DAYS....1 ☐☐ MONTHS..2 YEARS...3
06 ___ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. ☐☐ YEAR... ☐☐	YES...1 NO....2 ↓ 223	AGE IN YEARS ☐☐	YES.....1⎤ NO......2⎦ ↓ (GO TO NEXT BIRTH)	DAYS....1 ☐☐ MONTHS..2 YEARS...3
07 ___ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. ☐☐ YEAR... ☐☐	YES...1 NO....2 ↓ 223	AGE IN YEARS ☐☐	YES.....1⎤ NO......2⎦ ↓ (GO TO NEXT BIRTH)	DAYS....1 ☐☐ MONTHS..2 YEARS...3

216	217	218	219	220	221 IF ALIVE:	222 IF ALIVE:	223 IF DEAD:
What name was given to your next baby?	RECORD SINGLE OR MULTIPLE BIRTH STATUS.	Is (NAME) a boy or a girl?	In what month and year was (NAME) born? PROBE: What is his/her birthday? OR: In what season was he/she born?	Is (NAME) still alive?	How old was (NAME) at his/her last birthday? RECORD AGE IN COMPLETED YEARS.	Is (NAME) living with you?	How old was he/she 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.
08 ___ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. ☐ YEAR... ☐	YES...1 NO....2 ↓ 223	AGE IN YEARS ☐	YES.....1 NO......2 (GO TO NEXT BIRTH)	DAYS....1 ☐ MONTHS..2 YEARS...3
09 ___ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. ☐ YEAR... ☐	YES...1 NO....2 ↓ 223	AGE IN YEARS ☐	YES.....1 NO......2 (GO TO NEXT BIRTH)	DAYS....1 ☐ MONTHS..2 YEARS...3
10 ___ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. ☐ YEAR... ☐	YES...1 NO....2 ↓ 223	AGE IN YEARS ☐	YES.....1 NO......2 (GO TO NEXT BIRTH)	DAYS....1 ☐ MONTHS..2 YEARS...3
11 ___ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. ☐ YEAR... ☐	YES...1 NO....2 ↓ 223	AGE IN YEARS ☐	YES.....1 NO......2 (GO TO NEXT BIRTH)	DAYS....1 ☐ MONTHS..2 YEARS...3
12 ___ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. ☐ YEAR... ☐	YES...1 NO....2 ↓ 223	AGE IN YEARS ☐	YES.....1 NO......2 (GO TO NEXT BIRTH)	DAYS....1 ☐ MONTHS..2 YEARS...3

224 | 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 4+ YEARS: EXPLANATION IS GIVEN.

225 | CHECK 219 AND ENTER THE NUMBER OF BIRTHS SINCE JANUARY 1988.
IF NONE, RECORD '0'. ☐

13

359

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO

226 CHECK 107:

CURRENTLY MARRIED ☐ WIDOWED DIVORCED SEPARATED ☐ ────────────────→ **232**

227

Are you pregnant now?

YES.............................1

NO..............................2─┐

UNSURE..........................8─→ **230**

228

How many months pregnant are you?

MONTHS.................... ☐☐

229

At the time you became pregnant, did you want to become pregnant then, did you want to wait until later, or did you not want to become pregnant at all?

THEN...........................1─┐

LATER..........................2 →**232**

NOT AT ALL.....................3─┘

230

Are you currently menstruating?

YES 1

NO IN MENOPAUSE................2 ─┐

NO IN AMENORRHOEA..............3 ─→**232**

NEVER MENSTRUATED..............4 ──→**301**

231

When did your last menstrual period start?

MONTH..................... ☐☐

YEAR...................... ☐☐

232

How old were you when you experienced your first monthly period?

AGE IN YEARS.............. ☐☐
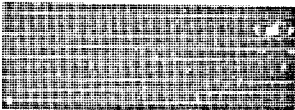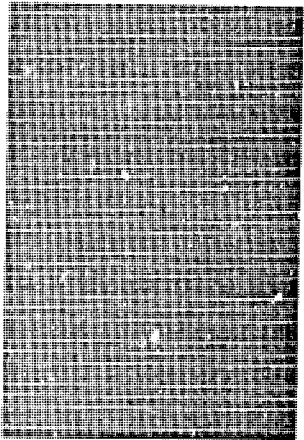
14

| 301 | How I would like to talk about family planning - the various ways or methods that a couple can use to delay or avoid a pregnancy. Which ways or methods have you heard about?

CIRCLE CODE 1 IN 302 FOR EACH METHOD MENTIONED SPONTANEOUSLY.
THEN PROCEED DOWN THE COLUMN, READING THE NAME AND DESCRIPTION OF EACH METHOD NOT MENTIONED SPONTANEOUSLY.
CIRCLE CODE 2 IF METHOD IS RECOGNIZED, AND CODE 3 IF NOT RECOGNIZED.
THEN, FOR EACH METHOD WITH CODE 1 OR 2 CIRCLED IN 302, ASK 303-304 BEFORE PROCEEDING TO THE NEXT METHOD. |

		302 Have you ever heard of (METHOD)? READ DESCRIPTION OF EACH METHOD.	303 Have you ever used (METHOD)?	304 Do you know where a person could go to get (METHOD)?
01	Pill Women can take a pill every day.	YES/SPONTANEOUS............1 YES/PROBED.................2 NO.........................3	YES..............1 NO..............2	YES.......................1 NO........................2
02	Loop or Copper T Women can have a loop or coil placed inside them by a doctor or a nurse.	YES/SPONTANEOUS............1 YES/PROBED.................2 NO.........................3	YES..............1 NO..............2	YES.......................1 NO........................2
03	Injections Women can have an injection given by a doctor or nurse which stops them from becoming pregnant for several months.	YES/SPONTANEOUS............1 YES/PROBED.................2 NO.........................3	YES..............1 NO..............2	YES.......................1 NO........................2
04	Condom or Nirodh Men can use a rubber sheath during sexual intercourse.	YES/SPONTANEOUS............1 YES/PROBED.................2 NO.........................3	YES..............1 NO..............2	YES.......................1 NO........................2
05	Female sterilization Women can have an operation to avoid having any more children.	YES/SPONTANEOUS............1 YES/PROBED.................2 NO.........................3	Have you ever had an operation to avoid having any more children? YES..............1 NO..............2	YES.......................1 NO........................2

15

361

	302 Have you ever heard of (METHOD)? READ DESCRIPTION OF EACH METHOD.	303 Have you ever used (METHOD)?	304 Do you know where a person could go to get (METHOD)?
06 **Male sterilization** Men can have an operation to avoid having any more children.	YES/SPONTANEOUS............1 YES/PROBED.................2 NO..........................3	Has your husband ever had an operation to avoid having any more children? YES...............1 NO...............2	YES........................1 NO.........................2
07 **Rhythm or Periodic abstinence** Couples can avoid having sexual intercourse on certain days of the month when the woman is more likely to become pregnant.	YES/SPONTANEOUS............1 YES/PROBED.................2 NO..........................3	YES...............1 NO...............2	Do you know where a person can obtain advice on how to practice periodic abstinence? YES........................1 NO.........................2
08 **Withdrawal** Men can be careful and pull out before climax.	YES/SPONTANEOUS............1 YES/PROBED.................2 NO..........................3	YES...............1 NO...............2	
09 Have you heard of any other ways or methods that women or men can use to avoid pregnancy? 1 _____ (SPECIFY) 2 _____ (SPECIFY) 3 _____ (SPECIFY)	YES/SPONTANEOUS............1 NO..........................3	YES...............1 NO...............2 YES...............1 NO...............2 YES...............1 NO...............2	
305 CHECK 303: NOT A SINGLE "YES" (NEVER USED) ☐	AT LEAST ONE "YES" (EVER USED) ☐ → SKIP TO 308		

16

362

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
306	Have you ever used anything or tried in any way to delay or avoid getting pregnant?	YES............................☐ NO.............................☐	→344
307	What have you used or done? CORRECT 303-305 (AND 302 IF NECESSARY).		
308	Now I would like to ask you about the time when you first did something or used a method to avoid getting pregnant. How many living children did you have at that time, if any? IF NONE, RECORD '00'.	NUMBER OF CHILDREN.........☐☐	
309	CHECK 107: CURRENTLY ☐ WIDOWED MARRIED DIVORCED ☐ SEPARATED		→352
310	CHECK 227: NOT PREGNANT ☐ PREGNANT ☐ OR UNSURE		→345
311	CHECK 303: NEITHER ☐ HE OR SHE STERILIZED STERILIZED ☐		→313A
312	Are you or your husband currently doing something or using any method to delay or avoid getting pregnant?	YES.............................1 NO.............................2	→342

17

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
313	Which method are you using?	PILL...........................01 LOOP/COPPER T..................02———▶321 INJECTION......................03———▶328 CONDOM/NIRODH..................04———▶330 FEMALE STERILIZATION...........05 MALE STERILIZATION.............06 ———▶332 RHYTHM/PERIODIC ABSTINENCE.....07 WITHDRAWAL.....................08 ▶341 OTHER_____09 (SPECIFY)	
313A	CIRCLE '05' FOR FEMALE STERILIZATION. CIRCLE '06' FOR MALE STERILIZATION.		
314	For how many months have you been using the pill continuously? IF LESS THAN 1 MONTH, RECORD '00'.	MONTHS.................... ☐☐ 8 YEARS OR LONGER.............96	
315	At the time you first started using the pill, did you consult a doctor or a nurse ?	YES............................1 NO.............................2	
316	Once you started using the pill, did a health worker come to visit you for a follow-up related to your use of the pill?	YES............................1 NO.............................2	
317	Once you started using the pill, did you go to consult a medical or health person about your experience with the use of the pill?	YES............................1 NO.............................2	
318	Have you had any problems with the use of the pill?	YES............................1 NO.............................2———▶320	
319	What problems have you had? RECORD ALL PROBLEMS MENTIONED.	CRAMPS.........................A WEIGHT GAIN....................B DIZZINESS......................C BODY ACHE......................D SPOTTING/BLEEDING..............E WHITE DISCHARGE................F BREAST TENDERNESS..............G NAUSEA/VOMITING................H CANCER.........................I ALLERGY........................J HEADACHE.......................K OTHER _____L (SPECIFY)	

18

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
320	Where did you obtain the pills the last time? (NAME OF HOSPITAL IF CODE 11 OR 21)	PUBLIC SECTOR 　GOVT./MUNICIPAL HOSPITAL......11 　PRIMARY HEALTH CENTRE.........12 　SUB-CENTRE....................13 　FAMILY PLANNING CLINIC........14 　MOBILE CLINIC.................15 　GOVERNMENT PARAMEDIC..........16 PRIVATE MEDICAL SECTOR 　PRIVATE HOSPITAL OR CLINIC....21 　PHARMACY/DRUGSTORE............22 　PRIVATE DOCTOR................23 　MOBILE CLINIC.................24 　FIELD WORKER..................25 OTHER PRIVATE SECTOR 　SHOP..........................31 　FRIENDS/RELATIVES.............32 OTHER _____41 　　　　　(SPECIFY)	→352
321	Who inserted the (LOOP/COPPER T)?	GOVERNMENT DOCTOR...............1 GOVERNMENT PARAMEDIC............2 PRIVATE DOCTOR..................3 PRIVATE NURSE...................4	
322	Where did you obtain the (LOOP/COPPER T)? (NAME OF HOSPITAL IF CODE 11 OR 21)	PUBLIC SECTOR 　GOVT./MUNICIPAL HOSPITAL......11 　PRIMARY HEALTH CENTRE.........12 　SUB-CENTRE....................13 　FAMILY PLANNING CLINIC........14 　MOBILE CLINIC.................15 　GOVERNMENT PARAMEDIC..........16 PRIVATE MEDICAL SECTOR 　PRIVATE HOSPITAL OR CLINIC....21 　PRIVATE DOCTOR................22 　MOBILE CLINIC.................23 OTHER _____31 　　　　　(SPECIFY)	
323	For how many months have you been using the (LOOP/COPPER T) continuously? IF LESS THAN 1 MONTH, RECORD '00'.	MONTHS.................. ☐☐ 8 YEARS OR LONGER..............96	
324	Since the (LOOP/COPPER T) was inserted, did any health worker visit you for follow-up related to use of the (LOOP/COPPER T)?	YES............................1 NO.............................2	
325	After the (LOOP/COPPER T) was inserted, did you go to consult a medical or health person about your experience with the use of the (LOOP/COPPER T)?	YES............................1 NO.............................2	

19

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
326	Have you had any problems with the use of the (LOOP/COPPER T)?	YES............................1 NO............................2——►352	
327	What problems have you had? RECORD ALL PROBLEMS MENTIONED	CRAMPS........................A BACKACHE......................B IRREGULAR PERIODS.............C EXCESSIVE BLEEDING............D WEAKNESS/INABILITY TO WORK....E EXPULSION.....................F OTHER _____G (SPECIFY)	►352
328	For how many months have you been using injections continuously? IF LESS THAN 1 MONTH, RECORD '00'.	MONTHS................... [ ][ ] 3 YEARS OR LONGER..............96	

329	Where did you obtain the injection the last time?
	
	 _____
	 (NAME OF HOSPITAL IF CODE 11 OR 21)
		PUBLIC SECTOR
		   GOVT./MUNICIPAL HOSPITAL......11
		   PRIMARY HEALTH CENTRE.........12
		   SUB-CENTRE....................13
		   FAMILY PLANNING CLINIC........14
		   MOBILE CLINIC.................15
		   GOVERNMENT PARAMEDIC..........16
		
		 PRIVATE MEDICAL SECTOR
		   PRIVATE HOSPITAL OR CLINIC....21
		   PRIVATE DOCTOR................22
		   MOBILE CLINIC.................23
		 OTHER _____31
		 (SPECIFY)
			►352

330	For how many months have you been using (condoms/Nirodhs) continuously? IF LESS THAN 1 MONTH, RECORD '00'.	MONTHS................... [ ][ ] 8 YEARS OR LONGER..............96	

331	Where did you obtain the (condoms/Nirodhs) the last time?
	
	 _____
	 (NAME OF HOSPITAL IF CODE 11 OR 21)
		PUBLIC SECTOR
		   GOVT./MUNICIPAL HOSPITAL......11
		   PRIMARY HEALTH CENTRE.........12
		   SUB-CENTRE....................13
		   FAMILY PLANNING CLINIC........14
		   MOBILE CLINIC.................15
		   GOVERNMENT PARAMEDIC..........16
		
		 PRIVATE MEDICAL SECTOR
		   PRIVATE HOSPITAL OR CLINIC....21
		   PHARMACY/DRUGSTORE............22
		   PRIVATE DOCTOR................23
		   MOBILE CLINIC.................24
		   FIELD WORKER.................25
		
		 OTHER PRIVATE SECTOR
		   SHOP.........................31
		   HUSBAND......................32
		   FRIENDS/RELATIVES............33
		 OTHER _____41
		 (SPECIFY)
		 DK............................98
			►352

20

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
332	In what month and year was the sterilization operation performed?	MONTH..................... YEAR...................... DK........................9998	→334
333	How long ago were (you/your husband) sterilized?	MONTHS AGO..............1 YEARS AGO...............2	
334	Where did (you/your husband) obtain the sterilization? _____ (NAME OF HOSPITAL IF CODE 11 OR 21)	PUBLIC SECTOR GOVT./MUNICIPAL HOSPITAL......11 PRIMARY HEALTH CENTRE.........12 FAMILY PLANNING CLINIC........14 MOBILE CLINIC.................15 CAMP..........................16 PRIVATE MEDICAL SECTOR PRIVATE HOSPITAL OR CLINIC....21 PRIVATE DOCTOR................22 MOBILE CLINIC.................23 OTHER _____31 (SPECIFY)	
335	How would you rate the care (you/he) received during or immediately after the operation: excellent, very good, allright, not so good, or very bad?	EXCELLENT.....................1 VERY GOOD.....................2 ALLRIGHT......................3 NOT SO GOOD...................4 VERY BAD......................5 DK............................8	
336	Since the sterilization, has any health worker come to visit (you/your husband) for follow-up related to the sterilization?	YES...........................1 NO............................2 DK............................8	→338
337	How would you rate the follow-up care services for the sterilization: excellent, very good, allright, not so good, or very bad?	EXCELLENT.....................1 VERY GOOD.....................2 ALLRIGHT......................3 NOT SO GOOD...................4 VERY BAD......................5 DK............................8	
338	After the sterilization, did (you/your husband) go to consult a medical or health person about the sterilization?	YES...........................1 NO............................2 DK............................8	

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
339	(Have you/Has your husband) had any problems as a result of the sterilization (operation)?	YES............................1 NO.............................2 —►352	
340	What problems (have you/has he) had? RECORD ALL PROBLEMS MENTIONED	FEVER............................A PAIN/BACKACHE....................B SEPSIS...........................C WEAKNESS/INABILITY TO WORK......D FAILURE/GOT PREGNANT............E LOSS OF SEXUAL POWER............F OTHER _____G (SPECIFY)	►352
341	For how many months have you been using (CURRENT METHOD) continuously? IF LESS THAN 1 MONTH, RECORD '00'.	MONTHS.....................[ ][ ] 8 YEARS OR LONGER..............96	►350
342	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 OTHER_____12 (SPECIFY)	►345

22

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
343	What was the outcome of that pregnancy?	INDUCED ABORTION...............1 SPONTANEOUS ABORTION...........2 STILLBIRTH.....................3 LIVE BIRTH.....................4	
344	CHECK 107: CURRENTLY ☐ WIDOWED ☐ MARRIED DIVORCED SEPARATED		→352
345	Do you intend to use a method to delay or avoid pregnancy at any time in the future?	YES............................1 →347 NO.............................2 DK.............................8 →352	
346	What is the main reason you do not intend to use a method?	WANTS CHILDREN................01 WANTS A SON...................02 WANTS A DAUGHTER..............19 LACK OF KNOWLEDGE.............03 AFRAID OF STERILIZATION.......04 CAN'T WORK AFTER STERILIZATION.05 COST TOO MUCH.................06 WORRY ABOUT SIDE EFFECTS......07 HARD TO GET METHODS...........08 AGAINST RELIGION..............09 OPPOSED TO FAMILY PLANNING....10 HUSBAND OPPOSED...............11 OTHER PEOPLE OPPOSED..........12 DIFFICULT TO GET PREGNANT.....13 HEALTH DOES NOT PERMIT........14 MENOPAUSAL/HAD HYSTERECTOMY....15 INCONVENIENT..................16 DON'T LIKE EXISTING METHODS....17 OTHER_____18 (SPECIFY)	→350
347	Do you intend to use a method within the next 12 months?	YES............................1 NO.............................2 DK.............................8	
348	When you use a method, which method would you prefer to use?	PILL..........................01 LOOP/COPPER T.................02 INJECTION.....................03 CONDOM/NIRODH.................04 FEMALE STERILIZATION..........05 MALE STERILIZATION............06 RHYTHM/PERIODIC ABSTINENCE.....07 WITHDRAWAL....................08 OTHER_____09 (SPECIFY) UNSURE........................98	→350

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369

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO

349	Where can you get (METHOD MENTIONED IN 348)?
	
	_____
	(NAME OF HOSPITAL IF CODE 11 OR 21)
		PUBLIC SECTOR
		  GOVT./MUNICIPAL HOSPITAL......11
		  PRIMARY HEALTH CENTRE.........12
		  SUB-CENTRE....................13
		  FAMILY PLANNING CLINIC........14
		  MOBILE CLINIC.................15
		  GOVERNMENT PARAMEDIC..........16
		
		PRIVATE MEDICAL SECTOR
		  PRIVATE HOSPITAL OR CLINIC....21
		  PHARMACY/DRUGSTORE............22
		  PRIVATE DOCTOR................23
		  MOBILE CLINIC.................24
		  FIELD WORKER.................25
		
		OTHER PRIVATE SECTOR
		  SHOP.........................31
		  FRIENDS/RELATIVES............32
		OTHER_____41
		         (SPECIFY)
		DK............................98
			→352

350	Do you know of a place where you can obtain a method of family planning?	YES...........................1 NO............................2	→352

351	Where is that?
	
	_____
	(NAME OF HOSPITAL IF CODE 11 OR 21)
		PUBLIC SECTOR
		  GOVT./MUNICIPAL HOSPITAL......11
		  PRIMARY HEALTH CENTRE.........12
		  SUB-CENTRE....................13
		  FAMILY PLANNING CLINIC........14
		  MOBILE CLINIC.................15
		  GOVERNMENT PARAMEDIC..........16
		
		PRIVATE MEDICAL SECTOR
		  PRIVATE HOSPITAL OR CLINIC....21
		  PHARMACY/DRUGSTORE............22
		  PRIVATE DOCTOR................23
		  MOBILE CLINIC.................24
		  FIELD WORKER.................25
		
		OTHER PRIVATE SECTOR
		  SHOP.........................31
		  FRIENDS/RELATIVES............32
		OTHER_____41
		         (SPECIFY)	

352	In the last month, have you heard a message about family planning on:
	
	  the radio?
	  television?
		YES NO
		
		RADIO.......................1 2
		TELEVISION..................1 2	

353	Is it acceptable or not acceptable to you for family planning information to be provided on the radio or television?	ACCEPTABLE....................1 NOT ACCEPTABLE................2 DK............................8	

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401	CHECK 225: ONE OR MORE BIRTHS SINCE JAN. 1988 ☐	NO BIRTHS SINCE JAN. 1988 ☐ → (SKIP TO 501)

402	ENTER THE LINE NUMBER, NAME, AND SURVIVAL STATUS OF EACH BIRTH SINCE JANUARY 1988 IN THE TABLE. ASK THE QUESTIONS ABOUT ALL OF THESE BIRTHS. BEGIN WITH THE LAST BIRTH. (IF THERE ARE MORE THAN 3 BIRTHS, RECORD ONLY THE LAST 3 BIRTHS). Now I would like to ask you some more questions about the health of all your children born in the past four years. (We will talk about one child at a time.)

LINE NUMBER FROM Q. 216	☐☐	☐☐	☐☐

	LAST BIRTH	NEXT-TO-LAST BIRTH	SECOND-FROM-LAST BIRTH
FROM Q. 216 AND Q. 220	NAME _____ ALIVE ☐ DEAD ☐	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)◄──	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	MONTHS............1 ☐☐ YEARS.............2 DK.................998

405	When you were pregnant with (NAME), did any health worker visit you at home for an antenatal check-up?	YES...................1 NO....................2 (SKIP TO 408)◄──	YES...................1 NO....................2 (SKIP TO 408)◄──	YES...................1 NO....................2 (SKIP TO 408)◄──

406	How many months pregnant were you when a health worker first visited you?	MONTHS............☐☐	MONTHS............☐☐	MONTHS............☐☐

	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
407 How many times did she visit you?	NO. OF VISITS....... ☐☐	NO. OF VISITS....... ☐☐	NO. OF VISITS....... ☐☐
408 When you were pregnant with (NAME), did you go for an antenatal check-up?	YES.....................1 NO......................2 (SKIP TO 412)	YES.....................1 NO......................2 (SKIP TO 412)	YES.....................1 NO......................2 (SKIP TO 412)
409 Whom did you see? Anyone else? RECORD ALL PERSONS SEEN.	HEALTH PROFESSIONAL DOCTOR..................A AYURVEDIC DOCTOR/VAID...B HOMEOPATH...............C NURSE/MIDWIFE...........D OTHER HEALTH PROFSSNL...E OTHER PERSON TRAINED (TRADITIONAL) BIRTH ATTENDANT........F TRADITIONAL BIRTH ATTENDANT..............G HAKIM...................H OTHER_____I (SPECIFY)	HEALTH PROFESSIONAL DOCTOR..................A AYURVEDIC DOCTOR/VAID...B HOMEOPATH...............C NURSE/MIDWIFE...........D OTHER HEALTH PROFSSNL...E OTHER PERSON TRAINED (TRADITIONAL) BIRTH ATTENDANT........F TRADITIONAL BIRTH ATTENDANT..............G HAKIM...................H OTHER_____I (SPECIFY)	HEALTH PROFESSIONAL DOCTOR..................A AYURVEDIC DOCTOR/VAID...B HOMEOPATH...............C NURSE/MIDWIFE...........D OTHER HEALTH PROFSSNL...E OTHER PERSON TRAINED (TRADITIONAL) BIRTH ATTENDANT........F TRADITIONAL BIRTH ATTENDANT..............G HAKIM...................H OTHER_____I (SPECIFY)
410 How many months pregnant were you when you first went for an antenatal check-up?	MONTHS.............. ☐☐	MONTHS.............. ☐☐	MONTHS.............. ☐☐
411 How many times did you go for an antenatal check-up?	NO. OF TIMES....... ☐☐ (SKIP TO 413)	NO. OF TIMES....... ☐☐ (SKIP TO 413)	NO. OF TIMES....... ☐☐ (SKIP TO 413)
412 What is the main reason you did not go for an antenatal check-up?	LACK OF KNOWLEDGE OF SERVICES..............01 NOT NECESSARY..........02 NOT CUSTOMARY..........03 FINANCIAL COST.........04 INCONVENIENT...........05 POOR QUALITY SERVICE....06 HEALTH STAFF VISIT AT HOME................07 NO TIME TO GO..........08 NOT PERMITTED TO GO.....09 OTHER_____10 (SPECIFY)	LACK OF KNOWLEDGE OF SERVICES..............01 NOT NECESSARY..........02 NOT CUSTOMARY..........03 FINANCIAL COST.........04 INCONVENIENT...........05 POOR QUALITY SERVICE....06 HEALTH STAFF VISIT AT HOME................07 NO TIME TO GO..........08 NOT PERMITTED TO GO.....09 OTHER_____10 (SPECIFY)	LACK OF KNOWLEDGE OF SERVICES..............01 NOT NECESSARY..........02 NOT CUSTOMARY..........03 FINANCIAL COST.........04 INCONVENIENT...........05 POOR QUALITY SERVICE....06 HEALTH STAFF VISIT AT HOME................07 NO TIME TO GO..........08 NOT PERMITTED TO GO.....09 OTHER_____10 (SPECIFY)

26

	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
413 Were you given any iron folic-tablets during this pregnancy?	YES......................1 NO.......................2	YES......................1 NO.......................2	YES......................1 NO.......................2

414
When you were pregnant
with (NAME), were you given
an injection in the arm to
prevent you and the baby from
getting tetanus, that is,
convulsions?
	YES......................1
	
	NO.......................2┐
	  (SKIP TO 416)◄───┤
	DK.......................8┘
		YES......................1
		
		NO.......................2┐
		  (SKIP TO 416)◄───┤
		DK.......................8┘
			YES......................1
			
			NO.......................2┐
			  (SKIP TO 416)◄───┤
			DK.......................8┘

415 During this pregnancy how many times did you get this injection?	TIMES................□ DK.......................8	TIMES................□ DK.......................8	TIMES................□ DK.......................8

416
Where did you give
birth to (NAME)?
	HOME
	  YOUR HOME..............11
	  PARENTS' HOME..........12
	  OTHER HOME.............13
	
	PUBLIC SECTOR
	  GVT./MUNICIPL HOSPITL..21
	  PRIMARY HEALTH CENTRE..22
	  SUB-CENTRE.............23
	
	PRIVATE SECTOR
	  PRIVATE HOSPITAL/
	  CLINIC/MATERNITY HOME..31
	OTHER_____41
	      (SPECIFY)
		HOME
		  YOUR HOME..............11
		  PARENTS' HOME..........12
		  OTHER HOME.............13
		
		PUBLIC SECTOR
		  GVT./MUNICIPL HOSPITL..21
		  PRIMARY HEALTH CENTRE..22
		  SUB-CENTRE.............23
		
		PRIVATE SECTOR
		  PRIVATE HOSPITAL/
		  CLINIC/MATERNITY HOME..31
		OTHER_____41
		      (SPECIFY)
			HOME
			  YOUR HOME..............11
			  PARENTS' HOME..........12
			  OTHER HOME.............13
			
			PUBLIC SECTOR
			  GVT./MUNICIPL HOSPITL..21
			  PRIMARY HEALTH CENTRE..22
			  SUB-CENTRE.............23
			
			PRIVATE SECTOR
			  PRIVATE HOSPITAL/
			  CLINIC/MATERNITY HOME..31
			OTHER_____41
			      (SPECIFY)

27

	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____

417
Who assisted with the delivery of (NAME)?
 	
Anyone else?
 	
PROBE FOR THE TYPE OF PERSON AND RECORD ALL PERSONS ASSISTING.
	HEALTH PROFESSIONAL
	  DOCTOR..................A
	  AYURVEDIC DOCTOR/VAID...B
	  NURSE/MIDWIFE...........C
	  ANM/LHV.................D
	
	OTHER PERSON
	  TRAINED (TRADITIONAL)
	    BIRTH ATTENDANT........E
	  TRADITIONAL BIRTH
	    ATTENDANT..............F
	  RELATIVE/FRIEND.........G
	OTHER_____H
	    (SPECIFY)
	NO ONE...................I
		HEALTH PROFESSIONAL
		  DOCTOR..................A
		  AYURVEDIC DOCTOR/VAID...B
		  NURSE/MIDWIFE...........C
		  ANM/LHV.................D
		
		OTHER PERSON
		  TRAINED (TRADITIONAL)
		    BIRTH ATTENDANT........E
		  TRADITIONAL BIRTH
		    ATTENDANT..............F
		  RELATIVE/FRIEND.........G
		OTHER_____H
		    (SPECIFY)
		NO ONE...................I
			HEALTH PROFESSIONAL
			  DOCTOR..................A
			  AYURVEDIC DOCTOR/VAID...B
			  NURSE/MIDWIFE...........C
			  ANM/LHV.................D
			
			OTHER PERSON
			  TRAINED (TRADITIONAL)
			    BIRTH ATTENDANT........E
			  TRADITIONAL BIRTH
			    ATTENDANT..............F
			  RELATIVE/FRIEND.........G
			OTHER_____H
			    (SPECIFY)
			NO ONE...................I

418 Was (NAME) born on time or prematurely?	ON TIME.................1 PREMATURELY.............2 DK......................8	ON TIME.................1 PREMATURELY.............2 DK......................8	ON TIME.................1 PREMATURELY.............2 DK......................8

419
Were there any complications in the delivery of (NAME)?
	YES.....................1
	
	NO......................2
	  (SKIP TO 421)◄———
		YES.....................1
		
		NO......................2
		  (SKIP TO 421)◄———
			YES.....................1
			
			NO......................2
			  (SKIP TO 421)◄———

420
What were the complications?
 	
RECORD ALL MENTIONED.
	CAESARIAN SECTION........A
	USE OF FORCEPS...........B
	EXCESSIVE BLEEDING.......C
	LONG PERIOD OF LABOR.....D
	DELAYED DELIVERY OF
	  PLACENTA...............E
	OTHER_____F
	    (SPECIFY)
		CAESARIAN SECTION........A
		USE OF FORCEPS...........B
		EXCESSIVE BLEEDING.......C
		LONG PERIOD OF LABOR.....D
		DELAYED DELIVERY OF
		  PLACENTA...............E
		OTHER_____F
		    (SPECIFY)
			CAESARIAN SECTION........A
			USE OF FORCEPS...........B
			EXCESSIVE BLEEDING.......C
			LONG PERIOD OF LABOR.....D
			DELAYED DELIVERY OF
			  PLACENTA...............E
			OTHER_____F
			    (SPECIFY)

421 When (NAME) was born, was he/she: large, average or small?	LARGE...................1 AVERAGE.................2 SMALL ....3 DK......................8	LARGE...................1 AVERAGE.................2 SMALL...................3 DK......................8	LARGE...................1 AVERAGE.................2 SMALL...................3 DK......................8

422
Was (NAME) weighed at birth?
	YES.....................1
	
	NO......................2
	  (SKIP TO 424)◄———
		YES.....................1
		
		NO......................2
		  (SKIP TO 425)◄———
			YES.....................1
			
			NO......................2
			  (SKIP TO 425)◄———

28

374

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
423	How much did (NAME) weigh?	GRAMS.......1 ☐☐☐☐ POUNDS OUNCES POUNDS....2 ☐☐ ☐☐ DK.....................99998	GRAMS.......1 ☐☐☐☐ POUNDS OUNCES POUNDS....2 ☐☐ ☐☐ DK.....................99998	GRAMS.......1 ☐☐☐☐ POUNDS OUNCES POUNDS....2 ☐☐ ☐☐ DK.....................99998
424	Has your period returned since the birth of (NAME)?	YES ....1⌐ (SKIP TO 426)◄───┘ NO......................2⌐ (SKIP TO 427)◄───┘	░░░░░░░░░░░	░░░░░░░░░░░
425	Did your period return between the birth of (NAME) and your next pregnancy?	░░░░░░░░░░░	YES ....1 NO......................2⌐ (SKIP TO 429)◄───┘	YES ....1 NO......................2⌐ (SKIP TO 429)◄───┘
426	For how many months after the birth of (NAME) did you not have a period?	MONTHS..............☐☐ DK......................98	MONTHS..............☐☐ DK......................98	MONTHS..............☐☐ DK......................98
427	CHECK 227: RESPONDENT PREGNANT?	NOT PREGNANT ☐ PREGNANT OR UNSURE ☐ v (SKIP TO 429) v	░░░░░░░░░░░	░░░░░░░░░░░
428	Have you resumed sexual relations since the birth of (NAME)?	YES.....................1 NO......................2⌐ (SKIP TO 430)◄───┘	░░░░░░░░░░░	░░░░░░░░░░░
429	For how many months after the birth of (NAME) did you not have sexual relations?	MONTHS..............☐☐ DK......................98	MONTHS..............☐☐ DK......................98	MONTHS..............☐☐ DK......................98

29

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
430	Did you ever breastfeed (NAME)?	YES.....................1⌐ (SKIP TO 432)◄────┘ NO........................2	YES.....................1⌐ (SKIP TO 440)◄────┘ NO........................2	YES.....................1⌐ (SKIP TO 440)◄────┘ NO........................2
431	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_____08⌐ (SPECIFY) (SKIP TO 442)◄────┘	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_____08⌐ (SPECIFY) (SKIP TO 442)◄────┘	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_____08⌐ (SPECIFY) (SKIP TO 442)◄────┘
432	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 ▢▢		
433	Did you squeeze out the milk from the breast before you first put (NAME) to the breast?	YES.....................1 NO........................2		
434	CHECK 220: CHILD ALIVE?	ALIVE ▢ DEAD ▢ │ │ ▼ (SKIP TO 440)		
435	Are you still breastfeeding (NAME)?	YES.....................1 NO........................2⌐ (SKIP TO 440)◄────┘		
436	How many times did you breastfeed last night between sunset and sunrise? IF ANSWER IS NOT NUMERIC, PROBE FOR APPROXIMATE ANSWER.	NUMBER OF NIGHTTIME FEEDINGS ....▢		
437	How many times did you breastfeed yesterday during the daylight hours? IF ANSWER IS NOT NUMERIC, PROBE FOR APPROXIMATE ANSWER.	NUMBER OF DAYTIME FEEDINGS ....▢		

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
438	At any time yesterday or last night, was (NAME) given any of the following?: Plain water? Sugar/honey water? Juice? Tea? Baby formula? Fresh milk? Tinned/pow-dered milk? Other liquids? Any solid or mushy food?	YES NO PLAIN WATER..........1 2 SUGAR/HONEY WATER....1 2 JUICE................1 2 TEA..................1 2 BABY FORMULA.........1 2 FRESH MILK...........1 2 TINNED/POWDERED MILK.1 2 OTHER LIQUIDS........1 2 SOLID/MUSHY FOOD.....1 2		
439	CHECK 438: FOOD OR LIQUID GIVEN YESTERDAY?	"YES" TO ONE OR "NO" TO ALL MORE ☐ ☐ v (SKIP TO 443) (SKIP TO 444)		

440	For how many months did you breastfeed (NAME)?	MONTHS.............[ ][ ]
		
		UNTIL DIED..............96⌐
		  (SKIP TO 443)◄────┘
			MONTHS.............[ ][ ]
			
			STILL BREASTFEEDING.....95⌐
			  (SKIP TO 442)◄────┘
			
			UNTIL DIED..............96⌐
			  (SKIP TO 443)◄────┘
				MONTHS.............[ ][ ]
				
				UNTIL DIED..............96⌐
				  (SKIP TO 443)◄────┘

441	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_____11
		     (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_____11
			     (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_____11
				     (SPECIFY)

442	CHECK 220:
	
	CHILD ALIVE?
		ALIVE ☐ DEAD ☐
		  v
		(SKIP TO 444)
			ALIVE ☐ DEAD ☐
			  v
			(SKIP TO 444)
				ALIVE ☐ DEAD ☐
				  v
				(SKIP TO 444)

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	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____

443
 	
Was (NAME) ever given water or anything else to drink or eat (other than breastmilk)?
	YES.....................1
	
	NO......................2⌐
	    (SKIP TO 447)←
		YES.....................1
		
		NO......................2⌐
		    (SKIP TO 447)←
			YES.....................1
			
			NO......................2⌐
			    (SKIP TO 447)←

444
 	
How many months old was (NAME) when you started giving the following on a regular basis?
 	
  Plain water?
 	
  Formula or milk other than breastmilk?
 	
  Other liquids?
 	
  Any solid or mushy food?
 	
IF LESS THAN 1 MONTH, RECORD '00'.
	AGE IN MONTHS...... ☐☐
	NOT GIVEN...............96
	
	AGE IN MONTHS...... ☐☐
	NOT GIVEN...............96
	
	AGE IN MONTHS...... ☐☐
	NOT GIVEN...............96
	
	AGE IN MONTHS...... ☐☐
	NOT GIVEN...............96
		AGE IN MONTHS...... ☐☐
		NOT GIVEN...............96
		
		AGE IN MONTHS...... ☐☐
		NOT GIVEN...............96
		
		AGE IN MONTHS...... ☐☐
		NOT GIVEN...............96
		
		AGE IN MONTHS...... ☐☐
		NOT GIVEN...............96
		
		(SKIP TO 447)
			AGE IN MONTHS...... ☐☐
			NOT GIVEN...............96
			
			AGE IN MONTHS...... ☐☐
			NOT GIVEN...............96
			
			AGE IN MONTHS...... ☐☐
			NOT GIVEN...............96
			
			AGE IN MONTHS...... ☐☐
			NOT GIVEN...............96
			
			(SKIP TO 447)

445 CHECK 220:
 	
CHILD ALIVE?
	ALIVE ☐ DEAD ☐
	             ↓
	       (SKIP TO 447)
	 ↓		
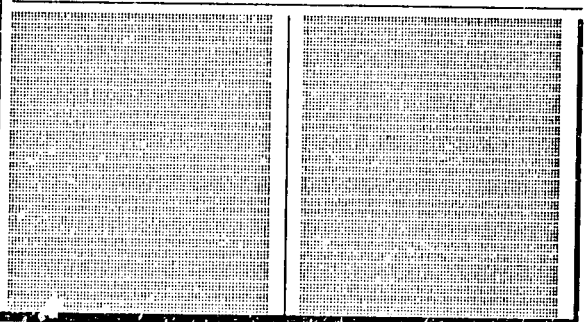
446 Did (NAME) drink anything from a bottle with a nipple yesterday or last night?	YES.....................1 NO......................2 DK......................8		
447 ──────────────────► GO BACK TO 403 FOR NEXT BIRTH; OR, IF NO MORE BIRTHS, GO TO FIRST COLUMN OF 448.			

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| 448 | ENTER THE LINE NUMBER AND NAME OF EACH BIRTH SINCE JANUARY 1988 IN THE TABLE. ASK THE QUESTIONS ABOUT ALL OF THESE BIRTHS. BEGIN WITH THE LAST BIRTH. (IF THERE ARE MORE THAN 3 BIRTHS, RECORD ONLY THE LAST 3 BIRTHS). |

	LINE NUMBER FROM Q. 216	☐☐	☐☐	☐☐

		LAST BIRTH	NEXT-TO-LAST BIRTH	SECOND-FROM-LAST BIRTH
	FROM Q. 216	NAME _____	NAME _____	NAME _____
	AND Q. 220	ALIVE ☐ DEAD ☐	ALIVE ☐ DEAD ☐	ALIVE ☐ DEAD ☐

| 449 | Do you have a card where (NAME'S) vaccinations are written down? IF YES: May I see it, please? | YES, SEEN................1⌐ (SKIP TO 451)◄────┘
 YES, NOT SEEN...........2⌐ (SKIP TO 453)◄────┘
 NO CARD.................3 | YES, SEEN................1⌐ (SKIP TO 451)◄────┘
 YES, NOT SEEN...........2⌐ (SKIP TO 453)◄────┘
 NO CARD.................3 | YES, SEEN................1⌐ (SKIP TO 451)◄────┘
 YES, NOT SEEN...........2⌐ (SKIP TO 453)◄────┘
 NO CARD.................3 |

| 450 | Did you ever have a vaccination card for (NAME)? | YES....................1⌐ (SKIP TO 453)◄────┘
 NO.....................2┘ | YES....................1⌐ (SKIP TO 453)◄────┘
 NO.....................2┘ | YES....................1⌐ (SKIP TO 453)◄────┘
 NO.....................2┘ |

451	(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 RECORDED.			
	BCG	BCG	BCG	BCG
	POLIO 0	P0	P0	P0
	DPT 1	D1	D1	D1
	DPT 2	D2	D2	D2
	DPT 3	D3	D3	D3
	POLIO 1	P1	P1	P1
	POLIO 2	P2	P2	P2
	POLIO 3	P3	P3	P3
	MEASLES	MEA	MEA	MEA

(DAY MO YR columns for each of the three birth tables)

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		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
452	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 451) ───── (SKIP TO 455) ◄──────┘ NO..........................2┐ DK..........................8┘ (SKIP TO 455) ◄──────┘	YES.........................1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 451) ───── (SKIP TO 455) ◄──────┘ NO..........................2┐ DK..........................8┘ (SKIP TO 455) ◄──────┘	YES.........................1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 451) ───── (SKIP TO 455) ◄──────┘ NO..........................2┐ DK..........................8┘ (SKIP TO 455) ◄──────┘
453	Did (NAME) ever receive any vaccinations to prevent him/her from getting diseases?	YES.........................1 NO..........................2┐ (SKIP TO 455)◄───── DK..........................8┘	YES.........................1 NO..........................2┐ (SKIP TO 455)◄───── DK..........................8┘	YES.........................1 NO.... ....2┐ (SKIP TO 455)◄───── DK..........................8┘
454	Please tell me if (NAME) (has) received any of the following vaccinations: 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	YES.........................1 NO..........................2 DK..........................8
	A vaccination against diphtheria, whooping cough and tetanus given as an injection? IF YES: How many times?	YES.........................1 NO..........................2 DK..........................8 NUMBER OF TIMES........ ☐	YES.........................1 NO..........................2 DK..........................8 NUMBER OF TIMES........ ☐	YES.........................1 NO..........................2 DK..........................8 NUMBER OF TIMES........ ☐
	Polio vaccine, that is, drops in the mouth? IF YES: How many times? IF YES: When was the first polio vaccine given -- just after birth or later?	YES.. ....1 NO..........................2 DK..........................8 NUMBER OF TIMES........ ☐ JUST AFTER BIRTH.........1 LATER....................2 DK..........................8	YES.........................1 NO..........................2 DK..........................8 NUMBER OF TIMES........ ☐ JUST AFTER BIRTH.........1 LATER....................2 DK..........................8	YES.........................1 NO..........................2 DK..........................8 NUMBER OF TIMES........ ☐ JUST AFTER BIRTH.........1 LATER....................2 DK..........................8
	An injection against measles?	YES.........................1 NO..........................2 DK..........................8	YES.........................1 NO..........................2 DK..........................8	YES.........................1 .NO..........................2 DK..........................8

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
455	Was a dose of vitamin A liquid ever given to (NAME) to protect him/her from night blindness?	YES.......................1 NO........................2 DK........................8	YES.......................1 NO........................2 DK........................8	YES.......................1 NO........................2 DK........................8
456	Did (NAME) ever have: Whooping cough? Measles? Polio? Diphtheria? Chicken pox? Ricket~?	YES NO WHOOPING COUGH.... 1 2 MEASLES.......... 1 2 POLIO............ 1 2 DIPHTHERIA....... 1 2 CHICKEN POX...... 1 2 RICKETS.......... 1 2	YES NO WHOOPING COUGH.... 1 2 MEASLES.......... 1 2 POLIO............ 1 2 DIPHTHERIA....... 1 2 CHICKEN POX...... 1 2 RICKETS.......... 1 2	YES NO WHOOPING COUGH.... 1 2 MEASLES.......... 1 2 POLIO............ 1 2 DIPHTHERIA....... 1 2 CHICKEN POX...... 1 2 RICKETS.......... 1 2

457	CHECK 220:
	
	CHILD ALIVE?
		ALIVE ☐ DEAD ☐
		   v
		(SKIP TO 459)
			ALIVE ☐ DEAD ☐
			   v
			(SKIP TO 459)
				ALIVE ☐ DEAD ☐
				   v
				(SKIP TO 459)

458	————————————————►	GO BACK TO 449 FOR NEXT BIRTH; OR, IF NO MORE BIRTHS, SKIP TO 489.		
459	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	YES.......................1 NO........................2 DK........................8

460	Has (NAME) been ill with a cough at any time in the last 2 weeks?	YES.......................1
		NO........................2 ┐
		  (SKIP TO 464)◄————┐
		DK........................8┘
			YES.......................1
			NO........................2 ┐
			  (SKIP TO 464)◄————┐
			DK........................8┘
				YES.......................1
				NO........................2 ┐
				  (SKIP TO 464)◄————┐
				DK........................8┘

461	Has (NAME) been ill with a cough in the last 24 hours?	YES.......................1 NO........................2 DK........................8	YES.......................1 NO........................2 DK........................8	YES.......................1 NO........................2 DK........................8

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		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
462	For how many days (has the cough lasted/did the cough last)? IF LESS THAN 1 DAY, RECORD '00'	DAYS.............. ☐☐	DAYS.............. ☐☐	DAYS.............. ☐☐
463	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	YES.....................1 NO......................2 DK......................8

464	CHECK 459 AND 460:
	
	FEVER OR COUGH?
		"YES" IN EITHER 459 OR 460
		☐ ☐OTHER
		       └→(SKIP TO 469)
			"YES" IN EITHER 459 OR 460
			☐ ☐OTHER
			       └→(SKIP TO 469)
				"YES" IN EITHER 459 OR 460
				☐ ☐OTHER
				       └→(SKIP TO 469)

465	Did you seek advice or treatment for the fever/cough?	YES.....................1 NO......................2 (SKIP TO 467)◄———	YES.....................1 NO......................2 (SKIP TO 467)◄———	YES.....................1 NO......................2 (SKIP TO 467)◄———

466	Where did you seek advice or treatment?
	
	Anywhere else?
	
	RECORD ALL MENTIONED
		PUBLIC SECTOR
		  GVT/MUNICIPAL HOSPITAL..A
		  PRIMARY HEALTH CENTRE...B
		  SUB-CENTRE..............C
		  MOBILE CLINIC...........D
		  VILLAGE HEALTH GUIDE....E
		  GOVERNMENT PARAMEDIC....F
		
		PRIVATE MEDICAL SECTOR
		  PVT. HOSPITAL/CLINIC....G
		  PHARMACY/DRUGSTORE......H
		  PRIVATE DOCTOR..........I
		  MOBILE CLINIC...........J
		  COMMUNITY HEALTH WORKER.K
		
		OTHER PRIVATE SECTOR
		  SHOP....................L
		  TRADITIONAL
		    PRACTITIONER..........M
		OTHER_____N
		     (SPECIFY)
			PUBLIC SECTOR
			  GVT/MUNICIPAL HOSPITAL..A
			  PRIMARY HEALTH CENTRE...B
			  SUB-CENTRE..............C
			  MOBILE CLINIC...........D
			  VILLAGE HEALTH GUIDE....E
			  GOVERNMENT PARAMEDIC....F
			
			PRIVATE MEDICAL SECTOR
			  PVT. HOSPITAL/CLINIC....G
			  PHARMACY/DRUGSTORE......H
			  PRIVATE DOCTOR..........I
			  MOBILE CLINIC...........J
			  COMMUNITY HEALTH WORKER.K
			
			OTHER PRIVATE SECTOR
			  SHOP....................L
			  TRADITIONAL
			    PRACTITIONER..........M
			OTHER_____N
			     (SPECIFY)
				PUBLIC SECTOR
				  GVT/MUNICIPAL HOSPITAL..A
				  PRIMARY HEALTH CENTRE...B
				  SUB-CENTRE..............C
				  MOBILE CLINIC...........D
				  VILLAGE HEALTH GUIDE....E
				  GOVERNMENT PARAMEDIC....F
				
				PRIVATE MEDICAL SECTOR
				  PVT. HOSPITAL/CLINIC....G
				  PHARMACY/DRUGSTORE......H
				  PRIVATE DOCTOR..........I
				  MOBILE CLINIC...........J
				  COMMUNITY HEALTH WORKER.K
				
				OTHER PRIVATE SECTOR
				  SHOP....................L
				  TRADITIONAL
				    PRACTITIONER..........M
				OTHER_____N
				     (SPECIFY)

467	Was anything given to treat the fever/cough?	YES.....................1 NO......................2 (SKIP TO 469)◄——— DK......................8	YES.....................1 NO......................2 (SKIP TO 469)◄——— DK......................8	YES.....................1 NO......................2 (SKIP TO 469)◄——— DK......................8

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		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____

468	What was given to treat the fever/cough?
	
	Anything else?
	
	RECORD ALL MENTIONED.
		INJECTION................A
		ANTIBIOTIC
		  (PILL OR SYRUP).........B
		ANTIMALARIAL
		  (PILL OR SYRUP).........C
		COUGH SYRUP..............D
		OTHER PILL OR SYRUP......E
		UNKNOWN PILL OR SYRUP....F
		HOME REMEDY/
		  HERBAL MEDICINE.........G
		OTHER_____H
		     (SPECIFY)
			INJECTION................A
			ANTIBIOTIC
			  (PILL OR SYRUP).........B
			ANTIMALARIAL
			  (PILL OR SYRUP).........C
			COUGH SYRUP..............D
			OTHER PILL OR SYRUP......E
			UNKNOWN PILL OR SYRUP....F
			HOME REMEDY/
			  HERBAL MEDICINE.........G
			OTHER_____H
			     (SPECIFY)
				INJECTION................A
				ANTIBIOTIC
				  (PILL OR SYRUP).........B
				ANTIMALARIAL
				  (PILL OR SYRUP).........C
				COUGH SYRUP..............D
				OTHER PILL OR SYRUP......E
				UNKNOWN PILL OR SYRUP....F
				HOME REMEDY/
				  HERBAL MEDICINE.........G
				OTHER_____H
				     (SPECIFY)

469	Has (NAME) had diarrhoea in the last two weeks?	YES......................1
		  (SKIP TO 471)◄────┘
		NO.......................2
		DK.......................8
			YES......................1
			  (SKIP TO 471)◄────┘
			NO.......................2
			DK.......................8
				YES......................1
				  (SKIP TO 471)◄────┘
				NO.......................2
				DK.......................8

470	───────────►	GO BACK TO 449 FOR NEXT BIRTH; OR, IF NO MORE BIRTHS, SKIP TO 489.		
471	Has (NAME) had diarrhoea in the last 24 hours?	YES......................1 NO.......................2 DK.......................8	YES......................1 NO.......................2 DK.......................8	YES......................1 NO.......................2 DK.......................8
472	For how many days (has the diarrhoea lasted/did the diarrhoea last)? IF LESS THAN 1 DAY, RECORD '00'	DAYS...............☐☐	DAYS...............☐☐	DAYS...............☐☐

473	Was there any blood in the stools?	YES......................1
		NO.......................2
		DK.......................8
			YES......................1
			NO.......................2
			DK.......................8
			  (SKIP TO 477)
				YES......................1
				NO.......................2
				DK.......................8
				  (SKIP TO 477)

474	CHECK 430/435:
	LAST CHILD STILL BREASTFEEDING?
		YES ☐ NO ☐
		           ▼
		     (SKIP TO 477)
		▼		

475	During (NAME)'s diarrhoea, did you change the frequency of breastfeeding?	YES......................1 NO.......................2 (SKIP TO 477)◄────┘		
476	Did you increase the number of breastfeeds or reduce them, or did you stop completely?	INCREASED................1 REDUCED..................2 STOPPED COMPLETELY.......3		

	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
477 (Aside from breastmilk) Was he/she given the same amount of fluids 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	SAME......................1 MORE......................2 LESS......................3 DK........................8
478 Did you seek advice or treatment for the diarrhoea?	YES.......................1 NO........................2 (SKIP TO 480)◄───────	YES.......................1 NO........................2 (SKIP TO 480)◄───────	YES.......................1 NO........................2 (SKIP TO 480)◄───────

479
Where did you seek advice
or treatment?
 	
Anywhere else?
 	
RECORD ALL MENTIONED.
	PUBLIC SECTOR
	  GVT/MUNICIPAL HOSPITAL...A
	  PRIMARY HEALTH CENTRE...B
	  SUB-CENTRE..............C
	  MOBILE CLINIC...........D
	  VILLAGE HEALTH GUIDE....E
	  GOVERNMENT PARAMEDIC....F
	
	PRIVATE MEDICAL SECTOR
	  PVT. HOSPITAL/CLINIC....G
	  PHARMACY/DRUGSTORE......H
	  PRIVATE DOCTOR..........I
	  MOBILE CLINIC...........J
	  COMMUNITY HEALTH WORKER.K
	
	OTHER PRIVATE SECTOR
	  SHOP....................L
	  TRADITIONAL
	    PRACTITIONER..........M
	OTHER_____N
	    (SPECIFY)
		PUBLIC SECTOR
		  GVT/MUNICIPAL HOSPITAL...A
		  PRIMARY HEALTH CENTRE...B
		  SUB-CENTRE..............C
		  MOBILE CLINIC...........D
		  VILLAGE HEALTH GUIDE....E
		  GOVERNMENT PARAMEDIC....F
		
		PRIVATE MEDICAL SECTOR
		  PVT. HOSPITAL/CLINIC....G
		  PHARMACY/DRUGSTORE......H
		  PRIVATE DOCTOR..........I
		  MOBILE CLINIC...........J
		  COMMUNITY HEALTH WORKER.K
		
		OTHER PRIVATE SECTOR
		  SHOP....................L
		  TRADITIONAL
		    PRACTITIONER..........M
		OTHER_____N
		    (SPECIFY)
			PUBLIC SECTOR
			  GVT/MUNICIPAL HOSPITAL...A
			  PRIMARY HEALTH CENTRE...B
			  SUB-CENTRE..............C
			  MOBILE CLINIC...........D
			  VILLAGE HEALTH GUIDE....E
			  GOVERNMENT PARAMEDIC....F
			
			PRIVATE MEDICAL SECTOR
			  PVT. HOSPITAL/CLINIC....G
			  PHARMACY/DRUGSTORE......H
			  PRIVATE DOCTOR..........I
			  MOBILE CLINIC...........J
			  COMMUNITY HEALTH WORKER.K
			
			OTHER PRIVATE SECTOR
			  SHOP....................L
			  TRADITIONAL
			    PRACTITIONER..........M
			OTHER_____N
			    (SPECIFY)

480 Was anything given to treat the diarrhoea?	YES.......................1 NO........................2 (SKIP TO 482)◄─────── DK........................8	YES.......................1 NO........................2 (SKIP TO 482)◄─────── DK........................8	YES.......................1 NO........................2 (SKIP TO 482)◄─────── DK........................8

481
What was given to treat
the diarrhoea?
 	
Anything else?
 	
RECORD ALL MENTIONED.
	ORS FLUID FROM PACKET....A
	RECOMMENDED HOME FLUID...B
	ANTIBIOTIC
	  (PILL OR SYRUP).........C
	OTHER PILL OR
	  SYRUP...................D
	INJECTION.................E
	(I.V.) INTRAVENOUS.......F
	HOME REMEDIES/
	  HERBAL MEDICINES........G
	OTHER_____H
	    (SPECIFY)
		ORS FLUID FROM PACKET....A
		RECOMMENDED HOME FLUID...B
		ANTIBIOTIC
		  (PILL OR SYRUP).........C
		OTHER PILL OR
		  SYRUP...................D
		INJECTION.................E
		(I.V.) INTRAVENOUS.......F
		HOME REMEDIES/
		  HERBAL MEDICINES........G
		OTHER_____H
		    (SPECIFY)
			ORS FLUID FROM PACKET....A
			RECOMMENDED HOME FLUID...B
			ANTIBIOTIC
			  (PILL OR SYRUP).........C
			OTHER PILL OR
			  SYRUP...................D
			INJECTION.................E
			(I.V.) INTRAVENOUS.......F
			HOME REMEDIES/
			  HERBAL MEDICINES........G
			OTHER_____H
			    (SPECIFY)

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		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
482	CHECK 481: ORS FLUID FROM PACKET MENTIONED?	YES, NO, ORS FLUID ORS FLUID MENTIONED NOT MENTIONED ☐ ☐ v (SKIP TO 484)	YES, NO, ORS FLUID ORS FLUID MENTIONED NOT MENTIONED ☐ ☐ v (SKIP TO 484)	YES, NO, ORS FLUID ORS FLUID MENTIONED NOT MENTIONED ☐ ☐ v (SKIP TO 484)

483	Was (NAME) given fluid made
	from an ORS packet when
	he/she had the diarrhoea?
		YES..........................1
		NO...........................2⌐
		   (SKIP TO 485)◄────┘
		DK...........................8┘
			YES..........................1
			NO...........................2⌐
			   (SKIP TO 485)◄────
			DK...........................8┘
				YES..........................1
				NO...........................2⌐
				   (SKIP TO 485)◄────
				DK...........................8┘

484	For how many days was (NAME) given the ORS fluid? IF LESS THAN 1 DAY, RECORD '00'	DAYS...............☐☐ DK.......................98	DAYS...............☐☐ DK.......................98	DAYS...............☐☐ DK.......................98
485	CHECK 481: RECOMMENDED HOME FLUID MENTIONED?	YES, NO, HOME FLUID HOME FLUID MENTIONED NOT MENTIONED ☐ ☐ v (SKIP TO 487)	YES, NO, HOME FLUID HOME FLUID MENTIONED NOT MENTIONED ☐ ☐ v (SKIP TO 487)	YES, NO, HOME FLUID HOME FLUID MENTIONED NOT MENTIONED ☐ ☐ v (SKIP TO 487)

486	Was (NAME) given a recommended
	home fluid made from
	sugar, salt and water when
	he/she had the diarrhoea?
		YES..........................1
		NO...........................2⌐
		   (SKIP TO 488)◄────
		DK...........................8┘
			YES..........................1
			NO...........................2⌐
			   (SKIP TO 488)◄────
			DK...........................8┘
				YES..........................1
				NO...........................2⌐
				   (SKIP TO 488)◄────
				DK...........................8┘

487	For how many days was (NAME) given the fluid made from sugar, salt and water? IF LESS THAN 1 DAY, RECORD '00'.	DAYS...............☐☐ DK.......................98	DAYS...............☐☐ DK.......................98	DAYS...............☐☐ DK.......................98
488	─────────────────►	GO BACK TO 449 FOR NEXT BIRTH; OR, IF NO MORE BIRTHS, GO TO 489.		

39

385

489	CHECK 481 AND 483 (ALL COLUMNS):
	
	ORS FLUID
	FROM PACKET ☐
	GIVEN TO ORS FLUID FROM PACKET
	ANY CHILD NOT GIVEN TO ANY CHILD ☐
	          OR
	       481 AND 483 NOT ASKED
			→492

490	Have you ever heard of a special product called ORS you can get for the treatment of diarrhoea?	YES........................1 NO.........................2	→492
491	Have you ever seen a packet like one of these before? SHOW BOTH THE W.H.O. AND A COMMERCIAL PACKET.	YES........................1 NO.........................2	→496
492	Have you ever prepared a solution with one of these packets to treat diarrhoea for yourself or someone else? SHOW BOTH THE W.H.O. AND A COMMERCIAL PACKET.	YES........................1 NO.........................2	→495
493A	The last time you prepared the ORS, did you use the free W.H.O. packet(SHOW THE W.H.O. PACKET) or an alternative commercial packet (SHOW THE COMMERCIAL PACKET)?	FREE WHO PACKET.................1 ALTERNATIVE COMMERCIAL PACKET....2	
493	The last time you prepared the ORS, did you prepare the whole packet at once or only part of the packet?	WHOLE PACKET AT ONCE...........1 PART OF PACKET.................2 DK.............................8	→495
494	How much water did you use to prepare ORS the last time you made it?	200 ML. GLASSES..........1 ☐☐ 1\2 LITER.....................901 1 LITER.......................902 1 1\2 LITERS..................903 2 LITERS......................904 FOLLOWED PACKAGE INSTRUCTIONS.905 OTHER_____906 (SPECIFY) DK...........................998	

495	Where can you get the ORS packet?
	
	PROBE: Anywhere else?
	
	RECORD ALL PLACES MENTIONED.
		PUBLIC SECTOR
		  GVT/MUNICIPAL HOSPITAL........A
		  PRIMARY HEALTH CENTRE.........B
		  SUB-CENTRE....................C
		  MOBILE CLINIC.................D
		  VILLAGE HEALTH GUIDE..........E
		  GOVERNMENT PARAMEDIC ....F
		
		PRIVATE MEDICAL SECTOR
		  PVT. HOSPITAL/CLINIC..........G
		  PHARMACY/DRUGSTORE............H
		  PRIVATE DOCTOR................I
		  MOBILE CLINIC.................J
		  COMMUNITY HEALTH WORKER.......K
		
		OTHER PRIVATE SECTOR
		  SHOP..........................L
		  TRADITIONAL
		    PRACTITIONER...............M
		OTHER_____N
		      (SPECIFY)	

| 496 | CHECK 481 AND 486 (ALL COLUMNS): | | |

HOME-MADE FLUID GIVEN TO ANY CHILD ☐   HOME-MADE FLUID NOT GIVEN TO ANY CHILD OR 481 AND 486 NOT ASKED ☐ ───────────────→501

| 497 | | PUBLIC SECTOR | |

Where did you learn to prepare the recommended home fluid made from sugar, salt and water given to (NAME) when he/she had diarrhoea?

PUBLIC SECTOR
  GVT/MUNICIPAL HOSPITAL.......11
  PRIMARY HEALTH CENTRE........12
  SUB-CENTRE...................13
  MOBILE CLINIC................14
  VILLAGE HEALTH GUIDE.........15
  GOVERNMENT PARAMEDIC 16

PRIVATE MEDICAL SECTOR
  PVT. HOSPITAL/CLINIC.........21
  PHARMACY/DRUGSTORE..........22
  PRIVATE DOCTOR..............23
  MOBILE CLINIC...............24
  COMMUNITY HEALTH WORKER......25

OTHER PRIVATE SECTOR
  SHOP........................31
  TRADITIONAL
    PRACTITIONER...............32

MASS MEDIA
  TELEVISION...................41
  RADIO................ 42
  PRINTED MATERIAL............43
OTHER_____51
         (SPECIFY)

41

387

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
501	CHECK 107: CURRENTLY MARRIED ☐ WIDOWED DIVORCED SEPARATED ☐		→514
502	CHECK 313: NEITHER ☐ HE OR SHE ☐ STERILIZED STERILIZED		→508
503	CHECK 227: NOT PREGNANT OR UNSURE ☐ PREGNANT ☐ 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 OR DK.................8	→510
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 227: NOT PREGNANT OR UNSURE ☐ PREGNANT ☐ 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.....................994 SAYS SHE CAN'T GET PREGNANT...995 OTHER_____996 (SPECIFY) DK...........................998	→510

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO

506 CHECK 220 AND 227:

HAS LIVING
CHILD(REN)   YES   NO
OR
PREGNANT?   [ ]   [ ] ————————————————————→510

---

507 CHECK 227:

NOT PREGNANT OR UNSURE [ ]   PREGNANT [ ]

AGE OF CHILD
YEARS...................... [ ][ ] →510

DK.............................98

How old would you like   How old would you like the
your youngest child to   child you are expecting
be when your next child   to be when your next child
is born?   is born?

---

508 Do you regret that (you/your husband) had the operation not to have any (more) children?

YES.............................1

NO.............................2 ——→514

---

509 Why do you regret it?

RESPONDENT WANTS ANOTHER CHILD..1
WANTS TO REPLACE CHILD WHO DIED.2
HUSBAND WANTS ANOTHER CHILD.....3   →514
SIDE EFFECTS....................4
OTHER _____5
            (SPECIFY)

---

510 Do you think that your husband approves or disapproves of couples using a method to avoid a pregnancy?

APPROVES........................1
DISAPPROVES.....................2
DK.............................8

---

511 How often have you talked to your husband about family planning in the past year?

NEVER...........................1
ONCE OR TWICE...................2
MORE OFTEN......................3

---

512 Have you and your husband ever discussed the number of children you would like to have?

YES.............................1

NO.............................2

43

389

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
513	Do you think your husband wants the <u>same</u> number of children that you want, or does he want <u>more</u> or <u>fewer</u> than you want?	SAME NUMBER......................1 MORE CHILDREN....................2 FEWER CHILDREN...................3 DK...............................8	
514	How long should a couple wait before starting sexual intercourse after the birth of a baby?	DAYS.....................1 MONTHS...................2 YEARS....................3 UP TO COUPLE.................995 OTHER_____996 (SPECIFY)	
515	In general, do you approve or disapprove of couples using a method to avoid getting pregnant?	APPROVE.........................1 DISAPPROVE......................2	
516	CHECK 220: HAS LIVING CHILD(REN) ☐ NO LIVING CHILDREN ☐ ↓ ↓ 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→518 (SPECIFY)	
517	How many of these children would you like to be boys and how many would you like to be girls?	BOYS GIRLS EITHER NUMBER...☐☐ ☐☐ ☐☐ OTHER_____999996 (SPECIFY)	
518	In your opinion, what is the ideal interval between the birth of one child and the birth of the next child?	MONTHS...................1 YEARS....................2 OTHER_____996 (SPECIFY)	

44

390

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO

601	CHECK 107:
	
	CURRENTLY MARRIED WIDOWED
	                ☐ DIVORCED
	                    SEPARATED ☐
	              v
	ASK QUESTIONS ABOUT CURRENT OR MOST RECENT HUSBAND.
			→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 ☐ GRADE 6-12 ☐ v GRADE 13+ ☐		→608 →607
606	(Can/Could) he read and write?	YES.............................1 NO..............................2	→608

607	What is the highest degree he obtained?	DEGREE NOT COMPLETED..........01
		NON-TECHNICAL DEGREE
		   BACHELOR'S DEGREE...........02
		   MASTER'S DEGREE.............03
		   Ph.D.......................04
		TECHNICAL DEGREE
		   BACHELOR'S DEGREE...........05
		   MASTER'S DEGREE.............06
		TECHNICAL DIPLOMA/CERTIFICATE
		   NOT EQUIVALENT TO DEGREE......07
		NON-TECHNICAL DIPLOMA/CERTIF.
		   NOT EQUIVALENT TO DEGREE......08
		OTHER DEGREE_____ ___09
		         (SPECIFY)	

45

608

What kind of work does (did) your
(last) husband mainly do?

_____

_____

_____

_____

609 CHECK 608:

WORKS (WORKED) ☐   DOES (DID) ☐
IN AGRICULTURE   NOT WORK
                          IN AGRICULTURE   →611

610

(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/FAMILY LAND.................1
RENTED LAND......................2
SOMEONE ELSE'S LAND............3

611

Aside from your own housework, are you currently
working?

YES...................... ....1——→613

NO..............................2

612

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——→620

613

What is your occupation, that is,
what kind of work do you do?

_____

_____

_____

614

In your current work, do you work on the family farm/
business, are you employed by someone else, or are you
self-employed?

FAMILY FARM/BUSINESS............1
EMPLOYED BY SOMEONE ELSE........2
SELF-EMPLOYED...................3

46

392

615	Do you earn cash for this work? PROBE: Do you make money for working?	YES.............................1 NO..............................2	
616	Do you do this work at home or away from home?	HOME............................1 AWAY............................2	
617	CHECK 219/220/222: HAS CHILD BORN SINCE JAN. 1988 AND LIVING AT HOME?　　YES　　NO □　　□		→620
618	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 →620 SOMETIMES.......................2 NEVER...........................3	
619	Who usually takes care of (NAME OF YOUNGEST CHILD AT HOME) while you are working?	HUSBAND.......................01 OLDER CHILD(REN)..............02 OTHER RELATIVES...............03 NEIGHBORS.....................04 FRIENDS.......................05 SERVANTS/HIRED HELP...........06 CHILD IS IN SCHOOL............07 INSTITUTIONAL CHILDCARE.......08 OTHER_____09 (SPECIFY)	
620	RECORD THE TIME	HOUR.................... □□ MINUTES................. □□	
621	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	

47

701	CHECK 219/220:			
	ONE OR MORE LIVING CHILDREN BORN SINCE JAN. 1988 ☐ ˅		NO LIVING CHILDREN BORN SINCE JAN. 1988 ☐ ⟶ END	

INTERVIEWER: IN 702 (COLUMNS 1-3) RECORD THE LINE NUMBER FOR EACH CHILD BORN SINCE JANUARY 1988 AND STILL ALIVE.
IN 703 AND 704 RECORD THE NAME AND BIRTH DATE FOR ALL LIVING CHILDREN BORN SINCE JANUARY 1988.
IN 705 AND 707 RECORD THE HEIGHT AND WEIGHT OF THE LIVING CHILDREN.
(NOTE:IF THERE ARE MORE THAN 3 LIVING CHILDREN BORN SINCE JANUARY 1988, USE ADDITIONAL FORMS).

	[1] YOUNGEST LIVING CHILD	[2] NEXT-TO- YOUNGEST LIVING CHILD	[3] SECOND-TO- YOUNGEST LIVING CHILD
702 LINE NO. FROM Q.216	☐☐	☐☐	☐☐
703 NAME FROM Q.216 FOR CHILDREN	(NAME) _____	(NAME) _____	(NAME) _____
704 DATE OF BIRTH FROM Q.219 FOR CHILDREN, COPY MONTH AND YEAR OF BIRTH AND ASK FOR DAY OF BIRTH	DAY...... ☐ MONTH.... ☐ YEAR..... ☐	DAY...... ☐ MONTH.... ☐ YEAR..... ☐	DAY...... ☐ MONTH.... ☐ YEAR..... ☐
705 HEIGHT (in centimeters)	☐☐☐.☐	☐☐☐.☐	☐☐☐.☐
706 WAS HEIGHT/LENGTH OF CHILD MEASURED LYING DOWN OR STANDING UP?	LYING..........1 STANDING.......2	LYING..........1 STANDING.......2	LYING..........1 STANDING.......2
707 WEIGHT (in kilograms)	☐☐.☐	☐☐.☐	☐☐.☐
708 DATE WEIGHED AND MEASURED	DAY...... ☐ MONTH.... ☐ YEAR..... ☐	DAY...... ☐ MONTH.... ☐ YEAR..... ☐	DAY..... ☐ MONTH.... ☐ YEAR..... ☐
709 RESULT	CHILD MEASURED.1 CHILD SICK.....2 CHILD NOT PRESENT.......3 CHILD REFUSED..4 MOTHER REFUSED.5 OTHER..........6 _____ (SPECIFY)	CHILD MEASURED.1 CHILD SICK.....2 CHILD NOT PRESENT.......3 CHILD REFUSED..4 MOTHER REFUSED.5 OTHER..........6 _____ (SPECIFY)	CHILD MEASURED.1 CHILD SICK.....2 CHILD NOT PRESENT.......3 CHILD REFUSED..4 MOTHER REFUSED.5 OTHER..........6 _____ (SPECIFY)
710 NAME OF MEASURER: _____ ☐☐		NAME OF ASSISTANT:_____ ☐☐	

48

394

Comments About Respondent: _____

_____

_____

_____

Comments on Specific Questions:_____

_____

_____

_____

Any Other Comments: _____

_____

SUPERVISOR'S OBSERVATIONS

_____

_____

_____

_____

_____

_____

Name of Supervisor: _____ Date: _____

EDITOR'S OBSERVATIONS

_____

_____

_____

_____

_____

_____

49

NATIONAL FAMILY HEALTH SURVEY
(MCH AND FAMILY PLANNING)
VILLAGE SHCHEDULE

CONFIDENTIAL
For Research
Purpose only

INDIA 1992-1993

IDENTIFICATION

NAME OF STATE_____

PSU NUMBER...

NAME OF DISTRICT_____

NAME OF TEHSIL/TALUK_____

NAME OF THE VILLAGE_____

TOTAL POPULATION OF THE VILLAGE
  ACCORDING TO THE 1981 CENSUS........................

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):
                         (1) Irrigated land..............1

                         (2) Non-irrigated land.........2

5. Main sources of irrigation in the village:
                                   RAIN WATER...............A
                                   TANK/POND................B
                                   STREAM/RIVER.............C
                                   CANAL....................D
                                   WELL.....................E
                                   TUBE WELL................F
                                   OTHERS————————————G
                                         (SPECIFY)

6. Distance from the nearest town (in kilometers):

7. Distance from the Block Headquarters (in kilometers):

8. Distance from the Tehsil Headquarters (in kilometers):

9. Distance from the nearest railway station (in kilometers):

10. Distance from the nearest bus stand (in kilometers):

11. Whether the village is connected by all-weather road: YES............1
                                                            (SKIP TO 13)
                                                            NO.............2

12. Distance from the nearest pucca road (in kilometers):

13. Main sources of drinking water in the village: PIPED WATER............A
                                                     OPEN WELL..............B
                                                     TUBE WELL/BORE WELL....C
                                                     RIVER/SPRING/POND/LAKE.D
                                                     OTHERS————————————E
                                                           (SPECIFY)

14. Is the village electrified?　　　　　　　　　YES.....................1

　　　　　　　　　　　　　　　　　　　　　　　　　NO......................2

15. Educational facilities in the village:

Facilities	Whether available in the village	Distance from the nearest facility available (in Kms)
Primary School	YES...........................1 　　　(GO TO NEXT FACILITY) NO............................2	☐☐
Middle School	YES...........................1 　　　(GO TO NEXT FACILITY) NO............................2	☐☐
Secondary School	YES...........................1 　　　(GO TO NEXT FACILITY) NO............................2	☐☐
Higher Secondary School	YES...........................1 　　　(GO TO NEXT FACILITY) NO............................2	☐☐
College	YES...........................1 　　　(GO TO NEXT FACILITY) NO............................2	☐☐
Adult Education Classes	YES...........................1 　　　(GO TO NEXT FACILITY) NO............................2	☐☐
Anganawadi	YES...........................1 　　　(GO TO NEXT FACILITY) NO............................2	☐☐
Jana Sikshana Nilayam	YES...........................1 NO............................2	☐☐

16. Health Facilities:

Facilities	Whether available in the village	Distance from the nearest facility available (in Kms)
Primary Health Centre	YES.....................1 ┐ (GO TO NEXT FACILITY) ◄┘ NO.............................2	☐☐
Sub-Centre	YES.........................1 ┐ (GO TO NEXT FACILITY) ◄┘ NO.............................2	☐☐
Government Hospital	YES.........................1 ┐ (GO TO NEXT FACILITY) ◄┘ NO.............................2	☐☐
Hospital by NGO	YES.........................1 ┐ (GO TO NEXT FACILITY) ◄┘ NO.............................2	☐☐
Private Hospital	YES.........................1 ┐ (GO TO NEXT FACILITY) ◄┘ NO.............................2	☐☐
Dispensary/Clinic	YES.........................1 ┐ (GO TO NEXT FACILITY) ◄┘ NO.............................2	☐☐
Village Health Guide	YES.........................1 ┐ (GO TO NEXT FACILITY) ◄┘ NO.............................2	☐☐
Trained Birth Attendent	YES.........................1 ┐ (GO TO NEXT FACILITY) ◄┘ NO.............................2	☐☐
Family Planning/ Health by NGO	YES.........................1 ┐ (GO TO NEXT FACILITY) ◄┘ NO.............................2	☐☐
Mobile Health Unit/ Visit	YES.........................1 NO.........................2	☐☐

17. Total number of Television sets in the Village: ☐☐

18. The type of drainage facility in the village: UNDERGROUND DRAINAGE....1

OPEN DRAINAGE...........2

NO......................3

19. Total number of tractors in the village: ☐☐

20. Total number of thrashers in the village: ☐☐

21. Total number of Cobar gas plants in the village: ☐☐

22. Total number of cars in the village: ☐☐

23. Total number of vans/matadors in the village: ☐☐

24. Total number of trucks in the village: ☐☐

25. Total number of motor cycles/scooters in the village: ☐☐

26. Other facilities:

Facilities	Whether available in the village	
	YES	NO
Bank..................................1		2
Credit cooperative society.............1		2
Agricultural cooperative society........1		2
Fishermen's cooperative society.........1		2
Milk cooperative society...............1		2
Post Office............................1		2
Market / Shop.........................1		2
Fair price shop.......................1		2
Cinema house/Tent.....................1		2
Pharmacy / Medical shop...............1		2
Mahila Mandal.........................1		2
Youth club...........................1		2

27. Did the village experience any natural calamity during last two years?

YES.............1
(SKIP TO 29)
NO.............2

28. What was the nature of the calamity?

FLOOD.....................A

DROUGHT...................B

CYCLONE...................C

EARTH QUAKE...............D

ANY OTHER_____E
            (SPECIFY)

29. Major epidemics and diseases in the village during the last one year:

1. _____

2. _____

3. _____

4. _____

30. Mass media / other educational activities for Health and Family Welfare carried out during the last one year in the village:

1. Number of film shows held: □□

2. Number of exhibitions held: □□

3. Number of drama / song performances held: □□

4. Number of group meetings held: □□

5. Number of times family welfare/health worker visited the village in a month: □□

31. Any Family welfare / health posters distributed?

YES...........1

NO...........2

32. Any Leader's Orientation Training Camp held?

YES...........1

NO...........2
(SKIP TO 34)

33. Number of local leaders trained at the camp: □□

34. Rural Development Programmes :

Programme	Whether there are any benificiaries in the village:	Total number of benificiaries
Integrated Rural Development Programme (IRDP)	YES..............................1 NO.............................2 ⅂ (GO TO NEXT PROGRAMME)	☐☐
National Rural Employment Programme (NREP)	YES..............................1 NO.............................2 ⅂ (GO TO NEXT PROGRAMME)	☐☐
Training Rural Youth for Self Employment (TRYSEM)	YES..............................1 NO.............................2 ⅂ (GO TO NEXT PROGRAMME)	☐☐
Employment Guarantee Scheme	YES..............................1 NO.............................2	☐☐

35. Major sources of information for filling in the Village Schedule: (RECORD ALL ꞇ∵E SOURCES)

Sarpanch..............A
Patwari...............B
Gram Sevak...........C
School Teacher.......D
Health personnel.....E
Others————————F
(Specify)

36. Any other relevant comments:

_____

_____

_____

_____

_____

_____

_____