National Family Health Survey
(MCH and Family Planning)

Maharashtra
1992-93

Population Research Centre
Gokhale Institute of Politics and Economics
Pune
and
International Institute for Population Sciences
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PREFACE

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.

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The NFHS covered 24 states and the National Capital Territory of Delhi (the erstwhile Union Territory of Delhi), 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 during 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 are based on a tabulation plan discussed, finalized and approved at a workshop held at Baroda, 5-7 December, 1992. The workshop was attended by representatives of all of the participating agencies. IIPS finalized the tabulation plan and produced the tables and graphs for the final reports according to the recommendations of the workshop. The final state-level reports have been prepared by research staff from the concerned PRC for each state, with the assistance of faculty members from IIPS and demographers from the East-West Center/Macro International. Each state report has been reviewed by an Indian expert in the field of population sciences and revised after taking into consideration the suggestions of the reviewer.

The final reports contain invaluable information on fertility and family planning practices, and the status of health and welfare of Indian mothers and their children. The descriptive text of each final report presents the findings in a clear and thorough manner for use by population and health experts, policymakers and administrators.

Never before in India has such a large population and health survey been undertaken and completed in the stipulated time period. We are, therefore, very happy to present the final NFHS state-level report for Maharashtra. We 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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Thanks are due to all the members of the Steering Committee, Administrative and Financial Management Committee and Technical Advisory Committee for participating in various meetings and providing valuable guidance to the conducting of the NFHS.

The arduous job of data collection in Maharashtra has been successfully carried out by the Centre for Management of Development Programmes (CMDP), Hyderabad. The efforts put forth by Dr. G. Narayana, the Director, CMDP, and his team consisting of Mr. P. Ravindranath, Ms. A. Lakshmi, Mr. R. Sukumar and Mr. P. D. V. Raman Kumar are very much appreciated.

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The complex task of conducting the NFHS in Maharashtra could be completed only with the dedicated and unflinching collaborative efforts put forth by IIPS; the Population Research Centre, Pune; the Centre for Management of Development Programmes (CMDP), Hyderabad; USAID, New Delhi; and the East-West Center/Macro International, United States of America.

This acknowledgment cannot be concluded without expressing appreciation for the great amount of pains taken by the interviewers, supervisors and editors in collecting data in Maharashtra. The interviewing teams, who have been the architects of this important survey, deserve our special thanks.

Last but not the least, the credit goes to the 4,106 ever-married women of Maharashtra and the household respondents who spent their time and responded to the rather lengthy questionnaires with tremendous patience and without any expectation from the NFHS.

SUMMARY OF FINDINGS

The National Family Health Survey (NFHS) was carried out as the principal activity of a collaborative project to Strengthen the Survey 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.

The NFHS in Maharashtra conducted between 23 November 1992 and 18 March 1993, gathered information from a representative sample of 4,106 ever-married women age 13-49 from 4,063 households. The survey has also collected information on 2,127 children of interviewed women born in the four years preceding the survey. In this report, the survey findings are generally shown separately for urban and rural areas and for the state as a whole.

The survey collected background information on a variety of socioeconomic characteristics of the population of Maharashtra. Nearly 43 percent of the population covered in the survey reside in urban areas. Seventy-seven percent of household heads are Hindu, 11 percent Muslim, 8 percent Buddhist and 4 percent belong to other religions. Among the population age 6 and above, 80 percent of males and 56 percent of females are literate. The median number of years of schooling is substantially higher for males (5.9 years) than for females (2.6 years). The school attendance rate among children of age 6-14 years is 86 percent for males and 77 percent for females. The mean household size is 5.5 persons per household, with 5.3 persons per household in urban areas and 5.6 persons per household in rural areas. Housing conditions indicate crowding with 3.2 persons per room. Almost half of all households (47 percent) do not own any agricultural land. Three in 10 households in rural areas and 7 in 10 households in urban areas are landless.

The age distribution is typical of a population that has experienced fertility decline in the recent past. Thirty-six percent of the population are below 15 years of age and 8 percent are age 60 and above. The sex ratio of the population of Maharashtra is 970 females per 1,000 males with the ratio being higher in rural areas (991) than in urban areas (944).

Marriage is virtually universal in Maharashtra. At age 15-19, about 38 percent of women have been married and 95 percent of the women age 25-29 have been married. Women marry much younger than men with the singulate mean age at marriage for males and females being 25 years and 19 years, respectively. The median age at first marriage increased from 14.9 years in the 45-49 age cohort to 17.5 years in the 20-24 age cohort. There are large urban-rural differences in the median age at first marriage, with the median age at first marriage for women age 20-24 being 3 years lower in rural areas compared to urban areas.

The fertility level in Maharashtra is lower than in India. According to the NFHS, at current levels of fertility, women in Maharashtra will have an average of 2.9 children during their childbearing years. This is 19 percent lower than the SRS total fertility rate of 3.6 children per woman for India in 1991. There is clear evidence of a decline in fertility over time in

Maharashtra from the findings of the NFHS. The total fertility rate (TFR) in Maharashtra declined from 3.8 in 1980 (as estimated in the National Fertility and Mortality Survey, conducted in Maharashtra in 1980) to 2.9 in 1990-92. The total fertility rate in rural areas (3.1) is 24 percent higher than the TFR in urban areas (2.5). The mean number of children ever born to women age 40-49 is 4.3 for the state as a whole and 3.9 for urban areas and 4.5 for rural areas. There are substantial socioeconomic differentials in current as well as cumulative fertility. Illiterate women have the highest fertility (TFR is 3.5 and the mean number of children ever born to women age 40-49 is 4.7) and women with at least a high school education have the lowest fertility (TFR is 2.1 and the mean number of children ever born to women age 40-49 is 2.8). Religious differences in fertility are more pronounced. Muslims have the highest fertility followed by Buddhists and Hindus. Forty-three percent of all children born in Maharashtra in the three years preceding the survey are of birth order 3 and above. The median birth interval is 29 months and the median age at first birth among women age 20-24 years is 20 years.

The awareness about family planning methods is widespread in Maharashtra with 99 and 96 percent of ever-married women in urban and rural areas, respectively, reporting knowledge of at least one method of family planning. The most widely known method of family planning is female sterilization (97 percent), followed by male sterilization (83 percent), IUDs (70 percent), pills (66 percent) and condoms (56 percent). Awareness of modern methods exceeds awareness of traditional methods by a very wide margin. Knowledge about the source of modern methods is very high with 95 percent knowing where to obtain at least one method of family planning. Knowledge about the source of terminal methods (female and male sterilization) is generally much higher than spacing methods.

Fifty-four percent of currently married women age 15-49 are currently using a method of contraception with 53 percent using a modern method and 1 percent using a traditional method. The current use of contraception is slightly higher in rural areas (55 percent) than in urban areas (53 percent). Female sterilization is the most popular method (40 percent) followed by male sterilization (6 percent) and IUDs and condoms (3 percent each). Pills are currently used by only 1 percent of currently married women. Female and male sterilization together account for 86 percent of contraceptive use in Maharashtra. Eighty percent of all sterilized couples were sterilized when the wife was less than 30 years old. The median age at the time of sterilization is 25.6 years.

The level of current use of contraception rises with the age of currently married women, peaking at ages 35-39 (77 percent using some method of contraception) and declining thereafter. The relationship between current use and education of the women is weak. However, the type of method used varies with education, with sterilization being inversely related to education and spacing and traditional methods being directly related to education. The Hindu-Muslim difference in current use of contraception is quite substantial with much higher use among Hindus (57 percent) than among Muslims (36 percent). Contraceptive use is comparatively lower among scheduled tribe women (49 percent) than among scheduled caste women (55 percent).

Current use of any method increases steadily from 3 percent for women having no living children to 76 percent for women with 4 living children. The data on current use of contraception also indicate the existence of son preference. The current use of contraception,

at each parity, is lowest for women having no sons and highest for women having all sons. Among women with 3 living children the current use is the highest (86 percent) among women who had all sons.

The public sector, predominantly government and municipal hospitals, is the major source of contraceptives supplying three-fourths of modern methods. The mix of public and private sector sources varies according to the method used. The public sector is by far the major source for sterilization. The private sector plays a significant role in providing services to users of non-terminal methods such as condoms, pills and IUDs. Two out of three women who have never used contraception do not intend to use contraception in the future.

Information on fertility preferences was also collected in the NFHS. Overall only 28 percent of currently married women want to have another child at sometime in the future. Among women who want an additional child, there is a strong preference for a son. The mean ideal number of children for ever-married as well as currently married women is 2.5, the mean in urban and rural areas being 2.4 and 2.7, respectively. A clear negative relationship exists between the mean ideal number of children and educational attainment of women. Most women in Maharashtra consider one son and one daughter to be ideal. Son preference is more visible in rural areas. Fourteen percent of the currently married women have an *unmet* need for family planning services, that is, they have no desire for additional children or they want to wait at least two years before having another birth, but they are not using family planning. Seventy-nine percent of the demand for family planning is met by current programmes. However, only 30 percent of the demand for spacing, in contrast to 88 percent of the demand for limiting, is satisfied through current programmes. The findings clearly bring out the need for expanding the availability of spacing methods in family planning programmes.

The NFHS also provides information on maternal and child health and the prevalence of specific health problems (malaria, blindness, tuberculosis, leprosy and physical impairment of limbs) among all members of the household. Malaria has the highest prevalence afflicting 37 per 1,000 population during the 3 months prior to the survey, followed by partial blindness (32 per 1,000) and physical impairment of limbs (6 per 1,000). The incidence of malaria is substantially lower in urban areas (18 per 1,000) than in rural areas (51 per 1,000).

There has been a decline in the infant mortality rate in Maharashtra during the 15 years prior to the survey from 66 per 1,000 live births during 1978-82 (10-14 years prior to the survey) to 51 per 1,000 live births during 1988-92 (0-4 years prior to the survey). The percentage decline in child mortality is the highest (50 percent) followed by postneonatal mortality (44 percent), under-five mortality (33 percent), infant mortality (23 percent) and neonatal mortality (11 percent). The infant mortality rate is higher for rural Maharashtra (61 per 1,000 live births) than urban Maharashtra (33 per 1,000 live births). Women who have completed at least high school are likely to experience the lowest infant mortality. Infant mortality is higher for births which occur within 24 months of a previous birth. The infant mortality rate is more than twice as high for children whose mothers have not received antenatal or delivery care than for those children whose mothers have received both.

Nearly 83 percent of mothers of all births during the last four years received antenatal care. Mothers of about three-fifths of children received antenatal care from allopathic doctors

received two or more doses of tetanus toxoid injections and iron and folic acid tablets. Forty-four percent of all births during the four-year period before the survey occurred in a health facility. A little more than half of the deliveries were attended by medical personnel and another 20 percent by traditional birth attendants.

The Universal Immunization Programme has met with a fair amount of success in Maharashtra with 64 percent of all children between 12 and 23 months fully immunized against six preventable childhood diseases (tuberculosis, diphtheria, pertussis, tetanus, polio and measles). The percentage of children fully immunized is surprisingly higher in rural areas (66 percent) than in urban areas (62 percent), with higher coverage of each type of vaccination. Vaccination cards were seen by the interviewer for 39 percent of the children.

During the two weeks preceding the survey 6 percent of children under age four had symptoms of acute respiratory infection (cough accompanied by fast breathing), 22 percent were sick with a fever and 10 percent had diarrhoea. For each medical condition, 61 to 75 percent of the children were taken to a health facility or health provider. Knowledge and use of Oral Rehydration Salt (ORS) packets for the treatment of diarrhoea is not widespread (47 percent of mothers know about ORS packets and 31 percent have ever used ORS packets). Only 18 percent of children with recent episodes of diarrhoea were treated with ORS and 34 percent were treated with a Recommended Home Solution (RHS), made from sugar, salt and water.

The NFHS obtained fairly detailed information on infant feeding and child nutrition. Breastfeeding is universal in Maharashtra with 97 percent of all children born in the four years preceding the survey having been breastfed. The babies, however, are rarely breastfed very soon after birth. Among the most recent births, only 7 percent were breastfed within one hour after birth and 18 percent were breastfed within 24 hours after birth. A large majority of women squeeze the first milk from their breast before feeding the children and thus deprive the newborns from getting colostrum which provides them natural immunity and nutrition. On an average, children are breastfed for 26 months. Solid or mushy foods are introduced to the diet much later than is recommended. Two-thirds of breastfeeding children age 8-9 months and one-quarter of those age 12-23 months are not given any solid or mushy food to supplement breast milk.

Both chronic and acute undernutrition are very high in Maharashtra. More than half of all children are underweight and about half are stunted. The proportion of children who are severely undernourished is also substantial (20 percent). One in every five children faces the most serious nutritional problem of wasting.

In order to assess basic knowledge about Acquired Immune Deficiency Syndrome (AIDS), the NFHS incorporated a series of state-specific questions on AIDS in Maharashtra. All ever-married women age 13-49 were asked about the awareness of AIDS and if awareness is shown, a series of follow-up questions were asked. The awareness of AIDS is very limited in Maharashtra with only 19 percent of ever-married women having heard about AIDS. However, the awareness of AIDS is much higher in urban areas than in rural areas. The NFHS data suggest that more efforts are needed to increase the level of awareness of AIDS and its methods of transmission.

CHAPTER 1

INTRODUCTION

1.1 Background of the Survey

The Ministry of Health and Family Welfare (MOHFW) in India has supported the establishment and development of the eighteen Population Research Centres (PRCs) located in universities and institutes of national repute. In 1991, the MOHFW initiated the Project to Strengthen the Survey Research Capabilities of the PRCs, with financial support from the United States Agency for International Development (USAID). The National Family Health Survey (NFHS) is an important component of this project.

The NFHS covers 99 percent of the population of India in 24 states and the National Capital Territory of Delhi (which recently attained statehood). It is a household survey with an overall sample size of 89,777 ever-married women in the age group 13-49. Due to the huge size of the sample to be surveyed, data collection under the NFHS was carried out in three phases in 1992 and 1993. Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Tamil Nadu and West Bengal were the states covered in the first phase. The states covered in the second phase of the NFHS were Assam, Goa, Haryana, Karnataka, Kerala, Maharashtra, Rajasthan and Uttar Pradesh. In the third phase of the NFHS, 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.

The NFHS was carried out through the joint efforts of the MOHFW, Government of India, New Delhi; the International Institute for Population Sciences (IIPS), Bombay; several Consulting Organizations (COs); all the PRCs; USAID, New Delhi; 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, in their respective states, have 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. Technical assistance for the NFHS was provided by the East-West Center/Macro International.

The Centre for Management of Development Programmes (CMDP), a private research organization in Hyderabad, was selected as the CO for the NFHS in Maharashtra. The Population Research Centre, located in the Gokhale Institute of Politics and Economics, Pune, collaborated with CMDP in the implementation of the survey in Maharashtra.

1.2 Origin of the State

During the British rule in India, most of the present state of Maharashtra was under the Bombay Presidency. After India attained independence, the states were reorganized on a linguistic basis and the state of Bombay was formed in 1956, including parts of the present state of Gujarat. After a decade-long struggle for a unified Maharashtra, the present state of Maharashtra came into existence on 1 May, 1960. It was then made up of 26 districts: thirteen of these, including Greater Bombay, were part of the former state of Bombay; eight districts

forming the Vidarbha were part of the former state of Madhya Pradesh; and the remaining five districts forming Marathwada originated from the Andhra Region. Following the subdivision of some of the districts, Maharashtra presently comprises a total of 30 districts.

1.3 Geographic Features

Physical Characteristics

Maharashtra is situated in the western part of India between 15°45' to 22°00' north latitudes and 72°45' to 80°45' east longitudes. It is located approximately between the rivers Tapi in the north and Krishna in the southeast. It is bounded by the waters of the Arabian Sea in the west, and the states of Gujarat in the northwest, Madhya Pradesh in the northeast, Andhra Pradesh in the southeast and Karnataka in the south.

The 1981 Census divides the state into two main natural divisions, namely, the Konkan Low Land in the west and the Deccan Plateau in the east. The Deccan Plateau of the state is further divided into four geophysical zones: the Sahyadri Range, the Maharashtra Plateau, the Tapi-Purna Valley and the Wardha-Wainganga Plain (Directorate of Census Operations, Maharashtra, 1988).

The Konkan Low Land, which is a long narrow stretch of Low Land close to the Arabian sea has on its east the Sahyadri chain of mountains, which extends southward and runs almost parallel to the Arabian sea. The tableland to the east of the Sahyadri mountains is, on the average, 450 metres above sea level. The Konkan Low Land has a group of small drainage systems. All the rivers originate from Sahyadri and flow towards the west to the Arabian sea. These rivers are very short in length, but fast flowing due to the steep slope of the Sahyadri towards the Arabian sea. The important rivers in this region include the Vaitarna, Ulhas, Amba, Vasishti and Savitri. This Konkan Low Land has no delta due to these fast flowing rivers and more active erosion by the sea waves. A number of creeks are formed where rivers join the sea. Some beaches have also been developed due to wave action in the north, mostly in the Greater Bombay and Thane districts, which have recreational importance.

The Sahyadri Range is a part of the Western Ghats which forms an almost continuous range in a north-south direction. Many east-flowing rivers such as the Godavari, Bhima and Krishna, as well as some west-flowing streams originate from this range. In contrast to its steep western face, the range gently slopes eastward. In general, the height of the range varies between 800 and 1,200 metres. The maximum height is observed near Kalsubai about 1,638 metres; the Salher, Harishchandragad and Mahabaleshwar are other important peaks. There are two main windows known as the Thalghat and the Bhorghat in the range which connect the coastal land and the Maharashtra Plateau.

The Maharashtra Plateau is a part of the Deccan Lava region framed in a triangular shape by the Sahyadri Range running north-south in the west, the Satmala and Ajanta hills running west-east in the north, and states of Karnataka and Andhra Pradesh in the south and southeast, respectively. Four major rivers flow in this region: the Tapi, Godavari, Bhima and Krishna. There are three crests in this region, namely, Satmala-Ajanta hills, Balaghat hills and Mahadeo hills which make the water divides between the Tapi-Godavari, the Godavari-Bhima and the

Bhima-Krishna rivers. In the valley of the Godavari, Bhima and Krishna, the lava, through tropical weathering and erosion, has produced a soil known as *Regur*, which is black in colour. The plateau in general has a height between 300 and 900 metres. The height in the Godavari valley ranges between 350 and 550 metres while in the Bhima and Krishna valley it is between 400 and 700 metres. The river Penganga also flows through this plateau and makes a deep, narrow 's'-shaped valley between the Yavatmal and Nanded districts.

The Tapi-Purna Valley is hemmed by the Satpuda range in the north and the Satmala-Ajanta range in the south. This valley is flatter and wider than all other valleys in the state and has a large stretch of deep-soil areas. The soils are fertile and the area is agriculturally advanced. It is a rift valley sloping gradually towards the west. The Tapi river originates from the Satpuda range in Madhya Pradesh and enters the Jalgaon district of Maharashtra. The Purna river, the tributary of the Tapi, also originates in the Satpuda range and joins the Tapi in the Jalgaon district, passing through the districts of Amaravati, Akola and Buldana.

The Wardha-Wainganga Plain is the eastern-most part of the state, sloping towards the south and southeast. The foot-hill zones of Satpuda lie to the northwest of the plain and the Palasgarh-Kotgal hills and the Sironcha hills occupy the eastern margin of the plain. The Pusad hills lie in the western part of the plain. This plain has a thick layer of soil and is known for cotton and paddy cultivations. The Wainganga is a major river of the plain which originates in Madhya Pradesh and flows through the plain towards the south. The Wardha, another main river of the plain, collects the water of the Penganga river and joins the Wainganga river. After the confluence of Wardha and Wainganga, the combined river known as the Pranhita river, finally merges with the Godavari river.

Climate, Rainfall and Seasons

The state has a tropical monsoon climate and three seasons a year, namely, rainy, cool and hot. Each subregion, however, receives different amounts of rainfall which vary from season to season. The entire strip of the Konkan Low Land receives heavy rainfall and remains humid throughout the year with temperatures being neither too hot nor too cold. On the higher reaches of the Sahyadri Range it is somewhat cool during the summer and quite cold during the winter. On the contrary, the Maharashtra Plateau experiences an extreme climate which is hot in the summer and cool in the winter, with little rainfall and dry conditions.

Maharashtra receives most of its rainfall from the Southwest Monsoon entering through the Western Ghats. There is a considerable variation in the intensity of variation in different parts of the state. Heavy rains pour over the Ghats and the coastal districts of Greater Bombay, Thane, Raigarh and Ratnagiri, where it varies between 2,000 mm to 3,000 mm. At certain places in the Ghats, such as Mahabaleshwar in the Satara district and Bavda in the Kolhapur district, it is more than 6,000 mm. In fact, this region receives heavy rainfall due to the obstruction of the Sahyadri Range in the way of the south-west monsoon. On the eastern slope of the Sahyadri Range, the intensity of rainfall falls to below 750 mm. A major part of the state, however, lies in the rain shadow areas of the Sahyadri Range. This area includes parts of the districts of Dhule, Jalgaon, Nashik, Aurangabad, Ahmadnagar, Pune, Satara, Sangli, Solapur and Bid. In the middle of the districts of Jalgaon, Aurangabad and Bid and in the eastern part of the Solapur district, the intensity of the rainfall again increases gradually toward

the east and receives up to 1,500 mm in the extreme eastern portion of the state. The extreme eastern part of the state, including the districts of Bhandara, Nagpur, Wardha, northeast Nanded, Yavatmal, Chandrapur and Gadchiroli, comes under the climatic influence of the Bay of Bengal and receives relatively heavy rainfall.

Maharashtra has two cropping seasons - the *Kharif* (rainy season) and the *Rabi* (cool season). *Jowar, bajra,* rice, cotton and ground nuts are sown in the rainy season, and harvested in the cool season. Wheat and gram are the two main *Rabi* crops sown in the beginning of winter and harvested in the beginning of summer. Sugarcane is also grown as a cashcrop in areas with irrigation facilities.

1.4 Area and People

Area and Administrative Divisions

The state of Maharashtra has a total land area of 307,713 square kilometres. It makes up nearly one-tenth of the area of the country and has about one-eleventh of the country's population. Bombay is the capital of the state. The 30 districts of the state have been grouped into six administrative divisions, the Konkan, Pune, Nashik, Nagpur, Aurangabad and Amaravati. The Nagpur and the Amaravati divisions together are commonly referred to as Vidharbha, while the Aurangabad division is commonly known as Marathwada.

People, Culture, Religion and Language

Because of its geographical location, Maharashtra exhibits the features of a cultural mix of the north and the south. This is reflected in the ethnic groups in the population, and their habits, rituals, customs and languages. Many scholars in Maharashtra have tried to analyse the characteristic traits of Maharashtrians. According to Iravati Karve (1968), a well-known anthropologist and writer in Maharashtra, the anthropometric measurements of the people in the Maharashtra region display an intermixture of various races and ethnic groups. The Maharashtrian society is not culturally homogeneous. The people in Maharashtra fall into diverse groups based on religion, caste and regions, although, by and large, they share a common language - Marathi - and have a common history. Hindus constitute a large majority of the population. Muslims, Buddhists and Christians are the other major religious groups in the state. Any generalization regarding the Maharashtrian character, psyche or cultural traits may only be partially applicable to many of its constituents. According to Gangadhar Gadgil (1977), the Maharashtrian mind has a certain matter-of-fact quality. It is primarily concerned with comprehending the concrete reality, and it has a streak of puritanism.

Maharashtra makes a significant contribution to the nation's political, social and economic development. Historically, Maharashtra has been known for its courageous leaders and their struggle for freedom and independence, as exemplified by Shivaji's fight against invaders in the 17th century. This tradition was maintained during the independence movement against the British, by Gopalakrishna Gokhale (Mahatma Gandhi's advisor), Bal Gangadhara Tilak and Veer Savarkar, all of whom were leaders at the national level.

Maharashtra has also produced many social reformers including Dr. Babasaheb Ambedkar, Mahatma Phule, Gopal Ganesh Agarakar and Maharshi Karve, among many others. Dr. Ambedkar is not only known for his social reforms, but is also regarded as a leading architect of the Indian Constitution. Agarkar, Phule and Karve fought against caste discrimination and injustice against women. They also strongly promoted education for women despite opposition from orthodox society. Maharashtra is also known for its efforts to encourage family planning.

Maharashtra has produced some of the greatest musicians of India and has a rich tradition of theatre. Marathi theatre is one of the most advanced theatres in India. It had also been a land of saints like Dnyaneshwar, Namdeo, Tukaram and Ramdas, whose teachings are relevent even in modern times.

1.5 Economy

Maharashtra is considered one of the more developed states in India. According to the index of development, devised by the Centre for Monitoring Indian Economy (CMIE), the index for Maharashtra is 164 compared with the national average of 100 (Centre for Monitoring Indian Economy, 1991). In terms of per capita income, Maharashtra ranks second only to the Punjab, with an average per capita income of rupees 3,168 during 1982-83 to 1984-85. However, during 1987-88, 34 percent of the rural population and 26 percent of the urban population were estimated to be below the poverty line[1] (Centre for Monitoring Indian Economy, 1991). Although the majority of the population is engaged in agriculture, the state is one of the industrially more developed states in India. Bombay, the capital city of the state, is considered the commercial capital of India. Maharashtra is the largest contributor to the nation's net domestic product, accounting for 22 percent of the net value added by the manufacturing sector of the country. Industry, trade and commerce play an important role in the state's economy. The per capita value added to state income from industries is relatively high. During 1988-89, the mining and manufacturing sectors together accounted for 35.7 percent of the state's income (Centre for Monitoring Indian Economy, 1991).

It is important to mention that the industrially more advanced regions of Bombay, Thane and Pune contribute a substantial portion of the state's net domestic product, and if we consider Maharashtra excluding the Bombay-Thane-Pune belt, the state's income is equal to the average income for the country as a whole. Thus, the state is characterized by uneven development among its regions.

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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 a per capita monthly expenditure of Rs. 49.09 in rural areas and Rs. 56.64 in urban areas at 1973-74 prices, corresponding to a per capita daily calorie requirement of 2,400 in rural areas and 2,100 in urban areas. In subsequent years the poverty line has been adjusted because of price changes, using price indices implicit in the private consumption expenditure series reported in the National Accounts Statistics. The poverty line translated into 1987-88 prices is Rs. 131.80 per capita monthly expenditure for rural areas and Rs. 152.13 for urban areas.

1.6 Basic Demographic Indicators

A comparison of the basic demographic indicators for Maharashtra and India is provided in Table 1.1. In 1991 the population of Maharashtra was 78.9 million, accounting for about 9 percent of the country's population. Population density is slightly lower in Maharashtra (257 persons per km^2) than in India as a whole (273 persons per km^2). The decadal percent increase in population during 1981-91 in the state (25.7 percent) is slightly higher than that for the country as a whole (23.9 percent). However, a significant portion of the population growth in the state is due to in-migration from outside the state.

Maharashtra is one of the more urbanised states in India. According to the 1991 Census, 39 percent of the population live in towns and cities, compared with 26 percent for all India. The population sex ratio (number of females per 1,000 males) of 934 in the state is slightly higher than the figure of 927 for all India. Because the age distribution from the 1991 Census is not yet available, the data from the Sample Registration System (SRS) published for the year 1991 are used here. There is no substantial difference between the state and the country as a

Table 1.1 Basic demographic indicators

Basic demographic indicators for Maharashtra and India, 1981-1992

Index	Maharashtra	India
Population (1991)	78,937,187	846,302,688
Percent population increase 1981-91	25.7	23.9
Density (Population/km^2) (1991)	257	273
Percent urban (1991)	38.7	26.1
Sex ratio (1991)	934	927
Percent 0-14 years old (1981)	38.3	39.6
(1991)	34.9	36.3
Percent 65+ years old (1981)	3.8	3.8
(1991)	3.8	3.8
Percent scheduled caste (1991)	11.1	16.7
Percent scheduled tribe (1991)	9.3	8.0
Percent literate (1991)		
Male	76.6	64.1
Female	52.3	39.3
Total	64.9	52.2
Crude birth rate (1992)[1]	25.1	29.0
Crude death rate (1992)[1]	7.9	10.0
Exponential growth rate (1981-91)	2.29	2.14
Total fertility rate (1991)	3.0	3.6
Infant mortality rate (1992)[1]	59	79
Life expectancy (1986-91)		
Male	61.9	58.1
Female	62.9	59.1
Couple protection rate (1992)	55.3	43.5

[1]Provisional
Source: Office of the Registrar General (1992, 1993a, 1994), Office of the Registrar General and Census Commissioner (1987, 1992), Ministry of Health and Family Welfare (1991, 1992)

whole in the proportion of children below age 15. Four percent of the population in the state, as well as the country, were age 65 and above.

According to the 1991 Census, the proportion of scheduled caste[2] population is 11 percent in the state and 17 percent in the country. The proportion of scheduled tribe[3] population in the state is 9 percent, compared with 8 percent in India. Maharashtra is one of the more educationally advanced states in India. The proportion literate in the population age 7 and above is 65 percent compared with 52 percent for all India. This is true for both male and female literacy rates: 77 and 52 percent, respectively in the state compared with 64 and 39 percent, respectively in the country as a whole.

The crude birth rate of 25.1 per 1,000 population in Maharashtra is lower than the all India crude birth rate of 29.0, as estimated by the Sample Registration System (SRS) in 1992. The SRS estimates of the crude death rate for the state and for all India in 1992 are 7.9 and 10.0 per 1,000 population, respectively. The total fertility rate of 3.0 children per woman in Maharashtra, as estimated by the SRS in 1991, is about 17 percent lower than the all-India TFR of 3.6. Consistent with lower fertility, the couple protection rate (defined as the percentage of eligible couples effectively protected against pregnancy) was 55 percent in 1992, about 10 percentage points higher than the figure for all India.

The infant mortality rate is also lower in Maharashtra than in the country as a whole. For the year 1992, the infant mortality rate estimated by the SRS was 59 per 1,000 live births, compared with 79 for all India. Life expectancy was estimated at 62 years for males and 63 years for females, higher than the all-India estimates of 58 years for males and 59 years for females.

Table 1.2 shows major demographic trends in the state between 1971 and 1991. Maharashtra's population registered a consistent increase during 1971-91 from 50.4 million in 1971 to 62.8 million in 1981, and 78.9 million in 1991. The decadal population growth rate (percent increase per decade), however, decreased from 27.5 percent during 1961-71 to 24.5 percent during 1971-81 and then increased to 25.7 percent during 1981-91. Population density (persons per km^2) increased from 164 in 1971 to 257 in 1991. The growth of the urban population has also been substantial; the proportion urban increased from 31 percent in 1971 to 39 in 1991. The population sex ratio has been more or less stable in the state during the last

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[2]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 conferred on them special protection. The term "scheduled caste" was used for these castes for the first time in India in the Government of India Act of 1935 (Office of the Registrar General and Census Commissioner, 1984a). The list of scheduled castes used in the 1981 Census was based on the Scheduled Castes and Scheduled Tribes Orders (Amendment) Act of 1976 (Central Act 108 of 1976). Scheduled castes refer to such castes, races or tribes or groups within such castes, races or tribes as are declared to be scheduled castes by the President of India by public notification.

[3]Scheduled tribes refer to such tribes or tribal communities 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, 1984a).

Table 1.2 Trends in basic demographic indicators

Trends in basic demographic indicators, Maharashtra, 1971-91

Index	1971	1981	1991
Population	50,412,235	62,782,818	78,937,187
Percent population increase (previous decade)	27.5	24.5	25.7
Density (Population/Km^2)	164	204	257
Percent urban	31.2	35.0	38.7
Sex ratio	930	937	934
Percent 0-14 years old	41.3	38.3	34.9
Percent 65+ years old	3.3	3.8	3.8
Percent scheduled caste	6.0	7.1	11.1
Percent scheduled tribe	5.9	9.2	9.3
Percent literate[a]			
Male	51.0	58.8	76.6
Female	26.4	34.8	52.3
Total	39.2	47.2	64.9
Crude birth rate	32.2	28.5	25.1[b]
Crude death rate	12.3	9.6	7.9[b]
Exponential growth rate	2.43	2.19	2.29
Total fertility rate	4.6	3.6	3.0
Infant mortality rate	105	79	59[b]
Life expectancy			
Male	U	59.8[c]	61.9[d]
Female	U	60.7[c]	62.9[d]
Couple protection rate	16.1	34.9	55.3[e]

U: Not Available
[a]Based on the population age 5 and above for 1971 and 1981 and the population age 7 and above for 1991
[b]1992, provisional
[c]1981-86
[d]1986-91
[e]1992
Source: Office of the Registrar General (1982, 1985, 1992, 1993a, 1994), Office of the Registrar General and Census Commissioner (1974, 1976, 1984a, 1987), Ministry of Health and Family Welfare (1989, 1991, 1992)

two decades, with slight fluctuations. There were 930 females per 1,000 males in 1971, and the sex ratio increased marginally to 937 in 1981 before falling slightly to 934 in 1991. The proportion of children (below age 15) in the population dropped considerably from 41 percent in 1971 to 35 percent in 1991, reflecting a sharp decline in fertility. The proportion of elderly population (age 65 and above), however, increased only marginally from 3 percent in 1971 to 4 percent in 1991. There has been a substantial increase in the proportion of scheduled caste population from 6 percent in 1971 to 11 percent in 1991. However, the proportion of scheduled tribe population increased less, from 6 percent in 1971 to 9 percent in 1991.

The literacy in Maharashtra improved from 39 percent in 1971 to 65 percent in 1991. The literacy rate increased faster during 1981-91 than during 1971-81. The increase in the female literacy rate was double the increase in the male literacy rate during the same period. While the male literacy rate increased from 51 percent to 77 percent between 1971 and 1991, the female literacy doubled from 26 percent to 52 percent.

Fertility in Maharashtra registered an impressive decline between 1971 and 1992. The crude birth rate fell from 32.2 in 1971 to 25.1 in 1992. The crude death rate also fell substantially, from 12.3 in 1971 to 7.9 in 1992. The annual growth rate of the population declined during 1971-81 from 2.43 percent to 2.19 percent, but increased during 1981-91 to 2.29 percent. Infant mortality fell from 105 in 1971 to 59 in 1992. Both the male and female life expectancy increased by about two years between 1981 and 1991. The couple protection rate increased from 16 percent in 1971 to 55 percent in 1992, and the increase in couple protection rate was more during 1971-81 than it was during 1981-92.

1.7 Population and Family Welfare Policies and Programmes

The family welfare programme in India promotes responsible parenthood with a two-child family norm, regardless of the sex of the children, through the independent choice of a contraceptive method best suited to each couple (Ministry of Health and Family Welfare, 1991). Health and family planning services are provided through a network of Primary Health Centres and their sub-centres and community health centres at the government level. The private medical sector also has a significant role in the programme, especially in the urban areas.

Since the inception of the family welfare programme, Maharashtra has been ahead of most other states in India in implementing it. Although the programme was officially initiated by the government in 1957, efforts to propagate family planning through voluntary agencies and individuals had started much earlier. Professor R. D. Karve (the son of Maharshi Karve) is one of the pioneers of India's family planning movement and started a birth control clinic as early as 1921, when several forces in the society such as the law, the press, educators, religion and even the medical profession were against birth control. Professor Karve made the words "sex" and "birth control" acceptable and respectable, when he started his mission to spread the family planning movement in the state (Dhond, 1993). Shakuntala Paranjape carried on Professor Karve's mission with a new approach, directing the messages on birth control to women.

In order to decentralize the implementation, the programme was handed over to the Zilla Parishads in 1967. At the same time, there was an expansion of the health infrastructure through Primary Health Centres, sub-centres, community health centres, and voluntary organizations which helped in the implementation of the programme. Maharashtra received an award of rupees 25 million for two consecutive years 1982-83 and 1983-84 for the best performance in the family planning programme. In 1991, the state was given an award for the highest percent of the target achieved for sterilization.

Sterilization occupies an important position in the family planning programme in Maharashtra, although there is a 'cafeteria' approach in the country's family planning programme. Maharashtra was the first state to initiate vasectomy camps. During the decade 1967-77, the number of male sterilizations exceeded female sterilizations. However, subsequently, the female sterilizations outnumbered the male sterilizations. Sterilization camps were set up throughout the state to increase the number of sterilization acceptors. Incentives in both cash and in kind are given to sterilization acceptors. Prizes are also given to the programme implementing officers or family planning workers, and the government sponsors a trip abroad for officers who fulfil the targets.

1.8 Health Priorities and Programmes

Delivery of health services in Maharashtra is governed mainly by the National Health Policy approved by Parliament in 1983. Although the National Health Policy places heavy emphasis on ensuring primary health care to all by the year 2000, it nevertheless identifies certain areas in need of 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.

The Maternal and Child Health (MCH) Programme in Maharashtra was started in 1977-78. The Expanded Programme on Immunization was introduced in 1978 with the aim of providing free vaccinations to all eligible children and expectant mothers. In 1985, to accelerate the implementation of the immunization programme, the Universal Immunization Programme was introduced to be implemented through the existing network of Primary Health Centres and sub-centres. The success of the immunization programme in the state is demonstrated by the fact that around 60 percent of the children are fully immunized within their first year of life (Government of Maharashtra, 1993). Evaluation studies carried out by the PRC, Pune have indicated that even in backward districts with low family planning performance, immunization coverage is good, demonstrating that the programme is being successfully implemented in all regions of the state (Bhate, 1991).

CHAPTER 2

SURVEY DESIGN AND IMPLEMENTATION

2.1 Objectives of the NFHS

The primary objective of the NFHS was 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. A further objective was to explore the demographic and socioeconomic determinants of fertility, family planning, and maternal and child health. Information from the survey was 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 an objective of providing a source of demographic and health data for inter-state comparisons. The NFHS is comparable not only across the states of India but also with the Demographic and Health Surveys (DHS) conducted in many 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 D). The overall content and format of the questionnaires were determined in a workshop on Questionnaire Design held at the Gokhale Institute of Politics and Economics, Pune in September 1991. Participants at the workshop were 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 for use in countries with low contraceptive prevalence. Keeping in view the Indian socio-cultural 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 to be used in 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 the 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 the 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. The NFHS in Maharashtra used the pretested standard Household Questionnaire,

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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.

Woman's Questionnaire and Village Questionnaire. State-specific questions for Maharashtra on the topic of Acquired Immune Deficiency Syndrome (AIDS) were included in the Woman's Questionnaire.

The standard questionnaires in English were translated into Marathi by staff of the PRC. In order to verify the validity of the translation, the Marathi questionnaires were back-translated into English by a person proficient in both English and Marathi, but not familiar with demographic terms and concepts. The Marathi translation of the questionnaires was finalized after comparing the original English version and the back-translated English version of the questionnaires. The Marathi version of the questionnaires was then pretested in Pune district by administering both the Household and the Woman's Questionnaires to about 60 ever-married women in urban and rural areas. Based on the pretest results, appropriate modifications were made to the Marathi translation of the questionnaires. Thus the questionnaires used in the Maharashtra NFHS were bilingual, consisting of questions in both Marathi and English.

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. Information was also collected on whether any member in the household suffered from tuberculosis, leprosy, blindness, physical impairment of limbs or malaria during the last three months. The main purpose of this section of the Household Questionnaire was to identify women who were eligible for the Woman's Questionnaire (ever-married women age 13-49 years). In addition, the Household Questionnaire collected information on household characteristics, including source of water for drinking and washing, type of toilet facilities, materials used in the construction of the house, source of lighting, type of cooking fuel, ownership of agricultural land and livestock, ownership of various consumer durable goods, and household head's religion and caste or tribe. The Household Questionnaire also included sections on household births and deaths. All live births and deaths that occurred since January 1990 were recorded.

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

Section 1. Respondent's Background: Questions on age, marital status, age at marriage and education of the eligible women 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 borne; 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.

Section 3. Contraception: This section collects information on the knowledge, ever use and current use of various family planning methods, intentions for future use, and, for

current users, the duration of use, source of method, and problems experienced with use.

Section 4. Health of Children: These questions 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 covers pregnancy and breastfeeding, and Section 4B covers immunization and health of children.

Section 5. Fertility Preferences: This section gathers information on desire for additional children, ideal family size and sex composition of children, preferred and ideal birth intervals, and husband's attitude towards family size. A subsection (Section 5A) includes a set of state-specific questions on knowledge of AIDS.

Section 6. Husband's Background and Woman's Work: Questions relating 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: Height and weight measurements were obtained for all living children born since 1 January 1988 to eligible women who were interviewed. The NFHS is the first national survey that gathered anthropometric data on children simultaneously with demographic and health data. 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 conducting anthropometric measurements. Standard spring balances (Salter Scales) were used to weigh the children. The height/length boards used in the survey were constructed from acrylic and other synthetic materials with a metal frame to provide stability and durability.

The Village Questionnaire was used to collect information on the villages selected in the NFHS sample. The Village Questionnaire collected information on various amenities available in the village including electricity, water, transportation and educational and health facilities. The information was obtained from a responsible person in the village such as a *sarpanch, patwari, gram sevak,* school teacher and health personnel.

2.3 Sample Design

The sample design adopted for the NFHS is a systematic, two-stage stratified sample of households. The sample for the NFHS in Maharashtra was designed to provide state-level estimates as well as estimates for urban and rural areas. The universe consists of all urban and rural areas of the state.

Sample Size and Allocation

After considering various factors such as 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 overall target sample size for Maharashtra was set at 4,000 completed interviews with eligible women. In order to allow for nonresponse at the household and individual respondent

levels, the target sample of women (ever-married women age 13-49 years) was increased to a total of 4,480 women to be selected.

The sampling rate (sampling fraction) is the same in the urban and rural areas of the state, and thus the sample is completely self-weighted. The overall sampling fraction (the probability, f, of selecting a woman from Maharashtra) was 0.000282 computed as follows:

$$f = \frac{n \times 1.12}{N}$$

where n = number of women to be interviewed in Maharashtra adjusted for 12 percent to account for nonresponse and other loss; and
N = projected population of eligible women in Maharashtra in August 1992.

All the districts in Maharashtra were grouped into six contiguous regions according to their agroclimatic characteristics. The district composition of the regions is as follows:

Region I:	Greater Bombay, Thane, Raigarh, Ratnagiri, Sindhudurg
Region II:	Nashik, Dhule, Jalgaon
Region III:	Pune, Satara, Sangli, Solapur, Kolhapur, Ahmadnagar
Region IV:	Aurangabad, Jalana, Parbhani, Bid, Osmanabad, Latur, Buldhana, Akola, Amravati
Region V:	Nanded, Yavatmal, Wardha, Nagpur
Region VI:	Bhandara, Chandrapur, Gadchiroli

The sample within the urban and rural areas was selected according to the above agroclimatic regions.

The Rural Sample: The Frame, Stratification and Selection

The 1981 Census list of villages served as the sampling frame in the rural areas. A two-stage sample design was adopted with the selection of villages in the first stage and households in selected villages in the next stage. There were four levels of stratification. The first level of stratification was geographic, with the districts being subdivided into the above mentioned six regions according to their agroclimatic characteristics. In the second level of stratification, the size of each village and its distance from the nearest urban centre was taken into consideration. Stratification at level two resulted in the following divisions:

Stratum 1:	Distance of less than 5 km from nearest urban centre
Stratum 2:	Less than 150 households
Stratum 3:	150-299 households
Stratum 4:	300-599 households
Stratum 5:	600-999 households
Stratum 6:	More than or equal to 1,000 households

At the third level of stratification, strata 2-5 in Regions I,II,V and VI were grouped into one and then further subdivided according to the size of the population belonging to scheduled

castes/scheduled tribes (SC/ST), resulting in two subdivisions:

Sub-stratum 1:	Less than 25 percent SC/ST
Sub-stratum 2:	More than or equal to 25 percent SC/ST

The fourth level of stratification was implicit, and consisted of ordering the villages within each stratum by the level of female literacy in the village. After the frame of villages was thus arranged, a total of 81 Primary Sampling Units (PSUs) was systematically selected with probability proportional to size (PPS). On average, 30 households from villages having less than 300 households and 40 households from villages having 300 or more households were selected for interviewing in each selected village.

The probability of selecting a PSU (f_1) was computed as:

$$f_1 = \frac{a \times s_i}{\Sigma s_i}$$

where a = number of PSUs selected from rural Maharashtra
s_i = the population size of the selected PSU
Σs_i = total rural population of the state

A household listing operation carried out in each of the selected PSUs about two weeks prior to data collection 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 of these structures, identifying the residential structures, and listing the names of heads of all the households in the residential structures in the selected PSU. In case of PSUs having fewer than 500 households, a complete household listing was done. In PSUs having 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. 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. The probability of selecting a household from a selected PSU (f_2) was computed as:

$$f_2 = \frac{f}{f_1}$$

All the selected households were approached during data collection. In instances where all members of a household were absent, the household was not replaced with another household.

The Urban Sample: The Frame, Stratification and Selection

In the urban areas, the list of Census Enumeration Blocks provided by the Registrar General of India for 1991 served as the sampling frame. At the first level of stratification, all cities and towns in Maharashtra were subdivided into three strata: self-representing cities, district headquarter towns and other towns. A self-selecting city was defined as one whose selection

probability was unity (for cities with a population in 1991 that was larger than the sampling interval). Within each stratum, the cities/towns were arranged following the same geographic stratification used in the rural areas.

In self-selecting cities, a two-stage sample design was adopted: selection of Census Enumeration Blocks followed by selection of households in each of the selected blocks. Although it was desirable to select blocks with PPS, since the urban frame was not computerized yet, blocks were selected with equal probabilities. However, to improve control over sample sizes, 'packets' of 10 blocks each were selected with equal probability, the measures of size for each of the blocks in the selected packets were obtained, and one block per selected packet was selected with probability proportional to size (PPS).

For district headquarter and other non-self selecting towns, a three-stage sample was used: selection of towns with PPS, followed by the selection of two census blocks per selected town with equal probabilities, and finally the selection of households from the selected block.

In Maharashtra, a total of 3 self-selecting cities, 8 district headquarter towns and 10 other towns, and within these, 78 blocks, were selected. As in the rural areas, a household listing was carried out in the selected blocks and an average of 20 households per block was systematically selected.

The computation of various probabilities for the selection of the urban sample was done as follows:

The probability of selecting a city/town (f_1) was computed as:

$$f_1 = \frac{a \times s_i}{\Sigma s_i}$$

where a = number of cities/towns selected from the state
s_i = the population size of the selected city/town
Σs_i = total urban population of the state

The probability of selecting a block from a selected city/town (f_2) was computed as:

$$f_2 = \frac{b \times B_i}{\Sigma B_i}$$

where b = number of blocks to be selected from the city/town
B_i = the population size of the selected block
ΣB_i = the population size of the city/town

In cases where 'packets' were selected, the probability of selecting a block (f_2) was computed as:

$$f_2 = \frac{b}{T} \times \frac{B_i}{\Sigma P_i}$$

where T = total number of packets in the city
ΣP_i = the population size of the packet

The probability of selecting a household from a selected block (f_3) was computed as:

$$f_3 = \frac{f}{(f_1 \times f_2)}$$

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 consisted of instructions for 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 contained 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 was also provided in this manual. The Household Listing Manual was meant for household listing teams, and contained procedures to be adopted for household listing. The guidelines for the training of the field staff were 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 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. Two persons each from CMDP, Hyderabad and the PRC, Pune were trained at the second Training of the Trainers Workshop held at Lonavala in June 1992.

Ten teams, each team comprising a lister and a mapper, were trained during October, 1992 at Pune. The household listing operation started immediately after the training. A coordinator was appointed to provide guidance and supervision for the teams. Special efforts were made not to miss any household in the selected PSU during the listing of households.

Training of field staff for the main survey was conducted at Pune from 2-21 November 1992, at which 47 persons (38 females and 9 males) were trained by the staff of the PRC, IIPS and CMDP. The three-week 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, three special

participants in the classroom and practice interviews in the field. In addition, three special lectures were arranged: one on the topic of family planning at the beginning of the section on contraception in the Woman's Questionnaire, one on maternal and child health practices, including immunizations, at the beginning of the section on health of children and another lecture on AIDS at the beginning of Section 5A of the Woman's Questionnaire. Medical doctors conversant with the state's Maternal and Child Health (MCH) programme and on AIDS were the resource persons for these lectures. Female trainees who performed satisfactorily in the training programme were selected as interviewers for the main survey. In addition to the main training, two days of training was specially arranged for field editors and supervisors. The editors were trained to detect errors in the filled-in questionnaires and resolve problems in editing. A list of checks to be made while editing the filled-in questionnaires was also supplied to them. During the last week of the training, field practice was arranged in Bhugaon and Punawale villages located 20 km away from Pune city and also in the urban slums of the city. Field practice of height and weight measurements was arranged in a *Balwadi* (creche) in Pune.

The fieldwork for the NFHS in Maharashtra was carried out by seven interviewing teams, each consisting of one supervisor, one field editor and four interviewers (see Appendix C for a complete list of survey staff). Except for the team supervisors and an intermediate supervisor, who were appointed from among the field staff of the PRC, all the field editors and interviewers were females, who had received either a bachelor's or a master's degree. The fieldwork was carried out between 23 November 1992 and 18 March 1993. Of the seven teams, one team covered exclusively the city of Bombay, and the rest covered the other districts of the state. Assignment of the PSUs to the teams and various logistical decisions were made by the staff of CMDP designated as coordinators. Each team was allowed a fixed period of time to complete fieldwork in a PSU before moving to the next one. Each interviewer was instructed not to conduct more than three individual interviews a day. She was also required to make a minimum of three call-backs, if necessary, to complete the Household and Woman's Questionnaires.

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, information on age, and completeness of the birth history and the health section. When problems such as discrepancies in the birth history or the health section were detected, the interviewer was 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 from other information in the questionnaire. If neither of these options was possible, the editor designated the response as either "missing" or "inconsistent". An additional duty of the field editor was to observe on-going interviews and to verify the correctness and accuracy of the methods of asking questions, recording answers and following skip instructions. The field supervisor collected information on the village using the Village Questionnaire. Additionally the field supervisor conducted spot-checks to check the accuracy of information collected on the eligibility of respondents. The intermediate supervisor arranged accommodations, transport, etc. for the interviewing teams, mobilized community support in the surveyed PSUs and also monitored the data collection operations.

The monitoring and supervision of the data collection operations were carried out by the coordinators and senior staff of the PRC and CMDP. During the period of data collection, IIPS assigned one Research Officer to the survey to ensure correct survey procedures and maintain data quality. Throughout the survey, staff from CMDP, the PRC and IIPS maintained close contacts with all the teams through direct communication and field visits. 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 problems in data collection and possible solutions to the interviewing teams, reminding interviewers about proper probing techniques and examining the fieldwork of the supervisors. In addition, data from the field were simultaneously entered into microcomputers, and field check tables were produced. Based on these tables, feedback on the quality of data collection was given to the supervisors and interviewers so that they could improve their performance. Each team supervisor was provided with the original household listing, layout sketch map and the household sample selected for each PSU.

2.5 Field Problems

Although survey activities are planned to be accomplished within a certain time period, in the course of actual fieldwork, unanticipated problems could arise to delay its timely completion. The major problems encountered in the completion of fieldwork in Maharashtra are discussed below.

Transportation

Every attempt was made to provide vehicles to the teams in the field to visit the selected PSUs. However, some unavoidable problems were encountered in getting vehicles from the District Health Offices in Nagpur and Solapur. Furthermore, no transport was made available to the interviewing team in Bombay. These teams had to rely on public transport. Nevertheless, despite these problems in some areas, the cooperation extended by the Health Department of the state in providing transport and accommodation facilities to the field staff of the NFHS was extremely good.

Security of Teams

The fieldwork in Greater Bombay was interrupted a few times due to the events that affected the security of the teams: first in December 1992 and January 1993 during the communal riots following the Ayodhya incident, and then again in March 1993 following a series of bomb blasts that rocked the city. Together for more than three weeks, the field teams could not resume the work following these events. After the situation returned to normal in February, two additional interviewers were put to work in Bombay. During the second week of March, four more interviewers joined the Bombay team in order to complete the work in time.

2.6 Data Processing

All completed questionnaires for the Maharashtra NFHS were initially sent to the PRC in Pune where appropriate codes were assigned for the information on occupation, caste and

cause of death, as well as separate codes for frequently mentioned "other" responses. Later, these questionnaires were sent to the office of CMDP in Hyderabad for data processing. This process consisted of office editing, data entry and machine editing. Although field editors had examined the completed questionnaires in the field, the questionnaires were re-edited at the CMDP office by specially trained office editors. The office editing included checking all skip sequences, checking circled response codes, and checking the 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. One supervisor and four data entry operators were responsible for data entry and computer editing operations. The data were processed using four micro computers using the data entry and editing software known as the Integrated System for Survey Analysis (ISSA). Data entry started within one week of receipt of the first set of completed questionnaires. Data entry was done directly from the precoded questionnaires. All data entry and editing operations were completed by end of March 1993. Computer-based checks were done to clean the data and remove inconsistencies. 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 at this stage for those cases in which information was missing or inconsistent.

A preliminary report highlighting important findings of the survey in Maharashtra was published in May, 1993. The preliminary report was primarily meant for disseminating the data on basic demographic and health parameters to programme planners, policymakers and administrators soon after the data collection was over. The report contained sixteen tables and a short write-up on fertility, knowledge and use of contraception, utilization of antenatal services, immunization, feeding practices and health of children, infant and child mortality, and knowledge of AIDS. The preliminary results of the survey were disseminated to officials of the Department of Health and Family Welfare, Government of Maharashtra through a seminar organized at the PRC, Pune in December, 1993.

In order to maintain comparability with other states, the tabulation plan for the detailed state reports was finalized at a workshop held in Baroda in December 1992. Based on this tabulation plan, the final tables, including the additional tables based on the state-specific questions for Maharashtra, were produced at IIPS.

2.7 Areas for Reporting Survey Results

In this report, survey results are reported for Maharashtra as a whole, and separately for urban and rural areas of the state.

2.8 Sample Implementation

Table 2.1 shows the results of household and individual interviews, response rates for the survey, and reasons for nonresponse. Of the 4,473 households selected in Maharashtra, interviews were successfully completed in 91 percent of the cases. In 3 percent of the cases, the selected households were found to be vacant. The household response rate, defined as the number of households interviewed per 100 occupied households, was 94 percent. The response rate in rural areas (96 percent) was higher than that in urban areas (90 percent).

Table 2.1 Sample results

Sample results for households and eligible women, Maharashtra, 1992-93

Result	Urban		Rural		Total	
	Number	Percent	Number	Percent	Number	Percent
Households selected	1999	100.0	2474	100.0	4473	100.0
Households completed (C)	1754	87.7	2309	93.3	4063	90.8
Households with no competent respondent (HP)	38	1.9	6	0.2	44	1.0
Households absent (HA)	103	5.2	75	3.0	178	4.0
Households postponed (P)	2	0.1	0	--	2	--
Households refused (R)	46	2.3	4	0.2	50	1.1
Households vacant/no dwelling (DV)	48	2.4	76	3.1	124	2.8
Dwellings destroyed (DD)	1	0.1	3	0.1	4	0.1
Dwellings not found (DNF)	7	0.4	1	--	8	0.2
Households occupied	1950	100.0	2395	100.0	4345	100.0
Households interviewed	1754	89.9	2309	96.4	4063	93.5
Households not interviewed	196	10.1	86	3.6	282	6.5
Household response rate (HHR)[1]	NA	89.9	NA	96.4	NA	93.5
Eligible women	1800	100.0	2549	100.0	4349	100.0
Women interviewed (EWC)	1699	94.4	2407	94.4	4106	94.4
Women not at home (EWNH)	76	4.2	112	4.4	188	4.3
Women postponed (EWP)	8	0.4	6	0.2	14	0.3
Women refused (EWR)	9	0.5	20	0.8	29	0.7
Women partly interviewed (EWPC)	5	0.3	2	0.1	7	0.2
Other (EWO)	3	0.2	2	0.1	5	0.1
Individual response rate (EWRR)[2]	NA	94.5	NA	94.5	NA	94.5
Overall response rate (ORR)[3]	NA	85.0	NA	91.1	NA	88.4

NA: Not Applicable
-- Less than 0.05 percent

[1]Using the number of households falling into specific response categories, the household response rate (HHR) is calculated as:

$$HHR = \frac{C}{C + HP + HA + P + R + DNF} \times 100$$

[2]Using the number of eligible women falling into specific response categories, the individual response rate (EWRR) is calculated as:

$$EWRR = \frac{EWC}{EWC + EWNH + EWP + EWR + EWPC} \times 100$$

[3]The overall response rate (ORR) is calculated as:

$$ORR = (HHR \times EWRR)/100$$

In the interviewed households, 4,349 women were identified as eligible for the individual interview. Of these, 4,106 eligible women were successfully interviewed giving an individual response rate of 95 percent. The individual response rate was the same in urban and rural areas. The average number of eligible women interviewed per household was 1.01. Nonresponse at both the household and individual levels was primarily due to households being entirely absent

or an eligible female respondent not being at home despite repeated household visits. Cases where an eligible woman refused to give the interview were few (overall, less than one percent) in both the urban and rural areas.

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. The chapter also includes some comparisons of the NFHS results with results from the 1991 Census of India and the Sample Registration System.

3.1 Age-Sex Distribution of the Household Population

The NFHS household population can be tabulated in two ways: *de facto* (the place each person slept the night before the survey interview) or *de jure* (the place of usual residence). The *de facto* and *de jure* populations in Maharashtra may differ because of temporary population movements. Table 3.1 shows the *de facto* population in the NFHS household sample, classified by age, sex and residence. The total *de facto* sample population is 21,840 and the sample is 43 percent urban.

The age distribution of Maharashtra is typical of high fertility populations, with a higher proportion of the population in the younger than in the older age groups. Thirty-six percent of the population is below 15 years of age and 8 percent is age 60 or older. The child population (below age 15) is higher in rural areas (38 percent) than in urban areas (34 percent).

Age data in India, as in many developing countries, are subject to age misreporting and heaping on certain ages because of digit preference. Examination of the single-year age distributions (see Table B.1 in Appendix B and Figure 3.1) indicates substantial distortion due to misreporting of age and preference for particular digits. (For example, substantial heaping on ages ending with the digit 0, such as 20, 30, and 40, is quite common when respondents do not have precise knowledge of their age.) One of the most commonly used measures of digit preference in age reporting is the Myers' Index (United Nations, 1955). This index provides an overall summary of preferences for, or avoidance of, each of the ten digits, from 0 to 9. Myers' Indices computed for the male and female populations in the Maharashtra NFHS are 47.6 and 17.7, respectively. Corresponding indices for Maharashtra computed from the 1981 Census are 60.0 and 67.6 (Office of the Registrar General and Census Commissioner, 1984b). 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. 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 member of the household. Furthermore, the Myers' Indices for males and females in the NFHS indicate that age reporting is 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 or for males. The better age reporting for females than for males in the age group 13-49 in the NFHS is mainly due to the difference in procedures used for 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 other household respondent. No extensive probing techniques were used to obtain age information in the household schedule. However, for eligible

Table 3.1 Household population by age and sex

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

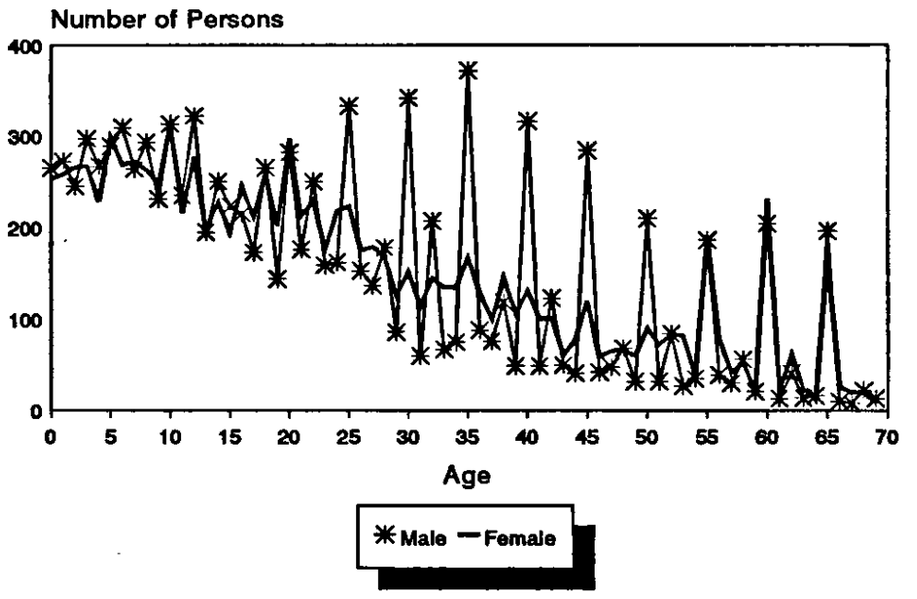
	Urban			Rural			Total		
Age	Male	Female	Total	Male	Female	Total	Male	Female	Total
< 1	2.3	2.6	2.5	2.5	2.1	2.3	2.4	2.4	2.4
1 - 4	8.5	8.7	8.6	10.7	10.1	10.4	9.8	9.5	9.6
5 - 9	11.1	11.5	11.3	13.6	13.3	13.4	12.5	12.5	12.5
10-14	11.6	11.0	11.3	12.1	11.8	11.9	11.9	11.4	11.7
15-19	9.5	10.5	10.0	9.0	10.2	9.6	9.2	10.3	9.8
20-24	10.5	11.9	11.2	8.4	9.6	9.0	9.3	10.5	9.9
25-29	9.2	8.2	8.7	7.1	8.0	7.6	8.0	8.1	8.0
30-34	7.8	6.8	7.3	6.0	6.0	6.0	6.8	6.3	6.6
35-39	6.9	6.5	6.7	5.9	5.6	5.8	6.4	6.0	6.2
40-44	5.6	5.3	5.4	5.0	3.7	4.3	5.2	4.4	4.8
45-49	4.9	3.5	4.2	3.8	3.4	3.6	4.3	3.4	3.9
50-54	3.7	3.3	3.5	3.3	3.5	3.4	3.5	3.4	3.5
55-59	3.0	3.2	3.1	3.0	3.8	3.4	3.0	3.6	3.3
60-64	1.8	2.6	2.2	3.2	3.7	3.5	2.6	3.3	2.9
65-69	1.5	1.8	1.6	2.8	2.6	2.7	2.2	2.2	2.2
70-74	1.1	1.1	1.1	2.0	1.5	1.8	1.6	1.4	1.5
75-79	0.5	0.5	0.5	0.6	0.6	0.6	0.5	0.6	0.5
80+	0.7	0.7	0.7	1.0	0.6	0.8	0.8	0.6	0.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	4783	4513	9296	6301	6243	12544	11084	10756	21840
Sex Ratio	NA	NA	944	NA	NA	991	NA	NA	970

NA: Not applicable

women who were interviewed using the Woman's Questionnaire, the age reported by the woman herself replaced the age reported in the Household Questionnaire if there was a discrepancy. Her age as obtained from the Woman's Questionnaire is based on her month and year of birth, if known, or on her reported age otherwise. A variety of probing techniques was used to elicit accurate age information from the respondents to the Woman's Questionnaire.

Age of the woman is one of the most important items of information collected in any demographic survey, because so many demographic methods, and especially fertility estimation methods, depend on accurate reporting of women's ages. Because of 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, several procedures for probing for 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, 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 events. Although age errors cannot be totally eliminated, the comparisons with the Census suggest that probing and other measures used in the NFHS helped to reduce age misreporting.

Figure 3.1
Number of Persons Reported at Each Age
by Sex



NFHS, Maharashtra, 1992-93

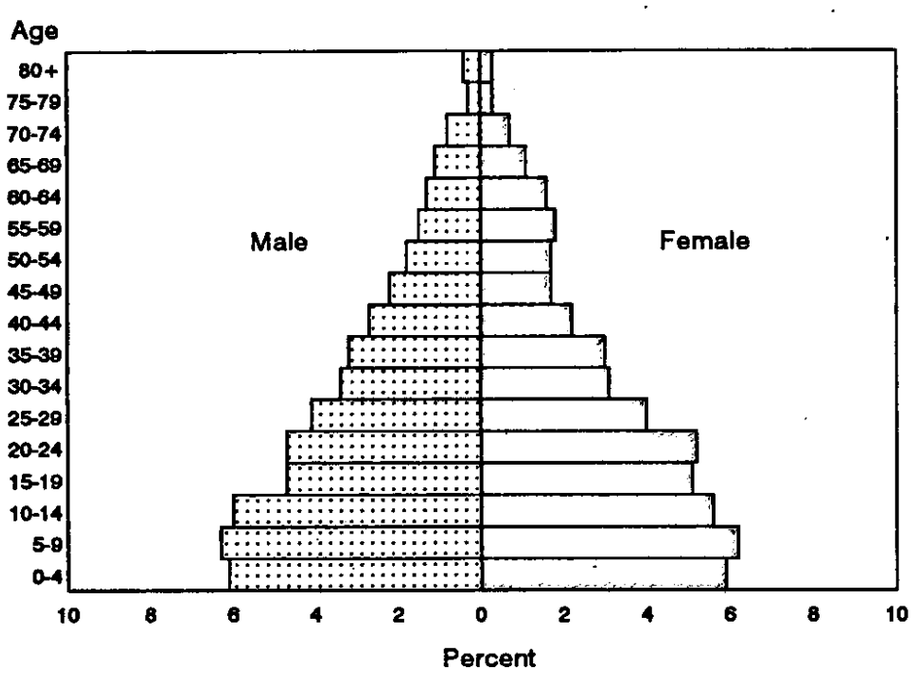
The distribution by five-year age groups is shown in the population pyramid in Figure 3.2. There is no indication that the number of females at age 50-54 is excessively large. A bulge at 50-54 sometimes occurs in demographic and health surveys because of a tendency of some interviewers to shift women who have imprecise knowledge of their age from age 45-49 to age 50-54 in order to make the woman ineligible for the individual interview, and thereby reduce their workload (Rutstein and Bicego, 1990). This kind of systematic error in the data seems to be absent in the NFHS sample for Maharashtra.

The *de facto* population sex ratio (females per 1,000 males) is 944 in urban areas, 991 in rural areas, and 970 for the state as a whole (Table 3.1). Roughly comparable figures from the 1991 Census are 875 for urban areas, 972 for rural areas and 934 for the state as a whole (Office of the Registrar General and Census Commissioner, 1992). The discrepancy between the two sources is 7 percent (69 per 1,000) in urban areas and 2 percent (19 per 1,000) in rural areas, with the sex ratio being consistently higher in the NFHS. Possible reasons for these differences are discussed later in this chapter.

Table 3.2 compares the age distributions by sex from the NFHS *de jure* sample with the 1991 Sample Registration System (SRS). The SRS baseline survey counts all usual residents of the sample area (Office of the Registrar General, 1993a). By and large, the age distributions by sex are quite similar for the 1991 SRS and the NFHS.

Table 3.2 also provides information on sex ratios by age for the NFHS. The SRS publishes percentage age distributions for the sample registration areas but not absolute numbers

Figure 3.2
Population Pyramid of Maharashtra



NFHS, Maharashtra, 1992-93

of population, so it is not possible to compute population sex ratios from the SRS publication. The total population sex ratio for Maharashtra was 937 in the 1981 Census, 934 in the 1991 Census, and 966 in the NFHS *de jure* sample. The two census values do not differ much, but

Table 3.2 Population by age and sex from SRS and NFHS

Percent distribution of the *de jure* population by age and sex from SRS and NFHS, Maharashtra, 1991-93

	SRS (1991)		NFHS (1992-93)		
Age	Male	Female	Male	Female	Sex ratio
0 - 4	13.0	12.9	12.0	11.8	948
5 -14	22.4	21.6	24.0	24.0	963
15-29	28.3	28.1	26.5	28.7	1045
30-49	23.2	23.5	22.9	20.6	870
50-64	9.7	9.6	9.3	10.2	1065
65+	3.5	4.3	5.3	4.7	858
Total	100.0	100.0	100.0	100.0	966
Median age	U	U	22.3	21.7	NA

NA: Not applicable
U: Not available
Source for SRS: Office of the Registrar General, India (1993a)

the NFHS *de jure* value is about 3 percentage points (32 per 1,000) higher and the NFHS *de facto* value of 970 (from Table 3.1) is about 4 percentage points (36 per thousand) higher than the 1991 census estimate. Since the 1991 Census and the NFHS were conducted about two years apart, sex ratios from the two sources should be about the same.

One difference between the two sources of data is the population coverage. The Census includes the institutional population, which is overwhelmingly male, whereas the NFHS excludes the institutional population. Aside from the difference in coverage, the substantial discrepancies in population sex ratios between the NFHS and the 1991 Census in Maharashtra could occur if the NFHS missed more males than females, or if the Census missed more females than males, or if both of these errors occurred. Sampling error in the NFHS does not account for such a large difference. In fact, the sampling error for the *de facto* NFHS sex ratio is only 12 per thousand, yielding a 95 percent confidence interval of 947-995 (see Table A.2 in Appendix A). Even the lower limit of this range is higher than the 1991 Census estimate of 934. 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.

Taking into consideration the fact that women in Maharashtra do not enjoy a higher status than males, it is highly unlikely that the NFHS missed more males than females. The 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. In general, according to post-enumeration checks, Indian censuses have consistently underenumerated females more than males although the gap has been closing with each successive census. Not yet published findings from the 1991 Census post-enumeration check for Maharashtra may shed some light on the discrepancy in sex ratios between the NFHS and the 1991 Census. Because of possible relative underenumeration of females in the 1991 Census, the differences 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 close agreement between the 1991 Census and the NFHS.

3.2 Marital Status

The NFHS gathered information on the marital status of all household members age six and above. Table 3.3 shows the distribution by marital status of the *de facto* household population by age, sex and residence. Among females age 6 or more years, 53 percent are currently married and 35 percent have never been married. The percentage never married is higher for males (47 percent) than for females (35 percent). The proportion of females never married is, however, lower in rural areas (33 percent) than in urban areas (38 percent). The percentages divorced and separated are small in Maharashtra, and the impact of widowhood is quite limited until the older age groups. Thirty percent of women age 55-59 and 63 percent of women age 60 and over are widows.

Of more interest is the proportion of persons who marry young. At ages 15-19, the proportions ever-married are: 2 percent of males and 21 percent of females in urban areas, 2 percent of males and 50 percent of females in rural areas, and 2 percent of males and 38 percent of females in the state as a whole. By ages 25-29, marriage is nearly universal for females and

Table 3.3 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, Maharashtra, 1992-93

Age	Marital status						Total percent
	Never married	Currently married	Widowed	Divorced	Separated	DK/ Missing	
			URBAN Male				
6 -12	99.1	0.7	--	--	--	0.3	100.0
13-14	99.5	0.5	--	--	--	--	100.0
15-19	97.6	2.4	--	--	--	--	100.0
20-24	75.3	24.1	0.2	0.2	0.2	--	100.0
25-29	29.2	69.9	0.2	0.5	0.2	--	100.0
30-34	10.4	89.3	--	0.3	--	--	100.0
35-39	5.8	92.7	0.9	0.3	0.3	--	100.0
40-44	2.6	95.9	0.4	0.7	0.4	--	100.0
45-49	0.4	99.1	0.4	--	--	--	100.0
50-54	1.1	93.3	5.0	--	0.6	--	100.0
55-59	0.7	94.4	4.9	--	--	--	100.0
60+	1.9	83.7	13.3	0.8	0.4	--	100.0
Total	47.7	50.5	1.4	0.2	0.1	--	100.0
			Female				
6 -12	99.5	0.5	--	--	-	--	100.0
13-14	97.7	2.3	--	--	-	--	100.0
15-19	78.6	20.2	0.4	0.2	0.6	--	100.0
20-24	29.5	67.5	0.6	0.2	2.2	--	100.0
25-29	10.2	84.1	2.4	1.1	2.2	--	100.0
30-34	3.2	89.6	4.2	0.6	2.3	--	100.0
35-39	1.7	91.5	5.1	0.7	1.0	--	100.0
40-44	1.3	86.6	10.9	0.4	0.8	--	100.0
45-49	1.3	85.0	13.1	--	0.6	--	100.0
50-54	--	78.5	19.5	0.7	1.3	--	100.0
55-59	--	57.5	40.4	--	2.1	--	100.0
60+	0.3	32.9	66.1	--	0.7	--	100.0
Total	38.3	50.6	9.7	0.3	1.1	--	100.0
			RURAL Male				
6 -12	98.5	0.8	--	--	0.1	0.6	100.0
13-14	98.4	1.2	--	--	0.4	--	100.0
15-19	98.1	1.8	0.2	--	--	--	100.0
20-24	62.6	37.4	--	--	--	--	100.0
25-29	18.1	80.1	0.7	--	1.1	--	100.0
30-34	2.9	96.0	0.5	--	0.5	--	100.0
35-39	0.8	97.1	1.6	0.3	--	0.3	100.0
40-44	1.0	98.4	0.6	--	--	--	100.0
45-49	1.2	95.0	2.9	0.4	0.4	--	100.0
50-54	--	96.7	2.9	--	0.5	--	100.0
55-59	1.6	89.4	8.5	--	0.5	--	100.0
60+	0.8	85.3	13.8	--	--	--	100.0
Total	45.7	51.5	2.4	--	0.2	0.2	100.0

the proportions ever-married are: 71 percent of males and 90 percent of females in urban areas, 82 percent of males and 99 percent of females in rural areas, and 76 percent of males and 95 percent of females in the state as a whole. Overall, women marry at much younger ages than

Table 3.3 Marital status of household population (Contd.)

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

Age	Marital status						Total percent
	Never married	Currently married	Widowed	Divorced	Separated	DK/ Missing	
			RURAL Female				
6 -12	98.8	0.5	--	--	0.1	0.6	100.0
13-14	90.3	9.7	--	--	--	--	100.0
15-19	49.8	49.0	--	0.2	1.1	--	100.0
20-24	8.0	87.9	0.8	0.5	2.7	--	100.0
25-29	1.4	91.0	2.4	0.6	4.6	--	100.0
30-34	0.5	93.8	3.5	0.3	1.9	--	100.0
35-39	0.6	90.3	6.8	0.3	2.0	--	100.0
40-44	--	89.3	6.4	0.4	3.9	--	100.0
45-49	--	87.7	10.4	--	1.9	--	100.0
50-54	0.9	73.4	23.9	--	1.8	--	100.0
55-59	--	73.8	23.2	--	2.5	0.4	100.0
60+	0.9	36.5	61.7	0.4	0.4	0.2	100.0
Total	32.5	55.2	10.3	0.2	1.6	0.2	100.0
			TOTAL Male				
6 -12	98.7	0.8	--	--	0.1	0.5	100.0
13-14	98.9	0.9	--	--	0.2	--	100.0
15-19	97.8	2.1	0.1	--	--	--	100.0
20-24	68.8	30.9	0.1	0.1	0.1	--	100.0
25-29	23.6	75.1	0.5	0.2	0.7	--	100.0
30-34	6.7	92.7	0.3	0.1	0.3	--	100.0
35-39	3.1	95.0	1.3	0.3	0.1	0.1	100.0
40-44	1.7	97.2	0.5	0.3	0.2	--	100.0
45-49	0.8	97.0	1.7	0.2	0.2	--	100.0
50-54	0.5	95.1	3.9	--	0.5	--	100.0
55-59	1.2	91.6	6.9	--	0.3	--	100.0
60+	1.1	84.8	13.7	0.2	0.1	--	100.0
Total	46.6	51.1	2.0	0.1	0.2	0.1	100.0
			Female				
6 -12	99.0	0.5	--	--	0.1	0.4	100.0
13-14	93.4	6.6	--	--	--	--	100.0
15-19	62.1	36.6	0.2	0.2	0.9	--	100.0
20-24	18.2	78.3	0.7	0.4	2.5	--	100.0
25-29	5.2	88.1	2.4	0.8	3.6	--	100.0
30-34	1.8	91.9	3.8	0.4	2.1	--	100.0
35-39	1.1	90.9	6.0	0.5	1.5	--	100.0
40-44	0.6	87.9	8.7	0.4	2.3	--	100.0
45-49	0.5	86.5	11.6	--	1.3	--	100.0
50-54	0.5	75.5	22.1	0.3	1.6	--	100.0
55-59	--	67.6	29.8	--	2.3	0.3	100.0
60+	0.7	35.3	63.2	0.2	0.5	0.1	100.0
Total	34.9	53.3	10.0	0.3	1.4	0.1	100.0

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

men, and both men and women marry at much younger ages in rural areas than in urban areas. A more comprehensive discussion of marriage patterns is contained in the next chapter, which is devoted entirely to nuptiality.

3.3 Household Composition

Table 3.4 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 residents in the household. Around 89 percent of household heads are male, regardless of residence. The median age of household heads is slightly lower in urban areas (43 years) than in rural areas (46 years). Overall, 77 percent of household heads are Hindu, 11 percent Muslim, 8 percent Buddhist and 4 percent belong to other religions. The concentration of Muslims is higher in urban areas, where they constitute 17 percent of households. Seven percent of household heads belong to scheduled castes and 10 percent to scheduled tribes. The concentration of both of these groups, particularly of the scheduled tribes, is higher in rural areas than in urban areas. According to the 1991 Census, the proportion belonging to scheduled castes and scheduled tribes in Maharashtra are 11 percent and 9 percent, respectively (see Table 1.1). The average household size is 5.5. It is slightly higher in rural areas (5.6) than in urban areas (5.3).

Table 3.5 shows the percent distribution of the *de facto* household population (usual residents present at the time of interview and visitors) by age, sex and residence. All subsequent tables in this chapter and in the following chapters are based on the *de facto* sample, unless otherwise specified[1]. Overall, four percent of the *de facto* population listed in the sample households at the time of the interview are visitors who do not usually live in the household. Visitors are more common among young women in the childbearing years (ages 15-29) and their children (0-4 years). This pattern results mainly from the common practice of women returning to their parents' home for delivery of a child (particularly the first or second child) and staying there during the postpartum period. Visits occur at approximately the same rate in urban and rural areas.

3.4 Educational Attainment

The educational level of household members is an important indicator of social development. Reproductive behaviour, use of contraceptives, health of children and proper hygienic practices are often affected by the level of educational attainment of household members. Table 3.6 shows the extent of literacy and the level of education of the *de facto* male and female household population age 6 and above by age and residence. Forty-four percent of females and 21 percent of males age 6 and above are illiterate. The levels of illiteracy are slightly lower than the 1991 Census rates of 48 percent for females and 23 percent for males age 7 and above (see Table 1.1). Overall, a higher percentage of males than females have completed each level of schooling. In the NFHS, the median number of years of schooling completed for

[1]It is expected that the *de facto* sample will be more representative of women in the state as a whole since all women are interviewed where they are staying at the time of the survey. A *de jure* sample, on the other hand, would miss usual residents who are temporarily staying elsewhere at the time of the survey.

Table 3.4 Household composition

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

Characteristic	Residence		
	Urban	Rural	Total
Sex of household head			
Male	89.6	88.9	89.2
Female	10.4	11.1	10.8
Age of household head			
Less than 30	12.4	10.1	11.1
30-44	42.6	36.7	39.3
45-59	32.1	29.1	30.4
60+	12.9	24.0	19.2
Median age	42.6	45.5	44.7
Marital status of household head			
Never married	2.7	1.3	1.9
Currently married	87.5	87.7	87.6
Widowed	8.7	10.6	9.8
Divorced	0.2	--	0.1
Separated	0.8	0.3	0.5
Religion of household head			
Hindu	69.0	83.5	77.3
Muslim	16.8	6.7	11.1
Buddhist	7.3	7.9	7.7
Other	6.9	1.8	4.0
Caste/tribe of household head			
Scheduled caste	6.2	7.0	6.6
Scheduled tribe	3.7	14.8	10.0
Other	90.1	78.3	83.4
Number of usual members			
1	2.9	2.8	2.8
2	7.6	8.0	7.8
3	11.0	11.1	11.1
4	19.4	15.9	17.4
5	19.7	17.9	18.7
6	14.8	16.4	15.7
7	9.2	10.6	10.0
8	5.9	6.1	6.0
9+	9.5	11.3	10.5
Mean size	5.3	5.6	5.5
Total percent	100.0	100.0	100.0
Number of households	1754	2309	4063

Note: Table is based on *de jure* members, i.e., usual residents.
-- Less than 0.05 percent

males is 5.9, and only 2.6 for females.

Urban areas maintain a wide lead over rural areas in both literacy and the level of education achieved. Among females age 6 and above, the percentage literate is 73 percent in urban areas and 43 percent in rural areas. The urban-rural gap in literacy is less pronounced

Table 3.5 Usual residents and visitors

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

Characteristic	Resident status		Total percent	Number
	Usual resident	Visitor		
MALE				
Age				
< 1	86.4	13.6	100.0	265
1 - 4	94.1	5.9	100.0	1081
5 -14	98.1	1.9	100.0	2701
15-19	98.0	2.0	100.0	1020
20-24	96.9	3.1	100.0	1029
25-29	96.7	3.3	100.0	887
30-34	97.9	2.1	100.0	751
35-39	97.6	2.4	100.0	704
40-44	98.3	1.7	100.0	579
45-49	98.5	1.5	100.0	474
50+	98.1	1.9	100.0	1590
Residence				
Urban	97.4	2.6	100.0	4783
Rural	97.1	2.9	100.0	6301
Total	97.2	2.8	100.0	11084
FEMALE				
Age				
< 1	86.6	13.4	100.0	253
1 - 4	93.1	6.9	100.0	1020
5 -14	97.6	2.4	100.0	2579
15-19	92.5	7.5	100.0	1111
20-24	89.3	10.7	100.0	1133
25-29	94.5	5.5	100.0	871
30-34	97.7	2.3	100.0	682
35-39	97.7	2.3	100.0	647
40-44	96.6	3.4	100.0	472
45-49	96.8	3.2	100.0	371
50+	95.1	4.9	100.0	1615
Residence				
Urban	94.9	5.1	100.0	4513
Rural	94.8	5.2	100.0	6243
Total	94.8	5.2	100.0	10756
TOTAL				
Age				
< 1	86.5	13.5	100.0	518
1 - 4	93.6	6.4	100.0	2101
5 -14	97.9	2.1	100.0	5280
15-19	95.2	4.8	100.0	2131
20-24	92.9	7.1	100.0	2162
25-29	95.6	4.4	100.0	1758
30-34	97.8	2.2	100.0	1433
35-39	97.6	2.4	100.0	1351
40-44	97.5	2.5	100.0	1051
45-49	97.8	2.2	100.0	845
50+	96.6	3.4	100.0	3205
Residence				
Urban	96.2	3.8	100.0	9296
Rural	95.9	4.1	100.0	12544
Total	96.0	4.0	100.0	21840

Note: Total includes 5 cases with missing information on age, which are not shown separately.

Table 3.6 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 education, according to age, sex and residence, Maharashtra, 1992-93

Age	Educational level: Illiterate	Literate, <primary complete	Primary school complete	Middle school complete	High school complete	Above high school	Missing	Total percent	Number	Median number of years of schooling
					URBAN					
					Male					
6 - 9	12.9	84.6	2.2	--	--	--	0.2	100.0	410	1.8
10-14	4.3	32.7	50.7	12.1	0.2	--	--	100.0	554	5.7
15-19	5.3	3.7	14.9	37.6	35.2	3.3	--	100.0	455	9.5
20-24	7.6	7.6	11.4	19.3	33.3	20.7	0.2	100.0	502	10.3
25-29	10.9	9.8	18.5	16.4	23.5	20.7	0.2	100.0	439	9.5
30-34	12.0	8.6	17.9	17.4	27.5	16.6	--	100.0	374	9.4
35-39	10.9	7.6	14.2	13.3	28.5	25.2	0.3	100.0	330	10.2
40-44	10.9	11.2	13.5	13.1	29.6	21.7	--	100.0	267	10.1
45-49	18.5	12.5	11.6	12.5	27.2	17.7	--	100.0	232	9.4
50+	21.9	20.7	16.4	8.2	20.9	11.5	0.5	100.0	585	6.8
Total	11.3	20.8	18.5	15.1	21.5	12.6	0.2	100.0	4148	7.9
					Female					
6 - 9	15.6	83.1	1.2	--	--	--	--	100.0	409	2.0
10-14	8.7	27.0	52.0	11.7	0.6	--	--	100.0	496	5.7
15-19	12.0	6.3	17.6	26.3	31.7	6.1	--	100.0	476	9.4
20-24	22.4	7.3	19.6	16.0	18.7	16.0	--	100.0	536	8.2
25-29	27.0	8.1	18.6	11.9	18.6	15.9	--	100.0	371	7.6
30-34	26.9	11.7	19.7	7.1	18.4	16.2	--	100.0	309	7.2
35-39	27.5	11.9	19.3	7.1	24.1	10.2	--	100.0	295	7.2
40-44	43.9	11.7	14.2	7.5	15.5	7.1	--	100.0	239	4.3
45-49	40.0	13.7	17.5	5.6	16.9	6.3	--	100.0	160	4.6
50+	57.1	15.4	13.7	3.0	6.7	3.7	0.5	100.0	599	0.0
Total	27.2	20.2	20.1	10.3	14.3	7.8	0.1	100.0	3890	5.4
					Total					
6 - 9	14.3	83.9	1.7	--	--	--	0.1	100.0	819	1.9
10-14	6.4	30.0	51.3	11.9	0.4	--	--	100.0	1050	5.7
15-19	8.7	5.0	16.3	31.8	33.4	4.7	--	100.0	931	9.4
20-24	15.2	7.4	15.6	17.6	25.7	18.3	0.1	100.0	1038	9.5
25-29	18.3	9.0	18.5	14.3	21.2	18.5	0.1	100.0	810	8.8
30-34	18.7	10.0	18.7	12.7	23.4	16.4	--	100.0	683	8.5
35-39	18.7	9.6	16.6	10.4	26.4	18.1	0.2	100.0	625	9.0
40-44	26.5	11.5	13.8	10.5	22.9	14.8	--	100.0	506	7.8
45-49	27.3	13.0	14.0	9.7	23.0	13.0	--	100.0	392	7.4
50+	39.7	18.0	15.0	5.6	13.7	7.5	0.5	100.0	1184	4.2
Total	19.0	20.5	19.3	12.8	18.0	10.3	0.1	100.0	8038	6.9
					RURAL					
					Male					
6 - 9	23.3	75.4	0.7	--	--	--	0.6	100.0	687	1.7
10-14	8.7	38.4	42.3	9.9	0.5	0.1	0.1	100.0	761	5.2
15-19	12.9	8.7	18.4	36.8	21.6	1.6	--	100.0	565	8.9
20-24	17.1	10.6	16.3	21.3	24.9	9.3	0.6	100.0	527	9.1
25-29	25.4	12.5	20.5	15.2	19.0	7.4	--	100.0	448	7.2
30-34	27.6	13.3	22.5	13.0	17.0	6.4	0.3	100.0	377	6.5
35-39	30.2	18.2	18.2	10.4	16.0	7.0	--	100.0	374	5.4
40-44	33.7	16.3	17.6	9.0	15.1	8.0	0.3	100.0	312	5.0
45-49	36.8	21.1	19.4	9.1	11.6	2.1	--	100.0	242	4.2
50+	55.1	23.7	14.9	2.2	3.5	0.5	0.1	100.0	1005	0.0
Total	27.7	27.0	19.1	11.8	10.9	3.3	0.2	100.0	5298	4.5

Table 3.6 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 education, according to age, sex and residence, Maharashtra, 1992-93

Age	Educational level							Total percent	Number	Median number of years of schooling
	Illiterate	Literate, <primary complete	Primary school complete	Middle school complete	High school complete	Above high school	Missing			
					RURAL Female					
6 - 9	31.5	66.9	0.8	0.2	--	--	0.6	100.0	641	1.5
10-14	28.1	29.4	36.1	5.7	0.4	--	0.3	100.0	734	4.5
15-19	38.3	9.6	18.6	19.8	12.8	0.9	--	100.0	635	5.7
20-24	50.1	9.7	17.8	11.2	9.0	2.2	--	100.0	597	0.0
25-29	59.6	12.0	12.6	5.2	8.2	2.4	--	100.0	500	0.0
30-34	61.1	12.6	15.3	5.1	5.4	0.5	--	100.0	373	0.0
35-39	71.9	9.7	11.1	5.4	2.0	--	--	100.0	352	0.0
40-44	76.8	11.2	6.4	2.1	3.4	--	--	100.0	233	0.0
45-49	75.8	14.2	8.5	0.5	0.9	--	--	100.0	211	0.0
50+	90.7	6.0	1.9	0.3	0.5	0.2	0.4	100.0	1016	0.0
Total	56.5	19.3	13.3	5.8	4.2	0.7	0.2	100.0	5292	0.0
					Total					
6 - 9	27.2	71.4	0.8	0.1	--	--	0.6	100.0	1330	1.6
10-14	18.2	34.0	39.2	7.8	0.5	0.1	0.2	100.0	1496	4.9
15-19	26.3	9.2	18.5	27.8	16.9	1.3	--	100.0	1200	7.6
20-24	34.6	10.1	17.1	15.9	16.5	5.5	0.3	100.0	1124	6.1
25-29	43.5	12.2	16.4	9.9	13.3	4.7	--	100.0	948	4.3
30-34	44.2	12.9	19.0	9.1	11.2	3.5	0.1	100.0	751	4.1
35-39	50.4	14.0	14.7	8.0	9.2	3.6	--	100.0	726	0.0
40-44	52.1	14.1	12.8	6.1	10.1	4.6	0.2	100.0	545	0.0
45-49	55.0	17.9	14.3	5.1	6.6	1.1	--	100.0	453	0.0
50+	73.0	14.8	8.4	1.2	2.0	0.3	0.2	100.0	2021	0.0
Total	42.1	23.2	16.2	8.8	7.5	2.0	0.2	100.0	10594	2.8
					TOTAL Male					
6 - 9	19.4	78.9	1.3	--	--	--	0.5	100.0	1097	1.8
10-14	6.8	36.0	45.9	10.8	0.4	0.1	0.1	100.0	1315	5.4
15-19	9.5	6.5	16.9	37.2	27.6	2.4	--	100.0	1020	9.2
20-24	12.4	9.1	13.9	20.3	29.0	14.9	0.4	100.0	1029	9.6
25-29	18.3	11.2	19.5	15.8	21.2	14.0	0.1	100.0	887	8.2
30-34	19.8	10.9	20.2	15.2	22.2	11.5	0.1	100.0	751	7.9
35-39	21.2	13.2	16.3	11.8	21.9	15.5	0.1	100.0	704	7.9
40-44	23.1	14.0	15.7	10.9	21.8	14.3	0.2	100.0	579	7.7
45-49	27.8	16.9	15.6	10.8	19.2	9.7	--	100.0	474	6.4
50+	42.9	22.6	15.5	4.4	9.9	4.5	0.3	100.0	1590	3.5
Total	20.5	24.3	18.9	13.2	15.5	7.4	0.2	100.0	9446	5.9
					Female					
6 - 9	25.3	73.2	1.0	0.1	--	--	0.4	100.0	1050	1.7
10-14	20.2	28.5	42.5	8.1	0.5	--	0.2	100.0	1230	5.1
15-19	27.0	8.2	18.2	22.6	20.9	3.2	--	100.0	1111	7.7
20-24	37.0	8.6	18.6	13.5	13.6	8.7	--	100.0	1133	6.1
25-29	45.7	10.3	15.2	8.0	12.6	8.2	--	100.0	871	4.1
30-34	45.6	12.2	17.3	6.0	11.3	7.6	--	100.0	682	4.0
35-39	51.6	10.7	14.8	6.2	12.1	4.6	--	100.0	647	0.0
40-44	60.2	11.4	10.4	4.9	9.5	3.6	--	100.0	472	0.0
45-49	60.4	14.0	12.4	2.7	7.8	2.7	--	100.0	371	0.0
50+	78.3	9.5	6.3	1.3	2.8	1.5	0.4	100.0	1615	0.0
Total	44.1	19.7	16.2	7.7	8.5	3.7	0.1	100.0	9182	2.6

Table 3.6 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 education, according to age, sex and residence, Maharashtra, 1992-93

Age	Educational level							Total percent	Number	Median number of years of schooling
	Illiterate	Literate, <primary	Primary school complete	Middle school complete	High school complete	Above high school	Missing			
					TOTAL					
					Total					
6 - 9	22.3	76.1	1.1	--	--	--	0.4	100.0	2149	1.7
10-14	13.3	32.4	44.2	9.5	0.4	--	0.1	100.0	2546	5.3
15-19	18.6	7.4	17.6	29.6	24.1	2.8	--	100.0	2131	8.7
20-24	25.3	8.8	16.4	16.7	20.9	11.7	0.2	100.0	2162	7.9
25-29	31.9	10.8	17.3	11.9	17.0	11.1	0.1	100.0	1758	6.8
30-34	32.1	11.5	18.9	10.8	17.0	9.6	0.1	100.0	1434	6.3
35-39	35.8	12.0	15.6	9.1	17.2	10.3	0.1	100.0	1351	5.5
40-44	39.8	12.8	13.3	8.2	16.3	9.5	0.1	100.0	1051	4.7
45-49	42.1	15.6	14.2	7.2	14.2	6.6	-	100.0	845	4.1
50+	60.7	16.0	10.8	2.8	6.3	3.0	0.3	100.0	3205	0.0
Total	32.1	22.0	17.6	10.5	12.0	5.6	0.2	100.0	18632	4.5

-- Less than 0.05 percent

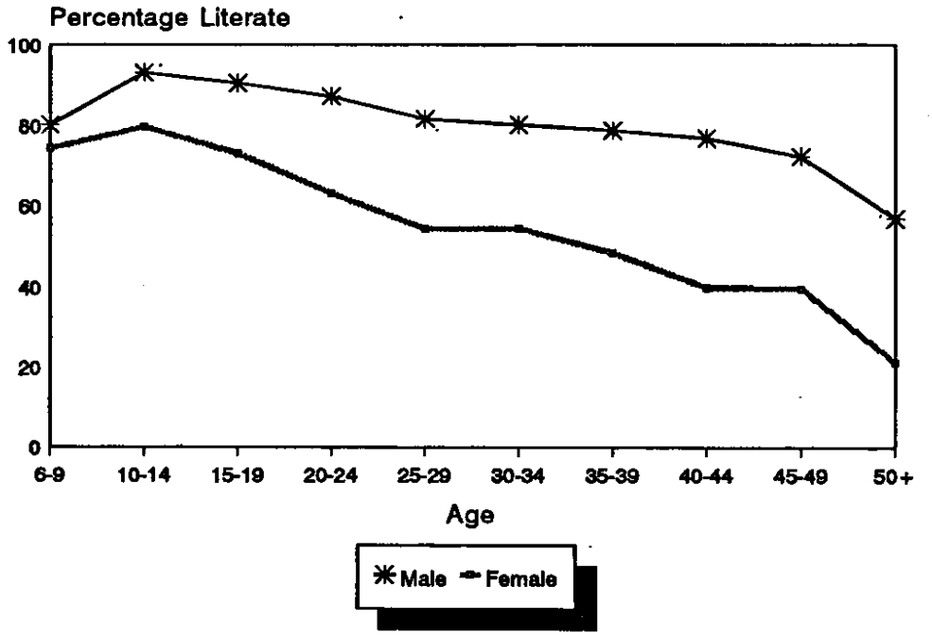
for males (89 percent in urban areas compared to 72 percent in rural areas). The proportion of women with at least a high school education is 22 percent in urban areas but only 5 percent in rural areas. Sex differentials in educational attainment exist within both urban and rural areas. In urban areas, 34 percent of men but only 22 percent of women have completed high school. In rural areas the percentages are 14 for males and 5 for females.

There has been steady progress in literacy over time, as indicated by cross-sectional differentials in literacy rates by age (Figure 3.3). For example, while only 22 percent of women age 50 and over are literate, the percentage literate increases to 40 for women age 40-44, 63 at ages 20-24, and 80 at ages 10-14. Although the literacy gap between males and females has narrowed over time, males are much more likely to be literate than females at all ages. At ages 10-14, the literacy rate is 93 percent for males and 80 percent for females.

Table 3.7 and Figure 3.4 show school attendance rates for the school-age household population, by age, sex and residence. The table focuses on children age 6-14, because the Indian Constitution established a goal of providing free and compulsory education for children below age 15. In the state as a whole, 82 percent of children age 6-14 are attending school. The school attendance rate is higher for males than for females, as expected. School attendance rates at ages 6-14 by sex in the state as a whole are 86 percent for males and 77 percent for females.

Urban-rural differences in male school attendance rates are 7 percentage points at ages 6-10 and 8 percentage points at ages 11-14 (in favour of urban areas). Urban-rural differences in female school attendance rates are much larger (12 percentage points at ages 6-10 and 29 percentage points at ages 11-14). The school attendance rate for rural females age 6-14 is only

Figure 3.3
Percentage Literate by Age and Sex



NFHS, Maharashtra, 1992-93

69 percent. In spite of substantial educational advances over time, almost one-quarter of school-age girls in Maharashtra are not attending school, and it is likely that many who are enrolled do not attend school regularly.

Table 3.7 School attendance

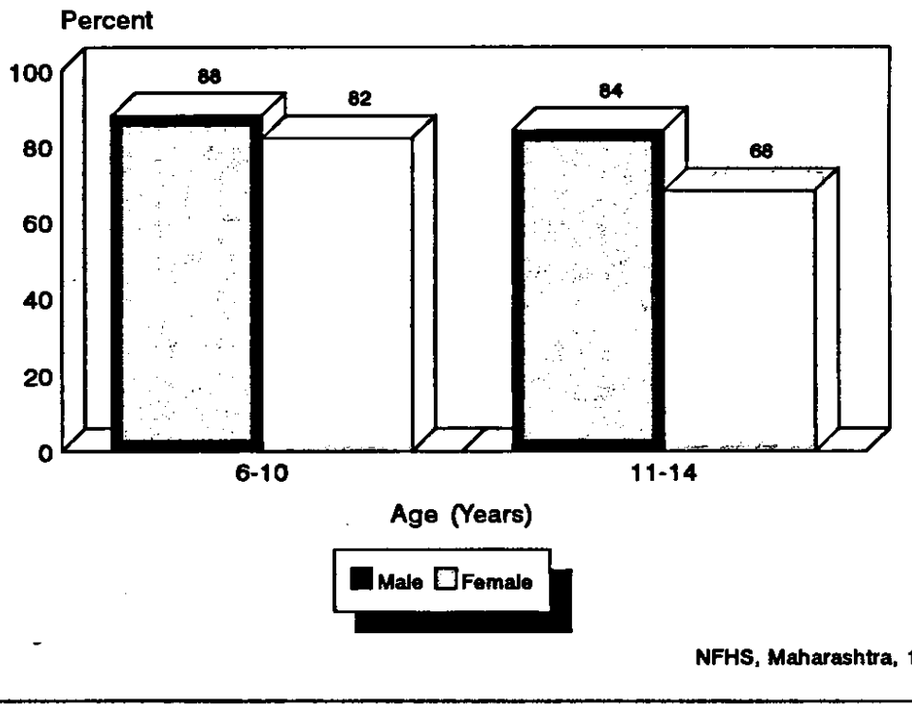
Percentage of the *de facto* household population age 6-14 years attending school by age, sex and residence, Maharashtra, 1992-93

	Male			Female			Total		
Age	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
6 -10	91.9	84.9	87.5	89.8	77.5	82.2	90.9	81.2	84.9
11-14	89.2	80.8	84.4	85.1	56.2	68.3	87.3	68.9	76.7
6 -14	90.7	83.3	86.2	87.8	69.2	76.6	89.3	76.4	81.5

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 materials used for construction of walls, roof and floor. Table 3.8 provides information on these housing characteristics by residence. A large majority of urban households have electricity (87 percent),

Figure 3.4
School Attendance by Age and Sex



but only 63 percent of rural households have electricity. In the state as a whole, 74 percent of households have electricity.

The source of water and availability of sanitary facilities are important determinants of the health status of household members, particularly of children. In the state as a whole, 69 percent of households have piped water for drinking, 9 percent get drinking water from a handpump, and 19 percent from open wells. As in the case of electricity, there are large urban-rural differences in the source of drinking water. Piped drinking water is available for 91 percent of urban households and for only 53 percent of rural households. The sources of water used for bathing and washing are similar to the sources of drinking water.

Only 35 percent of households in Maharashtra have a flush toilet (using either piped water or bucket water for flushing), 6 percent have a pit toilet or latrine, and 59 percent have no sanitation facility. The type of sanitation facility varies with residence. The percentage of households with a flush toilet is 72 in urban areas compared to only 7 percent in rural areas. Ninety percent of rural households have no toilet facility at all, but this percentage in urban areas is 18.

In Maharashtra, wood is the most common fuel used for cooking. In the state as a whole, 55 percent of households use wood, 21 percent use kerosene and 19 percent use liquid petroleum gas. Again there are substantial urban-rural differences. The majority of urban households (82 percent) use liquid petroleum gas or kerosene, while more than four-fifths of

Table 3.8 Housing characteristics

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

Housing characteristic	Residence		
	Urban	Rural	Total
Electricity			
Yes	87.3	63.2	73.6
No	12.7	36.8	26.4
Source of bathing/washing water			
Piped	88.4	51.0	67.2
Handpump	3.4	13.2	9.0
Well water	7.0	29.1	19.6
Surface water	1.3	6.4	4.2
Other	--	0.3	0.1
Source of drinking water			
Piped	91.3	52.6	69.3
Handpump	2.9	14.0	9.2
Well water	4.8	29.8	19.0
Surface water	0.9	3.3	2.3
Other	0.1	0.3	0.2
Sanitation facility			
Flush	71.8	7.0	35.0
Pit toilet/latrine	9.7	2.7	5.8
Other	--	--	--
No facility	18.4	90.2	59.2
Type of fuel for cooking			
Wood	15.4	85.4	55.2
Cow dung cakes	0.2	2.3	1.4
Coal/coke/lignite/charcoal	0.9	0.5	0.6
Kerosene	43.0	4.5	21.1
Electricity	0.3	0.2	0.2
Liquid petroleum gas	39.1	3.7	19.0
Other	1.1	3.3	2.4
Type of house			
Kachcha	12.4	62.5	40.9
Semi-pucca	26.3	30.2	28.6
Pucca	61.2	7.3	30.6
Place where livestock is kept			
Inside the house	1.6	7.1	4.8
Outside the house	6.4	53.8	33.3
No livestock	92.0	39.0	61.9
Persons per room			
< 3.0	53.6	51.4	52.3
3.0-4.9	23.7	29.1	26.8
5.0-6.9	15.1	13.2	14.0
7.0+	7.6	6.2	6.8
Don't know/missing	--	--	--
Mean	3.2	3.1	3.2
Total percent	100.0	100.0	100.0
Number of households	1754	2309	4063

-- Less than 0.05 percent

rural households use wood.

Based on the materials used for the construction of walls, roof and floor, a house in the NFHS is defined as either '*kachcha*', '*pucca*' or 'semi-*pucca*'. In Maharashtra, 41 percent of houses are *kachcha* (made from mud, thatch or other low-quality materials), 29 percent are semi-*pucca* (partly low-quality and partly high-quality materials) and 31 percent are *pucca* (high-quality materials throughout, including roof, walls and floor). There are large urban-rural differences. Sixty-three percent of rural houses are *kachcha* whereas 61 percent of urban houses are *pucca*.

The NFHS also collected information on whether households own any livestock. Thirty-eight percent of households in Maharashtra own livestock (61 percent in rural areas and 8 percent in urban areas). 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. Only 5 percent of all households in the state have livestock that are usually 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 measure of crowding. Congestion in the household is virtually the same in urban and rural areas at 3.1 to 3.2 persons per room. A majority of households (52 percent) have fewer than three persons per room. Twenty-one percent of households have five or more persons per room, and seven percent of households are very crowded with seven or more persons per room.

Table 3.9 contains a number of measures related to the socioeconomic status of the household: household ownership of agricultural land, livestock, and durable goods. Overall, nearly one-half of all households (47 percent) do not own any agricultural land, with urban households being more than twice as likely to be landless as rural households. In rural areas, 70 percent of households own agricultural land and among those who own land, 33 percent irrigate at least some of their land. More than a third of all households have livestock, and rural households are nearly eight times as likely to own livestock as urban households. More than a third of rural households have one or more head of bullock, 33 percent have cows, 23 percent have buffalos, 15 percent have goats and less than 9 percent have other livestock.

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.

The majority of households in Maharashtra have a clock/watch (57 percent). Other durable goods often found in households are radios (43 percent), bicycles (33 percent), televisions (30 percent), sewing machines (18 percent), refrigerators (10 percent) and motorcycles/scooters (9 percent). Urban households are much more likely to have each of these durable goods than are rural households, except for bicycles, where the urban and rural percentages are almost the same. With the exception of bullock carts (owned by 10 percent of households), agricultural equipment, such as tractors, threshers and water pumps are rare in

Table 3.9 Household ownership of land, livestock and durable goods

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

Item owned	Residence		
	Urban	Rural	Total
Agricultural land			
No land	69.9	30.2	47.4
Irrigated land only			
< 1 Acre	0.7	1.0	0.9
1-5 Acres	2.1	4.9	3.7
6+ Acres	1.0	1.9	1.6
Non-irrigated land only			
< 1 Acre	4.7	7.1	6.1
1-5 Acres	11.9	27.5	20.8
6+ Acres	5.8	12.1	9.4
Irrigated and non-irrigated land			
< 1 Acre	0.5	0.6	0.5
1-5 Acres	1.2	5.2	3.5
6+ Acres	2.2	9.4	6.3
Total percent	100.0	100.0	100.0
Livestock			
Bullock	3.4	35.9	21.9
Cow	3.4	32.8	20.1
Buffalo	2.3	22.6	13.9
Goat	2.4	15.4	9.8
Sheep	0.4	3.6	2.2
Camel	0.1	--	--
Other	0.6	5.1	3.1
No livestock	92.0	39.0	61.9
Consumer durable goods			
Sewing machine	28.1	9.4	17.5
Clock/watch	77.9	40.5	56.6
Radio	57.9	31.7	43.0
Television	55.6	11.3	30.4
Refrigerator	22.3	1.3	10.3
Bicycle	34.2	32.4	33.2
Motorcycle/scooter	13.7	5.1	8.8
Car	3.4	0.4	1.7
Bullock cart	1.8	15.6	9.6
Thresher	0.2	0.8	0.5
Tractor	0.3	0.6	0.4
Water pump	0.5	1.6	1.1
Number of households	1754	2309	4063

-- Less than 0.05 percent

rural as well as in urban areas.

3.6 Background Characteristics of Respondents

Whereas the previous sections 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 3.10 shows distributions of ever-married women age 13-49 by selected background characteristics. One-half of women interviewed are under age 30. The percentage in each age group increases up to age 20-24, reflecting the increase in the proportion married in successive age groups. The percentages decline after age 20-24, by which time most women have already married, reflecting the normal pyramidal shape of the age distribution. This age pattern is rather similar in urban and rural areas (Figure 3.5), although the 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 3.3.). Ninety-three percent of respondents (ever-married women) are currently married, and among the rest, most are widowed. Three percent are separated and less than half a percent are divorced. The distribution of respondents by marital status is similar in urban and rural areas. One-half of the respondents are illiterate and only 15 percent have completed high school. Respondents residing in urban areas are better educated than those living in rural areas. The distribution of respondents by religion and caste/tribe are similar to the distribution of households by these same characteristics, as discussed earlier in section 3.3.

Table 3.10 also shows the distribution of respondents by their work status and their husband's education. In the NFHS, work includes 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. Fifty-one percent of respondents report that they are not working. The percentage not working is more than twice as high in urban areas (73 percent) than in rural areas (35 percent). Rural women are also more likely than urban women to be working on a family farm/business, or as an employee for someone else. Almost one-third of rural women work on a family farm/business and a similar proportion are employed by someone else. Overall, only three percent are self-employed.

Husbands are more educated than their spouses. Only one-quarter of husbands are illiterate - 14 percent in urban areas and 33 percent in rural areas. The percentage of husbands with at least a high school education is more than twice as high in urban areas (45 percent) than in rural areas (19 percent).

Table 3.11 shows differentials in respondent's education by selected background characteristics. The proportion of illiterates generally increases with age (albeit irregularly), reflecting improvements in levels of education over time. Women in the age group 15-19 are an exception, with a notably high proportion being illiterate (52 percent). This is because about 38 percent of females age 15-19 are married (Table 3.3) and women who marry young tend to be from among the less educated. The percentage illiterate among Hindus and Muslims is the same (51 percent), but it is higher among Buddhists (60 percent) and much lower (only 20 percent) among women belonging to other religions. The percentage of women with at least a high school education is higher among Hindus (15 percent) than among Muslims (10 percent). Illiteracy is substantially higher among scheduled caste (69 percent) as well as scheduled tribe women (77 percent) compared to others (46 percent). A large majority (86 percent) of women with illiterate husbands are illiterate themselves. Even among men who have completed high school (but have not gone on to a higher level of education), 21 percent have married illiterate women, reflecting the general tendency of men to marry women less educated than themselves.

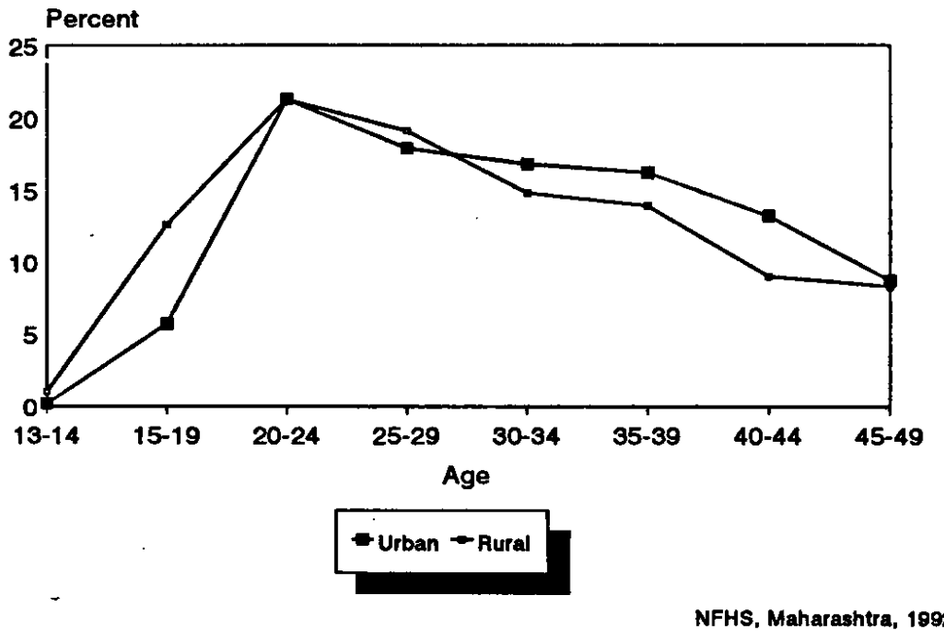
Table 3.10 Background characteristics of respondents

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

Background characteristic	Residence			Total number of women
	Urban	Rural	Total	
Age				
13-14	0.2	1.0	0.7	27
15-19	5.7	12.6	9.7	400
20-24	21.3	21.3	21.3	874
25-29	17.9	19.1	18.6	764
30-34	16.8	14.8	15.6	642
35-39	16.2	13.9	14.9	610
40-44	13.2	9.0	10.8	442
45-49	8.7	8.3	8.5	347
Marital status				
Currently married	92.6	93.2	93.0	3818
Widowed	4.6	3.7	4.1	167
Divorced	0.6	0.3	0.4	18
Separated	2.1	2.8	2.5	103
Education				
Illiterate	31.8	63.1	50.2	2060
Literate, < primary complete	10.5	10.6	10.5	433
Primary school complete	19.5	14.5	16.6	680
Middle school complete	10.5	6.2	8.0	327
High school complete	18.0	4.9	10.4	425
Above high school	9.7	0.7	4.4	181
Religion				
Hindu	65.6	84.1	76.4	3138
Muslim	19.5	7.7	12.6	517
Sikh	0.4	0.1	0.2	8
Buddhist	8.5	6.6	7.4	304
Christian	1.7	0.1	0.8	32
Jain	4.0	0.4	1.9	77
Other	0.4	1.0	0.7	30
Caste/tribe				
Scheduled caste	6.0	6.7	6.4	263
Scheduled tribe	3.8	13.5	9.5	390
Other	90.2	79.8	84.1	3453
Work status				
Not working	73.4	35.2	51.0	2095
Working in family farm/business	4.0	31.2	20.0	820
Employed by someone else	17.1	31.6	25.6	1050
Self-employed	5.5	2.0	3.4	141
Husband's education				
Illiterate	13.6	32.8	24.9	1021
Literate, < primary complete	11.2	16.8	14.5	595
Primary school complete	15.7	19.6	18.0	739
Middle school complete	13.7	11.2	12.2	502
High school complete	28.1	15.0	20.5	840
Above high school	17.2	4.2	9.6	394
Don't know/missing	0.4	0.4	0.4	15
Total percent	100.0	100.0	100.0	NA
Number of women	1699	2407	4106	4106

NA: Not applicable

Figure 3.5
Age Distribution of Ever-Married Women by Residence



NFHS, Maharashtra, 1992-93

In each population subgroup considered in Table 3.11, urban women are better educated than their rural counterparts. The pattern of differentials in educational attainment by background characteristics in urban and rural Maharashtra resembles the pattern observed for the state as a whole, except for the religious differentials. For example, in urban areas 28 percent of Hindu women are illiterate compared with 44 percent of Muslim women, 50 percent of Buddhists and 10 percent of the women of other religions. This difference between the religious groups is almost nonexistent in rural areas, although a much larger percentage of Hindu and Muslim (63 percent each) and Buddhist women (69 percent) are illiterate. In urban areas, improvement in women's education has been greater in the Hindu community than in the Muslim community, which tends to seclude its women. This difference is less obvious in the rural areas, where all women are equally disadvantaged.

Table 3.12 provides information on exposure of respondents to mass media. More than a third of all women are not regularly exposed to any kind of mass media (television, radio or cinema). This is perhaps not surprising in light of the fact that only 43 percent of households own a radio and only 30 percent own a television (see Table 3.9). Little more than one-half of women (52 percent) listen to the radio at least once a week; 46 percent watch television at least once a week; and 15 percent go to a cinema hall or theatre at least once a month. Exposure to mass media varies considerably according to the selected

Table 3.11 Respondent's level of education by background characteristics

Percent distribution of ever-married women age 13-49 by highest level of education attained, according to selected background characteristics and residence, Maharashtra, 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
URBAN								
Age								
15-19	39.6	9.4	22.9	14.6	13.5	--	100.0	96
20-24	28.2	8.8	24.3	16.3	16.0	6.4	100.0	362
25-29	27.6	6.9	18.4	12.8	20.1	14.1	100.0	304
30-34	26.6	12.6	19.6	8.0	17.5	15.7	100.0	286
35-39	28.7	12.0	20.0	6.2	22.5	10.5	100.0	275
40-44	43.1	12.0	13.8	8.0	15.6	7.6	100.0	225
45-49	42.2	12.9	15.6	5.4	18.4	5.4	100.0	147
Religion								
Hindu	28.1	9.6	19.9	11.0	19.9	11.5	100.0	1114
Muslim	43.8	13.9	21.5	9.1	10.3	1.5	100.0	331
Buddhist	49.7	10.3	15.9	12.4	9.0	2.8	100.0	145
Other	10.1	9.2	13.8	7.3	33.9	25.7	100.0	109
Caste/tribe								
Scheduled caste	60.8	9.8	10.8	9.8	6.9	2.0	100.0	102
Scheduled tribe	46.2	7.7	12.3	12.3	15.4	6.2	100.0	65
Other	29.3	10.6	20.4	10.4	18.9	10.4	100.0	1532
Husband's education								
Illiterate	74.0	9.5	12.1	3.5	0.9	--	100.0	231
Lit., <primary complete	57.6	19.4	16.2	4.7	1.0	1.0	100.0	191
Primary school complete	49.8	12.7	23.6	8.6	4.5	0.7	100.0	267
Middle school complete	22.7	17.6	27.5	19.3	12.4	0.4	100.0	233
High school complete	13.2	7.9	26.4	14.9	30.8	6.9	100.0	478
Above high school	2.4	2.0	6.5	7.5	38.6	43.0	100.0	293
Total	31.8	10.5	19.5	10.5	18.0	9.7	100.0	1699
RURAL								
Age								
15-19	55.6	8.9	21.0	9.5	4.6	0.3	100.0	304
20-24	55.3	8.4	18.4	10.2	7.0	0.8	100.0	512
25-29	61.3	11.5	12.4	5.7	7.2	2.0	100.0	460
30-34	61.5	12.1	14.9	5.3	5.6	0.6	100.0	356
35-39	70.1	11.0	11.6	4.8	2.4	--	100.0	335
40-44	75.1	11.1	8.3	2.8	2.8	--	100.0	217
45-49	76.5	13.0	9.0	0.5	1.0	--	100.0	200
Religion								
Hindu	62.9	10.3	14.4	6.4	5.2	0.7	100.0	2024
Muslim	62.9	10.2	17.2	3.8	5.4	0.5	100.0	186
Buddhist	69.2	11.9	11.9	6.3	0.6	--	100.0	159
Other	(47.4)	(21.1)	(18.4)	(5.3)	(7.9)	(--)	100.0	38
Caste/tribe								
Scheduled caste	73.9	7.5	11.2	5.6	1.9	--	100.0	161
Scheduled tribe	83.1	8.3	5.5	1.8	1.2	--	100.0	325
Other	58.8	11.2	16.3	7.0	5.8	0.8	100.0	1921
Husband's education								
Illiterate	88.9	5.7	5.1	0.3	--	0.1	100.0	790
Lit., <primary complete	70.0	16.8	10.6	1.7	0.7	--	100.0	404
Primary school complete	60.0	13.8	19.9	3.8	2.5	--	100.0	472
Middle school complete	42.4	12.6	24.5	18.6	1.9	--	100.0	269
High school complete	31.5	9.4	25.7	14.6	17.1	1.7	100.0	362
Above high school	16.8	8.9	10.9	18.8	35.6	8.9	100.0	101
Total	63.1	10.6	14.5	6.2	4.9	0.7	100.0	2407

Table 3.11 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, Maharashtra, 1992-93

Background characteristic	Respondent's level of education						Total percent	Number
	Illiterate	Literate, <primary	Primary school complete	Middle school complete	High school complete	Above high school		
			TOTAL					
Age								
13-14	(66.7)	(11.1)	(22.2)	(--)	(--)	(--)	100.0	27
15-19	51.7	9.0	21.5	10.7	6.7	0.3	100.0	400
20-24	44.1	8.6	20.8	12.7	10.8	3.1	100.0	874
25-29	47.9	9.7	14.8	8.5	12.3	6.8	100.0	764
30-34	46.0	12.3	17.0	6.5	10.9	7.3	100.0	642
35-39	51.5	11.5	15.4	5.4	11.5	4.8	100.0	610
40-44	58.8	11.5	11.1	5.4	9.3	3.8	100.0	442
45-49	62.0	13.0	11.8	2.6	8.4	2.3	100.0	347
Religion								
Hindu	50.6	10.1	16.3	8.0	10.4	4.6	100.0	3138
Muslim	50.7	12.6	19.9	7.2	8.5	1.2	100.0	517
Buddhist	59.9	11.2	13.8	9.2	4.6	1.3	100.0	304
Other	19.7	12.2	15.0	6.8	27.2	19.0	100.0	147
Caste/tribe								
Scheduled caste	68.8	8.4	11.0	7.2	3.8	0.8	100.0	263
Scheduled tribe	76.9	8.2	6.7	3.6	3.6	1.0	100.0	390
Other	45.7	11.0	18.1	8.5	11.6	5.1	100.0	3453
Husband's education								
Illiterate	85.5	6.6	6.7	1.0	0.2	0.1	100.0	1021
Lit., <primary complete	66.1	17.6	12.4	2.7	0.8	0.3	100.0	595
Primary school complete	56.3	13.4	21.2	5.5	3.2	0.3	100.0	739
Middle school complete	33.3	14.9	25.9	18.9	6.8	0.2	100.0	502
High school complete	21.1	8.6	26.1	14.8	24.9	4.6	100.0	840
Above high school	6.1	3.8	7.6	10.4	37.8	34.3	100.0	394
Total	50.2	10.5	16.6	8.0	10.4	4.4	100.0	14106

Note: Total includes 15 women whose husbands' education is not known, who are not shown separately. The urban total includes 4 women age 13-14 and 6 women whose husbands' education is not known, who are not shown separately. The rural total includes 23 women age 13-14 and 9 women whose husbands' education is not known, who are not shown separately.
( ) Based on 25-49 cases
-- Less than 0.05 percent

background characteristics of the woman. The proportion who watch television at least once a week is rather constant across age groups at about 45-50 percent, except for women under age 20 who are less likely to watch television. This lower percentage no doubt occursbecause very young married women are usually from among the less educated, lower socioeconomic groups, as mentioned earlier. The proportion who listen to the radio at least once a week ranges between 46 and 56 percent across age groups, with younger women less likely to listen to the radio than older women. The proportion who go to the cinema at least once a month ranges from 9 to 21 percent, with women age 20-24 more likely to go to a cinema/theatre.

Although two-thirds of urban women listen to the radio at least once a week, only 42 percent of rural women do. Three-quarters of urban women watch television at least once a week, but only one-quarter of rural women do. Almost one-quarter of urban women go to a cinema hall/theatre to see a movie at least once a month, but only 9 percent of rural women do.

Table 3.12 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, Maharashtra, 1992-93

Background characteristic	Access to mass media				Number of women
	Watches television at least once a week	Listens to the radio at least once a week	Visits cinema/theatre at least once month	Not regularly exposed to any media	
Age					
13-14	(18.5)	(22.2)	(7.4)	(59.3)	27
15-19	32.2	45.5	14.5	45.7	400
20-24	45.5	53.3	21.4	36.0	874
25-29	48.6	55.9	15.8	34.2	764
30-34	49.2	52.0	13.9	36.3	642
35-39	50.0	52.6	12.5	36.6	610
40-44	49.3	52.9	10.2	36.9	442
45-49	46.7	51.3	9.2	38.0	347
Residence					
Urban	74.9	66.7	23.5	17.2	1699
Rural	26.3	42.1	8.8	51.2	2407
Education					
Illiterate	23.6	33.8	6.8	57.5	2060
Lit., < middle complete	58.0	62.9	17.2	24.7	1113
Middle school complete	70.6	77.1	25.7	11.3	327
High school and above	89.3	82.3	32.0	4.8	606
Religion					
Hindu	44.1	52.1	14.1	38.2	3138
Muslim	51.1	49.5	16.4	36.4	517
Buddhist	47.7	49.7	16.1	36.5	304
Other	74.8	72.1	23.8	18.4	147
Caste/tribe					
Scheduled caste	39.5	47.5	17.1	41.4	263
Scheduled tribe	24.1	33.6	8.2	57.7	390
Other	49.4	54.8	15.4	34.5	3453
Total	46.4	52.3	14.9	37.2	4106

( ) Based on 25-49 cases

Religious differences in media exposure are small. Women from other religions (considered as a residual group), however, have much higher media exposure than Hindus, Muslims or Buddhists. Exposure to mass media (radio, television or cinema) is lowest among the scheduled tribe women, moderate among scheduled caste women and highest among other women.

CHAPTER 4

NUPTIALITY

This chapter presents findings on marriage patterns from the National Family Health Survey. Marriage is of particular interest, not only because of its importance in its own right, but also because of its influence on fertility and population growth. Marriage patterns are also important from a sociological point of view, and they are inextricably linked to the status of women in a society.

4.1 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 information on never-married women which comes from the Household Questionnaire. Table 4.1 resembles and repeats some of the information in Table 3.3, 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.

Marriage is virtually universal in Maharashtra. At age 15-19, about 38 percent of women have married, and at age 35-49, 99 percent have married. Marriage in rural areas occurs at a relatively younger age. The proportions ever married at age 15-19 are much lower in urban areas (21 percent) than in rural areas (50 percent). It is also evident from Table 4.1 that in Maharashtra the percentages divorced and separated are small. Only 2 percent of ever-married women age 13-49 are divorced or separated.

4.2 Age at First Marriage

The above description of marriage patterns can be sharpened by examining values of the Singulate Mean Age at Marriage (SMAM), which is calculated from age-specific proportions never married for age groups 15-19 through 45-49 (Hajnal, 1953; Shryock and Siegel, 1980). Values of SMAM computed from recent censuses and the NFHS are presented in Table 4.2. In the Maharashtra NFHS, the SMAM is 19.3 years for women and 24.9 years for men. On average, men marry 5.7 years later than women. Marriage age is consistently higher in urban areas, with urban women marrying about three years later than rural women. Table 4.2 also indicates that there has been a fairly steady increase in female age at marriage. SMAM for females has increased by 3.5 years during the last three decades (from 15.8 years in 1961 to 19.3 years in 1992-93). The SMAM for males rose by 2.3 years over the same period. The male-female difference in SMAM declined by 1.1 years between 1961 and 1992-93.

More detailed information on age at first marriage is shown in Table 4.3. The table shows the percentage of all women who got married by specified ages and the median age at

Table 4.1 Current marital status

Percent distribution of women age 13-49 by current marital status according to age and residence, Maharashtra, 1992-93

Age	Marital status					Total percent
	Never married	Currently married	Widowed	Divorced	Separated	
			URBAN			
13-14	97.7	2.3	--	--	--	100.0
15-19	78.7	20.0	0.4	0.2	0.7	100.0
20-24	29.4	68.0	0.6	0.4	1.6	100.0
25-29	10.3	84.7	1.8	0.9	2.4	100.0
30-34	3.1	89.5	4.4	0.3	2.7	100.0
35-39	1.7	91.8	3.9	0.7	1.8	100.0
40-44	1.2	86.5	10.5	0.4	1.3	100.0
45-49	1.4	84.5	13.4	--	0.7	100.0
Total	30.1	64.8	3.3	0.4	1.5	100.0
			RURAL			
13-14	90.4	9.6	--	--	--	100.0
15-19	49.9	48.8	--	0.2	1.2	100.0
20-24	8.2	87.3	0.7	0.5	3.2	100.0
25-29	1.4	91.8	2.4	0.6	3.9	100.0
30-34	0.4	94.6	3.1	--	2.0	100.0
35-39	0.5	90.3	7.4	0.3	1.5	100.0
40-44	--	88.9	6.9	--	4.1	100.0
45-49	--	87.5	11.0	--	1.5	100.0
Total	19.3	75.3	3.0	0.3	2.2	100.0
			TOTAL			
13-14	93.5	6.5	--	--	--	100.0
15-19	62.2	36.5	0.2	0.2	0.9	100.0
20-24	18.1	78.3	0.7	0.5	2.4	100.0
25-29	4.9	89.0	2.1	0.7	3.2	100.0
30-34	1.6	92.3	3.7	0.2	2.3	100.0
35-39	0.9	91.1	5.8	0.5	1.6	100.0
40-44	0.7	87.6	8.8	0.2	2.7	100.0
45-49	0.6	86.2	12.0	--	1.2	100.0
Total	24.0	70.6	3.1	0.3	1.9	100.0

-- Less than 0.05 percent

first marriage[1], by current age and residence. The median age at marriage for a cohort of women is the age by which 50 percent of them marry.

[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. The computation cannot be done without introducing selectivity bias because the latest age that all women in the age group attained by the time of the survey is the age that defines the lower boundary of the age group. Suppose, for example, that at the time of the survey, 40 percent of women in the 15-19 age group had married by age 15 and 50 percent by age 19. It does not necessarily follow that 19 is the median, because the number of single women age 15, 16 and 17 at the time of the survey who subsequently marry at ages 16, 17 and 18 might be enough to lower the median to 18 by the time everyone in the cohort reaches age 20.

Table 4.2 Singulate mean age at marriage

Singulate mean age at marriage from selected sources, Maharashtra, 1961-1992/93

Source	Singulate mean age at marriage		
	Male	Female	Difference
1961 Census	22.6	15.8	6.8
1971 Census	23.8	17.6	6.2
1981 Census	24.4	18.8	5.6
1992-93 NFHS			
Urban	25.8	21.0	4.8
Rural	24.1	17.9	6.2
Total	24.9	19.3	5.6

The median age at first marriage is used instead of the mean age at marriage because the median, unlike the mean, is unaffected by age truncation. (The survey interview marksthe point of age truncation.) For example, in the 20-24 age cohort in Table 4.3, women's ages are truncated somewhere between 20 and 25. The mean age at first marriage for this age cohort 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 also less than 20 and therefore determined before the survey occurred. In other words, the mean is affected by age truncation between ages 20 and 25, but the median is not. It follows that the variation in median age at marriage by age cohort, from oldest to youngest, reflects a trend over time that is not biased by age truncation.

Table 4.3 shows some dramatic trends, especially for marriages at very young ages. Marriage before age 15 is not common in Maharashtra. The proportion marrying by age 13 declined from 32 percent in the 45-49 cohort to just over 1 percent in the 13-14 cohort, and the proportion marrying by age 15 declined from 51 percent in the 45-49 cohort to 16 percent in the 15-19 cohort. The proportion marrying at each of the later ages specified in Table 4.3 has also declined over the last two decades, but the decline is less pronounced. The median age at first marriage increased from 14.9 years in the 45-49 cohort to 17.5 years in the 20-24 age cohort, a rise of 2.6 years. Moreover, although the median cannot be calculated for the 15-19 age group, it is almost certain to rise well above the 17.5 year median observed for the 20-24 age group. The median age at marriage has been rising in both urban and rural areas, but the rate of increase has been somewhat faster in urban areas. Marriages below age 15 have been virtually eliminated in urban areas. At age 20-24, urban women now marry more than three years later than rural women.

Table 4.4 shows median ages at first marriage for women by age group and selected background characteristics. As already noted, the median age at first marriage is considerably higher in urban areas than in rural areas (17.9 years compared with 15.0 years for women age 25-49). Marriages are also considerably later among the more educated women. In fact, within each age group, the median age at first marriage is six to seven years higher among women who have completed high school than among illiterate women. Differences in median age at first marriage by religion are small between Hindus and Muslims, and Buddhists marry about one

Table 4.3 Age at first marriage

Percentage of women married by specific exact ages, and median age at first marriage, by current age and residence, Maharashtra, 1992-93

Current age[1]	Percentage ever married by exact age: 13	15	18	20	22	25	Percent never married	Median age at first marriage
				URBAN				
13-14	1.1	NA	NA	NA	NA	NA	97.7	NC
15-19	1.6	5.8	--	NA	NA	NA	78.7	NC
20-24	3.1	9.7	35.3	58.5	--	NA	29.4	18.9
25-29	5.9	15.9	43.1	62.0	74.7	88.0	10.3	18.5
30-34	5.4	13.6	46.8	64.7	76.6	88.8	3.1	18.2
35-39	10.0	23.2	52.2	69.3	78.6	89.7	1.7	17.8
40-44	14.5	29.4	58.4	73.8	84.7	94.4	1.2	16.8
45-49	20.8	36.2	63.0	82.5	91.2	97.9	1.4	16.3
20-49	8.0	18.3	46.5	65.8	75.9	85.1	11.3	18.3
25-49	9.9	21.7	50.9	68.7	79.7	90.8	4.1	17.9
				RURAL				
13-14	1.7	NA	NA	NA	NA	NA	90.4	NC
15-19	6.9	23.4	--	NA	NA	NA	49.9	NC
20-24	11.7	37.6	70.8	86.6	--	NA	8.2	15.8
25-29	16.3	41.0	75.9	89.2	95.9	98.0	1.4	15.6
30-34	22.1	47.6	84.8	94.8	97.6	99.0	0.4	15.2
35-39	24.4	50.8	83.5	94.8	97.4	98.3	0.8	14.9
40-44	33.2	58.5	82.0	91.2	96.8	99.1	0.5	14.3
45-49	40.0	62.5	89.5	96.0	99.0	100.0	--	13.9
20-49	21.3	46.6	79.1	91.2	95.4	96.8	2.7	15.3
25-49	24.7	49.7	82.1	92.8	97.1	98.7	0.7	15.0
				TOTAL				
13-14	1.4	NA	NA	NA	NA	NA	93.5	NC
15-19	4.6	15.9	--	NA	NA	NA	62.1	NC
20-24	7.6	24.4	53.9	73.3	--	NA	18.1	17.5
25-29	12.0	30.5	62.2	77.9	87.1	94.0	4.9	16.6
30-34	14.6	32.2	67.6	81.2	88.1	94.4	1.6	16.4
35-39	17.9	38.3	69.3	83.3	89.0	94.5	1.1	16.1
40-44	23.6	43.6	69.9	82.2	90.5	96.6	0.9	15.6
45-49	31.8	51.3	78.2	90.2	95.6	99.1	0.6	14.9
20-49	15.2	33.7	64.3	79.6	86.6	91.5	6.5	16.4
25-49	18.0	37.1	68.1	82.0	89.3	95.2	2.2	16.1

NA: Not applicable
NC: Not calculated because less than 50 percent of women in the age group x to x+n are married by age x.
-- Less than 0.05 percent
[1]The current age groups include both never-married and ever-married women.

year earlier than either of these two groups. However, women belonging to other religions, considered as a group, marry about three years later than Hindus and Muslims. Women belonging to scheduled castes have the lowest median age at marriage (14.7 years) although it is only about half a percent lower than those belonging to scheduled tribes (15.1 years). Even among these two groups, the median age at marriage is beginning to rise. According to the Child Marriage Restraint Act of 1978, the minimum legal age at marriage in India is 18 years

Table 4.4 Median age at first marriage

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

Background characteristic	Current age						
	20-24	25-29	30-34	35-39	40-49	20-49	25-49
Residence							
Urban	18.9	18.5	18.2	17.8	16.6	18.3	17.9
Rural	15.8	15.6	15.2	14.9	14.1	15.3	15.0
Education							
Illiterate	15.1	15.2	14.9	14.4	13.7	14.6	14.5
Lit., < middle complete	17.2	16.4	16.4	16.5	16.3	16.6	16.4
Middle school complete	18.7	18.3	(18.0)	(18.2)	(18.2)	18.4	18.2
High school and above	NC	21.4	21.7	21.6	20.7	NC	21.4
Religion							
Hindu	17.3	16.5	16.3	16.1	15.2	16.3	16.1
Muslim	17.3	16.9	16.4	15.6	15.9	16.4	16.2
Buddhist	18.2	(16.2)	(15.9)	15.0	13.4	16.2	15.0
Other	NC	(20.4)	(20.0)	(20.3)	(18.5)	19.8	19.6
Caste/tribe							
Scheduled caste	15.5	(15.3)	(15.0)	(14.4)	14.1	15.0	14.7
Scheduled tribe	15.4	15.4	15.6	14.9	14.3	15.2	15.1
Other	18.0	16.9	16.6	16.3	15.5	16.7	16.4
Total	17.5	16.6	16.4	16.1	15.3	16.4	16.1

NC: Not calculated because less than 50 percent of the women have married for the first time by age 20.
() Based on 25-49 cases

for women and 21 years for men. In Maharashtra, it is clear that the majority of marriages do not abide by the legal regulations. A majority of women age 20-24 (54 percent) got married at age 17 or younger (see Table 4.3). In the NFHS, respondents were asked about the minimum legal age at marriage for females and males in India. Table 4.5 presents the percentage of women who reported correctly the minimum legal age at marriage in India according to selected background characteristics.

Overall, only 49 percent of respondents could correctly identify age 18 as the legal minimum age at marriage for females, and only 31 percent could correctly identify age 21 as the legal minimum age at marriage for males. The provisions of the law are better known in urban areas, where more than two-thirds of women can correctly identify the legal minimum age at marriage for females. Accurate knowledge of the legal minimum age requirements is also closely tied to literacy and educational attainment. The majority of literate women know the legal minimum age at marriage for males and females, but only 12 and 27 percent of illiterate women can correctly specify the legal minimum age at marriage for males and females, respectively. The legal minimum age at marriage for males is less well-known than the legal minimum age at marriage for females by every group of women shown in Table 4.5.

4.3 Age at First Cohabitation

Table 4.6 shows median ages at first cohabitation with the husband. This table isthe

Table 4.5 Knowledge of minimum legal age of marriage

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

Background characteristic	Percentage who correctly know legal minimum age at marriage: For males	For females	Number of women
Age			
13-19	23.9	41.0	427
20-29	33.3	51.3	1638
30-39	33.9	50.3	1252
40-49	27.6	46.9	789
Residence			
Urban	45.4	68.0	1699
Rural	21.6	35.7	2407
Education			
Illiterate	12.3	26.6	2060
Lit., < middle complete	37.6	61.4	1113
Middle school complete	59.3	81.7	327
High school and above	70.1	85.5	606
Religion			
Hindu	32.1	48.4	3138
Muslim	24.4	47.4	517
Buddhist	32.9	53.3	304
Other	40.1	59.9	147
Caste/tribe			
Scheduled caste	25.9	44.9	263
Scheduled tribe	15.9	28.2	390
Other	33.6	51.8	3453
Total	31.4	49.1	4106

same as Table 4.3, except that age at first cohabitation with husband is examined instead of age at first marriage. The two ages may differ because formal marriage is not always immediately followed by cohabitation, which in some parts of India generally does not occur until the *gauna* ceremony. In Maharashtra, however, the median age at first marriage is only slightly lower than the median age at first cohabitation. The difference between age at first marriage and age at first cohabitation is slightly larger in rural areas compared with urban areas where the difference is negligible.

4.4 Marriage Between Relatives

Table 4.7 provides information on marriage between relatives. Marriage between relatives is a form of inbreeding that has implications for mortality and morbidity as well as fertility. For example, Bittles et al. (1992) found a positive association between consanguinity and fertility in 19 out of 22 populations. They also found that postnatal mortality is significantly higher among children of marriages between blood relatives. In analysing the relationship between inbreeding and mortality, it is important to control for socioeconomic variables because of a tendency for marriage between relatives to be more common in lower socioeconomic groups whose mortality is higher primarily for socioeconomic reasons. Such a refined analysis

Table 4.6 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, Maharashtra, 1992-93

Current age[1]	Percentage who started living with husband by exact age						Percent never cohabited	Median age at first cohabitation with husband
	13	15	18	20	22	25		
URBAN								
13-14	1.1	NA	NA	NA	NA	NA	97.7	NC
15-19	0.4	5.3	--	NA	NA	NA	78.7	NC
20-24	1.9	8.4	34.3	58.1	--	NA	29.4	19.0
25-29	3.0	13.9	42.2	62.0	74.7	88.0	10.3	18.6
30-34	3.7	13.2	46.1	64.4	76.6	89.2	3.1	18.3
35-39	5.7	19.3	51.8	69.0	78.3	89.7	1.7	17.8
40-44	7.0	25.9	57.1	73.3	84.7	94.4	1.2	17.0
45-49	5.5	28.8	59.7	80.5	90.5	97.3	1.4	16.7
20-49	3.9	15.8	45.4	65.3	75.7	85.0	11.3	18.3
25-49	4.7	18.8	49.8	68.2	79.5	90.8	4.1	18.0
RURAL								
13-14	0.8	NA	NA	NA	NA	NA	90.4	NC
15-19	3.8	22.9	--	NA	NA	NA	49.9	NC
20-24	5.7	36.0	70.3	86.2	--	NA	8.2	15.9
25-29	8.6	38.0	74.6	88.3	95.0	97.1	1.4	15.7
30-34	9.2	44.8	82.8	94.0	96.8	98.5	0.4	15.4
35-39	12.5	48.1	82.9	94.5	97.4	98.3	0.5	15.1
40-44	13.4	53.0	79.7	89.9	94.9	97.2	--	14.8
45-49	15.0	55.0	87.5	95.0	98.0	99.0	--	14.6
20-49	9.6	43.3	77.9	90.5	94.8	96.2	2.6	15.4
25-49	11.0	45.9	80.6	92.0	96.3	97.9	0.6	15.3
TOTAL								
13-14	1.0	NA	NA	NA	NA	NA	93.5	NC
15-19	2.4	15.4	--	NA	NA	NA	62.2	NC
20-24	3.9	22.9	53.2	73.0	--	NA	18.1	17.6
25-29	6.2	27.9	61.1	77.4	86.6	93.5	4.9	16.7
30-34	6.7	30.5	66.2	80.6	87.7	94.3	1.6	16.5
35-39	9.4	35.1	68.9	83.0	88.8	94.5	0.9	16.2
40-44	10.1	39.1	68.1	81.3	89.6	95.7	0.7	15.9
45-49	10.9	43.8	75.6	88.8	94.8	98.2	0.6	15.4
20-49	7.0	30.8	63.1	79.1	86.2	91.2	6.5	16.6
25-49	8.2	33.7	66.8	81.3	88.8	94.8	2.1	16.3

NA: Not applicable
NC: Not calculated because less than 50 percent of women in the age group x to x+n have started living with husband by age x.
-- Less than 0.05 percent
[1]The current age groups include both never-married and ever-married women.

is, however, not feasible in this report and will have to await further studies.

Table 4.7 indicates that 21 percent of ever-married women married a first cousin (on either their father's side or their mother's side) and 5 percent married a second cousin, uncle, or other blood relative. Thus, consanguineous marriages are not uncommon in Maharashtra. They occur mainly between first cousins, as is the pattern elsewhere in India.

Table 4.7 Marriage between relatives

Percent distribution of ever-married women by relationship to current husband, according to selected background characteristics, Maharashtra, 1992-93

Background characteristic	First cousin		Second cousin	Uncle	Other blood relation	Brother in-law	Other non-blood relation	Not related	Missing	Total percent	Number
	Father's side	Mother's side									
Age											
13-14	(18.5)	(--)	(--)	(--)	(7.4)	(3.7)	(--)	70.4	(--)	100.0	27
15-19	17.0	10.5	0.5	--	5.7	--	1.7	64.3	--	100.0	400
20-24	12.6	8.0	0.5	0.3	4.2	0.2	2.6	71.3	0.2	100.0	874
25-29	13.1	6.4	0.1	--	3.4	0.3	2.7	73.8	0.1	100.0	764
30-34	11.5	6.4	0.3	--	3.9	0.3	2.5	74.9	0.2	100.0	642
35-39	13.6	8.7	0.2	0.5	5.6	0.5	2.8	68.0	0.2	100.0	610
40-44	12.0	6.6	0.5	0.7	5.2	0.5	1.8	72.9	--	100.0	442
45-49	10.1	8.6	--	--	3.2	0.6	2.3	74.9	0.3	100.0	347
Residence											
Urban	9.4	7.3	0.4	0.4	4.7	0.2	2.8	74.8	0.1	100.0	1699
Rural	15.3	7.9	0.2	0.1	4.2	0.5	2.2	69.4	0.2	100.0	2407
Education											
Illiterate	15.0	9.6	0.3	0.2	4.8	0.4	2.0	67.4	0.2	100.0	2060
Lit.,<middle complete	13.1	6.3	0.5	0.1	4.9	0.3	2.9	71.8	0.1	100.0	1113
Middle school complete	8.6	8.3	--	0.6	3.1	--	3.1	76.5	--	100.0	327
High school and above	7.3	3.1	--	0.3	2.8	0.5	2.6	83.3	--	100.0	606
Religion											
Hindu	12.6	6.2	0.3	0.2	4.3	0.3	2.4	73.5	0.1	100.0	3138
Muslim	15.7	18.0	0.4	0.6	6.2	0.2	2.3	56.5	0.2	100.0	517
Buddhist	13.2	6.3	--	--	2.6	1.0	2.6	74.3	--	100.0	304
Other	7.5	4.1	0.7	--	4.1	--	2.7	80.3	0.7	100.0	147
Caste/tribe											
Scheduled caste	16.3	8.7	0.8	--	3.4	0.8	1.5	68.4	--	100.0	263
Scheduled tribe	14.4	8.7	--	--	3.8	0.3	1.5	71.0	0.3	100.0	390
Other	12.4	7.4	0.3	0.3	4.5	0.3	2.6	72.0	0.1	100.0	3453
Total	12.9	7.6	0.3	0.2	4.4	0.3	2.4	71.7	0.1	100.0	4106

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

The percentages marrying a close relative do not vary much by age, indicating that the propensity to marry a relative has not changed much over time. Urban women are less likely to have married a close relative than rural women, consistent with the general pattern observed elsewhere (Rao et al., 1972; Khlat and Khoury, 1991; Rao and Inbaraj, 1977). Less educated women are more likely than more educated women to have married a close relative, but some cousin marriages are still evident in the higher educational groups. Muslim women are more likely to have entered into consanguineous marriages than non-Muslim women. Two in five Muslim women have married a blood relative. Consanguineous marriages are slightly more common among those belonging to scheduled castes and scheduled tribes than among others, although the differences by caste/tribe are marginal.

CHAPTER 5

FERTILITY

A major objective of the Maharashtra NFHS is to provide detailed information on fertility levels, differentials and trends in the state. This chapter presents a description of current and past fertility levels, cumulative fertility and family size, fertility levels by socio-demographic characteristics, pregnancy outcomes, birth intervals and durations of postpartum amenorrhoea, abstinence and nonsusceptibility. Topics such as age at first birth and age at last birth, teenage childbearing and age at menopause are also discussed.

The fertility measures are calculated from the birth history data. Birth intervals and mother's age at initiation of childbearing are computed from data on the timing of births. Several measures and procedures were undertaken to secure complete and accurate reporting of births, including their timing. First, women were asked about the number of sons and daughters presently living at home and elsewhere and those who had died. Second, for each live birth in the birth history, information was collected on the sex, age, and survival status of the child. For dead children, age at death was noted. Interviewers were given extensive training in probing techniques to help respondents to report accurately. Interviewers were instructed to check any documents (such as horoscopes, school certificates or vaccination cards) that might provide information on date of birth, and to probe for the reason for any birth interval of four or more years in order to prevent omission of births, especially births of children who died before the date of the survey. This additional probing also helped to obtain more accurate information on stillbirths and abortions.

Despite all these efforts to improve data quality, the NFHS may still be subject to the same kinds of errors inherent in all retrospective sample surveys – namely, the omission of some births (especially births of children who died at very young ages) and the difficulty of determining birth dates accurately. However, these problems may not be particularly common in Maharashtra where the level of female literacy is comparatively higher.

5.1 Current Fertility Levels, Differentials and Trends

Fertility levels, trends, and differentials are discussed using 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). The crude birth rate is calculated both from births recorded in the Household Questionnaire and from births recorded in the birth history in the Woman's Questionnaire. All other fertility measures are computed from the birth history information 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. A three-year period is chosen to get the most recent data while still retaining a reasonably large sample of births, and also to minimize problems of displacement of births from years immediately preceding the survey to earlier years. Since the NFHS was fielded between November 1992 and March 1993, the three-year period prior to the survey corresponds roughly to the years 1990-92.

The NFHS fertility estimates can be compared with estimates from the Sample Registration System (SRS) maintained by the Office of the Registrar General, India. The most recent report with estimates for Maharashtra is for 1991 (Office of the Registrar General, India, 1993a). Estimates of various fertility measures from the NFHS and the SRS are shown by place of residence in Table 5.1 and discussed in the following sections.

Crude Birth Rate

Table 5.1 shows two different sets of NFHS crude birth rates. The first set is based on births that occurred to usual residents of the household during the two-year period prior to the survey as obtained in the Household Questionnaire. This CBR is calculated as the annual number of births in the two-year period before the date of interview per 1,000 usual residents at the time of the survey. The denominator of this measure is adjusted by projecting the population backward to the mid-point of the time period on the basis of the intercensal population growth rate in the state. This is done separately for urban and rural areas. The second set of CBR is derived from the births recorded in the woman's birth history in the Woman's Questionnaire and refers to the three-year period before the survey. This CBR is calculated as a sum of products where each product is an age-specific birth rate multiplied by the ratio of females in the specific age group to total *de facto* population.

Table 5.1 Current fertility

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

	NFHS (1990-92)[1]			SRS (1991)		
Age	Urban	Rural	Total	Urban	Rural	Total
13-14	0.008	0.026	0.019	U	U	U
15-19	0.088	0.183	0.141	0.041	0.099	0.080
20-24	0.196	0.252	0.227	0.197	0.263	0.238
25-29	0.151	0.118	0.132	0.164	0.178	0.173
30-34	0.054	0.052	0.053	0.066	0.080	0.075
35-39	0.014	0.010	0.012	0.023	0.034	0.032
40-44	0.003	0.009	0.006	0.004	0.013	0.009
45-49	0.000	0.000	0.000	0.001	0.002	0.001
TFR 15-44	2.54	3.12	2.86	2.5	3.4	3.0
TFR 15-49	2.54	3.12	2.86	2.5	3.4	3.0
GFR	95	127	113	87	114	104
NFHS CBR based on						
Household birth record	24.0	26.4	25.4	NA	NA	NA
Woman's birth history	24.4	28.4	26.7	NA	NA	NA
SRS CBR	NA	NA	NA	22.9	28.0	26.2

Note: Rates from 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. The 36 months before the interview extend approximately from 19 January 1990 to 19 January 1993 and are labelled 1990-92 in the table. (The survey was conducted between 23 November 1992 and 18 March 1993.) 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 15-49) expressed per 1,000 women.
CBR: Crude Birth Rate, expressed per 1,000 population.
NA: Not applicable
U: Not available
[1]Three years preceding the survey
Source for SRS data: Office of the Registrar General, India (1993a)

The CBR estimated from the woman's birth history (the three-year estimate) for the state as a whole is 26.7 as compared to 25.4 estimated from the household birth record (the two-year estimate). The two estimates agree quite closely with one another in urban areas, whereas the agreement is less close in rural areas. The NFHS CBR based on the household birth record is an estimate for the *de jure* sample population, whereas the CBR based on the woman's birth history is a *de facto* estimate. The SRS estimate of CBR, which is estimated for the *de jure* population for 1991 (26.2) is slightly higher than the NFHS estimate from the household birth record (25.4), and is virtually identical to the NFHS estimate based on women's birth histories (26.7). The NFHS and SRS estimates are similar in rural Maharashtra, but the SRS rate is slightly lower than the three-year NFHS estimate in urban areas. The NFHS CBRs based on women's birth histories by residence indicate that rural fertility is 16 percent higher than urban fertility.

General Fertility Rate

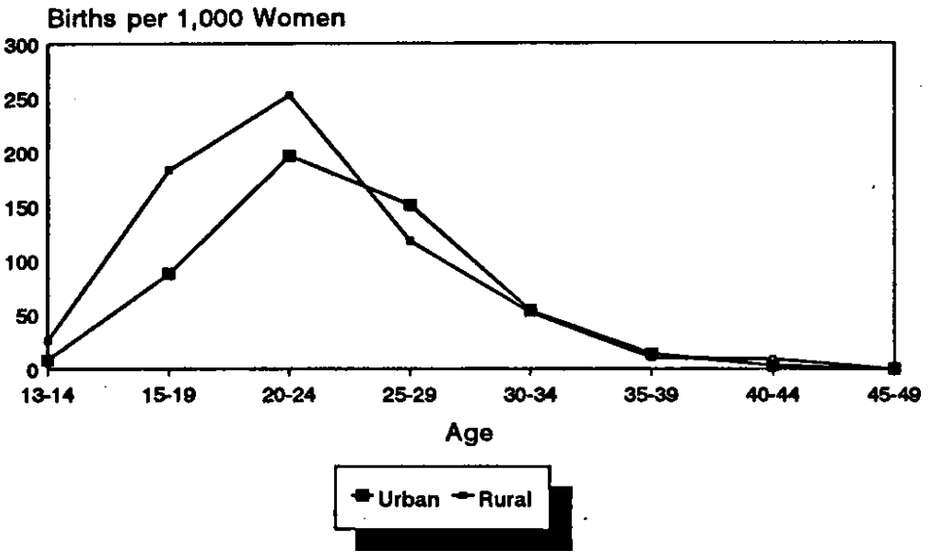
The general fertility rate (GFR) in the NFHS is calculated by dividing the total number of births to women age 13-49 that occurred during the time period by the number of woman-years lived between ages 15 and 49 during the period, and multiplying the result by 1,000. The NFHS estimate of the GFR for Maharashtra for 1990-92 is 113 births per 1,000 women. The estimated GFR is considerably higher in rural areas (127) than in urban areas (95). The SRS estimate for 1991 is lower than the NFHS estimate for 1990-92 for the state as a whole (104), as well as for rural (114) and urban (87) areas.

Age-Specific and Total Fertility Rates

Both the CBR and the GFR are crude summary measures of fertility. A better picture of fertility can be obtained by examining the age-specific fertility rates (ASFRs) and the total fertility rate (TFR) which are not affected by the age structure of the population. Both the ASFRs and TFR are based on births during the three-year period preceding the survey. To compute the numerator for the NFHS age-specific rates, live births are classified by (1) segment of time preceding the survey (that is, 1-36 months), based on the date of interview and the date of birth and (2) age of the mother (in conventional five-year groupings) at the time of birth, based on the date of interview and the dates of birth of both mother and child. The numerator of an age-specific fertility rate is live births to women in a five-year age group in the last three years and the denominator is the number of woman-years lived in the same five-year age group during the three-year time period. The TFR is a summary measure that indicates the number of children a woman would bear during her reproductive years if she were to experience the age-specific fertility rates prevailing at the time of the survey. Mathematically, the TFR is five times the sum of the age-specific fertility rates for each five-year age group.

A TFR of 2.9 children is observed for the period 1990-92 for both the 15-44 age group and the 15-49 age group, since there were no births to women age 45-49 during the three years preceding the survey. As expected, the TFR in urban areas (2.5) is lower than that in rural areas (3.1). In other words, rural women would on average have approximately half a child more (or 19 percent more children) than urban women. The TFR estimated for 1991 from the SRS is 3.0, which is almost the same as the TFR from the NFHS for 1990-92 (Office of the Registrar General, India, 1993a).

Figure 5.1
Age-Specific Fertility Rates by Residence



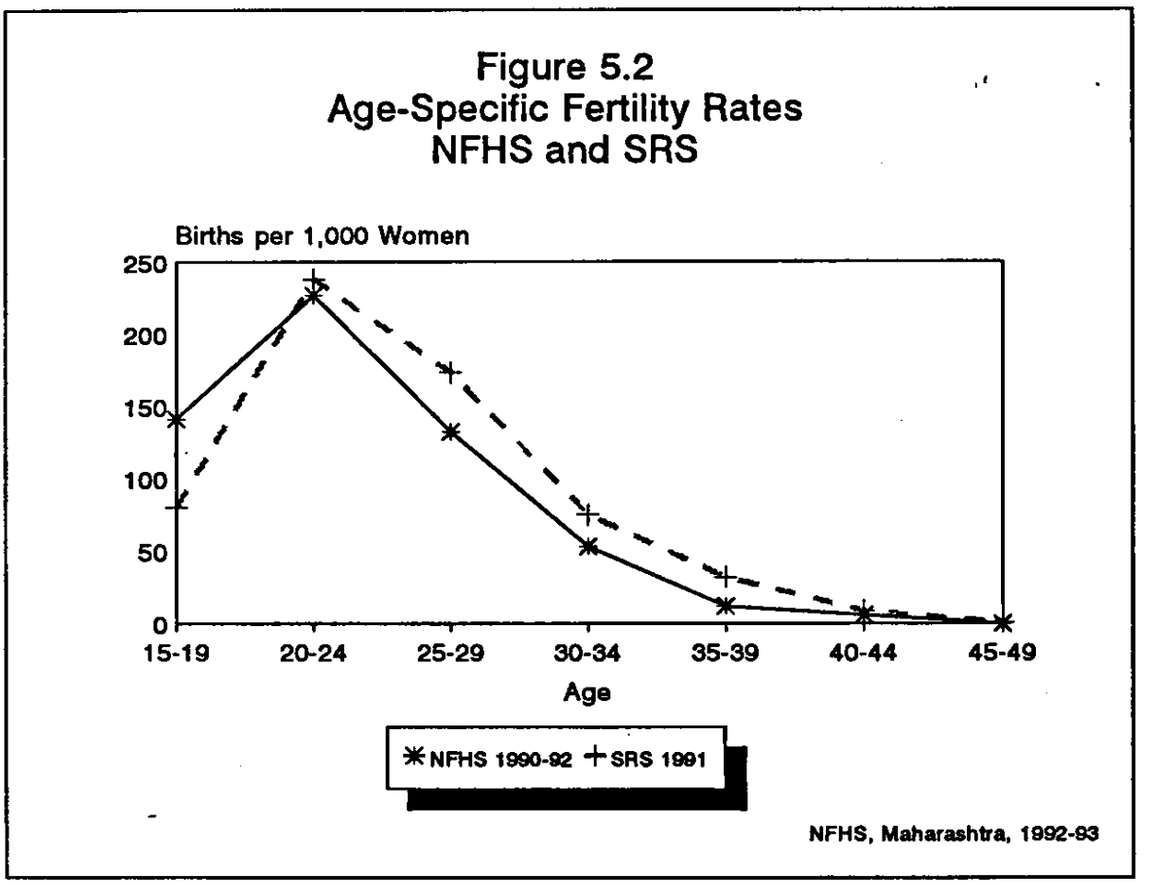
Note: Rates are for the three years before the survey (1990-92)

NFHS, Maharashtra, 1992-93

Age-specific fertility rates follow the expected pattern. Fertility peaks at age 20-24, reflecting the pattern of early marriage and declines substantially in the next age group, 25-29, and falls steeply thereafter (see Figure 5.1). The prime childbearing ages in Maharashtra extend from age 15 to 29 years, during which 87 percent of births occur. Early childbearing in Maharashtra is indicated by the fact that one-quarter of all births occur in the age group 15-19. The contribution from ages 30-44 is only 12 percent. The very low fertility rate observed for women in the older age groups (40-44 and 45-49) can be explained in terms of several factors. A very large percentage of women age 40 and over are sterilized or have attained menopause. Moreover, terminal abstinence is often practiced by couples once their daughter attains menarche or once any of their children get married or have a child.

Fertility up to age 25-29 is higher in rural areas than in urban areas. Although fertility in both urban and rural areas peaks at 20-24, the fertility rates in age groups 25-29, 30-34 and 35-39 are higher for urban areas than for rural areas, probably because childbearing tends to start somewhat later in urban areas. Interestingly, the data from the NFHS reveal that the use of contraceptive methods in rural areas in age group 25-29 onwards is higher than in urban areas (see Table 6.4 in Chapter 6).

A comparison of the ASFRs from the NFHS and the SRS, as shown in Table 5.1 and Figure 5.2, indicates that the NFHS enumerates relatively more births to younger women than the SRS and relatively fewer births to older women. The large 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*.



In calculating fertility rates, the SRS excludes births occurring within the sample unit to visitors, but includes births to usual residents outside the sample unit. Since young women typically return to their parental home to have their first baby, it is not surprising that the NFHS fertility estimate for the 15-19 age group is considerably higher than the SRS estimate.

Fertility Differentials and Trends

The change in fertility over a period of time can be ascertained by comparing the fertility estimates of the NFHS with that of another large-scale sample survey conducted in Maharashtra in 1980 (Srikantan and Bhate, 1989). The 1980 survey was a part of the National Fertility and Mortality Survey (NFMS) and covered a sample of 7,500 families spread over 100 villages and 104 urban blocks in Maharashtra. A comparison of the age-specific and total fertility rates from the NFHS with those of the NFMS is provided in Table 5.1A. For the state as a whole, the TFR has declined from 3.8 in 1980 to 2.9 in 1990-92, a 24 percent decline. In rural Maharashtra, the TFR declined from 4.2 to 3.1 and in urban Maharashtra, from 3.0 to 2.5 over the same period. Thus the rural areas of the state witnessed a larger reduction in fertility (26 percent) than urban areas (14 percent).

The fertility trends can also be studied by comparing the current and cohort fertility measures. Table 5.2 and Figure 5.3 show current and cohort fertility estimated in the NFHS by selected background variables. 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 age 40-49 at the time of the survey. Both measures are computed from the

Table 5.1A Age-specific and cumulative fertility rates from National Fertility and Mortality Survey (NFMS) and NFHS

Age-specific and cumulative fertility rates from the NFMS and the NFHS, by residence, Maharashtra, 1980-1992

	NFMS (1980)			NFHS (1990-92)		
Age	Urban	Rural	Total	Urban	Rural	Total
15-19	0.040	0.078	0.064	0.088	0.183	0.141
20-24	0.184	0.282	0.249	0.196	0.252	0.227
25-29	0.196	0.250	0.230	0.151	0.118	0.132
30-34	0.110	0.140	0.129	0.054	0.052	0.053
35-39	0.053	0.069	0.063	0.014	0.010	0.012
40-44	0.008	0.022	0.017	0.003	0.009	0.006
45-49	0.000	0.002	0.001	0.000	0.000	0.000
TFR	2.95	4.21	3.76	2.54	3.12	2.86

Source for NFHS data: Srikantan and Bhate (1989)

birth history information obtained from the Woman's Questionnaire.

If there had been no change in fertility during the decades prior to the survey, the current and cohort measures would be almost 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 2.9 and the mean number of children ever born of 4.3 suggests that fertility has declined in Maharashtra during the recent decades. According to these measures fertility has declined more or less at the same speed in both urban and rural areas.

Table 5.2 provides information on differentials in fertility and the trends in each subgroup. Fertility differentials by education, religion and caste/tribe are quite substantial in Maharashtra. The TFR decreases with the increase in the educational level of the woman. Women with at least a high school education have a replacement level TFR of 2.1, whereas the illiterate women have a TFR of 3.5, which is 67 percent higher. Religious differences in fertility are more pronounced. Whether we consider current or cohort measures, Muslims have the highest fertility, followed by Buddhists and Hindus, and members of other religions have the lowest fertility. The TFR for Muslims (4.1) is higher than that for Hindus (2.7) by 53 percent (equivalent to more than one child, on average). Scheduled tribes have a higher fertility than scheduled castes and others. The TFR in any category shown in Table 5.2 is lower than the mean number of children ever born to women age 40-49 in the same category, indicating that fertility has declined in all sections of the population in the state during the past three decades or so.

The most direct way of examining fertility trends is to examine changes in age-specific rates over time. Data from the birth history have been used to compute age-specific fertility rates for different time periods in order to obtain a preliminary assessment of the trend in fertility. Because information on fertility was collected only for women under 50 years of age, the further we go back in time from the date of the survey, the less complete are the age-specific

Table 5.2 Fertility by background characteristics

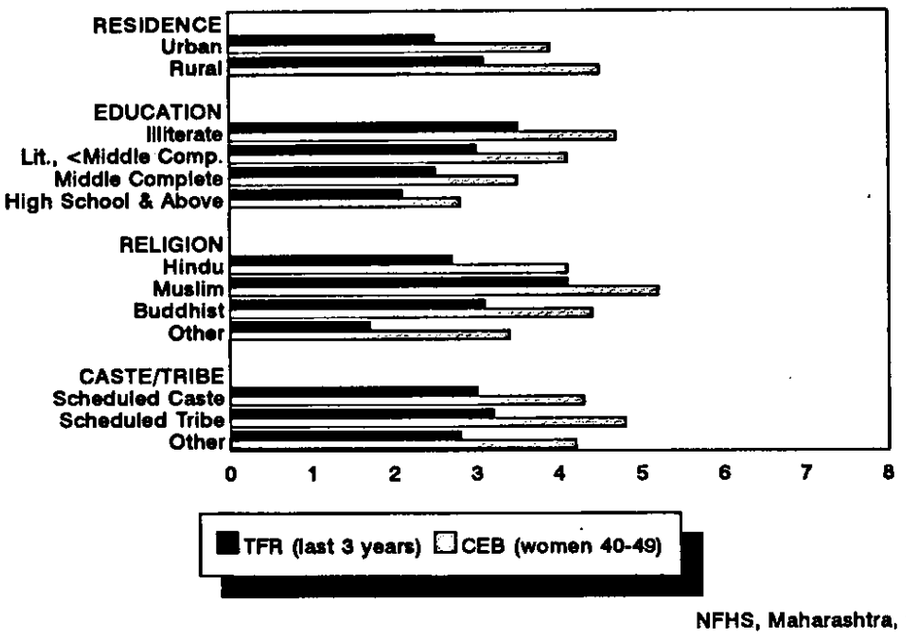
Total fertility rate for the three years preceding the survey, and mean number of children ever born to women age 40-49, by selected background characteristics, Maharashtra, 1992-93

Background characteristic	Total fertility rate[1]	Mean number of children ever born to women age 40-49
Residence		
Urban	2.54	3.94
Rural	3.12	4.53
Education		
Illiterate	3.47	4.69
Lit., < middle complete	3.00	4.05
Middle school complete	2.47	3.45
High school and above	2.08	2.76
Religion		
Hindu	2.69	4.12
Muslim	4.11	5.20
Buddhist	3.14	4.40
Other	1.65	3.41
Caste/tribe		
Scheduled caste	3.04	4.31
Scheduled tribe	3.24	4.84
Other	2.80	4.19
Total	2.86	4.25

[1]Rate for women age 15-49

fertility rates (some rates for prior time periods are subject to a degree of truncation, i.e., censoring, and some cannot be computed at all). Table 5.3 gives the age-specific fertility rates for the 20 years preceding the survey. In order to minimize the fluctuations in the annual rates caused by a combination of such factors as misreporting of birth dates and sampling errors associated with a relatively small size, age-specific fertility rates are computed for four five-year time periods. In almost every age group and in both urban and rural areas, fertility has declined steadily from the period 10-14 years before the survey to the period 0-4 years before the survey. A major fertility decline in the state as well as in its urban and rural areas took place during the last ten years. In the state as a whole, cumulative fertility at age 40 (calculated like the TFR but truncated at age 40) for the period 0-4 years preceding the survey (roughly 1988-1992) is 3.0 children per woman. Corresponding values for the periods 5-9 and 10-14 years before the survey are 3.9 and 4.4, respectively.

Figure 5.3
Total Fertility Rate (TFR) and Mean Number of Children Ever Born (CEB)



NFHS, Maharashtra, 1992-93

Further evidence of a decline in fertility over time is shown in Table 5.4, which gives fertility rates for ever-married women by duration since first effective marriage[1] for four five-year time periods preceding the survey. This measure controls to some extent for changing age at marriage and may help to unravel the trends observed in Table 5.3. In most marital duration groups, fertility has declined steadily over time. The rapidity of fertility decline increases with the increase in marital duration, being most pronounced for women married 20 or more years. The pace of decline in marital duration-specific fertility rates has accelerated in the most recent period, consistent with the trend in age-specific fertility rates shown in Table 5.3. The duration-specific rates are generally lower in urban areas than in rural areas in all time periods.

5.2 Outcome of Pregnancies

The percent distribution of previous pregnancies by pregnancy outcome (spontaneous abortion, induced abortion, stillbirth, or live birth), specified by place of residence for age groups of ever-married women, is shown in Table 5.5. In this table, the reporting of live births

[1]Because information was collected only on a woman's age at effective marriage, but not the year and month of her effective marriage (which would be difficult to determine accurately in most cases), duration since first effective marriage is calculated as the woman's age at 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 5.3 Fertility trends

Age-specific fertility rates for five-year periods preceding the survey by residence, Maharashtra, 1992-93

Maternal age at birth	Years preceding survey			
	0-4	5-9	10-14	15-19
		URBAN		
13-14	0.010	0.018	0.021	0.018
15-19	0.090	0.126	0.133	0.141
20-24	0.202	0.252	0.247	0.280
25-29	0.140	0.165	0.206	0.210
30-34	0.061	0.079	0.103	[0.121]
35-39	0.018	0.031	[0.051]	U
40-44	0.003	[0.000]	U	U
45-49	[0.000]	U	U	U
		RURAL		
13-14	0.028	0.069	0.050	0.050
15-19	0.194	0.231	0.239	0.221
20-24	0.252	0.295	0.302	0.288
25-29	0.124	0.153	0.208	0.214
30-34	0.053	0.081	0.101	[0.178]
35-39	0.015	0.029	[0.061]	U
40-44	0.009	[0.021]	U	U
45-49	[0.000]	U	U	U
		TOTAL		
13-14	0.021	0.045	0.037	0.036
15-19	0.147	0.183	0.194	0.184
20-24	0.230	0.277	0.277	0.284
25-29	0.131	0.158	0.207	0.212
30-34	0.057	0.080	0.102	[0.153]
35-39	0.016	0.030	[0.057]	U
40-44	0.007	[0.012]	U	U
45-49	[0.000]	U	U	U

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

and stillbirths is probably close to complete, because of the extensive probing that occurred when the birth histories were collected. However, abortions may be underreported.

Among all pregnancies reported in the survey, 93 percent resulted in live births, 2 percent in stillbirths, 4 percent in spontaneous abortions, and 1 percent in induced abortions. There is relatively little variation in the outcome of pregnancies by age for the state as a whole. Rural areas account for more than 60 percent of all pregnancies. Pregnancy outcomes in urban areas show somewhat higher pregnancy wastage than in rural areas.

5.3 Children Ever Born and Living

The number of children a woman has ever borne is a cohort measure of fertility. Because it reflects fertility in the past, it provides a somewhat different picture of fertility levels, trends, and differentials than do period measures of fertility such as the CBR and the TFR. The

Table 5.4 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, Maharashtra, 1992-93

Duration of effective marriage at birth	Years preceding survey			
	0-4	5-9	10-14	15-19
		URBAN		
0 - 4	0.306	0.338	0.298	0.321
5 - 9	0.179	0.208	0.251	0.278
10-14	0.081	0.115	0.165	0.199
15-19	0.041	0.059	0.110	(0.138)
20-24	0.012	0.031	(0.059)	*
25-29	0.001	(0.005)	*	*
		RURAL		
0 - 4	0.332	0.334	0.316	0.265
5 - 9	0.233	0.280	0.300	0.304
10-14	0.114	0.143	0.207	0.212
15-19	0.039	0.075	0.096	0.163
20-24	0.020	0.035	0.072	*
25-29	0.009	0.017	*	*
		TOTAL		
0 - 4	0.321	0.336	0.308	0.288
5 - 9	0.211	0.250	0.279	0.293
10-14	0.100	0.132	0.189	0.207
15-19	0.040	0.068	0.102	0.155
20-24	0.016	0.034	0.068	*
25-29	0.006	0.013	*	*

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 person-years of exposure
* Rates not shown; based on fewer than 125 person-years of exposure

distribution of women by number of children ever born is presented in Table 5.6 for all women(regardless of marital status) and for currently married women by age. This table also shows the mean number of children ever born and the mean number of children still living.

Early childbearing is not uncommon in Maharashtra. One percent of all women age 13-14 and 23 percent of all women age 15-19 in Maharashtra have given birth to at least one child. However, among the currently married women in the age groups 13-14 and 15-19, the percentage having at least one child is 15 and 62, respectively. The difference between the fertility of all women and currently married women is brought about by the proportion of all women who remain unmarried, which is more pronounced in the younger ages.

Women (of all marital statuses) age 13-49 in Maharashtra have had an average of 2.2 children, and currently married women age 13-49 have had an average of 3.0 children. The average number of children ever born and children living increases steadily with age, both for all women and for currently married women. For all women, these numbers reach 4.5 children

Table 5.5 Outcome of pregnancy

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

Current age	Outcome of pregnancy: Spontaneous abortion	Induced abortion	Still-birth	Live birth	Total percent	Number of pregnancies
			URBAN			
15-19	10.1	1.3	--	88.6	100.0	79
20-24	6.9	1.8	1.5	89.8	100.0	619
25-29	6.4	1.8	3.1	88.8	100.0	848
30-34	4.5	3.2	1.7	90.6	100.0	954
35-39	4.3	2.2	1.4	92.1	100.0	1037
40-44	3.2	1.6	1.9	93.3	100.0	941
45-49	4.7	0.8	2.4	92.1	100.0	660
Total	4.9	2.0	1.9	91.2	100.0	5139
			RURAL			
15-19	5.0	0.7	--	94.3	100.0	298
20-24	3.9	0.5	2.5	93.1	100.0	1142
25-29	3.6	0.6	1.7	94.0	100.0	1435
30-34	3.1	0.4	2.3	94.2	100.0	1427
35-39	2.6	0.3	2.3	94.8	100.0	1398
40-44	4.5	0.3	1.7	93.5	100.0	979
45-49	3.8	0.4	2.0	93.8	100.0	1039
Total	3.6	0.4	2.0	94.0	100.0	7721
			TOTAL			
15-19	6.1	0.8	--	93.1	100.0	377
20-24	5.0	1.0	2.1	91.9	100.0	1761
25-29	4.6	1.1	2.2	92.1	100.0	2283
30-34	3.7	1.6	2.1	92.7	100.0	2381
35-39	3.3	1.1	1.9	93.7	100.0	2435
40-44	3.9	0.9	1.8	93.4	100.0	1920
45-49	4.1	0.5	2.2	93.2	100.0	1699
Total	4.1	1.0	2.0	92.9	100.0	12860

Note: Total includes 4 pregnancies to women age 13-14, which are not shown separately.
-- Less than 0.05 percent

ever born and 3.7 children living by age 45-49. 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 parity distribution for older currently married women provides a measure of primary sterility, which is the proportion of women who are unable to have children. In Maharashtra, the proportion of currently married women age 45-49 with no children ever born is about one percent. Population censuses, surveys and studies in India show values higher than this (Murlidhar, 1988).

Table 5.6 Children ever born and living

Percent distribution of all women and currently married women by number of children ever born and mean number of children ever born (CEB) and living, according to age, Maharashtra, 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+				
ALL WOMEN															
13-14	99.0	1.0	--	--	--	--	--	--	--	--	--	100.0	415	0.01	0.01
15-19	77.0	14.9	6.1	1.7	0.1	0.1	--	--	--	--	--	100.0	1058	0.33	0.30
20-24	31.2	21.4	22.7	17.1	5.7	1.1	0.8	--	--	--	--	100.0	1068	1.52	1.41
25-29	10.6	12.7	22.8	26.3	18.3	6.2	1.9	0.9	0.4	--	--	100.0	803	2.62	2.38
30-34	4.4	7.1	18.7	26.1	21.9	11.8	4.9	3.2	0.9	0.9	0.2	100.0	652	3.38	3.06
35-39	5.3	5.4	15.6	23.9	19.3	15.8	6.7	3.9	1.5	1.0	1.8	100.0	616	3.70	3.24
40-44	3.4	5.8	14.6	20.4	19.5	13.7	9.0	8.1	2.7	1.1	1.6	100.0	445	4.00	3.46
45-49	3.8	5.4	8.0	17.2	16.9	18.0	12.9	5.7	6.3	3.4	2.3	100.0	349	4.53	3.67
Total	32.1	11.4	14.8	16.3	11.4	6.7	3.4	2.0	1.0	0.5	0.5	100.0	5406	2.21	1.95
CURRENTLY MARRIED WOMEN															
13-14	(85.2)	(14.8)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	100.0	27	0.15	0.15
15-19	38.3	39.5	16.8	4.7	0.3	0.3	--	--	--	--	--	100.0	386	0.90	0.82
20-24	14.7	25.7	28.6	21.3	7.2	1.4	1.1	--	--	--	--	100.0	836	1.89	1.76
25-29	4.6	11.9	24.2	28.5	20.4	6.9	2.1	1.0	0.4	--	--	100.0	715	2.85	2.59
30-34	2.3	6.0	18.9	27.6	22.6	11.8	5.3	3.3	1.0	1.0	0.2	100.0	602	3.50	3.17
35-39	3.6	5.0	15.5	24.2	19.6	16.4	7.0	4.1	1.6	1.1	2.0	100.0	561	3.82	3.35
40-44	2.1	4.9	13.6	21.0	21.0	14.4	9.5	7.9	2.6	1.3	1.8	100.0	390	4.16	3.60
45-49	1.3	4.7	8.3	17.6	17.3	19.3	13.3	5.6	6.3	3.7	2.7	100.0	301	4.70	3.80
Total	9.8	14.5	19.8	21.9	15.4	8.9	4.5	2.6	1.2	0.7	0.7	100.0	3818	2.95	2.62

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

The distribution of women age 45-49 by number of children ever born is of particular interest since these women have almost completed their childbearing. Therefore, the distribution of children ever born represents the completed parity distribution of this cohort of women. Completed parity distributions are generally unimodal, with the modal number of children born near the mean number of children born. It is clear from Table 5.6 that the distribution of all women, as well as currently married women, by number of children ever born is unimodal with the modal number of children ever born near the mean number of children ever born. Women age 45-49 have an average of 5 children, with 34 percent of all women, and 32 percent of currently married women having 3 or fewer children, and six percent of all women having nine or more. On average, the number of dead children per woman is 0.3 child among both currently married and all women age 13-49, representing about 11 percent of all children ever born.

Table 5.7 shows differentials in the mean number of children ever born and the number still living according to some selected background characteristics of currently married women. To avoid the confounding influence of different age distributions of women in different groups, the mean values in the table are all age standardized, using the age distribution of all currently married women as the standard. The average number of males ever born is slightly higher than the average number of females ever born, a biological pattern that is observed everywhere in the world. Fertility, as indicated by children ever born, is higher in rural areas, among the

Table 5.7 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, Maharashtra, 1992-93

Background characteristic	Children ever born			Children living		
	Male	Female	Total	Male	Female	Total
Age						
13-14	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
15-19	0.4	0.4	0.9	0.4	0.4	0.8
20-24	0.9	1.0	1.9	0.9	0.9	1.8
25-29	1.5	1.3	2.8	1.4	1.2	2.6
30-34	1.8	1.7	3.5	1.6	1.5	3.2
35-39	2.0	1.9	3.8	1.7	1.7	3.3
40-44	2.1	2.1	4.2	1.8	1.8	3.6
45-49	2.4	2.3	4.7	2.0	1.8	3.8
Residence						
Urban	1.4	1.4	2.8	1.3	1.3	2.5
Rural	1.6	1.5	3.1	1.4	1.3	2.7
Education						
Illiterate	1.8	1.7	3.5	1.5	1.5	3.0
Literate, < middle complete	1.4	1.4	2.8	1.3	1.3	2.6
Middle school complete	1.2	1.0	2.2	1.1	0.9	2.0
High school and above	1.0	1.0	1.9	0.9	0.9	1.8
Religion						
Hindu	1.5	1.4	2.9	1.3	1.2	2.5
Muslim	1.8	1.8	3.6	1.6	1.6	3.3
Buddhist	1.5	1.4	2.9	1.3	1.2	2.5
Other	1.2	1.1	2.4	1.1	1.0	2.2
Caste/tribe						
Scheduled caste	1.7	1.5	3.2	1.4	1.3	2.7
Scheduled tribe	1.6	1.6	3.2	1.4	1.4	2.8
Other	1.5	1.4	2.9	1.3	1.3	2.5
Total	1.5	1.4	2.9	1.3	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.
() Based on 25-49 cases

illiterate and less educated, Muslims, scheduled castes and scheduled tribes. The differentials in children ever born by education are more pronounced.

A similar pattern is observed when differentials in the number of living children are examined. The gap between Muslim and Hindu fertility increases when fertility is measured in terms of living children, as the proportion of dead children to children ever born is higher for Hindus than for Muslims.

5.4 Birth Order

The distribution of births by order of birth and the proportions of higher order births are useful indicators of fertility. Table 5.8 gives the percentage distribution of births during the three years preceding the survey by birth order. Overall, 30 percent of all births are first births

Table 5.8 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, Maharashtra, 1992-93

Maternal age at birth	Order of birth 1	2	3	4	5	6+	Total percent	Number of births
				URBAN				
15-19	65.6	21.4	9.9	1.5	1.5	--	100.0	131
20-24	31.1	34.8	19.9	10.5	2.6	1.1	100.0	267
25-29	15.0	30.7	22.1	16.4	9.3	6.4	100.0	140
30-34	(10.2)	(14.3)	(14.3)	(18.4)	(12.2)	(30.6)	100.0	49
Total	33.2	28.7	17.5	10.6	4.6	5.4	100.0	606
				RURAL				
15-19	51.6	31.8	14.3	1.7	0.6	--	100.0	343
20-24	16.1	29.6	30.4	16.8	4.8	2.3	100.0	392
25-29	6.7	15.3	23.3	30.0	14.0	10.7	100.0	150
30-34	8.9	10.7	8.9	10.7	16.1	44.6	100.0	56
Total	27.8	26.4	21.3	12.6	5.4	6.5	100.0	975
				TOTAL				
15-19	55.5	28.9	13.1	1.7	0.8	--	100.0	474
20-24	22.2	31.7	26.1	14.3	3.9	1.8	100.0	659
25-29	10.7	22.8	22.8	23.4	11.7	8.6	100.0	290
30-34	9.5	12.4	11.4	14.3	14.3	38.1	100.0	105
35-49	(3.4)	(10.3)	(6.9)	(6.9)	(6.9)	(65.5)	100.0	29
Total	29.9	27.3	19.9	11.8	5.1	6.1	100.0	1581

Note: Total includes 24 births to women age 13-14 (5 in urban and 19 in rural areas), 14 births to urban women age 35-49 and 15 births to rural women age 35-49, which are not shown separately.
() Based on 25-49 cases
-- Less than 0.05 percent

and 27 percent are of order two. The proportion of third order births is 20 percent and births of order 4 and above constitute 23 percent of all births. Lower order births (births of order 1 and 2) constitute 62 percent of all births in urban areas and 54 percent in rural areas, indicating that the distribution of births in Maharashtra by order of birth is more skewed towards lower order births. Higher-order births are more common among women age 30 and over; 67 percent of births to women age 30-34 and 79 percent of births to women age 35-49 are of order four or higher. Women in rural areas are more likely to have higher order births. According to the 1991 SRS, the percentage of births of order four and higher was 20 (18 and 21 percent in urban and rural areas, respectively), indicating that the NFHS data on birth order match quite closely with the 1991 SRS data (Office of the Registrar General, India, 1993a).

5.5 Birth Intervals

Birth intervals indicate the pace of childbearing. In addition, various studies have shown that children born too close to a previous birth are at increased risk of dying, especially if the interval between births is less than 24 months (Govindasamy et al., 1993; Hobcraft et al., 1983). Table 5.9 presents the percent distribution of second and higher order births in the five-year

Table 5.9 Birth intervals

Percent distribution of births during the five years preceding the survey by interval since previous birth, according to demographic and background characteristics, Maharashtra, 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	2.8	18.7	21.5	47.7	8.4	0.9	100.0	24.9	107
20-29	3.0	8.8	19.7	37.5	19.8	11.2	100.0	28.1	1335
30-39	2.3	7.1	15.0	28.0	22.6	25.1	100.0	35.1	354
40-49	(3.3)	(3.3)	(16.7)	(33.3)	(13.3)	(30.0)	100.0	(34.0)	30
Order of prior birth									
1	2.0	10.0	19.9	34.7	18.2	15.1	100.0	29.1	708
2-3	3.3	8.1	16.9	37.7	20.1	13.8	100.0	29.1	810
4-5	2.5	9.3	20.1	37.3	21.1	9.8	100.0	27.5	204
6+	5.8	7.7	24.0	31.7	21.2	9.6	100.0	26.7	104
Sex of prior birth									
Male	2.8	8.3	18.1	36.7	19.8	14.3	100.0	29.4	900
Female	2.9	9.6	19.5	35.6	19.3	13.0	100.0	28.0	926
Survival of prior birth									
Still living	2.3	7.5	19.1	36.8	20.4	13.9	100.0	29.4	1667
Deceased	8.8	24.5	15.7	28.9	10.7	11.3	100.0	24.1	159
Residence									
Urban	3.3	7.5	18.8	35.6	17.6	17.2	100.0	29.5	669
Rural	2.6	9.9	18.8	36.5	20.7	11.6	100.0	28.3	1157
Education of the mother									
Illiterate	3.1	8.9	17.4	37.9	19.9	12.8	100.0	28.7	1012
Lit., < middle complete	1.7	9.6	22.0	36.1	20.3	10.3	100.0	27.8	477
Middle school complete	3.7	9.9	20.4	33.3	17.3	15.4	100.0	26.9	162
High school and above	4.0	6.9	17.7	28.6	17.7	25.7	100.0	34.2	175
Religion									
Hindu	2.6	8.7	17.9	36.2	20.3	14.3	100.0	29.1	1306
Muslim	4.2	10.0	22.0	33.7	19.5	10.6	100.0	26.7	359
Buddhist	1.7	10.0	18.3	40.8	15.0	14.2	100.0	29.5	120
Other	(2.4)	(7.3)	(22.0)	(41.5)	(9.8)	(17.1)	100.0	(30.2)	41
Caste/tribe									
Scheduled caste	2.3	6.8	16.7	43.9	15.2	15.2	100.0	28.6	132
Scheduled tribe	2.8	14.7	17.0	37.6	17.9	10.1	100.0	26.9	218
Other	2.9	8.3	19.3	35.2	20.2	14.0	100.0	29.1	1476
Total	2.8	9.0	18.8	36.1	19.6	13.6	100.0	28.7	1826

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.
( ) Based on 25-49 cases

period preceding the survey according to the length of interval since the previous birth. Overall, one in every eight births occurred within 18 months of the previous birth and 31 percent of all births occurred within 24 months. Only one in seven births had an interval of four years or longer. The median birth interval in Maharashtra is 28.7 months.

Younger women have shorter birth intervals than older women. The median interval ranges from 25 months for women age 15-19 to 35 months for women age 30 and over. The relatively high proportion of births with intervals of less than 24 months among women age 15-19 (43 percent) and 20-29 (32 percent) at the time of the survey is due at least partly to the selection bias. Only women who have had two or more births are included in the table, and 15-19 year old women with more than one birth have higher fecundability than women at large.

The median interval is shorter for higher order births (birth order 6 and over) than for lower order births. The median interval following a male birth is slightly longer (29 months) than that following a female birth (28 months). There is a much larger difference (5 months) in the median interval when the survival status of the previous birth is considered: 29 months when the previous birth is alive compared to 24 months when the previous birth is deceased. The proportion of births occurring within an interval of 23 months or less is higher when the last child born is deceased (49 percent) than when it is still living (29 percent). In large part this reflects the shortening of postpartum amenorrhoea that occurs when the preceding child dies in infancy and breastfeeding stops prematurely.

Urban-rural differences in the median birth interval are small. The median birth interval is much shorter for illiterate women (29 months) than for women who have at least a high school education (34 months). Muslims have a slightly shorter median birth interval (27 months) than either Hindus (29 months) or Buddhists (30 months). The median birth interval does not vary much by caste/tribe.

5.6 Age at First and Last Birth

The ages at onset and cessation of childbearing are important demographic determinants of fertility. A higher age at first birth and a lower age at last birth are indicators of lower fertility. The percent distribution of women by age at first birth as well as the median age at first birth, both classified by woman's current age and place of residence, are shown in Table 5.10. The median age at first birth is the age by which half the women have had their first birth. The median is undefined for women age 13-14 and 15-19 (and for 20-24 in urban areas) because in each of these age groups, less than 50 percent of the women had a first birth before the age at the beginning of the interval.

The median age at first birth has remained around 19 years in Maharashtra in all the age groups, suggesting that there has been no substantial change in the age of onset of childbearing in the state during the last two decades or so. However, the median age at first birth is slightly higher for the younger women age 20-24. The age differentials in median age at first birth for urban women and rural women indicate that median age at first birth has increased faster in urban than in rural areas. While 33 percent of urban women age 45-49 had their first birth before the age of 18, only 17 percent of those age 20-24 did so. Among women age 25-29, which is the youngest age group for which a median can be calculated in urban areas, the median age at first birth is almost three years higher in urban areas than in rural areas.

Estimates of median age at first birth by selected background characteristics of women are presented in Table 5.11. Although the median age at first birth varies substantially across different categories, the medians for different current age cohorts in each of these categories do

Table 5.10 Age at first birth

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

Current age	No birth[1]	Age at first birth <15	15-17	18-19	20-21	22-24	25+	Total percent	Median age at first birth
URBAN									
13-14	99.4	0.6	NA	NA	NA	NA	NA	100.0	NC
15-19	88.2	2.2	7.6	2.0	NA	NA	NA	100.0	NC
20-24	45.4	3.7	12.9	20.3	13.4	4.3	NA	100.0	NC
25-29	16.2	5.0	20.1	16.2	16.8	19.2	6.5	100.0	20.9
30-34	6.4	3.1	23.1	20.3	15.9	19.0	12.2	100.0	20.4
35-39	6.0	6.8	18.6	22.9	15.0	16.4	14.3	100.0	20.2
40-44	3.8	4.0	26.3	22.8	17.1	15.4	10.5	100.0	19.7
45-49	4.1	10.7	22.1	19.5	18.1	14.8	10.7	100.0	19.7
RURAL									
13-14	98.7	1.3	NA	NA	NA	NA	NA	100.0	NC
15-19	68.7	6.6	20.0	4.8	NA	NA	NA	100.0	NC
20-24	18.4	13.1	34.6	21.0	10.4	2.5	NA	100.0	18.2
25-29	6.9	10.3	37.1	21.0	15.7	7.1	1.9	100.0	18.2
30-34	2.6	10.4	40.3	20.1	15.4	6.7	4.5	100.0	18.0
35-39	4.9	14.9	35.9	19.0	11.3	9.5	4.5	100.0	17.9
40-44	2.8	13.4	34.6	22.1	13.8	6.9	6.5	100.0	18.2
45-49	3.5	11.5	33.5	19.5	13.0	10.5	8.5	100.0	18.5
TOTAL									
13-14	99.0	1.0	NA	NA	NA	NA	NA	100.0	NC
15-19	77.0	4.7	14.7	3.6	NA	NA	NA	100.0	NC
20-24	31.2	8.6	24.3	20.7	11.9	3.4	NA	100.0	19.6
25-29	10.6	8.1	30.0	19.0	16.2	12.2	3.9	100.0	19.0
30-34	4.4	7.1	32.5	20.2	15.6	12.3	8.0	100.0	19.1
35-39	5.3	11.2	28.1	20.8	13.0	12.7	8.9	100.0	18.9
40-44	3.4	8.5	30.3	22.5	15.5	11.2	8.5	100.0	19.0
45-49	3.8	11.2	28.6	19.5	15.2	12.3	9.5	100.0	19.0

NA: Not Applicable
NC: Not calculated because less than 50 percent of the women in the age group x to x+n have had a birth by age x
[1] Never-married women are included in this category.

not vary much, again confirming that the median age at first birth in Maharashtra has remained constant during the recent decades. The difference in median age at first birth between urban and rural areas has already been mentioned. Median age at first birth increases steadily as education increases, from 18 years for illiterate women to 23 years for women who have had at least a high school education. The median age at first birth is 19 years for Hindus, while it is a year less for Muslims. The median age at first birth is highest for women who belong to other religious groups (22 years). There is little difference in the median age at first birth between scheduled castes and scheduled tribes.

The age group 40-49 has been chosen for examining age at last birth. Table 5.12 presents the distribution of ever-married women age 40-49 by age at the birth of their last child. In Maharashtra, no one reported having a birth at age 45 or higher. Sixty percent of the women age 40-49 had their last birth before age 30. Nearly one-quarter had completed their

Table 5.11 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, Maharashtra, 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	20.4	20.2	19.7	19.7	NC	20.3
Rural	18.2	18.2	18.0	17.9	18.2	18.5	18.1	18.1
Education								
Illiterate	17.4	17.5	17.5	17.5	18.0	18.0	17.6	17.7
Lit., < middle complete	19.4	19.2	19.0	19.0	18.8	20.6	19.2	19.1
Middle school complete	NC	19.8	(20.1)	(20.6)	*	*	NC	20.2
High school and above	NC	23.1	23.0	23.9	23.5	(21.9)	NC	23.2
Religion								
Hindu	19.5	19.0	19.0	19.0	18.9	19.2	19.2	19.0
Muslim	19.2	18.6	18.4	18.1	18.7	(18.0)	18.6	18.3
Buddhist	NC	(18.6)	(19.2)	17.9	(19.7)	(18.2)	19.0	18.6
Other	NC	(21.4)	(22.3)	(22.7)	*	*	NC	22.1
Caste/tribe								
Scheduled caste	17.9	(17.8)	(17.0)	(17.9)	(19.2)	(17.6)	17.8	17.8
Scheduled tribe	17.4	18.5	17.8	17.7	(18.7)	(16.4)	17.9	18.1
Other	20.0	19.3	19.4	19.2	19.0	19.2	19.4	19.2
Total	19.6	19.0	19.1	18.9	19.0	19.0	19.2	19.0

NC: Not calculated because less than 50 percent of the women had their first child by age 20.
() Based on 25-49 cases
* Median not shown; based on fewer than 25 cases

childbearing by age 25. The median age at last birth for the 40-49 age group is about 28 years, suggesting a median length of reproduction of less than 10 years.

Table 5.12 Age at last birth

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

Current age	No birth	Age at last birth						Total percent	Number of women
		<20	20-24	25-29	30-34	35-39	40-44		
40-44	2.7	5.2	22.2	35.5	24.4	8.1	1.8	100.0	442
45-49	3.2	2.3	16.4	36.0	24.5	13.5	3.2	100.0	347
40-49	2.9	4.3	19.6	35.7	24.5	10.5	2.4	100.0	789

Note: There were no women who gave birth at age 45-49.
-- Less than 0.05 percent

5.7 Childbearing at Young Ages

Fertility among teenagers (those under age 20) is drawing increasing attention from policymakers. This is because of the increased health-related risks faced by teenage mothers. Table 5.13 presents the proportion of ever-married women age 13-19 who are either mothers or pregnant with their first child. The sum of these two proportions is taken as the proportion of ever-married teenage women who have begun childbearing. Among ever-married women age 13-19, childbearing starts early. At the time of the survey, 58 percent of ever-married women age 13-19 had already become mothers, and another 10 percent were pregnant with their first child. However, since a large majority of women in this age group have never been married, it appears that childbearing among teenage women is likely to be less common than in the past. Slightly less than one-half of ever-married women age 13-16 have begun childbearing compared to little more than three-quarters of ever-married women age 17-19. As expected, teenage childbearing is more prevalent among illiterate women than among literate women.

Table 5.13 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 age and literacy, Maharashtra, 1992-93

Background characteristic	Percentage who are: Mothers	Pregnant with first child	Percent who have begun childbearing	Number of women
Age				
13-16	34.5	13.4	47.9	119
17-19	66.9	9.1	76.0	308
Literacy				
Illiterate	65.3	6.2	71.6	225
Literate	49.5	14.9	64.4	202
Total	57.8	10.3	68.1	427

5.8 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 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 or abstaining or nonsusceptible, by duration since last birth, is presented in Table 5.14. The mean and median durations and the prevalence/incidence mean duration are also shown in the table. 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.

The proportion of women amenorrhoeic gradually decreases as the interval since birth increases. For example, 95 percent of mothers who had a birth in the last two months are

Table 5.14 Postpartum amenorrhoea, abstinence and nonsusceptibility

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

Months since birth	Percent of births whose mothers are:			Number of births
	Amenorrhoeic	Abstaining	Nonsusceptible	
< 2	94.7	98.7	100.0	76
2 - 3	81.3	67.0	89.3	112
4 - 5	69.0	46.9	79.6	113
6 - 7	56.5	31.8	68.2	85
8 - 9	54.1	23.0	63.5	74
10-11	37.3	20.9	38.8	67
12-13	31.2	13.0	35.1	77
14-15	27.1	20.6	39.3	107
16-17	10.3	9.5	18.1	116
18-19	15.2	11.4	25.7	105
20-21	7.8	10.9	18.8	64
22-23	4.8	9.7	14.5	62
24-25	4.6	8.0	11.5	87
26-27	3.0	7.9	10.9	101
28-29	3.0	7.1	9.1	99
30-31	1.2	6.1	7.3	82
32-33	1.4	1.4	2.8	72
34-35	1.6	6.6	8.2	61
Median	8.5	4.5	9.8	NA
Mean	10.4	8.3	13.1	NA
Prevalence/incidence mean	10.4	8.2	13.2	NA

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

amenorrhoeic, and this percentage decreases to 81 for 2-3 months since birth, 57 for 6-7 months since birth and 31 for 12-13 months since birth. There is a sudden fall in the proportion of women still amenorrhoeic after 14-15 months since birth. For women who gave birth 2-19 months before the survey, the proportions of mothers abstaining from sexual relations are much lower than the proportions amenorrhoeic. Even after 4-5 months since birth, almost half the women were still abstaining. Overall, more than 60 percent of women become susceptible to pregnancy within 10-11 months of giving birth and more than four-fifths become susceptible within 20-21 months. The mean and median durations of nonsusceptibility are 13.1 and 9.8 months, respectively. The median duration of amenorrhoea is almost twice as high (8.5 months) as the median duration of abstinence (4.5 months). Overall, women remain nonsusceptible to conception for 13 months after a birth, primarily due to the effects of postpartum amenorrhoea.

Differentials in median durations of postpartum amenorrhoea, abstinence and nonsusceptibility by selected sociodemographic characteristics of mothers are shown in Table 5.15. The median durations of amenorrhoea and abstinence, and thus of nonsusceptibility, are shorter for women below age 30 than for women over age 30. Both amenorrhoea and abstinence tend to be shorter in urban areas and for women with more education. The longest duration of postpartum nonsusceptibility by religious groups is found among Buddhists (11.7 months), followed by Hindus (10.1 months) and Muslims (8.7 months). Scheduled caste and scheduled

Table 5.15 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 three years preceding the survey, Maharashtra, 1992-93

Background characteristic	Postpartum amenorrhoea	Postpartum abstinence	Postpartum nonsusceptibility	Number of births
Age				
13-29	8.3	4.4	9.6	1381
30-49	10.5	9.8	11.6	179
Residence				
Urban	7.1	3.4	8.4	602
Rural	10.2	5.5	11.5	958
Education				
Illiterate	11.0	4.8	12.0	757
Literate, < middle complete	7.8	5.0	8.3	428
Middle school complete	5.1	3.2	9.1	161
High school and above	5.1	4.0	6.1	214
Religion				
Hindu	8.9	4.9	10.1	1132
Muslim	7.6	3.8	8.7	275
Buddhist	11.7	4.0	11.7	116
Other	(4.5)	(2.3)	(4.5)	37
Caste/tribe				
Scheduled caste	9.4	2.5	12.5	105
Scheduled tribe	12.1	3.4	12.2	161
Other	8.2	4.7	9.3	1294
Total	8.5	4.5	9.8	1560

Note: Medians are based on current status.
() Based on 25-49 cases

tribe mothers have longer amenorrhoea than others, but the duration of abstinence does not differ much according to caste/tribe.

5.9 Menopause

In the NFHS, menopause is defined as the absence of menstruation for at least six months prior to the survey for women who are neither pregnant nor postpartum amenorrhoeic at the time of the survey. Women who reported that they are menopausal are also included in this category. In Maharashtra, the incidence of menopause is relatively low for women in their early thirties (3 percent), but it rises rapidly with age, particularly after age 40 (Table 5.16). By age 44-45, about 46 percent of women are menopausal, and this percent increases to 64 for women age 46-47 and 81 for women age 48-49. For most age groups, the proportions of women in menopause are higher in rural areas than in urban areas, indicating that the onset of menopause appears to be somewhat later among urban women, but this conclusion is based on rather small numbers of women in some of the age groups.

Table 5.16 Menopause

Percentage of currently married women age 30-49 who are in menopause, by age and residence, Maharashtra, 1992-93

Age	Urban		Rural		Total	
	Percent	Number	Percent	Number	Percent	Number
30-34	3.3	242	3.2	315	3.2	557
35-39	12.4	251	9.8	295	11.0	546
40-41	22.3	94	26.6	94	24.5	188
42-43	31.4	70	42.2	64	36.6	134
44-45	39.4	66	50.5	91	45.9	157
46-47	(58.7)	46	69.0	58	64.4	104
48-49	(84.8)	46	77.6	58	80.8	104
Total	21.3	815	22.8	975	22.1	1790

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 cases.

CHAPTER 6

FAMILY PLANNING

Information about knowledge of family planning and use of contraception 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 sources of supply of modern contraceptive methods before moving on to a consideration of current and past practice of family planning. Special attention is focused on nonuse, reasons for discontinuation, and intentions to use family planning in the future. This chapter also contains information on exposure to media coverage of family planning and interspousal discussions on family planning, and it concludes with an analysis of attitudes about 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 first named 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 of the method. Thus the woman's knowledge of contraception is measured at three levels: a) methods the woman mentions on her own (spontaneously without probing), b) methods she says she knows when asked specifically about them (she recognizes the method after probing), and c) methods 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, such as herbs, breastfeeding or abortion 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 rhythm method.

Table 6.1 presents the extent of knowledge as assessed by spontaneous responses and probed responses. The awareness about family planning methods is widespread in Maharashtra, with 99 and 96 percent of the ever-married women in urban and rural areas, respectively, reporting the knowledge of at least one modern method of family planning (Figure 6.1). Eighty percent of ever-married women in urban areas had spontaneous knowledge of at least one modern method compared with 66 percent in rural areas. The percentage with knowledge of any method and any modern method is similar among currently married women and ever-married women.

There exists considerable variation in knowledge by method of contraception. The most widely known method is female sterilization (97 percent), followed by male sterilization (83 percent), the IUD (70 percent), the pill (66 percent) and the condom (56 percent). Awareness of modern methods exceeds awareness of traditional methods, by a wide margin. Traditional methods are known to 23 percent of ever-married women. The fact that the two terminal methods dominate the list implies that the level of knowledge is closely linked to the emphasis

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, Maharashtra, 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	80.5	18.6	99.1	97.4	81.6	17.5	99.1	97.5
Any modern method	79.9	19.2	99.1	97.4	81.1	18.0	99.1	97.5
Pill	52.9	29.5	82.5	73.1	54.4	28.9	83.3	74.1
Copper T/IUD	53.0	31.4	84.4	75.9	54.5	30.6	85.1	76.9
Injection	2.8	8.8	11.6	9.1	3.0	9.0	11.9	9.3
Condom	46.3	30.4	76.8	67.9	47.6	30.2	77.8	69.1
Female sterilization	56.0	42.8	98.9	95.9	57.0	42.0	99.0	95.9
Male sterilization	31.7	58.0	89.8	84.8	32.3	58.1	90.3	85.5
Any traditional method	7.4	24.5	31.8	NA	7.4	25.2	32.6	NA
Rhythm/periodic abstinence	6.1	23.8	29.8	22.2	6.1	24.4	30.5	23.0
Withdrawal	2.3	10.1	12.4	NA	2.2	10.5	12.8	NA
Other methods	1.2	NA	1.2	NA	1.1	NA	1.1	NA
Number of women	1699	1699	1699	1699	1574	1574	1574	1574
			RURAL					
Any method	66.6	29.5	96.2	93.4	67.9	29.0	96.9	94.3
Any modern method	66.0	30.2	96.1	93.4	67.2	29.6	96.9	94.3
Pill	28.9	25.6	54.5	45.5	29.9	25.9	55.7	46.7
Copper T/IUD	34.4	25.6	60.0	50.4	34.9	25.8	60.7	51.2
Injection	1.5	3.8	5.3	3.4	1.5	3.9	5.4	3.4
Condom	22.6	19.3	41.9	35.9	23.2	19.6	42.8	36.8
Female sterilization	51.6	43.5	95.1	91.5	52.5	43.6	96.1	92.5
Male sterilization	30.4	48.0	78.4	73.6	30.9	48.0	78.9	74.1
Any traditional method	5.4	10.8	16.2	NA	5.6	11.1	16.7	NA
Rhythm/periodic abstinence	3.1	11.3	14.3	9.0	3.2	11.7	14.9	9.4
Withdrawal	0.8	4.4	5.2	NA	0.8	4.5	5.3	NA
Other methods	2.4	NA	2.4	NA	2.6	NA	2.6	NA
Number of women	2407	2407	2407	2407	2244	2244	2244	2244

of the Maharashtra Family Welfare Programme on sterilization.

Knowledge regarding each of the family planning methods, including sterilization, is higher in urban areas than in rural areas. Female sterilization is better known than male sterilization in both rural and urban areas. Knowledge about modern spacing methods, like the IUD, pill and condom, is particularly higher in urban areas than in rural areas. Marked urban-rural differentials exist in the knowledge of traditional methods too. Twice as many women in urban areas, as in rural areas, have knowledge about traditional methods.

The Third All India Survey on Family Planning Practices in India (Operations Research Group, 1990), which was conducted in 1988-89 and which studied currently married women age

Table 6.1 Knowledge of contraceptive methods and source of methods (Contd.)

Percentage of ever-married and currently married women knowing any contraceptive method and knowing a source, by specific method and residence, Maharashtra, 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]
	TOTAL							
Any method	72.4	25.0	97.4	95.1	73.6	24.3	97.8	95.6
Any modern method	71.7	25.6	97.3	95.1	72.9	24.9	97.8	95.6
Pill	38.8	27.3	66.1	56.9	40.0	27.1	67.1	58.0
Copper T/IUD	42.1	28.0	70.1	61.0	43.0	27.7	70.7	61.8
Injection	2.0	5.9	7.9	5.7	2.1	6.0	8.1	5.9
Condom	32.4	23.9	56.3	49.1	33.3	24.0	57.3	50.1
Female sterilization	53.4	43.3	96.7	93.3	54.3	43.0	97.3	93.9
Male sterilization	30.9	52.2	83.1	78.2	31.5	52.1	83.6	78.8
Any traditional method	6.2	16.5	22.6	NA	6.3	16.9	23.3	NA
Rhythm/periodic abstinence	4.3	16.4	20.8	14.5	4.4	16.9	21.3	15.0
Withdrawal	1.4	6.7	8.2	NA	1.4	7.0	8.4	NA
Other methods	1.9	NA	1.9	NA	2.0	NA	2.0	NA
Number of women	4106	4106	4106	4106	3818	3818	3818	3818

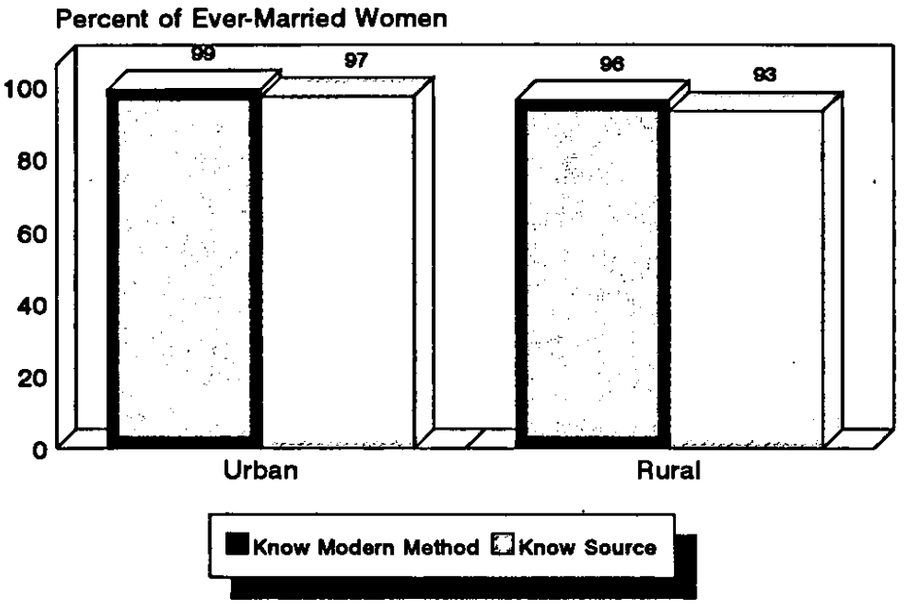
NA: Not applicable
[1]For modern methods, the source refers to a place that a person could go to get the method. For rhythm/periodic abstinence, the source refers to a source of advice on how to use periodic abstinence.

15-44, reached broadly similar conclusions about knowledge of specific methods. The Third All India Survey revealed that 90-100 percent of currently married women in Maharashtra knew about female sterilization, 80 percent about male sterilization, 66 percent about the IUD, 64 percent about the condom and 40-60 percent about the pill. The survey also observed that the percentage of currently married women in Maharashtra having the correct knowledge about how to use different contraceptive methods was 51 for vasectomy, 67 for tubectomy, 46 for the condom, 41 for the pill and 42 for the IUD.

A comparison of the results of the NFHS with those of the National Fertility and Mortality Survey (NFMS) carried out in 1980 (Srikantan and Bhate, 1989), indicates that the level of awareness of modern family planning methods in the state has increased substantially. During the thirteen-year period between the two surveys; knowledge of the condom more than doubled from 24 to 56 percent, knowledge of the pill more than tripled from 18 to 66 percent and knowledge of the IUD increased about five-fold from 15 to 70 percent. Seventy-nine percent of currently married women in 1980 had heard of male and female sterilization, and this has increased to 83 for male and 97 percent for female sterilization over the same period.

Table 6.1 also provides information about the extent of knowledge about sources from which contraceptive methods can be obtained. The question about source of method was asked only of those women who knew about the method. Knowledge about source of contraception

Figure 6.1
Knowledge of Modern Contraceptive Methods and Sources by Residence



NFHS, Maharashtra, 1992-93

is very high in Maharashtra, with 96 percent of currently married women knowing where to obtain at least one modern method of family planning. The pattern of knowledge about sources of specific methods is similar to that observed in the case of knowledge of these methods.

Table 6.2 shows differentials in the level of knowledge of modern contraceptive methods and sources of these methods among currently married women, by age, education, religion and caste/tribe. Differences are almost nonexistent in knowledge of modern methods of contraception and their sources by these background characteristics, because contraceptive knowledge is almost universal. However, knowledge of methods and sources for any modern method are slightly higher among women over age 19, urban women and women with more education.

6.2 Contraceptive Use

Ever Use of Family Planning Methods

All respondents were asked whether they had ever used each of the methods they knew. The use of contraception was further probed by asking those who reported not using any method whether they "ever used anything or tried in any way to delay or avoid getting pregnant." Table 6.3 presents the pattern of ever use by age and residence, separately for ever-married and currently married women.

Table 6.2 Knowledge of methods and source by background characteristics

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

Background characteristic	Knows any method	Knows any modern method[1]	Knows source for any modern method	Number of women
Age				
13-14	(74.1)	(74.1)	(74.1)	27
15-19	92.2	92.2	86.8	386
20-24	98.6	98.4	95.7	836
25-29	98.9	98.9	97.2	715
30-34	99.0	99.0	97.7	602
35-39	97.9	97.9	97.0	561
40-44	99.2	99.2	96.9	390
45-49	98.3	98.3	96.7	301
Residence				
Urban	99.1	99.1	97.5	1574
Rural	96.9	96.9	94.3	2244
Education				
Illiterate	96.5	96.4	93.8	1883
Lit., < middle complete	98.8	98.8	96.4	1031
Middle school complete	99.0	99.0	97.1	313
High school and above	99.7	99.7	99.2	591
Religion				
Hindu	97.7	97.6	95.7	2928
Muslim	98.1	98.1	93.9	474
Buddhist	98.5	98.5	97.5	275
Other	98.6	98.6	97.2	141
Caste/tribe				
Scheduled caste	97.9	97.9	96.2	236
Scheduled tribe	93.5	93.2	90.5	368
Other	98.3	98.3	96.2	3214
Total	97.8	97.8	95.6	3818

() Based on 25-49 cases
[1]Includes pill, copper T/IUD, injection, condom, female sterilization, and male sterilization

Although the knowledge of at least one method of family planning is nearly universal in Maharashtra, only 56 percent of ever-married women in the state had ever used a method, with the ever use of any modern method being considerably higher (55 percent) than any traditional method (4 percent). Ever use of any method is slightly higher (58 percent) among the currently married women. Female sterilization is, by far, the most common modern method ever used (39 percent of women), followed by the condom (8 percent), the IUD (7 percent), male sterilization and the pill (6 percent each). Differences in ever use of any method of contraception between rural and urban areas are marginal. However, a larger percentage of women in urban areas had ever used spacing methods such as the condom, the IUD and the pill. Ever use of traditional methods is also higher in urban areas than in rural areas (see Figure 6.2).

Contraceptive use by age shows an inverted U-shaped pattern for both ever-married and currently married women. For example, in the case of ever-married women, ever use of any method rises from a level of 13 percent for women age 15-19 to 78 percent for women age

Table 6.3 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, Maharashtra, 1992-93

Age	Any method	Any modern method	Pill	IUD	Injection	Condom	Female sterilization	Male sterilization	Any trad. method	Periodic abstinence	Withdrawal	Other methods	Number of women
						URBAN							
						Ever-married women							
15-19	16.7	16.7	2.1	5.2	--	8.3	2.1	--	1.0	1.0	1.0	--	96
20-24	34.5	32.6	9.1	8.0	0.3	12.7	11.3	--	5.0	4.1	1.7	--	362
25-29	57.6	55.9	10.2	17.4	0.3	16.1	27.6	1.0	7.9	7.2	1.6	--	304
30-34	71.0	67.8	12.2	19.6	0.7	15.7	44.1	2.4	9.1	7.3	2.1	0.3	286
35-39	79.3	76.7	6.9	12.0	--	10.5	61.8	5.1	6.5	6.2	1.5	--	275
40-44	68.9	67.6	8.0	6.7	--	6.7	53.3	5.3	4.9	4.4	0.9	--	225
45-49	63.3	61.9	7.5	0.7	--	8.8	44.2	9.5	8.2	6.1	3.4	0.7	147
Total	58.0	56.0	8.8	11.3	0.2	12.1	35.8	2.9	6.5	5.6	1.7	0.1	1699
						Currently married women							
15-19	17.8	17.8	2.2	5.6	--	8.9	2.2	--	1.1	1.1	1.1	--	90
20-24	34.4	32.4	9.2	8.3	0.3	12.9	10.6	--	5.2	4.3	1.7	--	349
25-29	59.6	57.8	10.8	18.1	0.3	16.7	28.2	1.0	8.0	7.3	1.7	--	287
30-34	73.9	70.8	12.9	20.8	0.8	16.3	46.6	2.7	9.5	7.6	2.3	0.4	264
35-39	80.9	78.2	7.0	12.1	--	10.9	63.4	5.1	7.0	6.6	1.6	--	257
40-44	72.1	70.6	8.1	7.1	--	7.1	56.3	5.1	5.6	5.1	1.0	--	197
45-49	67.5	65.9	8.7	0.8	--	10.3	47.6	8.7	8.7	6.3	3.2	0.8	126
Total	59.5	57.5	9.1	11.9	0.3	12.6	36.7	2.8	6.8	5.8	1.8	0.1	1574
						RURAL							
						Ever-married women							
15-19	11.5	10.9	1.6	2.0	--	3.6	4.9	--	1.3	1.0	0.7	--	304
20-24	35.0	34.0	5.5	4.7	--	6.4	23.6	1.4	2.3	1.8	0.8	0.2	512
25-29	63.7	63.5	5.0	6.3	--	7.8	52.8	2.8	3.0	2.6	0.4	0.2	460
30-34	76.4	75.0	2.5	4.5	0.3	6.5	61.2	9.6	3.1	2.8	--	0.6	356
35-39	76.4	76.4	2.4	3.0	--	1.5	57.9	16.4	2.1	1.8	0.3	--	335
40-44	71.4	71.0	2.3	1.8	--	1.8	49.8	19.4	1.4	0.9	0.5	--	217
45-49	70.0	69.0	1.0	1.0	--	2.0	42.5	25.0	1.5	0.5	0.5	0.5	200
Total	55.3	54.6	3.3	3.8	--	4.8	40.9	8.4	2.2	1.8	0.5	0.2	2407
						Currently married women							
15-19	11.8	11.1	1.7	2.0	--	3.7	5.1	--	1.4	1.0	0.7	--	296
20-24	35.9	34.9	5.7	4.9	--	6.6	24.4	1.4	2.5	1.8	0.8	0.2	487
25-29	67.1	66.8	5.4	6.5	--	8.4	55.6	3.0	3.3	2.8	0.5	0.2	428
30-34	78.7	77.2	2.7	4.7	0.3	6.2	63.3	9.5	3.3	3.0	--	0.6	338
35-39	78.9	78.9	2.3	3.0	--	1.3	59.9	16.8	2.3	2.0	0.3	--	304
40-44	77.2	77.2	2.6	2.1	--	2.1	54.4	20.7	1.0	1.0	--	--	193
45-49	74.9	73.7	1.1	1.1	--	2.3	44.6	27.4	1.7	0.6	0.6	0.6	175
Total	57.2	56.5	3.5	4.0	--	5.0	42.3	8.5	2.4	1.9	0.4	0.2	2244

35-39 and then declines to 67 percent for women age 45-49. Female sterilization is the most popular method after age 20, although a considerable proportion of women also used the pill, IUD and condom up to age 35. The age pattern of ever use of contraception is quite similar in both the urban and rural areas of Maharashtra, peaking at age 35-39, with 77 percent of

Table 6.3 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, Maharashtra, 1992-93

Age	Any method	Any modern method	Pill	IUD	Injection	Condom	Female sterilization	Male sterilization	Any trad. method	Periodic abstinence	Withdrawal	Other methods	Number of women
						TOTAL							
						Ever-married women							
13-14	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	27
15-19	12.7	12.2	1.7	2.7	--	4.7	4.2	--	1.3	1.0	0.8	--	400
20-24	34.8	33.4	7.0	6.1	0.1	9.0	18.5	0.8	3.4	2.7	1.1	0.1	874
25-29	61.3	60.5	7.1	10.7	0.1	11.1	42.8	2.1	5.0	4.5	0.9	0.1	764
30-34	74.0	71.8	6.9	11.2	0.5	10.6	53.6	6.4	5.8	4.8	0.9	0.5	642
35-39	77.7	76.6	4.4	7.0	--	5.6	59.7	11.3	4.1	3.8	0.8	--	610
40-44	70.1	69.2	5.2	4.3	--	4.3	51.6	12.2	3.2	2.7	0.7	--	442
45-49	67.1	66.0	3.7	0.9	--	4.9	43.2	18.4	4.3	2.9	1.7	0.6	347
Total	56.4	55.2	5.6	6.9	0.1	7.8	38.8	6.1	4.0	3.4	1.0	0.2	4106
						Currently married women							
13-14	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	27
15-19	13.2	12.7	1.8	2.8	--	4.9	4.4	--	1.3	1.0	0.8	--	386
20-24	35.3	33.9	7.2	6.3	0.1	9.2	18.5	0.8	3.6	2.9	1.2	0.1	836
25-29	64.1	63.2	7.6	11.2	0.1	11.7	44.6	2.2	5.2	4.6	1.0	0.1	715
30-34	76.6	74.4	7.1	11.8	0.5	10.6	56.0	6.5	6.0	5.0	1.0	0.5	602
35-39	79.9	78.6	4.5	7.1	--	5.7	61.5	11.4	4.5	4.1	0.9	--	561
40-44	74.6	73.8	5.4	4.6	--	4.6	55.4	12.8	3.3	3.1	0.5	--	390
45-49	71.8	70.4	4.3	1.0	--	5.6	45.8	19.6	4.7	3.0	1.7	0.7	301
Total	58.1	56.9	5.8	7.2	0.1	8.1	40.0	6.2	4.2	3.5	1.0	0.2	3818

Note: The urban total includes 4 ever-married women and 4 currently married women age 13-14, who are not shown separately. The rural total includes 23 ever-married women and 23 currently married women age 13-14, who are not shown separately.
( ) Based on 25-49 cases
-- Less than 0.05 percent

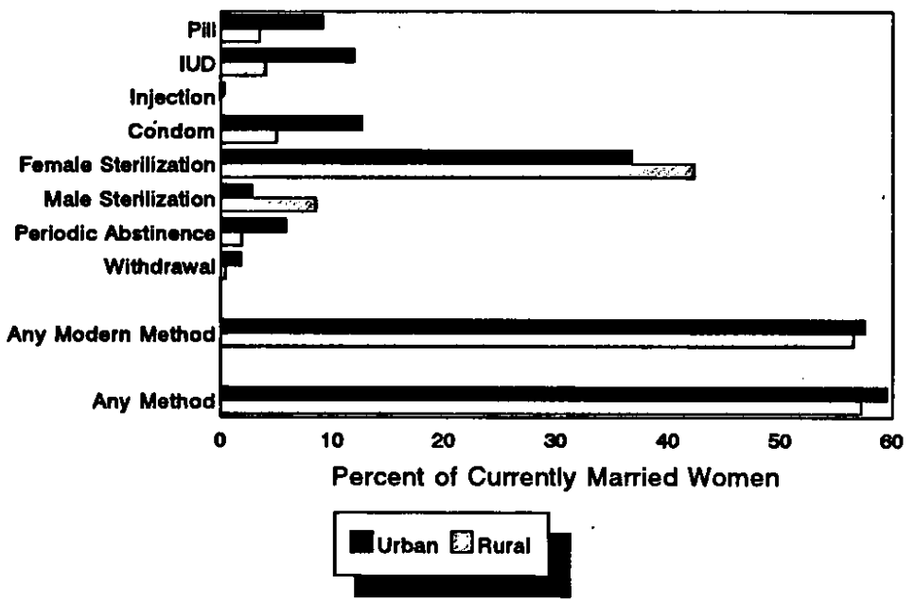
ever-married women in urban areas and 76 percent in rural areas using any modern method.

Current Use of Family Planning Methods

The overall level of current use of contraception among currently married women in Maharashtra is 54 percent (Table 6.4)[1]. Of this, 53 percent are users of modern methods and 1 percent, traditional methods. As with ever use, female sterilization (40 percent) and male sterilization (6 percent) are the most commonly used methods, together accounting for 86 percent of contraceptive prevalence. This clearly indicates that the overall level of contraceptive use in Maharashtra is predominantly determined by the methods advocated by the family planning programme in the state.

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

Figure 6.2
Ever Use of Contraception by Residence



NFHS, Maharashtra, 1992-93

Another set of data on current use of contraception is available from the Third All India Survey on Family Planning Practices in India, conducted in 1988-89 (Operations Research Group, 1990). These data refer to currently married women age 15-44 years. Restricting the NFHS data to the same age categories gives an estimate of the current use rate as 53 percent, with 52 percent using modern methods. The Operations Research Group's (ORG) estimates for current use of any method and modern methods was 55 percent and 53 percent, respectively. The ORG also estimated that 43 percent of women were sterilized, and 10 percent were using spacing methods (the pill, the IUD and condom), in contrast to the NFHS estimate of 45 percent and 7 percent, for sterilization and spacing methods, respectively.

According to unpublished statistics (Evaluation and Information Division, Department of Family Welfare, Ministry of Health and Family Welfare), 41 percent of couples in Maharashtra were sterilized in 1993, compared to 46 percent in the NFHS in 1992-93.

Contrary to expectations, the contraceptive prevalence rate for any modern method is higher in rural areas (54 percent), than in urban areas (51 percent). This is due to a higher acceptance of female and male sterilizations in rural areas, 51 percent, compared with 40 percent in urban areas. Acceptance of spacing methods is higher in urban areas (11 percent) than in rural areas (3 percent). It may be that rural women prefer terminal methods which require a one time motivation and have little side effects. It may also be that programme administrators are concentrating on promoting sterilization, especially female sterilization, rather than spacing methods. The data show that an overwhelmingly large percentage of all sterilizations, 93 percent in urban areas and 83 percent in rural areas, are female sterilizations.

Table 6.4 Current use of contraception

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

Age	Any method	Any modern method	Pill	IUD	Injection	Condom	Female sterilization	Male sterilization	Any trad. method	Periodic abstinence	Withdrawal	Other methods	Not using any method	Total percent	Number of women
URBAN															
15-19	12.2	12.2	1.1	4.4	--	4.4	2.2	--	--	--	--	--	87.8	100.0	90
20-24	26.6	24.4	2.6	4.6	--	6.6	10.6	--	2.3	2.3	--	--	73.1	100.0	349
25-29	52.3	50.2	5.2	9.8	--	5.9	28.2	1.0	2.1	2.1	--	--	47.7	100.0	287
30-34	66.3	62.9	2.7	6.1	--	4.9	46.6	2.7	3.4	3.0	0.4	--	33.7	100.0	264
35-39	76.3	73.9	0.8	1.9	--	2.7	63.4	5.1	2.3	2.3	--	--	23.7	100.0	257
40-44	67.0	66.0	1.0	1.5	--	2.0	56.3	5.1	1.0	0.5	0.5	--	33.0	100.0	197
45-49	60.3	57.9	--	--	--	1.6	47.6	8.7	2.4	1.6	--	0.8	39.7	100.0	126
15-44	52.4	50.3	2.5	5.0	--	4.7	35.8	2.3	2.1	2.0	0.1	--	47.6	100.0	1446
15-49	53.1	50.9	2.3	4.6	--	4.5	36.8	2.8	2.2	2.0	0.1	0.1	46.9	100.0	1570
13-49	52.9	50.8	2.3	4.6	--	4.4	36.7	2.8	2.2	2.0	0.1	0.1	47.1	100.0	1574
RURAL															
15-19	8.1	7.8	0.3	1.0	--	1.4	5.1	--	0.3	0.3	--	--	91.9	100.0	296
20-24	31.6	31.0	1.8	2.1	--	1.4	24.2	1.4	0.6	0.6	--	--	68.4	100.0	487
25-29	63.8	63.1	1.4	1.4	--	1.6	55.6	3.0	0.7	0.5	--	0.2	36.2	100.0	428
30-34	77.2	75.7	--	1.2	--	1.8	63.3	9.5	1.5	1.2	--	0.3	22.8	100.0	338
35-39	77.3	77.3	--	0.3	--	0.3	59.9	16.8	--	--	--	--	22.7	100.0	304
40-44	75.1	75.1	--	--	--	--	54.4	21.7	--	--	--	--	24.9	100.0	193
45-49	72.6	72.6	--	--	--	0.6	44.6	27.4	--	--	--	--	27.4	100.0	175
15-44	53.4	52.8	0.8	1.2	--	1.2	42.6	7.0	0.6	0.5	--	0.1	46.6	100.0	2046
15-49	54.9	54.3	0.7	1.1	--	1.2	42.8	8.6	0.5	0.5	--	0.1	45.1	100.0	2221
13-49	54.3	53.8	0.7	1.1	--	1.2	42.3	8.5	0.5	0.4	--	0.1	45.7	100.0	2244
TOTAL															
13-14	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(--)	(100.0)	100.0	27
15-19	9.1	8.8	0.5	1.8	--	2.1	4.4	--	0.3	0.3	--	--	90.9	100.0	386
20-24	29.5	28.2	2.2	3.1	--	3.6	18.5	0.8	1.3	1.3	--	--	70.5	100.0	836
25-29	59.2	57.9	2.9	4.8	--	3.4	44.6	2.2	1.3	1.1	--	0.1	40.8	100.0	715
30-34	72.4	70.1	1.2	3.3	--	3.2	56.0	6.5	2.3	2.0	0.2	0.2	27.6	100.0	602
35-39	76.8	75.8	0.4	1.1	--	1.4	61.5	11.4	1.1	1.1	--	--	23.2	100.0	561
40-44	71.0	70.5	0.5	0.8	--	1.0	55.4	12.8	0.5	0.3	0.3	--	29.0	100.0	390
45-49	67.4	66.4	--	--	--	1.0	45.8	19.6	1.0	0.7	--	0.3	32.6	100.0	301
15-44	53.0	51.7	1.5	2.8	--	2.7	39.8	5.0	1.2	1.1	0.1	0.1	47.0	100.0	3490
15-49	54.1	52.9	1.4	2.5	--	2.5	40.3	6.2	1.2	1.1	0.1	0.1	45.9	100.0	3791
13-49	53.7	52.5	1.4	2.5	--	2.5	40.0	6.2	1.2	1.1	0.1	0.1	46.3	100.0	3818

Note: The urban total includes 4 women age 13-14, who are not shown separately. The rural total includes 23 women age 13-14, who are not shown separately.
( ) Based on 25-49 cases
-- Less than 0.05 percent

The relationship between current use and age is typically curvilinear, with use increasing with age and peaking at age 35-39, and then declining for the subsequent age groups. In Maharashtra, 76 percent of currently married women in the age group 35-39 are using a modern method, with 73 percent having accepted female or male sterilization. A similar pattern is observed in both urban and rural areas. However, while a curvilinear relationship persists when female sterilization is considered, male sterilization increases with age. As expected, modern spacing methods are more popular among younger and urban women.

Socioeconomic Differentials in Current Use of Family Planning

Table 6.5 shows differentials in current use of contraception by selected socioeconomic characteristics of currently married women. The relationship between current use and education is weak ranging from 54 percent for illiterate women to 58 percent for women who completed high school. However, the type of method used varies more with education, with sterilization being inversely related to education, and spacing methods and traditional methods increasing with education. This explains why use of modern methods is as high among illiterate women as among women with high a school education (Figure 6.3).

Hindu-Muslim differences in current use of contraception are quite substantial. Contraceptive use is much higher among Hindus (57 percent) than among Muslims (36 percent). Buddhist have a contraceptive use rate of 52 percent and women of other religions have the highest use rate of 58 percent. Contraceptive use is comparatively lower among scheduled tribe women (49 percent) than among scheduled caste women (55 percent). The use of spacing methods is especially low among both scheduled caste and scheduled tribe women. Sterilization accounts for 95 percent of their contraceptive use.

Table 6.5 also shows differentials in current use by the number and sex of living children. A strong positive association exists between the number of living children a woman has and current use of contraception. Current use of any method increases steadily from 3 percent for women with no living children to 76 percent for women with 4 or more living children. The same trend is observed when current use of any modern method or sterilization is considered. As expected, the acceptance of terminal methods is lowest (less than half a percent) among women with no living children and highest (73 percent) among women with at least four living children. In the case of spacing methods, current use of contraception decreases as the number of living children increases, a pattern that is normally expected since users of spacing methods are mostly younger and lower parity 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 with no sons and highest for women with all sons. Among women with 3 living children, the current use of any modern method is the highest (86 percent) among women who have all sons.

Number of Children at First Use of Contraception

In order to examine the timing of initial contraceptive use, the NFHS included a question on how many living children a woman had when she first used a method. The distribution of ever-married women according to the number of living children they had when they used contraception for the first time is shown in Table 6.6. Overall, only 3 percent of contraceptors

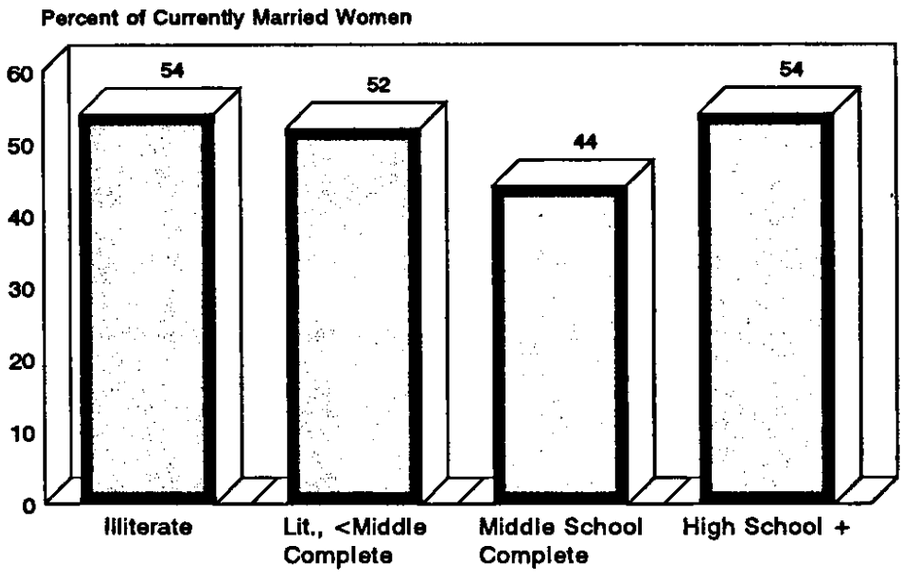
Table 6.5 Current use by background characteristics

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

Background characteristic	Any method	Any modern method	Pill	IUD	Injection	Condom	Female sterilization	Male sterilization	Any trad. method	Periodic abstinence	Withdrawal	Other methods	Not using any method	Total percent	Number of women
Residence															
Urban	52.9	50.8	2.3	4.6	--	4.4	36.7	2.8	2.2	2.0	0.1	0.1	47.1	100.0	1574
Rural	54.3	53.8	0.7	1.1	--	1.2	42.3	8.5	0.5	0.4	--	0.1	45.7	100.0	2244
Education															
Illiterate	54.1	53.7	0.7	0.5	--	0.3	42.6	9.5	0.4	0.3	0.1	0.1	45.9	100.0	1883
Literate, < middle	53.2	52.3	1.2	1.6	--	1.7	43.9	3.9	0.9	0.7	--	0.2	46.8	100.0	1031
Middle school complete	45.4	43.5	2.6	2.6	--	4.2	31.3	2.9	1.9	1.9	--	--	54.6	100.0	313
High school and above	58.0	54.1	3.2	10.5	--	10.0	29.3	1.2	3.9	3.7	0.2	--	42.0	100.0	591
Religion															
Hindu	56.6	55.3	0.9	2.4	--	2.4	43.6	6.0	1.2	1.1	--	0.1	43.4	100.0	2928
Muslim	36.1	35.2	3.6	2.3	--	2.7	23.6	3.0	0.8	0.4	0.2	0.2	63.9	100.0	474
Buddhist	52.0	51.3	1.8	2.9	--	1.1	32.0	13.5	0.7	0.7	--	--	48.0		275
Other	58.2	55.3	2.1	5.7	--	6.4	36.2	5.0	2.8	2.8	--	--	41.8	100.0	141
Caste/tribe															
Scheduled caste	55.1	55.1	0.4	0.8	--	1.7	43.2	8.9	--	--	--	--	44.9	100.0	236
Scheduled tribe	49.2	48.6	0.5	0.3	--	1.1	35.3	11.4	0.5	0.3	--	0.3	50.8	100.0	368
Other	54.2	52.8	1.5	2.9	--	2.7	40.3	5.4	1.4	1.2	0.1	0.1	45.8	100.0	3214
Number and sex of living children															
None	3.1	1.9	0.2	--	--	1.2	0.2	0.2	1.2	1.2	--	--	96.9	100.0	415
1 child	22.8	20.9	2.2	7.2	--	5.7	3.5	2.3	1.8	1.8	--	--	77.2	100.0	597
1 son	27.3	25.1	2.9	9.0	--	4.5	5.1	3.5	2.3	2.3	--	--	72.7	100.0	311
No sons	17.8	16.4	1.4	5.2	--	7.0	1.7	1.0	1.4	1.4	--	--	82.2	100.0	286
2 children	50.3	48.6	2.0	4.6	--	4.7	31.7	5.7	1.6	1.5	0.1	--	49.7	100.0	849
2 sons	65.9	64.4	1.5	5.2	--	2.6	49.3	5.9	1.5	1.5	--	--	34.1	100.0	270
1 son	48.1	47.0	2.3	3.5	--	5.6	29.2	6.5	1.2	1.2	--	--	51.9	100.0	432
No sons	27.9	24.5	2.0	6.8	--	6.1	6.8	2.7	3.4	2.7	0.7	--	72.1	100.0	147
3 children	74.8	73.9	1.6	0.9	--	0.8	61.3	9.2	0.9	0.7	--	0.2	25.2	100.0	949
3 sons	86.0	86.0	0.7	--	--	--	69.1	16.2	--	--	--	--	14.0	100.0	136
2 sons	84.7	84.5	1.3	0.2	--	0.2	72.6	10.1	0.2	--	--	0.2	15.3	100.0	457
1 son	63.9	61.9	1.7	2.7	--	1.7	49.1	6.5	2.1	1.7	--	0.3	36.1	100.0	291
No sons	30.8	27.7	4.6	--	--	3.1	20.0	--	3.1	3.1	--	--	69.2	100.0	65
4+ children	76.0	75.3	0.6	0.5	--	0.9	64.9	8.4	0.7	0.5	0.1	0.1	24.0	100.0	1008
2+ sons	79.7	79.2	0.7	0.3	--	0.6	68.4	9.2	0.6	0.3	0.1	0.1	20.3	100.0	715
1 son	69.5	68.4	--	1.2	--	1.6	60.5	5.1	1.2	1.2	--	--	30.5	100.0	256
No sons	(48.6)	(48.6)	(2.7)	--	--	(2.7)	(27.0)	(16.2)	(--)	(--)	(--)	(--)	(51.4)	100.0	37
Total	53.7	52.5	1.4	2.5	--	2.5	40.0	6.2	1.2	1.1	0.1	0.1	46.3	100.0	3818

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

Figure 6.3
Current Use of Modern Contraceptive Methods by Education



(2 percent of all ever-married women) initiated the use of contraception before having any children and another 15 percent started after the first child. Only 36 percent of ever users of contraception initiated the use when they had fewer than three living children. The largest proportion (34 percent) of the women started using a method only after having four or more children. Since the emphasis of the family welfare programme is on terminal methods, women tend to accept the method only after having achieved the desired family size, and especially the desired number of sons. However, there is a gradual shift towards initiating use at early parities, with a tendency for younger women to have initiated family planning use at lower parities. As one moves towards the older cohorts, the percentage of women accepting family planning when they do not have any children or after one child generally decreases. For example, only 7 percent of ever users of contraception in the age group 45-49 had first used a method when they had fewer than 2 children. The corresponding percentages in the 30-34 and 20-24 age groups are 16 and 39, respectively. Women living in urban areas tend to initiate contraceptive use at earlier parities than their counterparts in rural areas. Fifty-nine percent of ever users in the age group 20-24 in urban areas first used a method when they had fewer than 2 living children, compared to only 25 percent of ever users in the same age group in rural areas.

Problems in the Current Use of Family Planning

All current contraceptive users in the NFHS were asked whether they had experienced problems with the method they were using and if so, what the problems were. The large

Table 6.6 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, Maharashtra, 1992-93

Current age	Never used	Number of living children at the time of first use					Missing	Total percent	Number of women
		0	1	2	3	4+			
URBAN									
15-19	83.3	4.2	10.4	1.0	1.0	--	--	100.0	96
20-24	65.5	6.1	14.4	5.8	6.1	2.2	--	100.0	362
25-29	42.4	3.6	17.8	12.8	14.1	9.2	--	100.0	304
30-34	29.0	3.5	16.4	15.7	19.2	16.1	--	100.0	286
35-39	20.7	1.8	9.8	17.1	17.8	32.7	--	100.0	275
40-44	31.1	1.8	8.0	9.8	16.4	32.9	--	100.0	225
45-49	36.7	0.7	7.5	6.1	19.0	29.9	--	100.0	147
Total	42.0	3.4	12.9	10.8	13.8	17.1	--	100.0	1699
RURAL									
15-19	88.5	2.0	3.9	3.6	1.6	0.3	--	100.0	304
20-24	65.0	0.6	8.2	10.7	11.3	3.9	0.2	100.0	512
25-29	36.3	1.3	5.7	15.4	28.7	12.6	--	100.0	460
30-34	23.6	0.3	5.1	12.6	25.6	32.9	--	100.0	356
35-39	23.6	0.9	3.0	10.7	26.6	35.2	--	100.0	335
40-44	28.6	0.5	2.8	7.4	22.6	38.2	--	100.0	217
45-49	30.0	--	2.0	5.5	16.5	46.0	--	100.0	200
Total	44.7	0.8	4.9	10.2	19.0	20.3	--	100.0	2407
TOTAL									
13-14	(--)	(--)	(--)	(--)	(--)	(--)	(--)	100.0	27
15-19	87.2	2.5	5.5	3.0	1.5	0.3	--	100.0	400
20-24	65.2	2.9	10.8	8.7	9.2	3.2	0.1	100.0	874
25-29	38.7	2.2	10.5	14.4	22.9	11.3	--	100.0	764
30-34	26.0	1.7	10.1	14.0	22.7	25.4	--	100.0	642
35-39	22.3	1.3	6.1	13.6	22.6	34.1	--	100.0	610
40-44	29.9	1.1	5.4	8.6	19.5	35.5	--	100.0	442
45-49	32.9	0.3	4.3	5.8	17.6	39.2	--	100.0	347
Total	43.6	1.9	8.2	10.4	16.9	19.0	--	100.0	4106

Note: The urban total includes 4 women age 13-14, who are not shown separately. The rural total includes 23 women age 13-14, who are not shown separately.
( ) Based on 25-49 cases
-- Less than 0.05 percent

majority of users reported having no problems with the method they were using (Table 6.7). Among the problems listed in the case of pill users, white discharge (6 percent) and spotting/bleeding (4 percent) are the most common. In the case of IUD users, excessive bleeding (7 percent) and cramps and backache (4 percent each) are the most common problems reported by the respondents. In the case of female sterilization, 82 percent reported no problem. Pain/backache is mentioned by 12 percent of the respondents and weakness and inability to work by 6 percent of the respondents. Similar types of problems are also mentioned for male sterilization.

Table 6.7 Problems with current method

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

Problem	Method	
	Pill	
No problems	86.5	
Cramps	--	
Dizziness	--	
Backache	1.9	
Spotting/bleeding	3.8	
White discharge	5.8	
Allergy	1.9	
Headache	1.9	
Other	1.9	
Number of pill users	52	
	Copper T/IUD	
No problems	81.3	
Cramps	4.2	
Backache	4.2	
Irregular Period	--	
Excessive bleeding	7.3	
Weakness/inability to work	2.1	
Other	3.1	
Number of IUD users	96	
	Female sterilization	Male sterilization
No problems	82.2	81.3
Fever	1.4	--
Pain/backache	11.9	11.1
Sepsis	1.7	3.0
Weakness/inability to work	5.7	4.7
Failure/woman got pregnant	0.7	3.0
Loss of sexual power	0.1	--
Other	2.8	0.9
Number sterilized	1527	235

Note: Percentages may sum to more than 100.0 because multiple problems could be recorded.
-- Less than 0.05 percent

Age at Sterilization

Table 6.8 shows, for currently married sterilized couples, the age of the woman when the couple obtained a sterilization. Of the total of 1,762 sterilization operations reported, 38 percent were conducted fewer than 6 years before the survey, 23 percent were conducted 6-9 years before the survey and the remaining 39 percent were conducted 10 or more years before the survey. About 80 percent of the couples had undergone sterilization before age 30. There are very few cases of sterilizations being performed when the woman was in her forties. The median age at the time of sterilization is 26 years. The median age at sterilization is slightly lower for sterilizations conducted fewer than 5 years before the survey than for those conducted 6 years or more before the survey. Adoption of sterilization at younger ages may have a larger effect on fertility in Maharashtra.

Table 6.8 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, Maharashtra, 1992-93

Years since operation	Woman's age at the time of operation						Total percent	Number	Median age*
	< 25	25-29	30-34	35-39	40-44	45-49			
STERILIZED WOMEN									
< 2	54.1	29.6	11.2	4.3	0.9	--	100.0	233	24.7
2-3	43.2	30.1	19.4	6.8	0.5	--	100.0	206	25.7
4-5	51.0	28.7	15.3	3.5	1.5	--	100.0	202	24.7
6-7	40.2	36.2	16.1	7.0	0.5	U	100.0	199	26.3
8-9	42.0	34.0	16.7	7.4	--	U	100.0	162	26.1
10+	42.5	41.1	13.1	3.2	U	U	100.0	525	NC
Total	45.1	34.8	14.7	4.8	0.5	--	100.0	1527	25.6
WIVES OF STERILIZED MEN									
< 10	44.4	26.4	15.3	11.1	2.8	--	100.0	72	25.6
10+	42.3	39.9	14.1	3.7	U	U	100.0	163	NC
Total	43.0	35.7	14.5	6.0	0.9	--	100.0	235	25.7
STERILIZED COUPLES									
< 2	54.4	29.3	11.3	4.2	0.8	--	100.0	239	24.7
2-3	43.6	29.9	19.0	7.1	0.5	--	100.0	211	25.6
4-5	50.0	28.9	15.1	4.1	1.8	--	100.0	218	24.9
6-7	39.6	35.6	17.1	7.2	0.5	U	100.0	222	26.5
8-9	42.9	32.6	15.8	8.2	0.5	U	100.0	184	26.0
10+	42.4	40.8	13.4	3.3	U	U	100.0	688	NC
Total	44.8	35.0	14.7	5.0	0.5	--	100.0	1762	25.6

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

6.3 Source of Supply of Contraception

Family planning methods and services in Maharashtra 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 methods and services are also available at a number of private hospitals and clinics and non-governmental 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, pill and condom are available through both the government and private sectors.

Information regarding sources of supply of contraceptive methods is important from the programme viewpoint for strengthening the supply side of the family welfare programme. All current users of modern methods of contraception were asked to name the source from where they obtained a contraceptive method the last time. Table 6.9 and Figure 6.4 present this information. Overall, the public sector supplied three-fourths of all modern methods used, while

Table 6.9 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, Maharashtra, 1992-93

Source of supply	Pill	Copper T/ IUD	Con-dom	Female steril-ization	Male steril-ization	All modern methods
			URBAN			
Public sector	(13.9)	38.9	8.6	62.7	(90.9)	55.2
Government/municipal hospital	(11.1)	38.9	7.1	55.6	(72.7)	48.8
Primary Health Centre	(2.8)	--	1.4	5.7	(4.5)	4.6
Sub-centre	(--)	--	--	--	(--)	--
Family planning clinic	(--)	--	--	0.3	(4.5)	0.5
Public mobile clinic	(--)	--	--	--	(--)	--
Camp	(--)	--	--	1.0	(9.1)	1.3
Government paramedic	(--)	--	--	--	(--)	--
Private medical sector	(58.3)	61.1	45.7	36.9	(9.1)	39.3
Private hospital or clinic	(8.3)	51.4	--	34.1	9.1)	30.2
Pharmacy/drugstore	(36.1)	--	44.3	--	(--)	5.5
Private doctor	(11.1)	9.7	--	2.8	(--)	3.4
Private mobile clinic	(--)	--	--	--	(--)	--
Field worker	(2.8)	--	1.4	--	(--)	0.3
Other source	(27.8)	--	45.7	0.3	(--)	5.5
Shop	(22.2)	--	37.1	--	(--)	4.3
Husband	(--)	--	4.3	--	(--)	0.4
Friend/relative	(5.6)	--	--	--	(--)	0.3
Other	(--)	--	4.3	0.3	(--)	0.6
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	36	72	70	577	44	799
			RURAL			
Public sector	*	*	(57.7)	86.7	99.0	87.8
Government/municipal hospital	*	*	(--)	38.5	29.8	35.4
Primary Health Centre	*	*	(38.5)	44.4	58.1	46.1
Sub-centre	*	*	(15.4)	--	--	1.0
Family planning clinic	*	*	(--)	0.8	1.0	0.8
Public mobile clinic	*	*	(--)	0.4	--	0.3
Camp	*	*	(--)	2.5	9.9	3.6
Government paramedic	*	*	(3.8)	--	--	0.6
Private medical sector	*	*	(26.9)	12.9	0.5	11.4
Private hospital or clinic	*	*	(3.8)	12.0	0.5	9.9
Pharmacy/drugstore	*	*	(15.4)	--	--	0.4
Private doctor	*	*	(--)	0.7	--	0.7
Private mobile clinic	*	*	(7.7)	0.2	--	0.3
Field worker	*	*	(--)	--	--	--
Other source	*	*	(15.4)	0.3	0.5	0.8
Shop	*	*	(15.4)	--	--	0.4
Husband	*	*	(--)	--	--	--
Friend/relative	*	*	(--)	--	--	--
Other	*	*	(--)	0.3	0.5	0.4
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	16	24	26	950	191	1207

Table 6.9 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, Maharashtra, 1992-93

Source of supply	Pill	Copper T/ IUD	Con-dom	Female steril-ization	Male steril-ization	All modern methods
			TOTAL			
Public sector	36.5	47.9	21.9	77.7	97.4	74.8
Government/municipal hospital	9.6	32.3	5.2	45.0	37.9	40.7
Primary Health Centre	13.5	8.3	11.5	29.8	48.1	29.6
Sub-centre	5.8	5.2	4.2	--	--	0.6
Family planning clinic	--	--	--	0.7	1.7	0.7
Public mobile clinic	--	--	--	0.3	--	0.2
Camp	--	--	--	2.0	9.8	2.6
Government paramedic	7.7	2.1	1.0	--	--	0.3
Private medical sector	42.3	51.0	40.6	22.0	2.1	22.5
Private hospital or clinic	5.8	41.7	1.0	20.4	2.1	17.9
Pharmacy/drugstore	26.9	--	36.5	--	--	2.4
Private doctor	7.7	9.4	--	1.5	--	1.8
Private mobile clinic	--	--	2.1	0.1	--	0.2
Field worker	1.9	--	1.0	--	--	0.1
Other source	21.2	1.0	37.5	0.3	0.4	2.7
Shop	17.3	--	31.3	--	--	1.9
Husband	--	--	3.1	--	--	0.1
Friend/relative	3.8	--	--	--	--	0.1
Other	--	1.0	3.1	0.3	0.4	0.5
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	52	96	96	1527	235	2006

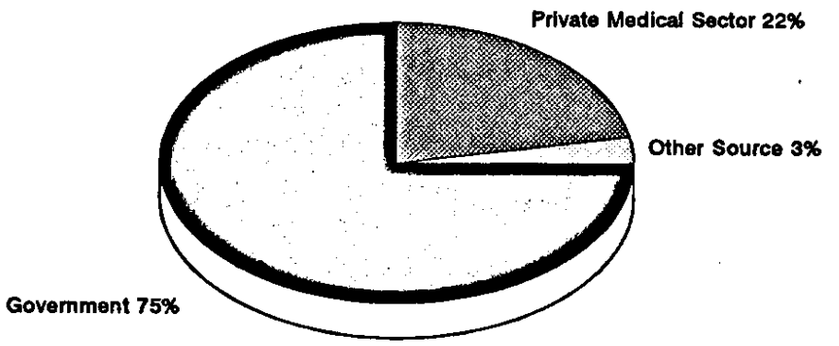
( ) Based on 25-49 cases
* Percentage not shown; based on fewer than 25 cases
-- Less than 0.05 percent

the private medical sector, including private hospitals or clinics, pharmacies, and private doctors, supplied 23 percent. About 3 percent of users obtained their methods from other sources, such as shops, husbands and friends/relatives.

The mix of public and private sector sources varies according to the method used. The public sector is by far the major source for sterilization. Seventy-eight percent of sterilized women and 97 percent of women whose husbands were sterilized reported having obtained their services from the public sector. Within the public sector, government or municipal hospitals and Primary Health Centres are the main suppliers. About 86 percent of male and 75 percent of female sterilization acceptors, 41 percent of IUD users, 23 percent of pill users and 17 percent of condom users are served by these institutions. It is important to note that acceptors of sterilization are mainly dependent on government services and this is more so in rural areas where an overwhelming majority of sterilized couples receive services from the public sector.

Users of spacing methods are less dependent on the government for their supply. The private sector, on the other hand, plays a significant role in providing services to users of nonterminal methods. The dominance of the private sector is particularly evident in urban areas where it provided services to over 86 percent of pill users, 61 percent of IUD users and 91 percent of condom users.

Figure 6.4
Sources of Family Planning Among Current Users of Modern Contraceptive Methods



NFHS, Maharashtra, 1992-93

6.4 Reasons for Discontinuation

All currently married, nonpregnant ever users of contraception who were not using any method at the time of the survey were asked why they had discontinued the use of contraception. Their responses to this question are presented in Table 6.10. About 35 percent of past users stated that they had discontinued the use of contraception because of their desire to have a child. Another 30 percent stated that they had discontinued use because of health problems. About 8 percent had discontinued use because of a method failure, inconvenience, dislike of a method or difficulty in getting a method. With a little motivation and improvement in services, these women may be successfully brought under the programme again.

6.5 Intention to Use Family Planning in the Future

All currently married women (pregnant and nonpregnant) who were not using contraception at the time of the survey were asked about their future intentions regarding the use of contraception and their method preference if they intended to use. The answers to these questions have direct relevance for policy formulation and programme implementation. This information may help family planning programme administrators to identify groups of potential users and the types of contraception that are likely to appeal to them.

Overall, two-thirds of currently married women who have never used contraception say that they do not intend to use contraception in the future, while 30 percent of the women say that they would use it in the future (Table 6.11). There are very few women (4 percent) who are

Table 6.10 Reasons for discontinuation

Percent distribution of nonpregnant, currently married ever users who are not currently using a contraceptive method by main reason for stopping use and residence, Maharashtra, 1992-93

Reason for stopping use	Urban	Rural	Total
Method failed/got pregnant	1.1	2.0	1.4
Lack of sexual satisfaction	1.1	4.0	2.2
Created menstrual problem	5.6	2.0	4.3
Created health problem	34.8	20.0	29.5
Inconvenient to use	2.2	6.0	3.6
Hard to get method	--	4.0	1.4
Put on weight	1.1	--	0.7
Did not like the method	2.2	--	1.4
Wanted to have a child	29.2	44.0	34.5
Lack of privacy for use	1.1	--	0.7
Other	20.2	18.0	19.4
Don't know/missing	1.1	--	0.7
Total percent	100.0	100.0	100.0
Number	89	50	139

-- Less than 0.05 percent

not sure of their intentions. More than half of the intended users say that they would use contraception within the next 12 months, 4 out of 10 say that they would use it at a later stage, and three percent are not sure when they would start using contraception. A similar pattern is observed for all currently married nonusers. Among women who have used contraception in the past (but are currently not using), half say that they would use contraception in the future.

Table 6.11 also shows the relationship between intentions for future use and the number of living children. The proportion of women who intend to use family planning in the future increases gradually with an increase in the number of living children, for the most part. For example, while only 11 percent of women with no living children express an intention to use contraception in the future, this percentage increases to 31 for women with one living child, 38 for women with 2 living children and 42 for women with 3 living children. The proportion declines slightly to 35 percent for women with 4 or more living children. This pattern is more or less the same in urban and rural Maharashtra.

6.6 Reasons for Nonuse of Contraception

Currently married women who said that they did not intend to use contraception at any time in the future were asked for the main reason for their intention not to use in the future. Information about the reasons for nonuse is crucial for designing successful information programmes and for understanding the obstacles to further increase in contraceptive prevalence. Reasons for not intending to use any method are indicated in Table 6.12. The largest proportion of women (52 percent) say that they do not intend to use contraception because they want more children. This reason is given by three-quarters of women less than 30 years of age. Even among women in the older cohort, age 30 and over, 13 percent give the same reason. About a quarter of all currently married women who are not using any method do not intend to use in

Table 6.11 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, Maharashtra, 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	2.5	17.8	17.6	21.5	22.2	16.5
Intends to use later	10.8	14.4	11.8	12.1	6.5	11.6
Intends to use, unsure when	--	1.0	1.0	0.9	--	0.7
Unsure as to intention	5.0	5.0	2.9	3.7	--	3.5
Does not intend to use	78.3	54.0	42.6	42.1	55.6	53.3
Missing	--	1.0	0.5	--	--	0.4
Previously used contraception						
Intends to use in next 12 months	--	2.0	7.8	6.5	4.6	4.3
Intends to use later	0.8	2.0	2.9	1.9	--	1.8
Intends to use, unsure when	--	--	0.5	--	--	0.1
Unsure as to intention	--	0.5	1.5	0.9	0.9	0.8
Does not intend to use	2.5	2.5	10.8	10.3	10.2	7.0
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	2.5	19.8	25.5	28.0	26.9	20.8
Intends to use later	11.7	16.3	14.7	14.0	6.5	13.4
Intends to use, unsure when	--	1.0	1.5	0.9	--	0.8
Unsure as to intention	5.0	5.4	4.4	4.7	0.9	4.3
Does not intend to use	80.8	56.4	53.4	52.3	65.7	60.3
Missing	--	1.0	0.5	--	--	0.4
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	120	202	204	107	108	741
RURAL						
Never used contraception						
Intends to use in next 12 months	1.6	9.2	15.9	22.6	21.6	13.4
Intends to use later	7.5	15.2	12.6	11.0	6.8	11.2
Intends to use, unsure when	--	0.7	1.3	1.9	1.2	1.0
Unsure as to intention	3.2	5.7	2.1	1.9	2.5	3.3
Does not intend to use	85.6	65.2	59.4	54.2	57.4	64.7
Missing	1.1	--	--	--	--	0.2
Previously used contraception						
Intends to use in next 12 months	--	0.7	2.5	3.9	3.7	2.0
Intends to use later	--	0.7	2.1	0.6	1.9	1.1
Intends to use, unsure when	--	--	0.8	0.6	0.6	0.4
Unsure as to intention	--	--	--	--	--	--
Does not intend to use	1.1	2.5	3.3	3.2	4.3	2.8
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	1.6	9.9	18.4	26.5	25.3	15.3
Intends to use later	7.5	16.0	14.6	11.6	8.6	12.3
Intends to use, unsure when	--	0.7	2.1	2.6	1.9	1.4
Unsure as to intention	3.2	5.7	2.1	1.9	2.5	3.3
Does not intend to use	86.6	67.7	62.8	57.4	61.7	67.5
Missing	1.1	--	--	--	--	0.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	187	282	239	155	162	1025

Table 6.11 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, Maharashtra, 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	2.0	12.8	16.7	22.1	21.9	14.7
Intends to use later	8.8	14.9	12.2	11.5	6.7	11.4
Intends to use, unsure when	--	0.8	1.1	1.5	0.7	0.8
Unsure as to intention	3.9	5.4	2.5	2.7	1.5	3.4
Does not intend to use	82.7	60.5	51.7	49.2	56.7	59.9
Missing	0.7	0.4	0.2	--	--	0.3
Previously used contraception						
Intends to use in next 12 months	--	1.2	5.0	5.0	4.1	2.9
Intends to use later	0.3	1.2	2.5	1.1	1.1	1.4
Intends to use, unsure when	--	--	0.7	0.4	0.4	0.3
Unsure as to intention	--	0.2	0.7	0.4	0.4	0.3
Does not intend to use	1.6	2.5	6.8	6.1	6.7	4.6
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	2.0	14.0	21.7	27.1	25.9	17.6
Intends to use later	9.1	16.1	14.7	12.6	7.8	12.7
Intends to use, unsure when	--	0.8	1.8	1.9	1.1	1.1
Unsure as to intention	3.9	5.6	3.2	3.1	1.9	3.7
Does not intend to use	84.4	63.0	58.5	55.3	63.3	64.5
Missing	0.7	0.4	0.2	--	--	0.3
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	307	484	443	262	270	1766

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

the future because of their difficulty in getting pregnant (12 percent), because they believe they are menopausal (10 percent) and because of other health reasons (3 percent). About 8 percent stated that using contraception is either against their religion, or that they themselves, their husbands, or other people opposed its use, while another 13 percent of women said that they do not intend to use family planning because of a lack of knowledge (including being afraid of sterilization), their fear of side effects (including not being able to work after sterilization), the difficulty in obtaining methods, inconvenience associated with use, and dislike of existing methods. Therefore, there is still substantial scope for the family planning programme in Maharashtra to increase contraceptive use through providing contraceptive information and expanding the choice of methods available to all women and especially rural women.

6.7 Preferred Future Method of Family Planning

Women who stated that they intended to use a method of family planning in the future were asked to specify the method they would prefer to use. As shown in Table 6.13, the majority of intended future users prefer female sterilization (68 percent), followed by the pill (14 percent), IUD (7 percent) or condom (5 percent). There are noticeable differences in the

Table 6.12 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, Maharashtra, 1992-93

Reason	Urban			Rural			Total		
	Age < 30	Age 30+	Total	Age < 30	Age 30+	Total	Age < 30	Age 30+	Total
Wants children	59.8	10.8	36.5	57.0	10.2	43.1	57.9	10.5	40.5
Wants a son	10.3	1.9	6.3	15.2	3.4	11.7	13.6	2.6	9.6
Wants a daughter	3.8	--	2.0	3.1	0.5	2.3	3.3	0.2	2.2
Worry about side effects	3.4	2.3	2.9	1.9	2.9	2.2	2.4	2.6	2.5
Can't work after sterilization	0.4	--	0.2	1.0	0.5	0.9	0.8	0.2	0.6
Lack of knowledge	1.3	--	0.7	2.5	2.9	2.6	2.1	1.4	1.8
Afraid of sterilization	1.3	1.9	1.6	1.6	4.4	2.5	1.5	3.1	2.1
Hard to get methods	--	--	--	--	0.5	0.1	--	0.2	0.1
Against religion	3.0	1.9	2.5	1.6	3.4	2.2	2.1	2.6	2.3
Opposed to family planning	0.4	1.4	0.9	1.2	1.9	1.4	1.0	1.7	1.2
Husband opposed	4.7	1.9	3.4	2.7	2.4	2.6	3.3	2.1	2.9
Other people opposed	0.9	1.4	1.1	1.6	0.5	1.3	1.4	1.0	1.2
Difficult to get pregnant	3.0	32.9	17.2	2.3	24.3	8.8	2.5	28.6	12.1
Menopausal/had hysterectomy	--	27.2	13.0	--	24.3	7.2	--	25.8	9.5
Health does not permit	1.3	6.6	3.8	0.8	8.3	3.0	1.0	7.4	3.3
Inconvenient	--	2.8	1.3	0.2	--	0.1	0.1	1.4	0.6
Doesn't like existing methods	4.7	3.3	4.0	6.2	7.3	6.5	5.7	5.3	5.5
Other	1.7	3.8	2.7	1.0	2.4	1.4	1.3	3.1	1.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	234	213	447	486	206	692	720	419	1139

-- Less than 0.05 percent

choice of method between those who intend to use in the next 12 months and those who intend to use later. Although female sterilization is the most popular method among both these groups, a sizeable proportion of women who stated that they intended to use a method within the next 12 months, also prefer spacing methods, especially the pill. The preferred future methods are generally similar in both rural and urban areas, although it is interesting to note that a larger percentage of rural women intend to use the pill.

The contraceptive method mix that intended future users say they would prefer is different from the methods selected by current users. Modern spacing methods like the pill, IUD and condom are being used by only 12 percent of current users (see Table 6.4), but 26 percent of intended future users report that they would like to use these methods. These results indicate that the potential demand for spacing methods, particularly for the pill and IUD, is very high in Maharashtra, and hence there is a need to give greater importance to spacing methods in the family planning programme.

Table 6.13 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, Maharashtra, 1992-93

Preferred method	Timing of intended use: Next 12 months	Timing of intended use: Later	All women
	URBAN		
Pill	18.2	6.1	13.0
Copper T/IUD	12.3	2.0	8.8
Injection	--	--	--
Condom	8.4	3.0	6.1
Female sterilization	56.5	80.8	65.5
Male sterilization	0.6	--	0.4
Periodic abstinence	0.6	1.0	0.8
Other	1.9	3.0	2.3
Unsure	1.3	4.0	3.1
Total percent	100.0	100.0	100.0
Number	154	99	261
	RURAL		
Pill	26.1	2.4	15.2
Copper T/IUD	7.6	2.4	5.1
Injection	0.6	--	0.3
Condom	3.8	1.6	3.4
Female sterilization	56.7	88.9	70.7
Male sterilization	1.3	--	0.7
Periodic abstinence	0.6	0.8	0.7
Other	0.6	--	0.7
Unsure	2.5	4.0	3.4
Total percent	100.0	100.0	100.0
Number	157	126	297
	TOTAL		
Pill	22.2	4.0	14.2
Copper T/IUD	10.0	2.2	6.8
Injection	0.3	--	0.2
Condom	6.1	2.2	4.7
Female sterilization	56.6	85.3	68.3
Male sterilization	1.0	--	0.5
Periodic abstinence	0.6	0.9	0.7
Other	1.3	1.3	1.4
Unsure	1.9	4.0	3.2
Total percent	100.0	100.0	100.0
Number	311	225	558

Note: The "all women" column includes 20 women who are unsure about timing of intended use and 2 women with missing information on timing of intended use, who are not shown separately.
-- Less than 0.05 percent

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 understand the role played by the mass media in educating the people on family planning, the NFHS asked all ever-married women whether they had heard any family planning messages on radio and/or television in the past month. Table 6.14 shows women's exposure to family planning messages in the media by selected background characteristics. The electronic mass media is fairly effective in disseminating information on family planning to potential couples in Maharashtra. More than half of all respondents had heard family planning messages on either the radio or television or both in the month preceding the survey. This is quite expected since 30 percent of households in Maharashtra own televisions and 43 percent own radios (see Table 3.9). One in ten women had heard a family planning message only on the radio and one in 15 had heard it only on television. However, one in three (35 percent) had heard a message on both the radio and television.

Table 6.14 Exposure to family planning messages on radio and television

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

Background characteristic	Heard family planning message on radio or television				Total percent	Number
	Neither	Radio only	Television only	Both		
Age						
13-19	59.5	11.7	6.1	22.7	100.0	427
20-29	47.5	10.5	6.8	35.2	100.0	1638
30-39	46.2	9.9	7.0	36.8	100.0	1252
40-49	48.3	9.8	6.3	35.6	100.0	789
Residence						
Urban	29.9	4.2	11.1	54.8	100.0	1699
Rural	61.7	14.6	3.7	20.1	100.0	2407
Education						
Illiterate	68.2	11.8	4.4	15.6	100.0	2060
Lit., < middle complete	38.0	10.4	9.0	42.6	100.0	1113
Middle school complete	23.9	10.7	10.4	55.0	100.0	327
High school and above	14.2	4.8	8.6	72.4	100.0	606
Religion						
Hindu	50.5	10.9	6.2	32.4	100.0	3138
Muslim	42.0	7.2	8.3	42.6	100.0	517
Buddhist	48.7	12.2	8.9	30.3		304
Other	28.6	4.8	7.5	59.2	100.0	147
Caste/tribe						
Scheduled caste	52.9	14.4	6.8	25.9	100.0	263
Scheduled tribe	67.9	12.3	3.8	15.9	100.0	390
Other	46.0	9.8	7.0	37.2	100.0	3453
Use of contraception						
Ever use	44.8	10.2	6.7	38.3	100.0	2315
Never use	53.3	10.4	6.8	29.5	100.0	1791
Total	48.5	10.3	6.7	34.5	100.0	4106

Urban-rural differentials in media coverage are substantial. The percentage of women exposed to family planning messages on radio, television or both is 70 and 38 in the urban and rural areas, respectively. One in two women in urban areas had heard a message on both radio and television as compared with one in five in rural areas. Television is relatively more prominent in disseminating family planning messages in urban areas and radio is more prominent in rural areas.

Educational differentials in media coverage are also quite substantial. Educated women are more likely to have heard a family planning message on radio or television than illiterate women. Only one-third (32 percent) of illiterate women reported having heard a family planning message on radio, television or both, compared with more than four-fifths (86 percent) of women with at least a high school education. The proportion having heard a message on both the radio and television increases sharply from 16 percent for illiterate women to 72 percent for women with at least a high school education.

Religious differentials in the extent of exposure to the media are also noticeable. The extent of exposure to family planning messages on either the radio, television or both, is lowest for Hindus (50 percent) and highest for other religious group (71 percent). The level of exposure to family planning messages is slightly higher for Muslims than for Hindus. Ever users of contraception are more likely to have heard a message on family planning on the radio, television or both, than never users of contraception.

6.9 Acceptability of Family Planning Messages on Radio and Television

All women, irrespective of whether they had heard a family planning message on the radio or television, were also asked whether they thought it acceptable for family planning messages to be provided on radio or television. Overall, a majority of women (77 percent) reported that it was acceptable to use the radio or television for family planning information dissemination (Table 6.15). Acceptability of the radio or television as a source of information is relatively lower among women below 20 years, rural women and illiterate women. Women belonging to scheduled tribes are also less likely than other women to accept family planning messages from the mass media. While the data reveal the existence of a high degree of acceptability of mass media as a source of information on family planning among women in Maharashtra, 13 percent of women still say that such messages are unacceptable to them, while a significant minority (10 percent) are unsure of their opinions.

6.10 Discussion of Family Planning Among Couples

Among nonsterilized couples, all currently married women who knew a contraceptive method were asked how often they talked with their husbands about family planning in the past year. Table 6.16 indicates that 40 percent of the respondents had never discussed family planning with their husbands in the past year. Forty-six percent had discussed it once or twice and 13 percent more often. Women age 25-34 were more likely to discuss family planning with their husbands than younger or older women. Over 70 percent of women age 25-34 discussed family planning with their husbands at least once.

Table 6.15 Acceptability of media messages on family planning

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

Background characteristic	Acceptability of media messages: Acceptable	Not acceptable	Unsure	Total percent	Number of women
Age					
13-14	(59.3)	(18.5)	(22.2)	100.0	27
15-19	71.2	16.7	12.0	100.0	400
20-24	79.5	13.0	7.4	100.0	874
25-29	81.5	8.9	9.6	100.0	764
30-34	75.4	14.3	10.3	100.0	642
35-39	78.9	11.0	10.2	100.0	610
40-44	76.5	16.3	7.2	100.0	442
45-49	73.5	15.0	11.5	100.0	347
Residence					
Urban	83.6	11.1	5.2	100.0	1699
Rural	73.0	14.5	12.6	100.0	2407
Education					
Illiterate	68.0	16.8	15.2	100.0	2060
Lit., < middle complete	83.1	10.7	6.2	100.0	1113
Middle school complete	92.0	6.1	1.8	100.0	327
High school and above	90.9	8.4	0.7	100.0	606
Religion					
Hindu	77.4	12.9	9.7	100.0	3138
Muslim	75.4	14.7	9.9	100.0	517
Buddhist	81.6	9.9	8.6		304
Other	74.1	17.7	8.2	100.0	147
Caste/tribe					
Scheduled caste	74.9	13.3	11.8	100.0	263
Scheduled tribe	67.4	16.4	16.2	100.0	390
Other	78.7	12.7	8.6	100.0	3453
Total	77.4	13.1	9.5	100.0	4106

() Based on 25-49 cases

The extent to which family planning is discussed between couples also varies by residence, women's education and ever use of contraception. Sixty-nine percent of urban women discuss it with their husbands compared with 52 percent of rural women. Both the women's education and her husband's education are positively associated with the extent of interspousal communication. Women who have ever used contraception are the most likely of all the subgroups to have discussed family planning with their husbands (84 percent).

The proportion of Hindus, Muslims and Buddhists who never discuss family planning with their husbands is not very different (38 to 42 percent). However, women belonging to other religious groups are much more likely to have discussed family planning with their husbands than these three main religious groups (70 percent). Women belonging to scheduled castes and tribes are less likely to have discussed family planning with their husbands than others.

Table 6.16 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, Maharashtra, 1992-93

Background characteristic	Number of times family planning discussed				Total percent	Number of women
	Never	Once or twice	More often	Missing		
Age						
15-19	46.0	45.4	8.6	--	100.0	339
20-24	37.2	49.7	13.1	--	100.0	662
25-29	27.7	54.3	18.0	--	100.0	372
30-34	30.5	52.3	16.8	0.5	100.0	220
35-39	46.4	42.1	11.4	--	100.0	140
40-44	62.8	24.8	11.6	0.8	100.0	121
45-49	67.7	22.2	10.1	1.0	100.0	99
Residence						
Urban	31.2	52.1	16.6	0.1	100.0	939
Rural	48.4	41.2	10.3	0.2	100.0	1034
Respondent's education						
Illiterate	53.3	38.1	8.3	0.4	100.0	835
Lit., < middle complete	39.2	49.2	11.6	--	100.0	526
Middle school complete	25.6	55.7	18.7	--	100.0	203
High school and above	22.0	55.0	23.0	--	100.0	409
Religion						
Hindu	41.6	45.1	13.1	0.2	100.0	1407
Muslim	38.1	47.8	14.2	--	100.0	339
Buddhist	37.7	51.4	11.0	--		146
Other	29.6	53.1	17.3	--	100.0	81
Caste/tribe						
Scheduled caste	50.9	36.1	12.0	0.9	100.0	108
Scheduled tribe	54.7	38.4	7.0	--	100.0	172
Other	38.0	47.8	14.0	0.1	100.0	1693
Use of contraception						
Ever used	16.2	59.4	24.5	--	100.0	458
Never used	47.5	42.4	9.9	0.2	100.0	1515
Husband's education						
Illiterate	54.0	36.2	9.5	0.2	100.0	420
Lit., <primary complete	54.2	36.3	9.2	0.4	100.0	251
Primary school complete	44.8	45.1	9.7	0.3	100.0	339
Middle school complete	34.7	50.6	14.8	--	100.0	271
High school complete	29.7	56.6	13.7	--	100.0	431
Above high school	21.2	52.9	25.9	--	100.0	255
Total	40.2	46.4	13.3	0.2	100.0	1973

Note: Table excludes women who are sterilized or whose husbands have been sterilized. Total includes 20 women age 13-14 and 6 women with missing information on husband's education, who are not shown separately.
-- Less than 0.05 percent

6.11 Attitudes of Couples Toward Family Planning

A woman's attitude towards family planning is an important indicator of her future use of contraception. Moreover, a woman's perception of her husband's attitude is also important since this perception may affect her own decisions. In the NFHS, information on attitudes

toward family planning was obtained from all currently married nonsterilized women, by asking women whether they and their husbands approved or disapproved of couples using contraception to delay or avoid pregnancy. Table 6.17 presents the degree of consensus between women and their husbands.

About 76 percent of currently married, nonsterilized women who knew of a contraceptive method approve the use of contraception and 23 percent disapprove. There exists a high degree of consensus between wives and husbands regarding the approval of family planning. About 58 percent of female respondents reported that both they and their husbands approve of family planning and 15 percent said that they both disapprove. The latter group may pose a challenge for the family planning programme since they are unlikely to accept family planning unless their attitudes change dramatically.

Approval of family planning is relatively lower among very young women (age below 19) and older women (above age 34). Rural women (70 percent) are less likely to approve of family planning than urban women (83 percent). The approval of family planning by both husband and wife is also relatively higher in urban areas (67 percent) than in rural areas (50 percent). Women living in urban areas are somewhat more likely to know their husband's attitude than their rural counterparts, consistent with the higher level of interspousal communication about family planning in urban areas.

Education is an important determinant of the approval of family planning for both the woman and her husband. Ninety-three percent of women who had completed high school approve of family planning. The corresponding percentage among illiterate women is only 65. Approval by both husband and wife is lowest (43 percent) among illiterate women. A similar pattern of relationship is also observed with the level of husband's education. The proportion of women who reported that both they and their husbands approve of family planning increases from 38 percent for women with illiterate husbands to 85 percent for women whose husbands had more than a high school education.

The approval of family planning by both the husband and wife is positively associated with the number of times family planning was discussed between them in the past year. The percentage of women who reported that both they and their husbands approve of family planning is 28 for those who had never discussed family planning, 77 for those who had discussed the topic once or twice and 82 for those who had more frequent discussions about family planning.

Religion does not appear to be an important factor influencing the approval of family planning. The approval by both husband and wife does not differ much among the Hindus, Muslims and Buddhists, but it is highest among the other religious group (73 percent). Approval is lower among women belonging to scheduled tribes than among other caste groups. Women who had ever used contraception are more likely to approve of family planning than women who had never used contraception.

Table 6.17 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, Maharashtra, 1992-93

Background characteristic	Respondent approves			Respondent disapproves			Respondent unsure	Total percent	Number of women
	Husband approves	Husband disapproves	Husband's attitude unknown[1]	Husband approves	Husband disapproves	Husband's attitude unknown[1]			
Respondent's age									
15-19	49.3	12.4	10.0	2.4	16.5	9.1	0.3	100.0	339
20-24	61.0	10.4	7.4	2.7	13.4	4.4	0.6	100.0	662
25-29	67.5	12.9	3.5	3.2	11.0	1.6	0.3	100.0	372
30-34	60.0	12.7	4.1	2.7	17.3	2.3	0.9	100.0	220
35-39	52.9	14.3	4.3	3.6	20.0	4.3	0.7	100.0	140
40-44	50.4	12.4	5.0	1.7	19.8	9.9	0.8	100.0	121
45-49	47.5	11.1	5.1	4.0	23.2	7.1	2.0	100.0	99
Residence									
Urban	66.8	10.8	5.3	2.3	11.1	3.1	0.6	100.0	939
Rural	49.7	12.9	7.6	3.2	19.3	6.6	0.7	100.0	1034
Respondent's education									
Illiterate	42.9	14.3	8.0	4.0	21.8	8.0	1.1	100.0	835
Lit., < middle complete	55.5	14.4	6.8	2.3	16.3	4.0	0.6	100.0	526
Middle school complete	73.4	7.9	5.4	2.5	8.4	2.5	--	100.0	203
High school and above	83.6	5.6	3.7	1.2	4.6	1.0	0.2	100.0	409
Religion									
Hindu	57.9	11.4	6.8	3.2	15.2	5.0	0.6	100.0	1407
Muslim	54.0	15.0	6.5	1.5	16.8	5.3	0.9	100.0	339
Buddhist	58.2	13.0	6.8	1.4	14.4	4.8	1.4	100.0	146
Other	72.8	3.7	2.5	3.7	14.8	2.5	--	100.0	81
Caste/tribe									
Scheduled caste	54.6	14.8	5.6	0.9	15.7	7.4	0.9	100.0	108
Scheduled tribe	43.6	14.5	9.3	8.7	18.0	5.2	0.6	100.0	172
Other	59.5	11.4	6.3	2.3	15.1	4.7	0.6	100.0	1693
Use of contraception									
Ever used	87.6	6.1	1.7	1.7	2.6	--	0.2	100.0	458
Never used	48.8	13.6	8.0	3.1	19.3	6.4	0.8	100.0	1515
Family planning discussed with husband in last year									
Never	27.5	15.1	14.1	3.3	28.1	11.2	0.6	100.0	793
Once or twice	77.3	9.9	1.4	2.7	7.7	0.4	0.5	100.0	915
More often	82.4	8.8	1.1	1.5	4.2	1.5	0.4	100.0	262
Husband's education									
Illiterate	38.3	16.2	9.8	4.5	21.4	8.6	1.2	100.0	420
Lit., <primary complete	49.0	12.7	9.2	3.2	21.1	4.4	0.4	100.0	251
Primary school complete	50.7	14.2	6.5	2.4	18.0	7.4	0.9	100.0	339
Middle school complete	61.6	12.2	5.2	1.1	16.6	3.0	0.4	100.0	271
High school complete	69.1	10.0	4.4	3.2	9.3	3.5	0.5	100.0	431
Above high school	84.7	3.9	3.5	1.2	5.9	0.4	0.4	100.0	255
Total	57.8	11.9	6.5	2.8	15.4	4.9	0.7	100.0	1973

Note: Table excludes women who are sterilized or whose husbands are sterilized. Total includes 20 women age 13-14, 6 women with missing information on husband's education and 3 women with missing information on number of times family planning discussed with husband, who are not shown separately.
-- Less than 0.05 percent
[1]Respondent does not know her husband's attitude

CHAPTER 7

FERTILITY PREFERENCES

In recent years, increasing attention is being paid to research in fertility preferences particularly in developing countries. Information on fertility preferences may have a periodic value in forecasting the future course of fertility, provided the stated fertility preferences of a woman are related in some way to her eventual fertility. Knowledge about fertility preferences also enables one to assess the unmet need for family planning services. In the NFHS, an attempt is made to assess the fertility preferences by asking a series of questions to the respondents about their desire for additional children. These questions dealt with (1) whether the woman wanted another child, (2) if so, how soon she would like to have her next child, and (3) how many children she would want in her lifetime if she could start over again. In addition, several questions were asked to ascertain the extent of sex preference. Information was collected on the preferred sex of the next child and the ideal number of children by sex. Responses to these questions are analysed in this chapter.

Interpretation of data on fertility preferences has always been the subject of controversy. Survey questions have been criticized on the grounds that answers may be misleading for a number of reasons. First, 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 pressures or the attitudes of the husband and other family members, who may have a major influence on reproductive decisions. In addition, preferences for limiting family size can only be implemented if a woman has the means to fulfil her desires. Nevertheless, in the aggregate, data on fertility preferences can be useful as an indicator of general attitudes and the possible future course of fertility.

7.1 Desire for More Children

In the NFHS, currently married women were asked, "Would you like to have another child or would you prefer not to have any more children?" Women who did not yet have any children were asked whether or not they wanted to have any children. If a women was pregnant, she was asked whether or not she wanted another child after the one she was expecting. Women who want another child were then asked about the preferred timing and sex of their next child.

Table 7.1 shows the percent distribution of currently married women by desire for an additional child (including categories indicating preferred timing) and, for those women who desire another child, their percent distribution by preferred sex of the next child. Overall, only 28 percent of currently married women want to have another child at some time in the future and 49 percent of these women would like to wait at least two years before having the next child. Only 12 percent of all currently married women would like to have another child soon, that is, within two years. Less than one percent of the women state that this matter is " up to God". Around one-fifth of all the women want no more children and 46 percent of women (or their husbands) are sterilized, so that they cannot have any more children. These two groups together form 67 percent of the currently married women in Maharashtra (see Figure 7.1).

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, Maharashtra, 1992-93

Desire for children	Number of living children[1] 0	1	2	3	4	5	6+	Total
URBAN								
Desire for additional child								
Have another soon[2]	57.4	18.5	6.2	4.2	2.7	--	--	11.0
Have another later[3]	11.6	43.6	12.6	5.6	3.1	--	1.2	13.9
Have another, undecided when	10.1	2.4	0.7	0.3	--	--	1.2	1.6
Undecided	1.6	4.9	1.5	0.6	0.4	1.1	1.2	1.7
Up to God	0.8	1.0	1.0	0.6	0.9	--	1.2	0.8
Want no more	0.8	22.0	48.5	23.4	19.3	23.9	37.8	28.0
Sterilized	0.8	2.8	28.8	63.0	72.2	75.0	51.2	39.5
Declared infecund	16.3	4.9	0.7	2.5	1.3	--	6.1	3.5
Missing	0.8	--	--	--	--	--	--	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	129	287	406	359	223	88	82	1574
Preferred sex of additional child								
Boy	19.8	26.1	56.4	(63.9)	*	NC	*	35.7
Girl	3.0	15.2	14.1	(16.7)	*	NC	*	11.6
Doesn't matter	51.5	47.8	19.2	(13.9)	*	NC	*	38.6
Up to God	25.7	10.9	10.3	(5.6)	*	NC	*	14.0
Total percent	100.0	100.0	100.0	100.0	100.0	NC	100.0	100.0
Number wanting more	101	184	78	36	13	0	2	414
RURAL								
Desire for additional child								
Have another soon[2]	46.1	25.2	13.4	4.7	2.0	1.9	0.8	12.2
Have another later[3]	7.3	46.2	16.2	6.2	3.1	2.5	0.8	13.2
Have another, undecided when	14.1	6.3	1.9	0.7	--	0.6	0.8	2.8
Undecided	2.6	0.3	1.1	1.0	0.3	--	1.6	0.9
Up to God	3.1	0.6	0.2	0.3	--	0.6	--	0.5
Want no more	1.6	6.6	22.2	13.4	15.0	16.7	37.8	15.1
Sterilized	0.5	8.1	43.1	72.3	78.5	76.5	53.5	50.8
Declared infecund	24.6	6.6	1.9	1.5	1.1	1.2	4.7	4.4
Missing	--	--	--	--	--	--	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	191	333	464	613	354	162	127	2244
Preferred sex of additional child								
Boy	27.1	39.4	66.2	83.1	*	*	*	49.3
Girl	2.3	11.2	13.1	9.9	*	*	*	9.8
Doesn't matter	57.4	40.9	16.6	7.0	*	*	*	33.3
Up to God	13.2	8.5	4.1	--	*	*	*	7.6
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number wanting more	129	259	145	71	18	8	3	633

In this chapter, it is assumed that women who are sterilized (or whose husbands are sterilized) do not want any more children. It is possible that some women may regret that they or their husbands have accepted sterilization and may want another child. In the NFHS, women who are sterilized (or whose husbands are sterilized) were asked a question on whether they regret sterilization and, if so, the reasons for their regret. The analysis of this information (which is not shown in the table) indicates that only about four percent (or 77 women out of 1,783 sterilized couples) have regretted that the sterilization was performed. This does not,

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, Maharashtra, 1992-93

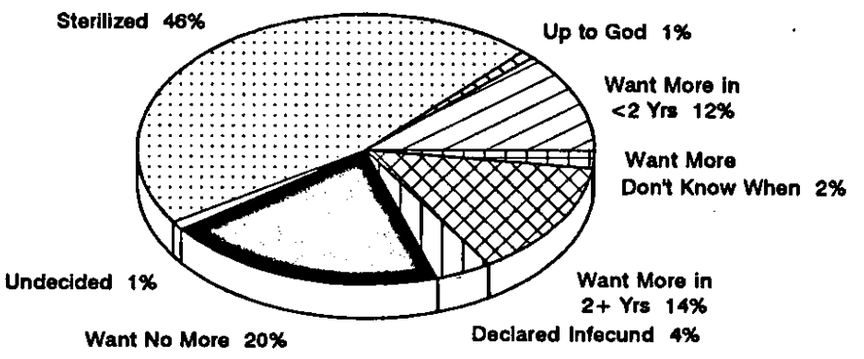
Desire for children	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
	TOTAL							
Desire for additional child								
Have another soon[2]	50.6	22.1	10.0	4.5	2.3	1.2	0.5	11.7
Have another later[3]	9.1	45.0	14.5	6.0	3.1	1.6	1.0	13.5
Have another, undecided when	12.5	4.5	1.4	0.5	--	0.4	1.0	2.3
Undecided	2.2	2.4	1.3	0.8	0.3	0.4	1.4	1.2
Up to God	2.2	0.8	0.6	0.4	0.3	0.4	0.5	0.7
Want no more	1.3	13.7	34.5	17.1	16.6	19.2	37.8	20.4
Sterilized	0.6	5.6	36.4	68.8	76.1	76.0	52.6	46.1
Declared infecund	21.2	5.8	1.4	1.9	1.2	0.8	5.3	4.0
Missing	0.3	--	--	--	--	--	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	320	620	870	972	577	250	209	3818
Preferred sex of additional child								
Boy	23.9	33.9	62.8	76.6	(87.1)	*	*	43.9
Girl	2.6	12.9	13.5	12.1	(9.7)	*	*	10.5
Doesn't matter	54.8	43.8	17.5	9.3	(--)	*	*	35.4
Up to God	18.7	9.5	6.3	1.9	(3.2)	*	*	10.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number wanting more	230	443	223	107	31	8	5	1047

NC: Not computed because there are no cases on which to base a percentage
( ) Based on 25-49 cases
* Percentage not shown; based on fewer than 25 cases
-- Less than 0.05 percent
[1]Includes current pregnancy, if any
[2]Wants next birth within 2 years
[3]Wants to delay next birth for 2 or more years

however, mean that those who regret the sterilization would like to have more children since they may regret the sterilization for some other reason (such as side effects of the operation or medical complications). Overall, 27 women (35 percent of all those regretting sterilization) state that they regret sterilization because they or their husbands want to have another child. Therefore, the assumption that women who are sterilized (or whose husbands are sterilized) do not want any more children will only slightly underestimate preferences to have another child and overestimate desires to stop childbearing.

Table 7.1 also shows that the percentage of women not wanting any more children is higher in urban areas (28 percent) than in rural areas (15 percent). The percentage of women sterilized (or whose husbands are sterilized) is, however, higher in rural areas (51 percent) than in urban areas (40 percent). The urban and rural areas do not differ much in the percentages of women who want to delay their next birth by two or more years (14 percent in urban and 13 percent in rural areas). The desire to limit family size does not differ much between urban and rural areas; 68 and 66 percent of currently married women in urban and rural areas, respectively, do not want any more children (including sterilized couples).

Figure 7.1
Fertility Preferences Among Currently Married Women Age 13-49

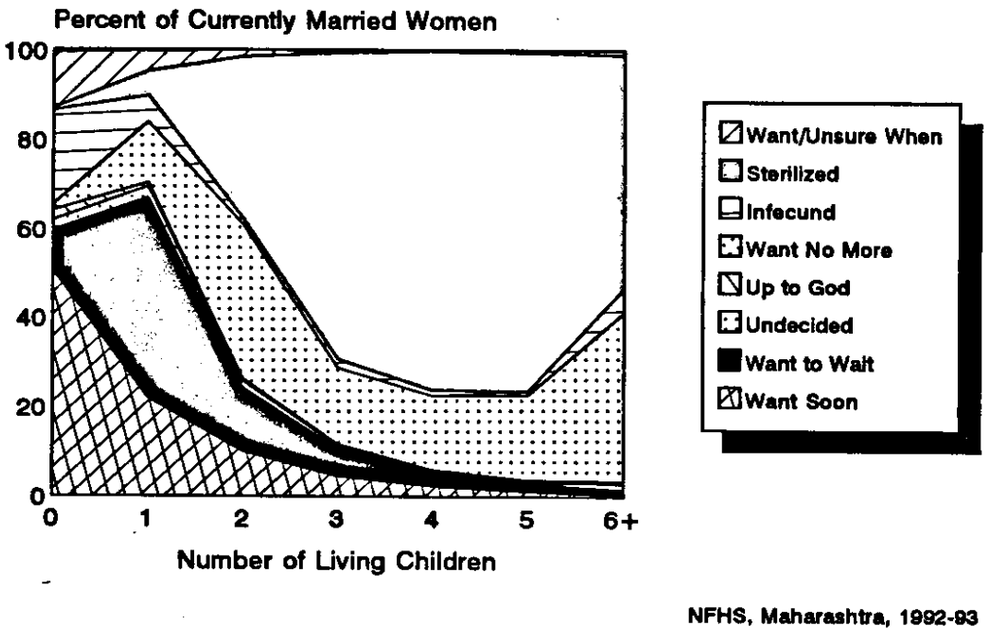


NFHS, Maharashtra, 1992-93

As expected, the desire for an additional child declines rapidly as the number of living children increases (Figure 7.2). More than 72 percent of women with no living children want to have a child and 51 percent want the child within two years. Among the women with two living children the proportion desiring another child drops to 26 percent and for those with four living children, it further declines to 5 percent. The desire to have a child within two years drops even more rapidly from 51 percent for women without any living child to 10 percent or less for women with two or more living children. It should be noted that the desire for spacing children is very strong among women with one living child (45 percent want the next child after two or more years). This percentage goes down for women with two living children (15 percent want to delay the next child for two or more years), as 71 percent of them want no more children or are sterilized.

Among women who want an additional child, there is a strong preference for having a son as the next child. Nearly 44 percent of women desire to have a son as the next child whereas only 11 percent desire to have a daughter as the next child. However, 45 percent of women desiring an additional child indicate no preference; 35 percent say it does not matter whether the child is a boy or a girl, and another 10 percent say that it is up to God. Preference for sons is particularly strong in rural areas where 49 percent of women want a son as compared with urban areas where 36 percent want a son. Women who do not have any living children are more likely to desire a son (24 percent) than a daughter (only 3 percent).

Figure 7.2
Fertility Preferences by Number of Living Children



NFHS, Maharashtra, 1992-93

The pattern of fertility preferences by age, shown in Table 7.2, is similar to the pattern of fertility preferences by number of living children in Table 7.1. The desire to stop having children increases with age, and the desire to space births decreases with age. Thirty-nine percent of women age 15-19 and 30 percent of women age 20-24 want to space their next child. From age 30 onwards the percentages of women wanting another child soon and wanting to space their next birth decline rapidly, as an overwhelming majority of them either do not want any more children or are sterilized.

After assessing the extent of desire for more children, it is worthwhile to examine the characteristics of women who do not want any more children, since it would help in identifying the sections of society which are in need of family planning services. Table 7.3 provides information on women who desire to limit family size by selected background characteristics. As mentioned earlier, women who are sterilized (or whose husbands are sterilized) are included among those who want no more children. The differentials by residence and age have already been discussed. The relationship between educational attainment and desire to have no more children tends to be irregular at most family sizes. At parity 4 and above, 100 percent of women with at least a high school education do not want any more children. The corresponding percentage at parity two and three is more than 90 percent. Thus the data suggest that a two-child family is especially preferred by the more educated women. At parities 1-3, Muslims and scheduled tribe women are less likely than other groups to want to stop childbearing.

Table 7.2 Fertility preferences by age

Percent distribution of currently married women by desire for children and preferred sex of additional child, according to age and residence, Maharashtra, 1992-93

Desire for children	Current age							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
URBAN								
Desire for additional child								
Have another soon[1]	22.2	27.2	11.5	4.9	3.1	1.5	--	11.0
Have another later[2]	54.4	32.1	15.3	3.4	0.8	0.5	--	13.9
Have another/undecided when	4.4	4.0	1.7	0.4	0.4	--	--	1.6
Undecided	2.2	3.2	1.7	2.3	0.8	0.5	--	1.7
Up to God	2.2	0.9	1.0	1.1	0.8	--	--	0.8
Want no more	10.0	20.9	37.6	37.5	22.2	27.9	31.0	28.0
Sterilized	2.2	10.6	29.3	49.2	68.5	61.4	56.3	39.5
Declared infecund	2.2	1.1	1.7	1.1	3.5	7.6	12.7	3.5
Missing	--	--	--	--	--	0.5	--	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	90	349	287	264	257	197	126	1574
Preferred sex of additional child								
Boy	28.8	39.0	34.1	*	*	*	NC	35.7
Girl	8.2	11.5	13.4	*	*	*	NC	11.6
Doesn't matter	43.8	36.7	40.2	*	*	*	NC	38.6
Up to God	19.2	12.8	12.2	*	*	*	NC	14.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	NC	100.0
Number wanting more	73	218	82	23	11	4	0	414
RURAL								
Desire for additional child								
Have another soon[1]	32.8	19.9	10.3	4.1	2.6	--	--	12.2
Have another later[2]	34.5	29.2	9.1	2.4	0.7	--	--	13.2
Have another/undecided when	10.8	2.9	1.9	0.6	1.3	0.5	--	2.8
Undecided	2.4	1.0	0.7	0.3	0.3	1.1	0.6	0.9
Up to God	1.0	0.8	0.2	0.6	0.3	--	0.6	0.5
Want no more	8.4	18.5	16.8	15.7	14.5	14.5	14.9	15.1
Sterilized	5.1	25.7	58.6	72.8	76.6	75.1	72.0	50.8
Declared infecund	5.1	2.1	2.3	3.6	3.6	8.8	12.0	4.4
Missing	--	--	--	--	--	--	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	296	487	428	338	304	193	175	2244
Preferred sex of additional child								
Boy	43.5	50.2	56.0	*	*	*	NC	49.3
Girl	6.5	13.8	13.2	*	*	*	NC	9.8
Doesn't matter	40.0	31.6	23.1	*	*	*	NC	33.3
Up to God	10.0	4.3	7.7	*	*	*	NC	7.6
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	NC	100.0
Number wanting more	230	253	91	24	14	1	0	633

Table 7.3 also shows that the desire to stop childbearing increases with the number of living sons and also with the number of living daughters. However, within each parity the desire to stop childbearing is generally stronger in families with more boys than girls. For example, among women with exactly three living children, 93 percent want to stop if the children are all sons, but only 31 percent want to stop if the children are all daughters. Of

Table 7.2 Fertility preferences by age (Contd.)

Percent distribution of currently married women by desire for children and preferred sex of additional child, according to age and residence, Maharashtra, 1992-93

Desire for children	Current age							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
	TOTAL							
Desire for additional child								
Have another soon[1]	30.3	23.0	10.8	4.5	2.9	0.8	--	11.7
Have another later[2]	39.1	30.4	11.6	2.8	0.7	0.3	--	13.5
Have another/undecided when	9.3	3.3	1.8	0.5	0.9	0.3	--	2.3
Undecided	2.3	1.9	1.1	1.2	0.5	0.8	0.3	1.2
Up to God	1.3	0.8	0.6	0.8	0.5	--	0.3	0.7
Want no more	8.8	19.5	25.2	25.2	18.0	21.3	21.6	20.4
Sterilized	4.4	19.4	46.9	62.5	72.9	68.2	65.4	46.1
Declared infecund	4.4	1.7	2.1	2.5	3.6	8.2	12.3	4.0
Missing	--	--	--	--	--	0.3	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	386	836	715	602	561	390	301	3818
Preferred sex of additional child								
Boy	39.9	45.0	45.7	(51.7)	(52.0)	*	NC	43.9
Girl	6.9	12.7	13.3	(8.5)	(--)	*	NC	10.5
Doesn't matter	40.9	34.0	31.2	(25.5)	(36.0)	*	NC	35.4
Up to God	12.2	8.3	9.8	(14.9)	(12.0)	*	NC	10.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	NC	100.0
Number wanting more	303	471	173	47	25	5	0	1047

Note: Total includes 23 women age 13-14, who are not shown separately.
NC: Not computed because there are no cases on which to base a percentage
( ) Based on 25-49 cases
* Percentage not shown; based on fewer than 25 cases
-- Less than 0.05 percent
[1]Wants next birth within 2 years
[2]Wants to delay next birth for 2 or more years

course, as expected, this differential becomes smaller as the total number of living children increases.

7.2 Need for Family Planning Services

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 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 7.4 shows the unmet need, met need and total demand for family planning, according to whether there is a need for spacing or limiting births. The table also contains detailed definitions of these concepts.

It is observed that 14 percent of the currently married women who have no desire for additional children within the next two years are not using any method of family planning. These women are defined as having an unmet need for family planning services. There is no

Table 7.3 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, Maharashtra, 1992-93

Background characteristic	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
Age								
13-19	0.7	2.9	34.6	*	*	NC	NC	12.3
20-29	0.8	13.2	61.1	77.5	84.5	(87.5)	(73.3)	54.2
30-39	(9.3)	63.5	93.0	93.4	95.9	95.6	95.5	89.3
40-49	*	(53.2)	94.1	92.3	95.9	98.9	88.6	88.4
Residence								
Urban	1.6	24.7	77.3	86.4	91.5	98.9	89.0	67.4
Rural	2.1	14.7	65.3	85.6	93.5	93.2	91.3	65.9
Education								
Illiterate	1.4	18.1	59.7	81.9	91.4	94.4	89.2	67.8
Lit., < middle complete	3.2	13.9	67.0	89.6	95.3	95.9	93.3	66.6
Middle school complete	--	14.9	76.4	88.0	87.5	100.0	100.0	59.4
High school and above	1.9	28.3	90.1	93.5	100.0	100.0	100.0	66.2
Religion								
Hindu	2.0	19.5	73.0	88.0	94.1	96.2	90.2	67.7
Muslim	(2.4)	13.1	44.9	65.6	82.8	(91.7)	89.7	60.1
Buddhist	*	16.4	63.3	86.4	(97.7)	*	*	63.3
Other	*	(33.3)	(88.6)	(91.4)	*	*	*	69.5
Caste/tribe								
Scheduled caste	*	(10.5)	(64.3)	86.1	(89.5)	*	*	65.7
Scheduled tribe	(--)	16.4	54.8	75.9	95.2	(86.8)	*	62.6
Other	2.2	20.3	73.1	86.8	92.6	96.9	90.8	67.1
Number of living sons[2]								
None	1.9	15.5	37.6	30.5	(72.0)	*	*	17.4
1	NA	26.8	79.2	84.6	90.0	91.7	(83.9)	70.3
2	NA	NA	81.7	95.1	96.4	98.8	90.7	92.2
3+	NA	NA	NA	92.6	96.4	97.7	(93.1)	94.8
Number of living daughters[2]								
None	1.9	26.8	81.7	92.6	(96.2)	*	*	43.8
1	NA	15.5	79.2	95.1	96.5	*	*	74.8
2	NA	NA	37.6	84.6	96.4	98.2	(90.0)	81.0
3+	NA	NA	NA	30.5	87.6	95.4	(90.7)	84.5
Total	1.9	21.7	73.1	87.4	93.4	96.2	91.2	68.5

Note: Women who have been sterilized, or whose husbands have been sterilized, are considered to want no more children.
NA: Not applicable
NC: Not computed because there are no cases on which to base a percentage
( ) Based on 25-49 cases
* Percentage not shown; based on fewer than 25 cases
-- Less than 0.05 percent
[1]Includes current pregnancy, if any
[2]Excludes pregnant women

Table 7.4 Need for family planning services

Percent of currently married women with unmet need, met need, and total demand for family planning services by selected background characteristics, Maharashtra, 1992-93

Background characteristic	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	
Age										
13-14	(11.1)	(14.8)	(25.9)	(--)	(--)	(--)	(11.1)	(14.8)	(25.9)	(--)
15-19	21.8	6.2	28.0	3.4	5.7	9.1	25.1	11.9	37.0	24.5
20-24	16.3	6.2	22.5	7.3	22.2	29.5	23.6	28.5	52.0	56.8
25-29	6.3	8.8	15.1	4.6	54.5	59.2	10.9	63.3	74.3	79.7
30-34	1.2	9.8	11.0	1.5	70.9	72.4	2.7	80.7	83.4	86.9
35-39	0.4	5.7	6.1	0.4	76.5	76.8	0.7	82.2	82.9	92.7
40-44	0.3	6.2	6.4	--	71.0	71.0	0.3	77.2	77.4	91.7
45-49	--	1.0	1.0	--	67.4	67.4	--	68.4	68.4	98.5
Residence										
Urban	7.1	8.2	15.3	4.7	48.2	52.9	11.8	56.4	68.2	77.6
Rural	7.4	5.9	13.3	2.0	52.4	54.3	9.4	58.2	67.6	80.4
Education										
Illiterate	6.1	5.8	11.8	1.0	53.1	54.1	7.1	58.9	66.0	82.0
Lit., <middle complete	7.9	7.2	15.0	2.2	50.9	53.2	10.1	58.1	68.2	78.0
Middle school complete	13.7	8.9	22.7	5.4	39.9	45.4	19.2	48.9	68.1	66.7
High school and above	6.8	8.5	15.2	10.0	48.1	58.0	16.8	56.5	73.3	79.2
Religion										
Hindu	6.9	5.8	12.7	2.9	53.6	56.6	9.8	59.5	69.3	81.7
Muslim	10.8	13.1	23.8	3.2	32.9	36.1	13.9	46.0	59.9	60.2
Buddhist	8.0	5.8	13.8	2.9	49.1	52.0	10.9	54.9	65.8	79.0
Other	2.8	8.5	11.3	6.4	51.8	58.2	9.2	60.3	69.5	83.7
Caste/tribe										
Scheduled caste	11.0	4.2	15.3	2.1	53.0	55.1	13.1	57.2	70.3	78.3
Scheduled tribe	4.9	7.9	12.8	1.4	47.8	49.2	6.3	55.7	62.0	79.4
Other	7.3	6.9	14.2	3.4	50.8	54.2	10.6	57.7	68.4	79.2
Number of living children										
None	9.2	7.0	16.1	2.4	0.7	3.1	11.6	7.7	19.3	16.2
1	18.9	3.4	22.3	11.7	11.1	22.8	30.7	14.4	45.1	50.6
2	9.0	9.2	18.1	2.9	47.3	50.3	11.9	56.5	68.4	73.5
3	4.0	5.7	9.7	1.2	73.7	74.8	5.2	79.3	84.5	88.5
4	1.6	5.4	7.0	0.4	80.9	81.3	2.0	86.2	88.2	92.1
5	0.8	7.0	7.9	--	81.4	81.4	0.8	88.4	89.3	91.2
6+	1.0	16.0	17.0	--	55.3	55.3	1.0	71.4	72.3	76.5
Total	7.3	6.8	14.1	3.1	50.7	53.7	10.4	57.5	67.9	79.2

() Based on 25-49 cases
-- Less than 0.05 percent
[1] *Unmet need for spacing* includes pregnant women whose pregnancy was mistimed, amenorrhoeic women whose last birth was mistimed, and women who are neither pregnant nor amenorrhoeic and who are not using any method of family planning and who say they want to wait 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.

difference between the unmet need for spacing and for limiting (7 percent each). Together with the 54 percent of currently married women who are using contraception, a total of 68 percent of currently married women have a demand for family planning. If all the women who say they want to space or limit their births were to use family planning, the contraceptive prevalence rate would increase from 54 percent to 68 percent of currently married women. This means that 79 percent of the demand for family planning is being met by current programme, as seen in the last column of Table 7.4. However, only 30 percent of the demand for spacing compared to 88 percent of the demand for limiting is satisfied through the current programme.

The unmet need for family planning generally decreases with age. It is highest (28 percent) among women age 15-19 and only one percent among women age 45-49. The unmet need for limiting the family size is highest at age 30-34 (10 percent) but the unmet need for spacing is highest at age 15-19 (22 percent). This clearly indicates that at younger ages, currently married women in the state want to space the next birth, and most of their needs are not satisfied. The percent of need satisfied increases with age, once again suggesting that the needs of younger women, who want to space their next birth, are not being satisfied by the current programme. Thus the findings of the present study clearly bring out the need for promoting spacing methods in the family planning programme.

The unmet need for family planning and the percentage of need that is satisfied do not vary substantially by place of residence, education or caste/tribe. Muslim women have a greater unmet need than women belonging to other religious groups, and the percentage of need satisfied by the current programme is the lowest among Muslim women. Differentials in the unmet need and the percentage of need satisfied by number of living children are similar to the differentials by age. The unmet need is greater among women with less than three living children and their contraceptive needs are least satisfied by the current programme.

7.3 Ideal Number of Children

The preceding analysis of fertility preferences dealt with a woman's desired number of children, implicitly taking into account the number of children that she already has. In this section, however, fertility preference in terms of *ideal* number of children is analyzed. In determining ideal number of children, each woman in the NFHS was asked to perform a difficult abstract task of stating the number of children she would like to have if she could start all over again. Women with no children were asked, "If you could choose exactly the number of children to have in your whole life, how many would that be?" Women who already had children were asked, "If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?" A few women had difficulty in answering these hypothetical questions and the questions often had to be repeated to ensure that they were understood by the respondents. Nevertheless, as shown in Table 7.5, 96 percent of the respondents were able to give a numerical response. The percentage who gave non-numerical responses (such as "up to God", "How can I say? It depends", etc.,) is higher among rural women, and women with no living children or with 6 or more living children.

Table 7.5 presents the distribution of ever-married women by their ideal number of children and actual family size. In Maharashtra, the ideal number of children falls within a very

Table 7.5 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, Maharashtra, 1992-93

Ideal number of children	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
URBAN								
None	--	--	--	--	--	--	--	--
1	19.5	24.8	13.4	7.4	3.8	1.0	1.1	12.0
2	54.5	62.9	65.6	41.1	41.8	37.8	26.1	51.7
3	14.3	8.4	15.0	42.2	26.8	34.7	28.4	23.2
4	2.6	1.6	2.5	5.6	21.3	9.2	22.7	7.1
5	1.9	--	0.5	1.3	2.1	11.2	1.1	1.6
6+	1.3	0.6	0.5	1.1	1.7	--	10.2	1.4
Non-numeric responses	5.8	1.6	2.5	1.3	2.5	6.1	10.2	3.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	154	310	433	377	239	98	88	1699
Mean ideal number[2]								
Ever-married women	2.1	1.9	2.1	2.6	2.8	2.9	3.4	2.4
Currently married women	2.1	1.9	2.1	2.6	2.8	2.9	3.4	2.4
RURAL								
None	0.8	--	--	--	0.3	--	--	0.1
1	6.4	7.4	1.4	2.0	2.2	1.2	2.3	3.2
2	48.3	59.7	59.2	34.0	34.7	26.3	17.4	43.2
3	21.6	22.3	30.8	51.7	31.4	42.7	31.1	35.1
4	7.6	5.0	5.7	9.7	24.8	12.9	22.7	11.2
5	0.8	--	0.8	0.3	2.8	12.3	4.5	1.9
6+	--	--	0.2	0.6	0.6	--	9.1	0.8
Non-numeric responses	14.4	5.6	1.8	1.6	3.3	4.7	12.9	4.6
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	236	377	490	638	363	171	132	2407
Mean ideal number[2]								
Ever-married women	2.4	2.3	2.4	2.7	2.9	3.1	3.5	2.7
Currently married women	2.4	2.3	2.4	2.7	2.9	3.1	3.5	2.7
TOTAL								
None	0.5	--	--	--	0.2	--	--	0.1
1	11.5	15.3	7.0	4.0	2.8	1.1	1.8	6.8
2	50.8	61.1	62.2	36.7	37.5	30.5	20.9	46.7
3	18.7	16.0	23.4	48.2	29.6	39.8	30.0	30.2
4	5.6	3.5	4.2	8.2	23.4	11.5	22.7	9.5
5	1.3	--	0.7	0.7	2.5	11.9	3.2	1.8
6+	0.5	0.3	0.3	0.8	1.0	--	9.5	1.0
Non-numeric responses	11.0	3.8	2.2	1.5	3.0	5.2	11.8	3.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	390	687	923	1015	602	269	220	4106
Mean ideal number[2]								
Ever-married women	2.3	2.1	2.3	2.7	2.9	3.0	3.5	2.5
Currently married women	2.3	2.1	2.3	2.7	2.9	3.0	3.4	2.5

-- Less than 0.05 percent
[1]Includes current pregnancy, if any
[2]Means are calculated excluding the women giving non-numeric responses

difference between the unmet need for spacing and for limiting (7 percent each). Together with the 54 percent of currently married women who are using contraception, a total of 68 percent of currently married women have a demand for family planning. If all the women who say they want to space or limit their births were to use family planning, the contraceptive prevalence rate would increase from 54 percent to 68 percent of currently married women. This means that 79 percent of the demand for family planning is being met by current programme, as seen in the last column of Table 7.4. However, only 30 percent of the demand for spacing compared to 88 percent of the demand for limiting is satisfied through the current programme.

The unmet need for family planning generally decreases with age. It is highest (28 percent) among women age 15-19 and only one percent among women age 45-49. The unmet need for limiting the family size is highest at age 30-34 (10 percent) but the unmet need for spacing is highest at age 15-19 (22 percent). This clearly indicates that at younger ages, currently married women in the state want to space the next birth, and most of their needs are not satisfied. The percent of need satisfied increases with age, once again suggesting that the needs of younger women, who want to space their next birth, are not being satisfied by the current programme. Thus the findings of the present study clearly bring out the need for promoting spacing methods in the family planning programme.

The unmet need for family planning and the percentage of need that is satisfied do not vary substantially by place of residence, education or caste/tribe. Muslim women have a greater unmet need than women belonging to other religious groups, and the percentage of need satisfied by the current programme is the lowest among Muslim women. Differentials in the unmet need and the percentage of need satisfied by number of living children are similar to the differentials by age. The unmet need is greater among women with less than three living children and their contraceptive needs are least satisfied by the current programme.

7.3 Ideal Number of Children

The preceding analysis of fertility preferences dealt with a woman's desired number of children, implicitly taking into account the number of children that she already has. In this section, however, fertility preference in terms of *ideal* number of children is analyzed. In determining ideal number of children, each woman in the NFHS was asked to perform a difficult abstract task of stating the number of children she would like to have if she could start all over again. Women with no children were asked, "If you could choose exactly the number of children to have in your whole life, how many would that be?" Women who already had children were asked, "If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?" A few women had difficulty in answering these hypothetical questions and the questions often had to be repeated to ensure that they were understood by the respondents. Nevertheless, as shown in Table 7.5, 96 percent of the respondents were able to give a numerical response. The percentage who gave non-numerical responses (such as "up to God", "How can I say? It depends", etc.,) is higher among rural women, and women with no living children or with 6 or more living children.

Table 7.5 presents the distribution of ever-married women by their ideal number of children and actual family size. In Maharashtra, the ideal number of children falls within a very

Table 7.5 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, Maharashtra, 1992-93

Ideal number of children	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
URBAN								
None	--	--	--	--	--	--	--	--
1	19.5	24.8	13.4	7.4	3.8	1.0	1.1	12.0
2	54.5	62.9	65.6	41.1	41.8	37.8	26.1	51.7
3	14.3	8.4	15.0	42.2	26.8	34.7	28.4	23.2
4	2.6	1.6	2.5	5.6	21.3	9.2	22.7	7.1
5	1.9	--	0.5	1.3	2.1	11.2	1.1	1.6
6+	1.3	0.6	0.5	1.1	1.7	--	10.2	1.4
Non-numeric responses	5.8	1.6	2.5	1.3	2.5	6.1	10.2	3.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	154	310	433	377	239	98	88	1699
Mean ideal number[2]								
Ever-married women	2.1	1.9	2.1	2.6	2.8	2.9	3.4	2.4
Currently married women	2.1	1.9	2.1	2.6	2.8	2.9	3.4	2.4
RURAL								
None	0.8	--	--	--	0.3	--	--	0.1
1	6.4	7.4	1.4	2.0	2.2	1.2	2.3	3.2
2	48.3	59.7	59.2	34.0	34.7	26.3	17.4	43.2
3	21.6	22.3	30.8	51.7	31.4	42.7	31.1	35.1
4	7.6	5.0	5.7	9.7	24.8	12.9	22.7	11.2
5	0.8	--	0.8	0.3	2.8	12.3	4.5	1.9
6+	--	--	0.2	0.6	0.6	--	9.1	0.8
Non-numeric responses	14.4	5.6	1.8	1.6	3.3	4.7	12.9	4.6
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	236	377	490	638	363	171	132	2407
Mean ideal number[2]								
Ever-married women	2.4	2.3	2.4	2.7	2.9	3.1	3.5	2.7
Currently married women	2.4	2.3	2.4	2.7	2.9	3.1	3.5	2.7
TOTAL								
None	0.5	--	--	--	0.2	--	--	0.1
1	11.5	15.3	7.0	4.0	2.8	1.1	1.8	6.8
2	50.8	61.1	62.2	36.7	37.5	30.5	20.9	46.7
3	18.7	16.0	23.4	48.2	29.6	39.8	30.0	30.2
4	5.6	3.5	4.2	8.2	23.4	11.5	22.7	9.5
5	1.3	--	0.7	0.7	2.5	11.9	3.2	1.8
6+	0.5	0.3	0.3	0.8	1.0	--	9.5	1.0
Non-numeric responses	11.0	3.8	2.2	1.5	3.0	5.2	11.8	3.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	390	687	923	1015	602	269	220	4106
Mean ideal number[2]								
Ever-married women	2.3	2.1	2.3	2.7	2.9	3.0	3.5	2.5
Currently married women	2.3	2.1	2.3	2.7	2.9	3.0	3.4	2.5

-- Less than 0.05 percent
[1]Includes current pregnancy, if any
[2]Means are calculated excluding the women giving non-numeric responses

narrow range of 2 to 3 children for a large majority of women (77 percent). Seven percent of women say one child is ideal and 10 percent say 4 is ideal. Among those who gave numeric responses, the average number of children considered ideal is 2.5.

According to the National Fertility and Mortality Survey (Srikantan and Bhate, 1989) conducted in Maharashtra in 1980, the number of children considered ideal by the respondents was 3.2. Thus in the course of 12-13 years, there has been a decline of 0.7 child in the mean ideal number of children. The mass media seems to have played a great role in forming the concept of what should be the ideal number of children. In the beginning of the 80s, the family planning propaganda popularized the slogan "two or three that's enough" and during the late 80s and early 90s, the slogan changed to "we two our two" or "one or two" or "one couple one child". In Maharashtra the ideal of a "two-child family" is getting internalized.

The study of ideal family size is sometimes criticized on the grounds that women tend to adjust their ideal family size upward as the number of children increases, by way of rationalization. It is argued that the question on ideal family size prompts many women to supply the actual number of children they already have as their ideal family size. However, it is evident from Table 7.5 that a large proportion of women in Maharashtra express an ideal number of children which is smaller than the number of living children they already have. For example, among women who have 4 living children, 70 percent have expressed less than 4 children as an ideal number of children. Similarly, 83 percent of the women with five living children state that their ideal number of children is fewer than five children. It is, however, noticed that the women with high parity do tend to state a higher number as an ideal number of children. Barring women with no living child (who will not necessarily state their ideal number of children as zero), the mean ideal number of children increases with the increase in the number of living children. For example, the average ideal number of children for ever-married women with 2 living children is 2.3, and for women with 3, 4 ,5 and 6+ living children, the average ideal number of children is 2.7, 2.9, 3.0 and 3.5, respectively. A similar pattern is observed in both urban and rural areas. The mean ideal number of children does not differ much between urban and rural areas, the mean being 2.4 in urban areas and 2.7 in rural areas. While 12 percent of the urban women say one child is ideal, this percentage among rural women is only 3. Seven percent of urban women consider 4 children as ideal, while 11 percent of rural women think so.

Table 7.6 provides information on mean ideal number of children for ever-married women by age and selected background characteristics. The mean ideal number of children varies little by age, caste/tribe, or work status of the woman. However, a strong negative relationship exists between the mean ideal number of children and the educational level of women. The mean ideal number steadily decreases from 2.8 children for illiterate women to 1.9 children for women with at least a high school education. Similar variations in mean ideal number of children are observed with respect to the husband's education. Religious differentials are not much, although the mean ideal number for Muslims is slightly higher (3.1 children) than that for Hindus (2.5 children).

A strong preference for sons is prevalent in Indian society, and hence it is interesting to study the extent of son preference in Maharashtra. Women who gave a numerical response to

Table 7.6 Ideal number of children by background characteristics

Mean ideal number of children for ever-married women by age and selected background characteristics, Maharashtra, 1992-93

Background characteristic	Current age							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Residence								
Urban	2.4	2.3	2.3	2.3	2.4	2.6	2.5	2.4
Rural	2.5	2.5	2.6	2.7	2.8	2.7	3.0	2.7
Education								
Illiterate	2.7	2.7	2.7	2.9	2.9	2.9	3.0	2.8
Lit., < middle complete	2.4	2.4	2.5	2.5	2.5	2.4	2.6	2.5
Middle school complete	(2.3)	2.2	(2.4)	(2.1)	(2.3)	(2.3)	*	2.2
High school and above	(2.0)	1.9	1.9	2.0	2.0	2.0	(2.1)	1.9
Religion								
Hindu	2.4	2.4	2.4	2.5	2.5	2.6	2.7	2.5
Muslim	(3.1)	2.8	3.2	3.0	3.2	3.2	(3.4)	3.1
Buddhist	(2.5)	(2.2)	(2.4)	(2.7)	2.6	2.6	(3.3)	2.6
Other	*	(2.3)	(1.9)	(2.1)	(2.4)	(2.3)	*	2.2
Caste/tribe								
Scheduled caste	(2.4)	(2.4)	(2.6)	(2.5)	(2.7)	(3.0)	*	2.6
Scheduled tribe	(2.6)	2.7	2.7	2.9	3.0	(2.8)	3.1	2.8
Other	2.5	2.4	2.4	2.5	2.6	2.6	2.7	2.5
Work status								
Not working	2.5	2.4	2.4	2.4	2.5	2.6	2.6	2.5
Working in family farm/business	2.5	2.6	2.6	2.7	2.6	3.0	2.9	2.7
Employed by someone else	2.5	2.6	2.4	2.6	2.7	2.5	2.9	2.6
Self employed	*	(2.3)	(2.6)	(2.2)	(2.6)	*	*	2.5
Husband's education								
Illiterate	2.6	2.8	2.7	3.0	2.9	2.9	3.1	2.8
Lit., < primary complete	2.6	2.6	2.5	2.7	2.9	2.8	2.8	2.7
Primary school complete	2.5	2.4	2.6	2.6	2.6	2.8	3.0	2.6
Middle school complete	2.3	2.3	2.4	2.4	2.5	(2.6)	*	2.4
High school complete	2.4	2.3	2.3	2.3	2.4	2.2	2.3	2.3
Above high school	*	2.0	1.9	2.1	2.0	(2.2)	(2.1)	2.0
Total	2.5	2.4	2.5	2.5	2.6	2.6	2.8	2.5

Note: Total includes 27 women age 13-14 and 10 women with missing information on husband's education, who are not shown separately.
() Based on 25-49 cases
* Mean not shown; ,based on fewer than 25 cases

the question about the ideal number of children were also asked how many of these children they would like to be boys and how many they would like to be girls. Table 7.7 reveals that most women in Maharashtra consider one son and one daughter to be ideal. Overall, the mean ideal family size consists of 1.3 sons and 0.9 daughters. Son preference is more visible in rural areas where the difference between ideal number of sons and daughters is half a child (1.5 sons and 1.0 daughters). The ideal number of sons and daughters does not vary much by the number of sons and daughters a woman already has.

Table 7.7 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 the living children, according to residence, Maharashtra, 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	0.8	0.6	0.6	1.2	0.9	0.4	1.0	0.8	0.5
1 child	0.8	0.6	0.5	1.2	0.8	0.2	1.0	0.7	0.4
1 son	0.8	0.6	0.5	1.2	0.7	0.3	1.0	0.6	0.4
No sons	0.7	0.7	0.5	1.3	1.0	0.1	1.0	0.8	0.3
2 children	0.9	0.7	0.5	1.4	0.9	0.2	1.2	0.8	0.3
2 sons	1.1	0.6	0.5	1.5	0.7	0.2	1.3	0.7	0.3
1 son	0.9	0.7	0.5	1.3	1.0	0.1	1.1	0.9	0.3
No sons	0.8	0.8	0.5	1.3	1.1	0.2	1.1	1.0	0.3
3 children	1.3	0.9	0.4	1.6	1.0	0.2	1.5	1.0	0.3
3 sons	(1.4)	(0.6)	(0.5)	1.8	0.8	0.2	1.7	0.8	0.3
2 sons	1.3	0.9	0.4	1.6	1.0	0.2	1.5	0.9	0.2
1 son	1.1	1.0	0.4	1.5	1.2	0.2	1.3	1.1	0.3
No sons	(1.4)	(1.2)	(0.4)	(1.3)	(1.1)	(0.1)	1.4	1.1	0.2
4+ children	1.5	1.1	0.3	1.8	1.2	0.1	1.6	1.2	0.2
2 or more sons	1.6	1.1	0.3	1.9	1.2	0.1	1.7	1.2	0.2
1 son	1.3	1.1	0.2	1.5	1.2	0.1	1.4	1.2	0.2
No sons	*	*	*	(1.5)	(1.1)	(0.1)	(1.3)	(1.0)	(0.3)
Total	1.1	0.8	0.4	1.5	1.0	0.2	1.3	0.9	0.3

Note: Table excludes women who gave non-numeric responses to questions on the ideal number of sons and daughters.
() Based on 25-29 cases
* Mean not shown; based on fewer than 25 cases

7.4 Fertility Planning

Another way to study the extent of unwanted fertility is to focus on recent births. Women were asked whether each pregnancy that resulted in a live birth during the four years preceding the survey was wanted at that time (planned), wanted at a later time (mistimed), or not wanted at all (unwanted). A woman may retrospectively declare an unplanned birth as one that was wanted at the time. Thus, rationalization of some unplanned births as planned may result in underestimation of unplanned childbearing. Nevertheless, these questions provide a potentially useful indicator of the degree to which couples successfully control childbearing.

Table 7.8 shows that slightly less than one-quarter of all births in the four years before the survey (including current pregnancies) were not wanted at the time the woman became pregnant. Seven percent of the births were unwanted and 15 percent were mistimed. Differentials in fertility planning by residence, education, religion, and caste/tribe are not substantial. The differentials are apparent by birth order and by mother's age at the time of the birth. First births are most likely to be wanted then, second and third order births are most likely to be mistimed, and fourth and higher order births are especially likely to be unwanted. One-fifth of the births to women age 30 and over are reported as unwanted, and little less than one-fifth of births to women below age 25 are mistimed.

Table 7.8 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, Maharashtra, 1992-93

Background characteristic	Planning status of pregnancy[1]				Total percent	Number of births
	Wanted then	Wanted later	Wanted no more	Missing		
Residence						
Urban	77.2	15.4	7.2	0.2	100.0	931
Rural	77.5	14.7	7.1	0.7	100.0	1458
Education						
Illiterate	80.7	10.9	7.7	0.8	100.0	1174
Lit., < middle complete	72.5	19.0	8.1	0.5	100.0	654
Middle school complete	72.2	21.9	5.9	--	100.0	237
High school and above	79.3	16.7	4.0	--	100.0	324
Religion						
Hindu	78.2	14.3	6.9	0.6	100.0	1726
Muslim	73.4	18.0	8.3	0.2	100.0	433
Buddhist	79.3	14.8	5.9	--	100.0	169
Other	77.0	14.8	8.2	--	100.0	61
Caste/tribe						
Scheduled caste	71.6	19.1	7.4	1.9	100.0	162
Scheduled tribe	78.3	11.8	9.5	0.4	100.0	263
Other	77.7	15.1	6.8	0.4	100.0	1964
Birth order[1]						
1	88.0	11.5	0.5	--	100.0	732
2	76.8	20.9	1.7	0.6	100.0	650
3	73.8	16.1	9.5	0.6	100.0	465
4+	67.0	11.6	20.5	0.9	100.0	542
Mother's age at birth						
13-14	(85.0)	(15.0)	(--)	(--)	100.0	40
15-19	80.1	18.2	1.5	0.3	100.0	727
20-24	75.9	17.2	6.4	0.5	100.0	985
25-29	79.5	8.7	10.8	0.9	100.0	425
30-34	70.8	8.1	21.1	--	100.0	161
35-39	(73.7)	(2.6)	(21.1)	(2.6)	100.0	38
Total	77.4	15.0	7.1	0.5	100.0	2389

Note: Total includes 13 births to women age 40-44 at the time birth, which are not shown separately.
( ) Based on 25-49 cases
-- Less than 0.05 percent
[1]Includes current pregnancy, if any

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 are 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

prevention of all unwanted births.

Table 7.9 shows the total wanted fertility rates and total fertility rates for the three years preceding the survey by selected background characteristics. The wanted TFR for the state as a whole is 2.13 compared with the actual TFR of 2.86. Thus, on the average 0.73 children, or about 26 percent of children, are unwanted. The percentage of unwanted births is 24 and 27 in urban and rural areas, respectively. The difference between the wanted TFR and the actual TFR is the smallest (17 percent) for the women who have completed high school and largest (29 percent) for women who have completed middle school. The wanted TFR is lower than the actual TFR by 28 percent among Muslims, and by 25 percent among Hindus. The differences between the wanted TFR and the actual TFR for scheduled caste, schedules tribe and other women are 32, 27 and 25 percent, respectively, with the wanted TFR being lower than the actual TFR.

Table 7.9 Wanted fertility rates

Total wanted fertility rates and total fertility rates for the three years preceding the survey, by selected background characteristics, Maharashtra, 1992-93

Background characteristic	Total wanted fertility rate	Total fertility rate
Residence		
Urban	1.94	2.54
Rural	2.29	3.12
Education		
Illiterate	2.59	3.47
Literate, < middle complete	2.22	3.00
Middle school complete	1.76	2.47
High school and above	1.72	2.08
Religion		
Hindu	2.01	2.69
Muslim	2.98	4.11
Buddhist	2.39	3.14
Other	1.38	1.65
Caste/tribe		
Scheduled caste	2.08	3.04
Scheduled tribe	2.37	3.24
Other	2.10	2.80
Total	2.13	2.86

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.

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. The mortality estimates are also useful for projecting the future size of the population. More detailed information on the mortality of children can be used to identify sectors of the population which are at high risk and in need of health services.

The National Family Health Survey included two sources of information on mortality and one on morbidity. The Household Questionnaire included questions on individuals in the household suffering from blindness, tuberculosis, leprosy, physical impairment of the limbs, and malaria. The Household Questionnaire also included a question on deaths occurring in the household during the two years before the survey and the Woman's Questionnaire collected information on the survival status of all births and the age at death if the child is dead. Information from these sources forms the basis of this chapter.

8.1 Morbidity

Because demographic sample surveys generally do not include questions on the prevalence of diseases, there is a little experience with the results 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 these conditions because some survey respondents fail to report them.

It is worth noting some of the considerations that might be made in assessing the validity of these prevalence figures. 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 will be 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, local as well as national, 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 the prevalence of the five morbidity conditions among the household population by age, sex and urban-rural residence. Malaria has the highest prevalence, afflicting 37 per 1,000 population during the three months prior to the survey, followed closely by blindness (partial or complete), reported for 35 per 1,000 population. Physical impairment of limbs is less prevalent, affecting 6 per 1,000 population.

Table 8.1 Morbidity

Number of persons per 1,000 household population suffering from blindness, tuberculosis, leprosy, physical impairment of the limbs and malaria according to age, sex and residence, Maharashtra, 1992-93

Demographic characteristic	Number of persons per 1,000 suffering from: Blindness		Tuberculosis	Leprosy	Physical impairment of limbs	Malaria during the last three months	Number of usual residents
	Partial	Complete					
URBAN							
Age							
0 -14	3.5	0.6	2.2	0.3	4.8	12.7	3140
15-59	24.7	1.4	2.5	0.4	4.4	20.4	5673
60+	166.7	14.2	3.5	--	16.0	30.1	564
Sex							
Male	21.9	1.2	3.7	0.4	5.8	17.8	4842
Female	30.7	2.6	1.1	0.2	4.6	19.2	4535
Total	26.1	1.9	2.5	0.3	5.2	18.4	9377
RURAL							
Age							
0 -14	4.2	2.5	1.0	0.4	6.0	44.0	4817
15-59	34.6	2.1	3.4	1.0	5.6	55.0	6794
60+	178.2	22.6	11.7	3.3	9.2	59.4	1195
Sex							
Male	33.5	3.9	3.7	1.4	6.7	50.3	6443
Female	39.6	4.4	2.8	0.6	5.5	52.3	6363
Total	36.5	4.1	3.3	1.0	6.1	51.3	12806
TOTAL							
Age							
0 -14	3.9	1.8	1.5	0.4	5.5	31.7	7957
15-59	30.1	1.8	3.0	0.7	5.1	39.3	12467
60+	174.5	19.9	9.1	2.3	11.4	50.0	1759
Sex							
Male	28.5	2.7	3.7	1.0	6.3	36.3	11285
Female	35.9	3.7	2.1	0.5	5.1	38.5	10898
Total	32.1	3.2	2.9	0.7	5.7	37.4	22183

-- Less than 0.05 persons per 1,000

Malaria

The overall incidence of malaria in the three months prior to the survey is 37 per 1,000. The incidence is substantially lower in urban areas (18 per 1,000) than in rural areas (51 per 1,000). The difference in the prevalence of malaria by gender is small although females have a slightly higher rate than males.

There are more substantial differences in the prevalence of malaria by age. Prevalence increases with age, being highest among those age 60 and above (50 per 1,000) and lowest for those age 0-14 (32 per 1,000). Rural children are about four times as likely to have had malaria

than urban children, while those age 60 and above in rural areas are twice as likely to have had malaria than their counterparts in urban areas. Since the prevalence of malaria is known to vary considerably by season, the NFHS estimates should not be taken to represent the typical level throughout the year as the fieldwork was conducted during the dry season when malaria rates are expected to be relatively low.

Partial and Complete Blindness

The overall prevalence of partial blindness is 32 per 1,000 (Table 8.1), the prevalence being higher in rural than urban areas. Partial blindness increases sharply with age. Prevalence rates are 4 per 1,000 for persons age 0-14, 30 per 1,000 for persons age 15-59 and 175 per 1,000 for persons age 60 and over. The high prevalence among older persons, by far the largest differential displayed for any of these morbidity conditions, is particularly striking. Overall, females are more prone to partial blindness than males. The typical prevalence for females is about 36 per 1,000, compared to about 29 per 1,000 for males.

The overall level of complete blindness is 3 per 1,000. The NFHS estimate of total blindness is considerably higher than the 1981 Census estimate of 0.6 persons per 1,000 population (Office of the Registrar General and Census Commissioner, India, 1983), which is probably indicative of relatively high underenumeration in the census rather than a substantial increase in blindness in Maharashtra between 1981 and 1992-93.

Rural residents are twice as likely to be completely blind (4 per 1,000) as urban residents (2 per 1,000). Females are slightly more prone to complete blindness than males in both urban and rural areas but the differences are very small. Complete blindness is ten times more prevalent among persons age 60 and over than under age 60. This difference is equally noticed in urban and rural areas. Differences in complete blindness are not large between persons in the age groups 0-14 and 15-59, prevalence being higher among the latter group in urban areas and the former group in rural areas.

Physical Impairment of the Limbs

The overall prevalence of persons with physically impaired limbs is 6 per 1,000. Female prevalence is around 5 per 1,000 in both residence groups. Males have slightly higher prevalence, 6 per 1,000 in urban areas and 7 per 1,000 in rural areas. There is little difference in prevalence by age among those under age 60, but those age 60 and over are more than twice as likely to have physically impaired limbs as others (11 percent compared to 5 percent).

Tuberculosis

The overall prevalence of tuberculosis is low at 3 per 1,000, with little variation by place of residence and sex, though males are slightly more prone to contract the disease than females in all areas. Age differences are marked, especially in rural areas, with values around 2 per 1,000 for persons age 0-59 and 12 per 1,000 for those age 60 and over.

Leprosy

The reported prevalence of leprosy is less than 1 per 1,000 population, with males and persons above age 60 being more prone than females and persons below age 60 to be afflicted with the disease. There seems to have been an overall improvement in the number of leprosy cases. According to the Central Bureau of Health Intelligence (1992), the prevalence rate declined from 6 percent in 1981 to 2 percent in 1991. The NFHS data show consistency in the trend of decline. However, it is important to note that leprosy may be seriously understated due to the stigma attached to the disease.

8.2 Crude Death Rates and Age-Specific Death Rates

Crude death rates (CDR) and age-specific death rates by sex for the usual resident population in Maharashtra from the NFHS and the SRS are shown in Table 8.2. The crude death rate from the NFHS is based on deaths occurring to usual residents of the household during the two years (approximately 1991-92) preceding the survey as obtained in the Household Questionnaire. The CDR from the NFHS is calculated as the annual number of deaths 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 backwards to the mid-point of the time period on the basis of the intercensal population growth rate in the state. The intercensal growth rate is assumed to be the same for all age and sex groups.

Questions on the number of deaths occurring to usual residents in each household during a particular time period have been included in demographic surveys in many countries and have generally resulted in a substantial understatement of deaths. It is, therefore, important to begin with a discussion of the evidence on the completeness of reporting of deaths. The Sample Registration System (SRS), maintained by the Office of the Registrar General, India, provides the most useful comparison. The most recent report on mortality estimates by age for Maharashtra is for 1991 (Office of the Registrar General, India, 1993a).

Table 8.2 shows that the average annual crude death rate (CDR) for the usual resident population in Maharashtra for the two-year period prior to the NFHS (roughly 1991-92) is 7.8 per 1,000 population. As can be seen from the table, it is only slightly lower than the SRS death rate for 1991 which is 8.2 per 1,000. However, the provisional estimate of the SRS death rate for 1992 is 7.9 (Office of the Registrar General, India, 1993b).

The age-specific death rates (ASDR) for broad age groups shown in Table 8.2 can be compared directly with the SRS rates. Although the SRS does not report the death rates for the specific age groups shown in Table 8.2, these rates are calculated from the death rates and population for conventional five-year age groups published by the SRS. The NFHS age-specific death rates do not differ substantially from the SRS rates except for the age group 0-4. Within the age group 0-4, the two estimates do not differ much for males, but the SRS female ASDR is twice as high as the NFHS rate. The difference between the two sources may be due to underreporting of deaths as well as misreporting of age at the time of death.

Table 8.2 Crude death rates and age-sex specific death rates

Crude death rates (CDR) and age-sex specific death rates, Maharashtra 1991-92

	NFHS (1991-92)						SRS (1991)		
	Death rate			Number of usual residents			Death rate		
Age	Male	Female	Total	Male	Female	Total	Male	Female	Total
0 - 4	15.6	8.4	12.1	1351	1281	2632	15.9	16.7	16.3
5 -14	0.7	1.0	0.8	2713	2612	5325	1.0	1.4	1.2
15-49	3.4	2.5	3.0	5577	5378	10955	3.3	2.7	3.0
50+	33.6	26.7	30.2	1644	1627	3271	34.4	28.9	31.4
CDR	8.7	6.8	7.8	11285	10898	22183	8.5	7.9	8.2

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 two years before the survey extend approximately from 19 January 1991 to 19 January 1993 and are labelled 1991-92 in the table. (The NFHS was conducted between 23 November 1992 and 18 March 1993.) The SRS rates are also *de jure* based on deaths during 1991.
Source for SRS data: Office of the Registrar General, India (1993a)

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). Sex-specific mortality differentials can be analyzed by computing the ratio of female to male rates in each age group. These ratios are 0.54, 1.43, 0.74 and 0.80 for the 0-4, 5-14, 15-49 and 50+ age groups, respectively. The corresponding values for the SRS are 1.05, 1.40, 0.82 and 0.84. The very low value for the 0-4 group in the NFHS is particularly notable. The large discrepancy between the NFHS and SRS rates for the 0-4 age group suggests that female mortality may have been severely underreported in the NFHS. However, it needs to be mentioned here that the age-specific death rates presented in Table 8.2 are based on the responses of the head of the household or any responsible member of the household to questions on the number of deaths to usual residents in the household during the two years prior to the survey and the particulars of the deceased persons. This information may be subject to a substantial amount of misreporting as well as to some extent of underreporting of deaths due to recall lapse. The discussion on infant and child mortality estimates in the following section, which is based on the information obtained from the mother herself in the birth history of the Woman's Questionnaire, suggests that the extent of underreporting of infant and child deaths is not substantial in the NFHS Woman's Questionnaire.

8.3 Infant and Child Mortality

Definitions of Infant and Child Mortality

All respondents in the NFHS were asked to give a complete history of their births, including the 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 is used to calculate the following

measures 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 non-sampling errors. While the sampling errors for various mortality estimates are provided in Appendix A, this section describes the results of various checks for non-sampling errors -- in particular, underreporting of deaths in early childhood (which would result in an underestimate of mortality) and misreporting 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 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 mortality 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 B.5 (see Appendix B) suggest that early infant deaths have *not* been severely underreported in the Maharashtra 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). However, the fact that the ratios are declining, from 76 to 72 and 68, in the 0-4, 5-9 and 10-14 years preceding the survey, respectively, suggests that there is some underreporting for births that occurred longer before the survey. The ratios of infant deaths that

[1]A detailed description of the method for calculating the probabilities presented here is given in Rutstein (1984). The mortality estimates are not rates, but are true probabilities, calculated according to the conventional life table approach. 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, denoted q_i. Finally, probabilities of death over larger age intervals are calculated by multiplying the relevant age-interval survival probabilities together and subtracting the product from one:

$$_aq_x = 1 - \prod_i (1-q_i)$$

occurred during the neonatal period (see Table B.6 in Appendix B) are also quite high. These ratios show an increase over time from 61 to 74, suggesting that some early infant deaths may not have been reported by older women.

One problem that is inherent in most retrospective surveys is heaping of the age at death on certain digits, e.g., 6, 12 and 18 months. Misreporting of age at death will bias estimates of the age pattern of mortality if the net result of misreporting is the transference of deaths between age segments for which the rates are calculated; for example, an overestimate of child mortality relative to infant mortality may result if children dying during the first year of life are reported as having died at age one or older. Thus, heaping at 12 months can bias the mortality estimates because a certain fraction of these deaths, which are reported to have occurred after infancy (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 Maharashtra NFHS, there was some misreporting of age at death due to preference for reporting age at death at 5, 7, 12 and 15 days (see Table B.5 in Appendix B). Examination of the distribution of deaths under age two years during the 15 years prior to the survey by month of death (Appendix Table B.6) indicates heaping of deaths at 6, 9, 10, 12, and 18 months of age, with corresponding deficits in the adjacent months. Digit preference does not appear to be serious enough, however, to substantially alter the rates calculated here, and the calculated infant mortality rates for the population of Maharashtra as a whole are not likely to be understated by more than 2-3 percent on this account. Due to the strong emphasis on this problem during training[2], there are no deaths reported to have occurred at age one year, making any adjustment in the infant and child mortality rates unnecessary.

This brief check on internal consistency of the Maharashtra NFHS childhood mortality data suggests that there is no serious underreporting of deaths during the time periods for which the mortality rates are estimated and 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.

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 exist 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 (see Appendix A). The fourth reason relates to truncation of mortality rates further back in time, because women 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 for interview.

[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".

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 8.6 shows that among children born in the five years prior to the survey, only two 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 as 15 years back from the survey should be minor.

Levels and Trends in Infant and Child Mortality

Table 8.3 and Figure 8.1 show various measures of infant and child mortality for the three quinquennial periods preceding the survey by residence. Infant mortality rates declined substantially in Maharashtra during the 15 years prior to the NFHS in 1992-93. The infant mortality rate for the total population declined from 66 per 1,000 live births during 1978-82 (10-14 years prior to the survey) to 51 per 1,000 during 1988-92 (0-4 years prior to the survey), an average annual rate of decline of 1.5 infant deaths per 1,000 live births. All other mortality measures in Maharashtra, presented in the table, show a decline during the last 15 years. The percentage decline in child mortality is highest (50 percent), followed by postneonatal mortality (44 percent), under-five mortality (33 percent), infant mortality (23 percent) and neonatal mortality (11 percent).

Despite the rapid overall decline in infant mortality (23 percent over a 10-year period), 1 in every 20 children born in the five years before the NFHS died within the first year of life and 1 in every 14 children died before reaching age five. Therefore, although mortality levels

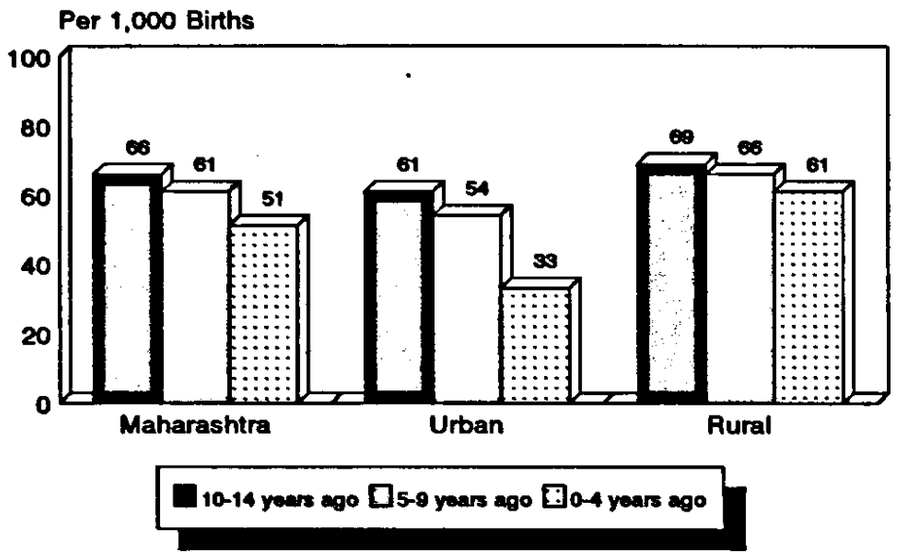
Table 8.3 Infant and child mortality

Neonatal, postneonatal, infant, child and under-five mortality for five-year periods preceding the survey, by residence, Maharashtra 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	23.7	9.6	33.3	19.8	52.4
5 - 9 years	38.7	15.6	54.4	14.8	68.4
10-14 years	36.4	24.4	60.8	28.4	87.5
			RURAL		
0 - 4 years	44.1	16.7	60.8	21.6	81.1
5 - 9 years	39.1	26.4	65.5	26.1	89.9
10-14 years	43.6	25.2	68.7	51.5	116.7
			TOTAL		
0 - 4 years	36.4	14.8	50.5	20.9	70.3
5 - 9 years	39.8	22.3	61.3	21.7	81.6
10-14 years	40.7	24.9	65.6	42.1	104.9

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

Figure 8.1
Infant Mortality Rates for Five-Year Periods by Residence



Note: Rates are for 5-year periods preceding the survey

NFHS, Maharashtra, 1992-93

are relatively low in Maharashtra, child survival programmes still need to be intensified to produce further improvements in the level of infant and child mortality. The fact that there was very little decline in neonatal mortality over the 15-year period strongly suggests the need to intensify particularly antenatal programmes and policies to increase the percentage of births attended by trained health personnel.

As expected, rural areas experience higher infant and child mortality than urban areas. Interestingly, child mortality in urban areas and neonatal mortality in rural areas have increased during the last 10 years, although the increase is not statistically significant. All other mortality indicators in both urban and rural areas have declined during the same period. The rate of decline is higher in urban areas than in rural areas for postneonatal mortality, infant mortality and under-five mortality.

The infant mortality rate of 51 in 1988-92 estimated in the NFHS is considerably lower than the average infant mortality from the SRS for the years 1988-92 of 61 infant deaths per 1,000 live births.

Socioeconomic Differentials in Infant and Child Mortality

Table 8.4 and Figure 8.2 show infant and child mortality statistics for the 10-year period preceding the survey, by selected background characteristics. The infant mortality rate is 43 percent higher in rural areas than that in urban areas, 63 per 1,000 live births compared to 44 per 1,000 live births. Children in rural areas of Maharashtra experience 41 percent higher risk

Table 8.4 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, Maharashtra 1992-93

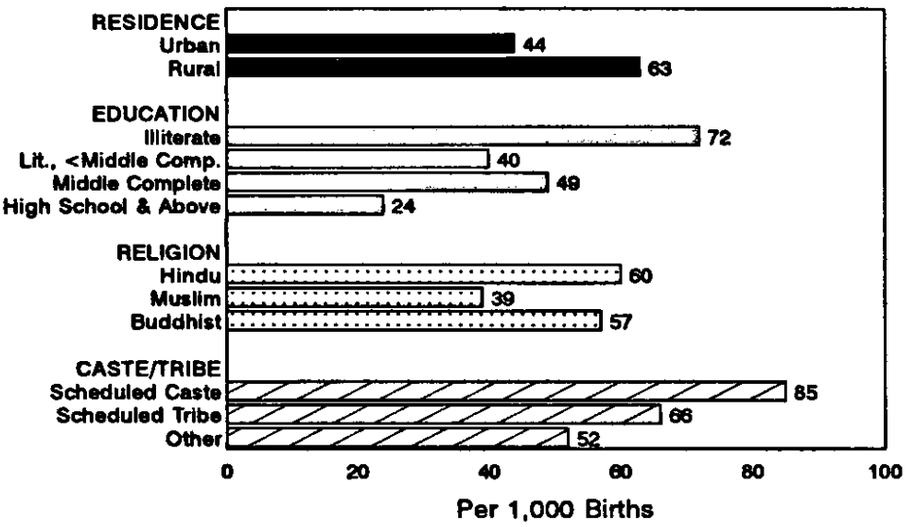
Background characteristic	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
Residence					
Urban	31.4	12.7	44.1	17.2	60.5
Rural	41.6	21.6	63.2	23.8	85.5
Mother's education					
Illiterate	48.7	23.3	72.0	28.8	98.8
Lit., < middle complete	24.1	15.6	39.7	14.3	53.4
Middle school complete	(34.6)	(14.2)	(48.7)	(9.5)	(57.7)
High school and above	20.5	3.2	23.8	8.8	32.4
Religion					
Hindu	39.0	20.8	59.8	20.8	79.4
Muslim	30.9	8.3	39.2	12.4	51.1
Buddhist	(37.4)	(20.0)	(57.4)	(46.9)	(101.6)
Caste/tribe					
Scheduled caste	(64.6)	(20.6)	(85.2)	(42.3)	(124.0)
Scheduled tribe	40.0	26.5	66.4	34.7	98.8
Other	35.3	16.9	52.2	17.9	69.2
Medical maternity care[2]					
No antenatal or delivery care	53.6	26.8	80.4	(39.5)	116.7
Either antenatal or delivery care	29.8	6.7	36.5	17.4	53.3
Both antenatal and delivery care	25.5	9.9	35.4	24.3	58.8
Total	37.7	18.2	56.0	21.3	76.0

Note: Total includes the mortality experience of other religious groups, which is based on fewer than 250 children surviving to the beginning of the age interval, and is not shown separately.
() Based on 250-499 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.

of dying before their fifth birthday than urban children. Infant mortality declines sharply with increasing education of women overall, as expected, ranging from a high of 72 per 1,000 for illiterate women to a low of 24 per 1,000 for women with at least a high school education. Similar variation is displayed by the other mortality indicators shown in the table. Infant mortality is high among scheduled caste and scheduled tribe women compared to others.

As expected, the presence of medical maternity care for mothers (antenatal or delivery care by a trained health professional) is associated with substantially lower mortality risks. Infant mortality rates fall from 80 per 1,000 for births with no care, to 37 per 1,000 for births with either antenatal or delivery care, and to 35 per 1,000 for births with both antenatal and delivery care.

Figure 8.2
Infant Mortality Rates by Selected Background Characteristics



Note: Based on births in the 10 years preceding the survey

NFHS, Maharashtra, 1992-93

One might expect the effect of antenatal and delivery care to be most pronounced for mortality risks immediately following birth, but this is not the case. The greatest impact of antenatal and delivery care is on postneonatal deaths (those occurring one month to one year after birth) and the next greatest impact is on neonatal mortality. While it is possible that antenatal and delivery care could influence mortality risks one month to one year following birth (postneonatal mortality), such care seems most unlikely to have a substantial impact on survival one to five years after birth (child mortality). The presence of such care is undoubtedly associated with other circumstances favourable to child survival, however, which might explain the apparently large effect of antenatal and delivery care on child mortality. Given the magnitude of the apparent impact, it seems likely that this explains a substantial portion of the effect on postneonatal mortality as well.

Although the impact of antenatal and delivery care on survival during the first month of life (neonatal mortality) is less than the effect on mortality risks at later ages, it is nonetheless very large. Children of mothers who received no such care have twice as high a neonatal mortality rate as children of mothers who received both antenatal and delivery care, 54 compared with 26 deaths per 1,000 live births. This differential is all the more impressive because women who have pregnancy-related complications (which have a relatively high risk of nonsurvival) are usually more likely to seek antenatal and delivery care.

Demographic Differentials in Infant and Child Mortality

This section examines differentials in infant and child mortality by various demographic characteristics of both the mother and the child. Table 8.5 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.

Neonatal mortality which reflects a substantial component of congenital conditions is lower for females (29 per 1,000 live births) than for males (46 per 1,000 live births), indicating the genetic advantage to female babies. The higher postneonatal mortality for females (20 per 1,000 live births) than for males (16 per 1,000 live births), reflects the predominance of environmental factors which are unfavourable to females. However, the infant mortality for females is lower (49 per 1,000 live births) compared to males (63 per 1,000 live births). This is due to the fact that the largest proportion of infant mortality is due to neonatal mortality (67 percent). The higher female mortality at the childhood stage (the probability of dying between age 1 and 5) again shows the environmental disadvantage to female children. Thus it is clearly seen that the inherent advantages of girls seem to wear out in the postneonatal and childhood stage when the mortality rates are higher for females. The lower female under-five mortality

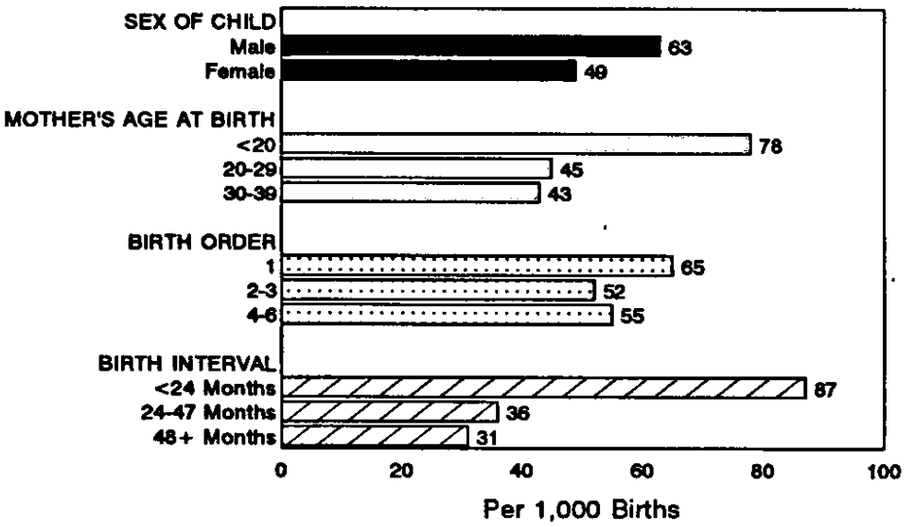
Table 8.5 Infant and child mortality by demographic characteristics

Neonatal, postneonatal, infant, child and under-five mortality by selected demographic characteristics for the 10-year period preceding the survey, Maharashtra 1992-93

Demographic characteristic	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
Sex of child					
Male	46.2	16.5	62.7	19.1	80.6
Female	28.8	20.0	48.8	23.6	71.2
Mother's age at birth					
< 20	55.1	23.3	78.4	20.5	97.3
20-29	28.5	16.0	44.5	22.4	65.9
30-39	29.9	13.5	43.4	(18.1)	60.7
Birth order					
1	48.5	16.5	65.0	12.2	76.4
2-3	31.7	20.1	51.8	21.9	72.6
4-6	35.8	19.4	55.2	30.6	84.1
Previous birth interval					
< 24 months	56.2	30.7	86.8	27.5	111.9
24-47 months	23.2	13.1	36.3	26.4	61.8
48+ months	(18.4)	(12.3)	(30.7)	(12.0)	(42.3)
Birth size[2]					
Large	(24.2)	(2.7)	(26.9)	(46.5)	(72.2)
Average	19.0	9.5	28.4	14.0	42.0
Small	65.3	25.9	91.2	(21.7)	110.9

Note: Total includes the mortality experiences of children born to mothers in the age group 40-49 and birth order 7+, which are based on fewer than 250 children surviving to the beginning of the age interval, and are not shown separately.
() Based on 250-499 children surviving to the beginning of the age interval.
[1]Computed as the difference between the infant and neonatal mortality rates.
[2]Birth size as reported by the mother; rates are for the four-year period preceding the survey.

Figure 8.3
Infant Mortality Rates by Selected Demographic Characteristics



Note: Based on births in the 10 years preceding the survey

NFHS, Maharashtra, 1992-93

is again due to the prominence of neonatal mortality which is advantageous to females. Overall, the data suggest that preferential treatment of male children exists in Maharashtra.

The mortality estimates do not exhibit the expected U-shaped pattern with respect to the mother's age at the time of the birth. While mortality is substantially higher among young mothers, those below age 20, the differences become relatively small as mother's age increases. The lack of a clear U-shaped pattern may be due to the small number of births to older mothers. Infant mortality for children of mothers under age 20 is 78 per 1,000 compared to 43 for children of mothers age 30-39. Similar patterns are observed for the remaining infant and child mortality statistics (except child mortality). The high mortality for the offspring of young mothers (under age 20) is particularly evident for neonatal mortality. 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.

Differentials by birth order indicate that first-order births and births of order 4-6 have a higher probability of dying than other births, with respect to neonatal and infant mortality. Child mortality increases steadily with birth order. There is, of course, a close correlation between age of mother and birth order, with higher order births occurring at older ages. The steady increase in child mortality with birth order may reflect the more intense competition for nutritious food faced by high birth order children once they are weaned.

Childspacing patterns have a powerful effect on the survival chances of children in India. Infant mortality risks increase sharply as the length of the preceding birth interval decreases. Infant mortality is about three times as high for children with a preceding interval of less than 24 months as for children with a preceding interval of 48 months or more (87 compared to 31 per 1,000). The impact of short birth intervals is more pronounced for neonatal mortality than for postneonatal mortality. In fact, the impact of short birth intervals is noticed at each stage of childhood mortality. While there may be a substantial impact of the preceding birth interval, as such, on mortality risks, a substantial portion of this effect is likely to be due to the association of shorter preceding intervals with other risk factors. Shorter intervals are likely to occur in larger families, for example, and larger families are more likely to reside in rural areas.

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. Since most babies in Maharashtra are not weighed at the time of birth, mothers were asked to report the size of their babies at birth, for children born during the four years preceding the interview. Women were asked whether these births were "large, average, or small." The last panel of Table 8.5 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 higher mortality rates than children perceived to be average or larger, particularly in their first month of life and in infancy.

8.4 High-Risk Fertility Behaviour

Certain patterns of childbearing are associated with elevated levels of infant and child mortality. Table 8.5 shows sharply higher mortality risks for children of very young mothers and for births occurring within 24 months of a previous birth. Since couples may control each of these risk factors by the use of family planning, it may be possible for couples to reduce the risks of mortality to their children

Table 8.6 shows, for births during the five years preceding the interview, percentages with mothers in various "elevated risk" categories. The purpose of this table is to identify areas in which changes in women's behaviour might effect a reduction in mortality risks for their children. 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 this proportion of deceased children in the given "elevated risk" category to the proportion for children not in any "elevated risk" category.

The figures in Table 8.6 may be considered either from the point of view of a prospective mother or from the point of view of the health and family planning policymaker. For the prospective mother, the critical issue is how much greater the risks are in the various "elevated risk" categories. For example, it is very important to avoid childbearing below age 18, because the mortality risk for children to mothers below this age is 1.85 times as high as the risk for children not in any "elevated risk" category.

From the point of view of policymakers in health and family welfare, the magnitudes of the risk ratios should be considered in conjunction with the percentage of women in each "elevated risk" category. Probably the greatest reduction in mortality could be attained by

Table 8.6 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, Maharashtra, 1992-93

High-risk category	Births in last 5 years		Percentage of currently married women[a]
	Percent of births	Risk ratio	
URBAN			
Not in any high-risk category	57.6	1.00	61.9[b]
Single high-risk category			
Age<18: Age under 18 years at birth	6.7	(3.00)	0.7
Age>34: Age over 34 years at birth	0.8	*	7.0
BI<24 : Birth interval under 24 months	12.3	0.70	9.6
BO>3 : Birth order higher than 3	13.3	1.51	5.6
Subtotal	33.2	1.48	22.9
Multiple high-risk category			
Age<18 & BI<24[c]	1.7	*	0.6
Age>34 & BI<24	--	*	0.3
Age>34 & BO>3	1.4	*	9.6
Age>34 & BI<24 & BO>3	0.5	*	0.4
BI<24 & BO>3	5.6	(0.51)	4.3
Subtotal	9.3	1.24	15.2
In any high-risk category	42.4	1.43	38.1
Total percent	100.0	NA	100.0
Number	983	NA	1574
RURAL			
Not in any high-risk category	44.8	1.00	60.3[b]
Single high-risk category			
Age<18: Age under 18 years at birth	16.0	1.48	3.7
Age>34: Age over 34 years at birth	0.2	*	3.7
BI<24 : Birth interval under 24 months	11.3	1.88	7.5
BO>3 : Birth order higher than 3	15.2	1.15	8.2
Subtotal	42.6	1.46	23.2
Multiple high-risk category			
Age<18 & BI<24[c]	3.4	(3.97)	1.2
Age>34 & BI<24	--	*	--
Age>34 & BO>3	1.2	*	10.5
Age>34 & BI<24 & BO>3	0.5	*	0.2
BI<24 & BO>3	7.5	1.50	4.6
Subtotal	12.6	2.27	16.5
In any high-risk category	55.2	1.65	39.7
Total percent	100.0	NA	100.0
Number	1596	NA	2244

Table 8.6 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, Maharashtra, 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	49.7	1.00	61.0[b]
Single high-risk category			
Age<18: Age under 18 years at birth	12.4	1.85	2.5
Age>34: Age over 34 years at birth	0.4	*	5.1
BI<24 : Birth interval under 24 months	11.7	1.52	8.4
BO>3 : Birth order higher than 3	14.5	1.29	7.2
Subtotal	39.0	1.52	23.1
Multiple high-risk category			
Age<18 & BI<24[c]	2.8	(4.45)	1.0
Age>34 & BI<24	--	*	0.1
Age>34 & BO>3	1.3	*	10.1
Age>34 & BI<24 & BO>3	0.5	*	0.3
BI<24 & BO>3	6.7	1.31	4.5
Subtotal	11.3	2.12	16.0
In any high-risk category	50.3	1.66	39.0
Total percent	100.0	NA	100.0
Number	2579	NA	3818

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
() Based on 50-99 births
* Risk ratio not shown; based on fewer than 50 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

reducing or eliminating births that occur less than 24 months apart since a large proportion of all births fall in one of the categories that include these short birth intervals and all of those categories have high risk ratios.

The last column of Table 8.6 shows the proportion of currently married women who would fall in each of the risk categories if they were to become pregnant at the present time. Two out of five of these women are in categories with risk ratios substantially greater than one, implying that a pregnancy at the present time would subject their child to a relatively high risk of dying.

While mortality risks to children can undoubtedly be reduced by changing women's childbearing behaviour, the risk ratios shown in Table 8.6 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. The analysis of the causative role of these various factors required to adjust the risk ratios shown in Table 8.6 is beyond the scope of this report.

CHAPTER 9

MATERNAL AND CHILD HEALTH

It has been recognised in India, since the First Five Year Plan, that MCH services need to be provided by the government as a major component of efforts to reduce infant and child mortality. Infant and child deaths not only form a substantial portion of all deaths, but they can hinder acceptance of a small family norm. Substantial improvement in child survival prospects is almost a precondition for acceptance of contraception by a large number of couples. The Ministry of Health, Government of India, took steps to strengthen maternal and child health services in the First and Second Five Year Plans (1951-56 and 1956-61). Family planning services were integrated with maternal and child health services and nutrition services when the Minimum Needs Programme was initiated during the Fifth Five Year Plan (1974-79). The primary objective was to provide minimum public health services to 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 thrusts of the Family Welfare Programme in India, and it has now been further strengthened by introducing the Child Survival and Safe Motherhood Programme (Ministry of Health and Family Welfare, 1992). The Ministry of Health and Family Welfare has also sponsored special schemes under the Maternal and Child Health Programme, including the programme of Oral Rehydration Therapy (ORT), the establishment of Regional Institutes of Maternal and Child Health in states where infant mortality rates are high, the Universal Immunization Programme, and the Maternal and Child Health Supplemental Programme within the Post-Partum Programme (Ministry of Health and Family Welfare, 1992).

In Maharashtra, as in other states of India, maternal and child health services are available at the health centres and hospitals run by the Government or they can be obtained in nursing homes and hospitals which are run either by private doctors or by nongovernment voluntary organizations, charitable trusts, etc. Since the majority of private doctors and hospitals are concentrated in urban areas, government health centres and government programmes play a vital role in the provision of MCH services in rural areas. The Female Health Worker who is an Auxiliary Nurse Midwife (ANM), not only assists the Medical Officer and the Female Health Assistant in providing these services but she is supposed to visit the households to register pregnant women and give them antenatal care throughout the pregnancy, natal care at the time of delivery and also postnatal care for the mother and the child. She is supposed to refer all the cases with any complications (which are beyond her capacity to treat) to the Primary Health Centre. At the grass-roots-level, in addition to the ANM, the Village Health Guide, selected by the community, is a link between the community and the government health functionaries. Since most of the deliveries in rural areas are still conducted at home, *dais* (traditional birth attendants) are important and recognising their role, the government conducts training programmes for them. Apart from these workers, the *Anganwadi* worker under the Integrated Child Health Services Programme (in the blocks which are chosen for Integrated Child Development Services) also renders MCH services and is supposed to work in coordination with the ANM.

An important objective of the NFHS is 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. The information covered behaviour relating 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 height and weight of children.

The present chapter presents information 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, the information presented in this chapter pertains to children born during the four years preceding the survey. If a woman had more than one live birth during the four years preceding the survey, the information was collected for up to three live births, and all of these births are taken into account in the analysis.

9.1 Maternal Care Indicators

Antenatal Care

Antenatal care 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 includes advice on correct diet and the provision of iron and folic acid tablets to pregnant women. Improved nutritional status, coupled with antenatal care, can help reduce the incidence of low birth weight babies and thus reduce perinatal, neonatal and infant mortality.

A pregnant woman can receive antenatal care either 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 before the survey was initially asked whether any health worker visited her at home to provide an antenatal check-up when she was pregnant and, if so, during 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 during 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 percent distribution of live births in the last four years by the source of antenatal care received during pregnancy. Although the interviewer was instructed to record all responses 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 qualification is considered. Table 9.1 shows that except for 17 percent of births, all mothers who had a birth during the last four years received antenatal care. Mothers of about three-fifths of children born in that period received antenatal care from allopathic doctors and eight percent obtained antenatal care from other health professionals such as nurses, midwives

Table 9.1 Antenatal care

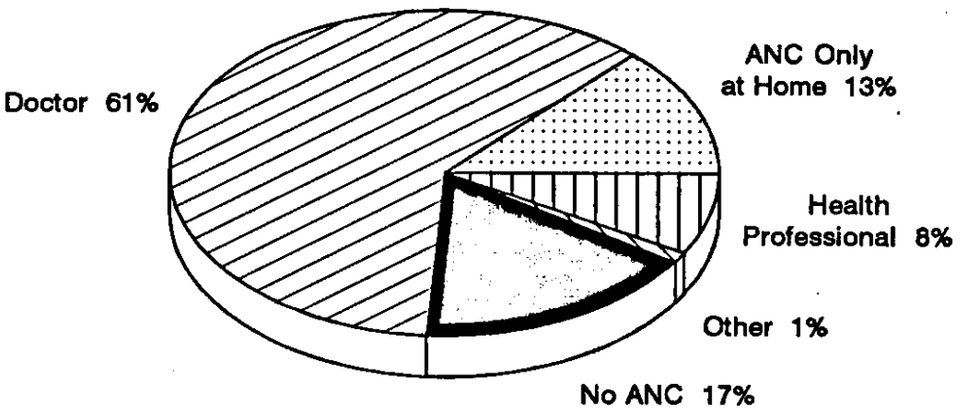
Percent distribution of live births during the four years preceding the survey by source of antenatal care (ANC) during pregnancy, according to selected background characteristics, Maharashtra, 1992-93

Background characteristic	Antenatal care provider (outside home)[1]							
	ANC only at home from health worker	Doctor	Other health professional	Traditional birth attendant, other[2]	No ANC	Missing	Total percent	Number of births
Mother's age at birth								
< 20	13.4	55.2	12.0	0.4	18.7	0.3	100.0	686
20-34	12.7	64.2	6.7	0.4	16.0	--	100.0	1373
35+	(18.2)	(47.7)	(2.3)	(--)	(31.8)	(--)	100.0	44
Birth order								
1	8.5	70.6	9.0	0.5	11.3	0.2	100.0	635
2-3	13.0	60.3	8.5	0.4	17.6	0.1	100.0	983
4-5	17.9	51.9	8.0	0.6	21.7	--	100.0	351
6+	21.6	44.0	4.5	--	29.9	--	100.0	134
Residence								
Urban	1.0	85.7	2.8	0.7	9.8	--	100.0	816
Rural	20.7	45.3	11.8	0.2	21.8	0.2	100.0	1287
Education								
Illiterate	18.2	44.5	9.9	0.6	26.6	0.2	100.0	1056
Literate, < middle complete	13.0	67.0	8.0	--	11.8	--	100.0	558
Middle school complete	5.2	83.8	5.7	1.0	4.3	--	100.0	210
High school and above	0.4	93.5	4.3	--	1.8	--	100.0	279
Religion								
Hindu	14.6	57.3	9.4	0.5	18.1	0.1	100.0	1525
Muslim	6.4	68.5	5.9	0.3	18.9	--	100.0	375
Buddhist	12.1	73.8	6.0	--	8.1	--	100.0	149
Other	18.5	75.9	1.9	--	3.7	--	100.0	54
Caste/tribe								
Scheduled caste	10.3	53.1	11.0	1.4	22.8	1.4	100.0	145
Scheduled tribe	29.6	30.9	13.5	--	26.1	--	100.0	230
Other	11.1	65.6	7.4	0.4	15.5	--	100.0	1728
Total[3]	13.0	61.0	8.3	0.4	17.2	0.1	100.0	2103

Note: ANC refers to pregnancy-related health care provided by a doctor or a health worker in a medical facility or at home.
() Based on 25-49 cases
-- 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"
[3]Births in the period 1-47 months prior to the survey

and practitioners of other systems of medicine like Ayurvedic or Homoeopathic. For 13 percent of the births, mothers did not go outside the home to seek antenatal care but received it at home from the health worker who is supposed to make regular home visits. Antenatal care from traditional birth attendants and others outside of the home was received by mothers of less than half a percent of births. In this tabulation, those who receive care both at home and outside the home are classified as "outside the home".

Figure 9.1
Sources of Antenatal Care (ANC) During Pregnancy



Note: Based on births in the four years preceding the survey

NFHS, Maharashtra, 1992-93

The differentials in the percentage of mothers receiving antenatal care by their background characteristics are also presented in Table 9.1. The percentage not receiving any antenatal care is lowest in the age group 20-34. It is slightly higher for younger mothers below age 20 and twice as high for the small number of births to mothers over age 34. There is a negative relationship between birth order and overall utilization of antenatal care services. For nearly three-fourths of the first-order births, mothers obtained antenatal care from doctors, while mothers went to doctors for antenatal care for only half of fourth or fifth-order births.

The urban-rural difference in the utilization of antenatal care services is more substantial. In urban areas mothers did not receive any antenatal care for only 1 in 10 births during the last four years, while the corresponding proportion of births in rural areas is 1 in 5. Mothers of a large majority (86 percent) of births in urban areas went to doctors for antenatal care while in rural areas mothers of only 45 percent of births did so. Since health workers in rural areas are supposed to make regular visits as a part of their duty, mothers of one-fifth of the births in rural areas received antenatal care only at home, while in urban areas, this percentage was much less (1 percent). Thus urban women are more likely to receive antenatal care from a doctor, whereas rural women are more likely to receive antenatal care from a health worker or a health professional who is not a doctor.

The proportion of births whose mothers received antenatal care from an allopathic doctor steadily increases with education, from 45 percent for illiterate mothers to 94 percent for mothers who have at least completed high school. The proportion of births whose mothers received only home visits from a health worker during pregnancy decreases with education.

Interesting religious differentials in the utilization of antenatal care services are observed. While the percentage of births whose mothers did not receive antenatal care does not differ much between Hindus and Muslims, Hindu mothers are less likely to have visited a doctor for antenatal care than Muslim mothers. This could perhaps be due to the higher proportion of Muslim women residing in urban areas (64 percent) where pregnant women are more likely to seek antenatal care from doctors. The percentage of births for whom mothers received antenatal care exclusively from health workers' home visits is the lowest for Muslims (6 percent). Utilization of antenatal care services is better among Buddhists and other religious groups than among Hindus or Muslims. Scheduled caste and scheduled tribe mothers are less likely to have utilized antenatal care services than other mothers.

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 pregnancies, 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, it is often difficult for working women from lower socioeconomic groups to visit an antenatal clinic that often, because they may face a loss of wages. Under these circumstances, a minimum of four antenatal visits is recommended, one each during the third, sixth, eighth and ninth months of the pregnancy (Park and Park, 1989).

Table 9.2 and Figure 9.2 show the percent distribution of live births in the last four years by number and timing of antenatal care visits. For births during the four years preceding the survey to mothers who received antenatal care, the median frequency of antenatal care visits of any type is 4 (3.4 for home visits and 3.9 for visits outside the home). Urban and rural areas do not differ much in the median number of home visits, but the median number of visits outside the home is lower in rural areas (3.5) than in urban areas (4.6), resulting in a difference of one visit in the median number of visits of any type. The comparative nearness of antenatal care services and the ease of getting transport in urban areas could be important factors for the higher number of outside visits in urban areas. No home visits were made by health workers to mothers of 77 percent of births; only 36 percent of births in rural areas and 4 percent of births in urban areas received antenatal care through home visits.

It is advised by obstetricians that antenatal care should begin at the latest by six weeks after the last menstrual period. However, the studies undertaken to measure the impact of the initial visit for antenatal check-up have shown that even when the antenatal care was initiated as late as the third semester, there was a substantial reduction in perinatal mortality (Ramachandran, 1992). For only 27 percent of births during the four years prior to the survey, the mothers received antenatal care in the first trimester itself, and this percentage is higher in urban areas (34) than in rural areas (23 percent). The largest percentage of first antenatal care visits (37 percent) in urban areas were as late as the third trimester, and for 36 percent of births in rural areas, the first antenatal care visit was in the second trimester. The median gestational age for the first antenatal care visit of any type (for those who received antenatal care) in Maharashtra is 5.3 months. It is 5.6 months in urban areas and 5.2 months in rural areas. The median gestational age for visits outside the home in urban areas is higher (5.7 months) than that

Table 9.2 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, Maharashtra, 1992-93

ANC visits/ months pregnant	Home visits	Outside visits	Any type
	URBAN		
Number of ANC visits			
None	96.1	10.8	9.8
1 visit	0.6	4.9	4.8
2-3 visits	2.0	32.4	32.2
4 or more visits	1.3	51.8	53.1
Don't know/missing	--	0.1	0.1
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	3.5	4.6	4.7
Months pregnant at the time of the first ANC visit			
No antenatal care	96.1	10.8	9.8
First trimester	1.2	33.2	33.9
Second trimester	2.2	18.6	19.2
Third trimester	0.5	37.3	36.9
Don't know/missing	--	0.1	0.1
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	4.7	5.7	5.6
Number of live births[1]	816	816	816
	RURAL		
Number of ANC visits			
None	64.2	42.5	21.8
1 visit	4.2	7.1	7.6
2-3 visits	20.4	30.5	37.2
4 or more visits	10.8	19.7	32.7
Don't know/missing	0.4	0.3	0.6
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	3.4	3.5	3.7
Months pregnant at the time of the first ANC visit			
No antenatal care	64.2	42.5	21.8
First trimester	9.8	16.5	23.3
Second trimester	18.8	24.6	35.8
Third trimester	6.9	16.2	18.6
Don't know/missing	0.3	0.2	0.5
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	5.1	5.4	5.2
Number of live births[1]	1287	1287	1287

Table 9.2 Number of antenatal care visits and stage of pregnancy (Contd.)

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, Maharashtra, 1992-93

ANC visits/ months pregnant	Home visits	Outside visits	Any type
	TOTAL		
Number of ANC visits			
None	76.6	30.2	17.2
1 visit	2.8	6.2	6.5
2-3 visits	13.3	31.2	35.3
4 or more visits	7.1	32.1	40.6
Don't know/missing	0.2	0.2	0.4
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	3.4	3.9	4.0
Months pregnant at the time of the first ANC visit			
No antenatal care	76.6	30.2	17.2
First trimester	6.5	23.0	27.4
Second trimester	12.4	22.3	29.4
Third trimester	4.4	24.4	25.7
Don't know/missing	0.2	0.2	0.3
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	5.0	5.5	5.3
Number of live births[1]	2103	2103	2103

-- Less than 0.05 percent
[1]Births in the period 1-47 months prior to the survey

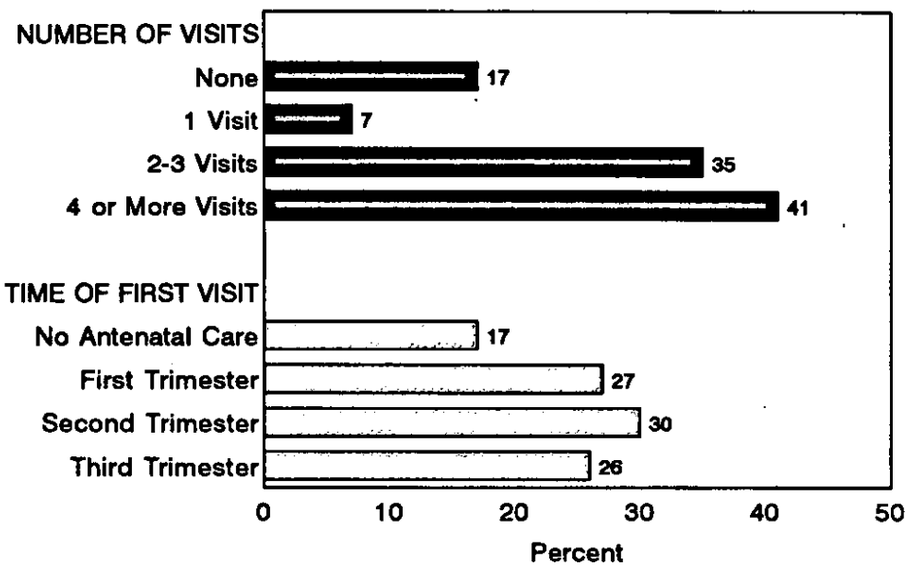
for home visits (4.7 months). No such difference is observed in rural areas.

Tetanus Toxoid Vaccination

In India, an important cause of death among neonates is neonatal tetanus, which is caused by infection of the newborn (usually at the umbilical stump) by tetanus organisms. Neonatal tetanus is most common when the delivery takes place in an unhygienic environment and unsterilized 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 expert medical help is not available, as is common in many rural areas, the fatality rate is close to 100 percent. However, neonatal tetanus is a preventable disease. Two doses of tetanus toxoid vaccine given one month apart during early pregnancy are nearly 100 percent effective in preventing tetanus among newborns and mothers. Immune protection is transferred to the baby through the placenta when the mother is immunized.

In India, the tetanus toxoid immunization programme for expectant mothers was initiated in 1975-76 and was integrated with the Expanded Programme on Immunization (EPI) in 1978 (Ministry of Health and Family Welfare, 1991). In order to step up the pace of implementation

Figure 9.2
Number and Timing of Antenatal Visits



Note: Based on births in the four years preceding the survey

NFHS, Maharashtra, 1992-93

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. An important objective of the UIP was to protect all pregnant women against tetanus by 1990. 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. One booster is recommended if the two doses were received more than three years ago.

Each mother who had a live birth during the past four years 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. The distribution of births by the number of tetanus toxoid injections given to mothers, by selected background characteristics, is shown in Table 9.3. Overall, 71 percent of births were to mothers who received two or more doses of tetanus toxoid vaccine, and 10 percent of births were to mothers who received one dose. The percentage of births whose mothers received both doses is higher in urban areas (80 percent) than in rural areas (65 percent). The percentage of children whose mothers did not receive a single dose of tetanus toxoid injection is almost twice as high in rural areas as in urban areas.

For births during the last four years, tetanus toxoid coverage is lower for older mothers (note that the sample size is relatively smaller), mothers pregnant with higher-order births, and scheduled caste and scheduled tribe mothers. Coverage differentials by education of the mother are substantial: the proportion of births whose mothers received two or more doses of tetanus

Table 9.3 Tetanus toxoid vaccination

Percent distribution of live births during the last 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, Maharashtra, 1992-93

Background characteristic	Number of tetanus toxoid injections					Percent given iron/ folic tablets	Number of births
	None	One dose	Two doses or more	Don't know/ missing	Total percent		
Mother's age at birth							
< 20	20.7	11.8	67.5	--	100.0	70.8	686
20-34	16.8	9.4	73.3	0.5	100.0	71.1	1373
35+	(36.4)	(9.1)	(54.5)	(--)	100.0	(52.3)	44
Birth order							
1	13.7	8.8	77.3	0.2	100.0	75.4	635
2	16.4	9.5	73.6	0.5	100.0	72.7	568
3	20.7	10.8	68.0	0.5	100.0	69.9	415
4	25.7	10.0	63.9	0.4	100.0	64.3	241
5	17.3	18.2	64.5	--	100.0	67.3	110
6+	31.3	11.2	57.5	--	100.0	55.2	134
Residence							
Urban	12.3	7.1	79.8	0.9	100.0	72.2	816
Rural	22.5	12.1	65.4	--	100.0	69.6	1287
Education							
Illiterate	28.9	12.6	58.3	0.2	100.0	60.9	1056
Lit., < middle complete	12.2	9.9	77.4	0.5	100.0	76.7	558
Middle school complete	4.8	7.1	87.6	0.5	100.0	82.9	210
High school and above	2.2	3.9	93.5	0.4	100.0	86.0	279
Religion							
Hindu	19.3	10.4	70.1	0.3	100.0	71.0	1525
Muslim	20.0	10.9	68.5	0.5	100.0	64.3	375
Buddhist	9.4	9.4	81.2	--	100.0	80.5	149
Other	11.1	1.9	85.2	1.9	100.0	77.8	54
Caste/tribe							
Scheduled caste	26.2	9.0	64.8	--	100.0	64.8	145
Scheduled tribe	27.0	14.3	58.7	--	100.0	62.6	230
Other	16.7	9.7	73.1	0.4	100.0	72.2	1728
Total[1]	18.5	10.2	71.0	0.3	100.0	70.6	2103

() Based on 25-49 cases
-- Less than 0.05 percent
[1]Births in the period 1-47 months prior to the survey

toxoid vaccine increases from 58 percent for illiterate mothers to 94 percent for mothers with at least a high school education. The coverage rate is not very different between Hindus and Muslims, but the coverage in these religious groups is lower than for Buddhists and others.

Iron and Folic Acid Tablets

Proper maternal nutrition is important for the healthy intrauterine growth of a baby and can affect the birth weight of the baby. Various studies in different parts of India have indicated that the proportion of births that had a low birth weight (less than 2500 grams) ranged from 15

percent in Trivandrum to 46 percent in Baroda (Nutrition Foundation of India, 1993). Overall, about one-third of babies in India are low birth weight, suggesting a nutritional deficiency among many expectant mothers. Improvement in the mother's nutritional status, coupled with proper health care during pregnancy, can substantially increase birth weight (Ramachandran, 1992). To this end, provision of iron and folic acid tablets to pregnant women as prophylaxis against nutritional anaemia forms an integral part of MCH activities in the Indian Family Welfare Programme (Ministry of Health and Family Welfare, 1991). It is recommended that a woman take 100 tablets of iron and folic acid during a pregnancy, and health workers are instructed accordingly.

In the NFHS, information was collected on whether the mother had 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 9.3. Overall, 71 percent of the births were to mothers who received iron and folic acid tablets. (This proportion is the same as the proportion of births whose mothers received two or more doses of tetanus toxoid injection.) The pattern of differentials in the receipt of iron and folic acid tablets is almost the same as the pattern observed for tetanus toxoid vaccination.

Place of Delivery and Assistance During Delivery

Another important thrust in the maternal and child health services is the encouragement of institutional deliveries under the supervision of trained health professionals. In spite of all the antenatal care, the risk for the mother and child is likely to be high if the delivery is not conducted in hygienic conditions and assisted by a trained health professional. In order to ascertain the situation in Maharashtra in this regard, respondents were asked, for each birth during the four years before the survey, where they gave birth and who assisted at the delivery.

Only 44 percent of deliveries occurred in health facilities -- 23 percent in public institutions (such as government-operated district, taluk, town or municipal hospitals and Primary Health Centres) and 21 percent in private medical institutions (Table 9.4 and Figure 9.3). The practice, prevalent in Maharashtra, of daughters going to their parents' home for the first one or two deliveries is reflected in the fact that more than one-third of the total home deliveries (and 20 percent of all births) take place in the parents' home.

In rural areas, nearly three-fourths of deliveries take place at home which is almost three times higher than the corresponding percentage in urban areas. According to the statistics collected by the National Sample Survey (National Sample Survey Organization, 1991) nearly 15 percent of births in rural areas and 68 percent of births in urban areas of Maharashtra are institutional births, out of which 52-56 percent take place in private hospitals. According to the Sample Registration System (SRS), 34 percent of all births in Maharashtra in 1991 are institutional births with 76 percent in urban areas and 21 percent in rural areas (Office of the Registrar General, India, 1993a). The proportion of births occurring in health facilities is higher for mothers age 20-34 years, mothers having their first child and mothers with at least a high school education. A higher percentage of births to Muslim mothers (49 percent) are delivered in health facilities, compared to births to Hindu mothers (41 percent), the reason perhaps being that the majority of the Muslims in the sample live in urban areas. The percentage of institutional deliveries is higher among Buddhist mothers (58 percent), than either Hindus or

Table 9.4 Place of delivery

Percent distribution of live births during the four years preceding the survey by place of delivery, according to selected background characteristics, Maharashtra, 1992-93

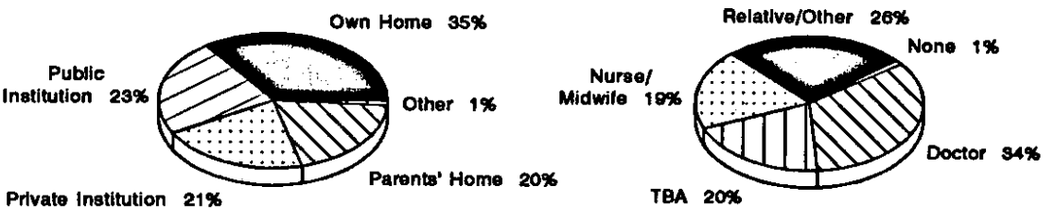
Background characteristic	Place of delivery						Total percent	Number of live births[1]
	Health facility/ Institution		Home			Don't know/ missing		
	Public	Private	Own home	Parents' home	Other			
Mother's age at birth								
< 20	20.0	16.9	34.0	28.6	0.3	0.3	100.0	686
20-34	24.3	23.2	35.6	16.0	0.4	0.5	100.0	1373
35+	(15.9)	(25.0)	(54.5)	(2.3)	(2.3)	(--)	100.0	44
Birth order								
1	25.5	29.6	20.8	23.6	0.5	--	100.0	635
2-3	23.5	20.0	35.7	20.1	0.1	0.5	100.0	983
4-5	19.4	13.4	49.0	16.2	0.9	1.1	100.0	351
6+	11.9	10.4	67.9	8.2	1.5	--	100.0	134
Residence								
Urban	35.7	37.6	17.4	8.8	0.4	0.1	100.0	816
Rural	14.5	10.8	46.9	26.7	0.5	0.6	100.0	1287
Education								
Illiterate	18.1	6.4	48.4	25.6	0.8	0.8	100.0	1056
Lit.,< middle complete	26.9	23.8	31.0	18.1	--	0.2	100.0	558
Middle school complete	32.4	35.2	19.0	12.9	0.5	--	100.0	210
High school and above	24.4	61.3	7.9	6.5	--	--	100.0	279
Religion								
Hindu	19.9	20.9	36.7	21.6	0.4	0.6	100.0	1525
Muslim	27.2	21.9	37.1	13.3	0.5	--	100.0	375
Buddhist	44.3	13.4	23.5	18.1	0.7	--	100.0	149
Other	11.1	48.1	24.1	16.7	--	--	100.0	54
Caste/tribe								
Scheduled caste	25.5	16.6	34.5	20.7	0.7	2.1	100.0	145
Scheduled tribe	10.0	6.1	60.0	22.2	1.3	0.4	100.0	230
Other	24.1	23.6	32.3	19.4	0.3	0.3	100.0	1728
Antenatal care visits								
None	5.3	4.7	61.2	25.2	1.1	2.5	100.0	361
1-3 visits	24.7	12.2	39.2	23.7	0.2	--	100.0	879
4+ visits	28.1	37.7	20.4	13.5	0.4	--	100.0	854
Total[1]	22.7	21.2	35.5	19.8	0.4	0.4	100.0	2103

() Based on 25-49 cases
-- Less than 0.05 percent
[1]Births in the period 1-47 months prior to the survey. Total includes 9 births for which the information about antenatal care visits is unknown, which are not shown separately.

Muslims. Only 16 percent of births to scheduled tribe mothers are delivered in institutions, compared to 42 percent among scheduled castes and 48 percent among others. Home deliveries are most prevalent (86 percent) for births to mothers who did not receive antenatal care.

In Maharashtra, delivery in medical institutions (44 percent) was less common than receiving antenatal care (83 percent). Only 51 percent of births to women who had received antenatal care took place in a health facility. The percentage of institutional deliveries was

Figure 9.3
Place of Delivery and Assistance During Delivery



Note: Based on births in the four years preceding the survey

NFHS, Maharashtra, 1992-93

higher among those who had 4 or more antenatal care visits (66 percent) than among those who had 1-3 antenatal care visits (37 percent). This could be due to the availability of services for both antenatal care and delivery and/or to complications during pregnancy which may lead women to seek more antenatal care. It is also possible that the increase in the number of visits could have established a rapport between the provider of services and the user of services, which led users to seek an institutional delivery.

Table 9.5 and Figure 9.3 provide information on assistance during delivery by 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 the delivery. However, in Table 9.5, only the most highly qualified attendant is considered if there is more than one attendant.

In all, only one-third of the births that occurred during the four years preceding the survey were assisted by a doctor, one-fifth by a nurse/midwife and another one-fifth by a traditional birth attendant. The remaining one-fourth of the births were assisted by relatives and others. Most institutional deliveries were attended by a doctor. The majority of the deliveries at home (own home or parents' home) were attended by only relatives and other untrained persons. Between 12 and 17 percent of deliveries at home (own home or parents' home) were attended by a nurse/midwife, and between 29 and 40 percent of the deliveries at home were attended by a traditional birth attendant.

Table 9.5 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, Maharashtra, 1992-93

Background characteristic	Attendant assisting during delivery[1]						Total percent	Number of live births[2]
	Doctor	Nurse/ midwife	Traditional birth attendant	Relative/ other	None	Don't know/ missing		
Mother's age at birth								
< 20	30.2	15.5	22.2	31.9	0.3	--	100.0	686
20-34	35.3	22.0	19.4	22.4	0.7	0.2	100.0	1373
35+	(36.4)	(6.8)	(22.7)	(31.8)	(2.3)	(--)	100.0	44
Birth order								
1	45.7	18.0	16.9	19.2	0.3	--	100.0	635
2-3	31.0	22.0	21.4	24.9	0.5	0.2	100.0	983
4-5	23.9	19.7	19.9	35.3	0.9	0.3	100.0	351
6+	20.9	9.0	30.6	37.3	2.2	--	100.0	134
Residence								
Urban	53.4	24.4	12.6	9.1	0.5	--	100.0	816
Rural	21.1	16.5	25.3	36.3	0.7	0.2	100.0	1287
Mother's education								
Illiterate	17.7	16.4	25.3	39.4	0.9	0.3	100.0	1056
Lit., < middle complete	38.2	22.9	20.1	18.5	0.4	--	100.0	558
Middle school complete	49.0	28.6	14.3	8.1	--	--	100.0	210
High school and above	73.1	17.9	6.8	1.8	0.4	--	100.0	279
Religion								
Hindu	32.2	18.6	19.4	28.9	0.7	0.2	100.0	1525
Muslim	34.9	20.3	27.2	17.1	0.5	--	100.0	375
Buddhist	34.9	30.2	13.4	20.8	0.7	--	100.0	149
Other	61.1	11.1	18.5	9.3	--	--	100.0	54
Caste/tribe								
Scheduled caste	33.8	12.4	13.8	37.9	--	2.1	100.0	145
Scheduled tribe	11.3	13.9	39.6	34.8	0.4	--	100.0	230
Other	36.6	20.9	18.3	23.5	0.7	--	100.0	1728
Antenatal care								
None	8.6	8.0	28.0	52.4	2.2	0.8	100.0	361
1-3 visits	27.1	19.3	23.0	30.3	0.3	--	100.0	879
4+ visits	51.2	24.5	14.6	9.5	0.2	--	100.0	854
Place of delivery								
Public health facility	58.7	39.0	1.5	0.8	--	--	100.0	477
Private health facility	84.3	15.0	--	0.4	0.2	--	100.0	446
Own home	2.8	11.7	39.8	45.0	0.7	--	100.0	746
Parents' home	7.0	16.8	29.3	46.2	0.7	--	100.0	416
Total[2]	33.6	19.5	20.4	25.7	0.6	0.1	100.0	2103

() Based on 25-49 cases
-- Less than 0.05 percent
[1]If the respondent mentioned more than one attendant, only the most qualified attendant is considered in this tabulation.
[2]Births in the period 1-47 months prior to the survey. Total includes 9 births with missing information on antenatal care, 9 births with 'other' place of delivery, and 9 births with missing information on place of delivery, which are not shown separately.

The percentage of births attended by a doctor is more than twice as high in urban areas (53 percent) as in rural areas (21 percent). The percentage is four times as high for mothers with at least a high school education (73 percent) as for illiterate mothers (18 percent). Births to mothers above age 20 and lower-order births (order 3 or less) are more likely to have received doctor's assistance during delivery. A little more than one-third of deliveries to Muslim and Buddhist mothers (35 percent each) are attended by doctors. Deliveries attended by relatives and others are higher among births to Hindu and Buddhist mothers compared to either Muslims or other religious groups. The percentage of births attended by a doctor is the lowest among scheduled tribes (11 percent). The table also shows that more frequent antenatal care visits are associated with a higher percentage of births being attended by doctors.

Delivery Characteristics

The percent distribution of live births during the last four years according to complications during delivery, prematurity, birth weight and mother's estimate of the baby's size at birth are presented in Table 9.6. As reported by mothers, 85 percent of the deliveries had no complications. A long period of labour (7 percent) and Caesarian section (3 percent) are the most common complications reported. Births delivered by Caesarian section are more common in urban areas than in rural areas.

Only 4 percent of births are reported as premature. Urban and rural areas do not differ much in the reported occurrence of premature births.

A majority (59 percent) of babies were not weighed at birth. Usually almost all babies born in an institution are weighed at birth because a facility for weighing is available in the institutions. Precisely for this reason babies born at home are almost never weighed at birth. As a large majority of urban deliveries takes place in institutions, the percentage of children weighed at birth is quite high in urban areas (70 percent) compared with rural areas (23 percent). However, even for the babies who were weighed, many mothers did not remember the birth weight. Thus information on birth weight is available for only 63 percent of births in urban areas and 17 percent of births in rural areas. The resulting sample of birth weights is therefore subject to a potentially large selection bias. Among births for whom data on birth weight is reported, a little less than one-third weighed less than 2.5 kilograms. This percentage is similar in both urban and rural areas.

Since most babies in India are not weighed at the time of birth, a simple question on the size of the baby at birth (small, average or large) was asked in the NFHS. Three-fourths (78 percent in urban areas and 75 percent in rural areas) of live births in Maharashtra are reported to be average or large in size. Twenty-three percent of births are reported as small, and many of these births were undoubtedly of low birth weight.

Table 9.7 provides information on delivery characteristics by antenatal care, previous birth interval and mother's age at childbirth. Contrary to expectation, more complications are reported for births to mothers who had four or more antenatal care visits than for those with no visits. This suggests that there is a tendency among pregnant women who have complications to obtain antenatal care more often. Complications are reported more often for first births and for births with a previous birth interval of four or more years. Delivery complications do not

Table 9.6 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, Maharashtra, 1992-93

Delivery characteristic	Urban	Rural	Total
Complications at delivery[1]			
No complications	81.7	86.5	84.6
Caesarian section	6.3	1.6	3.4
Use of forceps	1.5	0.8	1.0
Excessive bleeding	1.2	2.6	2.0
Long period of labour	6.4	6.8	6.7
Delayed delivery of placenta	1.2	1.4	1.3
Other	2.9	1.5	2.0
Premature birth			
Yes	3.1	3.7	3.5
No	96.7	95.6	96.0
Don't know/missing	0.2	0.7	0.5
Total percent	100.0	100.0	100.0
Birth weight			
Less than 2.5 kg	20.8	5.1	11.2
2.5 kg or more	42.3	11.8	23.6
Don't know/missing	7.4	5.7	6.4
Not weighed	29.5	77.3	58.8
Total percent	100.0	100.0	100.0
Size at birth			
Large	12.4	13.8	13.2
Average	65.8	61.1	63.0
Small	21.2	24.3	23.1
Don't know/missing	0.6	0.8	0.7
Total percent	100.0	100.0	100.0
Number of births[2]	816	1287	2103

[1]Percentages may sum to more than 100.0 because multiple complications could be recorded.
[2]Births in the period 1-47 months prior to the survey.

vary much according to the age of the mother at childbirth. The percentage of premature births is also slightly higher for births to mothers who had four or more antenatal visits, for first births and closely spaced births (with a previous birth interval of less than 2 years), and births to mothers age less than 20 at childbirth. The percentage of children who were weighed at birth is higher for children whose mothers received antenatal care, first-born children, children following a previous birth interval of more than 4 years, and children whose mothers were age 20-34 at the time of childbirth. The percentage of births reported as small is higher for first births, closely spaced births, births to mothers who did not receive antenatal care and births to mothers who were below age 20 at the time of childbirth.

Table 9.7 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, Maharashtra, 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[1]										
No complications	90.0	84.8	82.1	86.4	87.8	82.2	80.3	84.3	84.9	(84.1)
Caesarian section	0.3	2.3	6.0	1.2	1.9	6.4	5.8	2.9	3.8	(--)
Use of forceps	0.3	0.5	2.0	0.5	0.4	0.5	2.5	1.6	0.8	(--)
Excessive bleeding	1.4	2.5	1.9	1.9	2.3	2.3	1.7	1.7	2.1	(4.5)
Long period of labour	5.5	8.0	5.9	7.9	5.2	7.8	7.4	7.6	6.0	(11.4)
Delayed delivery of placenta	0.8	1.7	1.2	1.9	1.1	0.9	1.4	1.6	1.2	(--)
Other	0.8	2.2	2.5	2.1	1.9	1.4	2.4	1.6	2.3	(--)
Premature birth										
Yes	3.0	3.1	4.1	5.7	2.1	0.9	4.7	4.8	2.8	(2.3)
No	94.5	96.8	95.8	93.8	97.0	99.1	95.1	94.9	96.5	(97.7)
Don't know/missing	2.5	0.1	0.1	0.5	1.0	--	0.2	0.3	0.7	(--)
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	2.8	8.8	17.4	9.0	8.5	12.3	15.8	9.3	12.2	(9.1)
2.5 kg or more	3.0	16.5	39.8	20.7	19.4	31.1	28.5	16.0	27.5	(22.7)
Don't know/missing	4.2	5.9	7.8	4.0	7.4	5.0	7.1	7.6	5.8	(6.8)
Not weighed	90.0	68.8	34.9	66.2	64.8	51.6	48.6	67.1	54.6	(61.4)
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	9.1	13.2	15.1	13.3	12.5	17.4	12.7	12.0	14.2	(2.3)
Average	61.2	61.8	64.8	61.7	65.3	64.8	60.2	59.3	64.5	(70.5)
Small	26.9	24.6	20.0	24.0	21.2	17.8	26.8	28.0	20.5	(27.3)
Don't know/missing	2.8	0.5	0.1	1.0	1.1	--	0.3	0.7	0.7	(--)
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[2]	361	879	854	420	826	219	638	686	1373	44

() Based on 25-49 cases
-- Less than 0.05 percent
[1]Percentages may sum to more than 100.0 because multiple complications could be recorded.
[2]Births in the period 1-47 months prior to the survey. Nine births with missing information on antenatal care are not shown separately.

9.2 Child Care Indicators

Immunization of Children

The immunization of children against six serious but preventable diseases (tuberculosis, diphtheria, pertussis, tetanus, polio, 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 from these six diseases by making free vaccination services easily available to all eligible children. Immunization against polio was introduced 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 has been vaccination against measles, in 1985-86 (Ministry of Health and Family Welfare, 1991).

In order to provide an impetus to 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 seven Technology Missions with the following objectives (Ministry of Health and Family Welfare, 1991): (1) to cover at least 85 percent of all infants by 1990 against six vaccine-preventable diseases, and (2) to achieve self-sufficiency in vaccine production and the manufacture of cold chain equipment. The standard immunization schedule developed for the immunization programme for children contains the age at which each vaccine is 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 the child.

In the NFHS, each mother was asked whether she had a vaccination card for each child born since 1 January 1988. If a card was available, the interviewer was required to copy carefully the dates when the child received vaccinations against each disease. If the mother could not produce the vaccination card, she was asked whether the child had received any vaccinations. If any vaccination had been received, the mother was then asked whether the child had received a vaccination against tuberculosis (BCG); diphtheria, whooping cough (pertussis) and tetanus (DPT); polio; and measles. For DPT and polio, information was obtained on the number of injections or oral doses given.

Table 9.8 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, by source of information (i.e., vaccination card or mother's report). The below-12 months age group was 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 the table is the number of children age 12-23 months. 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 but (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 the sum of two quantities: (1) children vaccinated during the first year of life (0-11 months) as indicated on the vaccination card (including cases where there was no date on the card or the specific vaccine was not recorded on the card) and (2) children vaccinated by 12 months of age according to the mother's report. Because the date of immunization was not asked of the mother if she could not

Table 9.8 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, Maharashtra, 1992-93

Source of information	Percentage vaccinated among children age 12-23 months											Number of children
			DPT			Polio						
	BCG	Polio 0	1	2	3	1	2	3	Measles	All[1]	None	
URBAN												
Vaccinated at any time before interview												
Vaccination card	97.1	2.9	98.6	97.1	92.8	98.6	95.7	89.9	78.3	69.6	--	69
Mother's report	80.2	9.1	81.8	76.9	75.2	81.0	76.9	73.6	61.2	57.0	14.0	121
Either source	86.3	6.8	87.9	84.2	81.6	87.4	83.7	79.5	67.4	61.6	8.9	190
Vaccinated by 12 months of age[2]	84.5	6.8	87.9	84.2	78.5	87.4	83.7	77.9	56.4	51.0	8.9	190
RURAL												
Vaccinated at any time before interview												
Vaccination card	95.4	--	100.0	95.4	93.9	99.2	95.4	93.9	79.4	77.9	--	131
Mother's report	81.5	9.0	85.2	81.0	77.2	86.8	80.4	75.1	66.7	57.1	11.1	189
Either source	87.2	5.3	91.2	86.9	84.1	91.9	86.6	82.8	71.9	65.6	6.6	320
Vaccinated by 12 months of age[2]	84.7	5.3	89.8	85.4	81.0	90.4	85.1	79.8	59.3	53.9	8.0	320
TOTAL												
Vaccinated at any time before interview												
Vaccination card	96.0	1.0	99.5	96.0	93.5	99.0	95.5	92.5	79.0	75.0	--	200
Mother's report	81.0	9.0	83.9	79.4	76.5	84.5	79.0	74.5	64.5	57.1	12.3	310
Either source	86.9	5.9	90.0	85.9	83.1	90.2	85.5	81.6	70.2	64.1	7.5	510
Vaccinated by 12 months of age[2]	84.6	5.9	89.0	84.9	80.1	89.2	84.5	79.1	58.2	52.8	8.4	510

-- 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.

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 a written record of vaccination.

Among the 510 children in the age group 12-23 months, vaccination cards were seen by the interviewer for only 39 percent of the children. And interestingly, this percentage was higher in rural areas (41 percent) than in urban areas (36 percent). As expected, levels of immunization coverage 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 obtained from the card or reported by the mother, 64 percent of children age 12-23 months are fully vaccinated[1] and only 8 percent have not received any vaccinations. The coverage for particular vaccinations is fairly high. The highest coverage is for BCG (87 percent) and the first dose of DPT and polio (90 percent each). Around 83 percent of children have received three doses of DPT and polio vaccine, and 70 percent have been vaccinated against measles. The DPT and polio coverage rates are about the same because both vaccines are normally administered together. Not all children who begin with the DPT and polio series go on to complete it. The dropout of children between the first and third doses of DPT and polio is 8 and 10 percent, respectively.

Interestingly enough, the analysis of vaccine-specific data indicates higher coverage for each type of vaccine in rural areas than in urban areas, although the differences are not large. The proportion of children fully immunized is 62 percent in urban areas and 66 percent in rural areas.

According to the immunization schedule, all primary vaccinations including measles should be completed by the time the child is 12 months old. Table 9.8 shows that most vaccinations, except measles, are given within the first year of life. The percentage of children who received BCG and the third dose of DPT and polio by 12 months of age is lower by only 1-3 percentage points from the percentage who received these vaccines at any time before the survey. However, the difference in the case of measles was 12 percentage points.

Table 9.9 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 is higher for first-order births, children of literate mothers, and children in rural areas; for other background characteristics shown in the table, this percentage does not vary much.

There are some notable differentials in vaccination coverage. With the exception of the measles vaccine, vaccine coverage does not differ greatly by the sex of the child. The sex differences that do exist are generally more favourable to female children. The proportion of children fully immunized is higher for first-order births than for subsequent births. As discussed earlier, the proportion of children who are fully vaccinated is higher in rural areas (66 percent) than in urban areas (62 percent), and a similar difference exists for each of the individual vaccines. The proportion who received all vaccinations increases with the education of the mother, ranging from 56 percent for children of illiterate mothers to 81 percent for children of mothers with at least a high school education. The proportion of children fully vaccinated is higher among Hindus (67 percent) than among Muslims (46 percent). Children of scheduled caste and scheduled tribe mothers are less likely to be fully vaccinated than children of non-SC/ST mothers.

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[1]They have received BCG, measles, and three doses of DPT and polio (excluding polio 0). Polio 0 has been introduced only recently and because it is a vaccination given at the time of birth, 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 9.9 Vaccinations by background characteristics

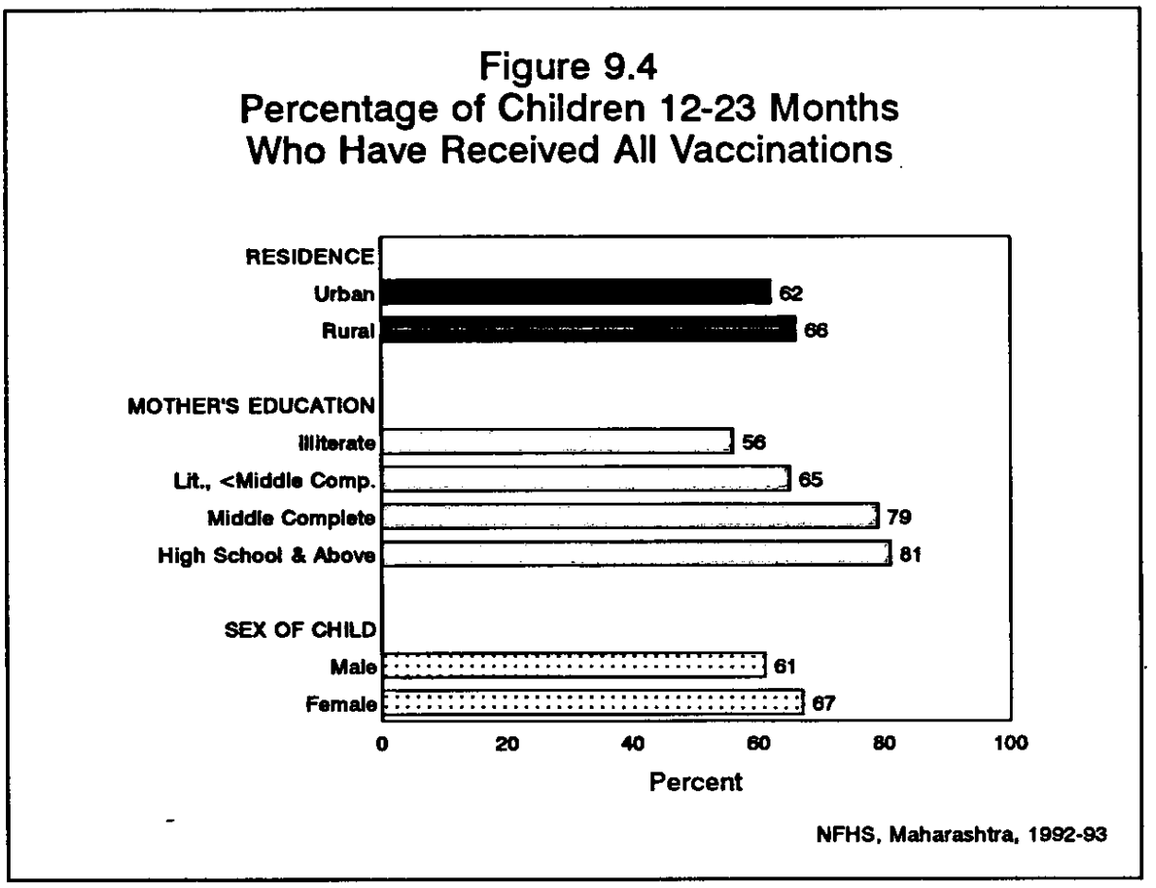
Among children 12-23 months, the percentage who had received each vaccine by the time of the survey (according to the vaccination card or the mother) and the percentage with a vaccination card which was shown to the interviewer, by selected background characteristics, Maharashtra, 1992-93

Background characteristic	Percentage vaccinated											Percentage showing vaccination card	Number of children
			DPT			Polio							
	BCG	Polio 0	1	2	3	1	2	3	Measles	All[1]	None		
Sex													
Male	85.9	6.3	89.8	85.5	82.4	89.8	85.9	80.8	66.7	61.2	7.1	39.6	255
Female	87.8	5.5	90.2	86.3	83.9	90.6	85.1	82.4	73.7	67.1	7.8	38.8	255
Birth order													
1	92.7	6.1	95.2	92.1	87.9	95.2	90.3	86.1	81.2	72.7	3.0	45.5	165
2-3	89.2	7.4	93.1	88.7	87.4	93.5	89.6	86.1	72.7	67.5	5.2	37.7	231
4-5	78.2	2.3	80.5	78.2	75.9	79.3	77.0	73.6	54.0	50.6	16.1	32.2	87
6+	(59.3)	(3.7)	(63.0)	(48.1)	(40.7)	(66.7)	(48.1)	(40.7)	(33.3)	(25.9)	(25.9)	(37.0)	27
Residence													
Urban	86.3	6.8	87.9	84.2	81.6	87.4	83.7	79.5	67.4	61.6	8.9	36.3	190
Rural	87.2	5.3	91.2	86.9	84.1	91.9	86.6	82.8	71.9	65.6	6.6	40.9	320
Mother's education													
Illiterate	82.9	4.1	86.2	80.9	78.0	87.8	81.3	76.8	60.6	55.7	10.2	34.6	246
Lit.,<middle complete	87.8	4.1	90.5	87.8	83.7	89.8	87.8	83.7	70.7	65.3	6.8	44.2	147
Middle complete	92.5	11.3	96.2	92.5	90.6	94.3	88.7	84.9	88.7	79.2	3.8	43.4	53
High school and above	95.3	12.5	98.4	95.3	95.3	96.9	93.8	92.2	90.6	81.3	1.6	42.2	64
Religion													
Hindu	89.2	5.5	92.4	88.7	86.9	92.9	87.7	84.3	73.0	66.7	5.0	39.4	381
Muslim	72.6	6.0	76.2	70.2	64.3	76.2	72.6	65.5	51.2	46.4	20.2	26.2	84
Buddhist	(90.0)	(10.0)	(93.3)	(90.0)	(86.7)	(90.0)	(90.0)	(86.7)	(83.3)	(76.7)	(6.7)	(63.3)	30
Caste/tribe													
Scheduled caste	(78.8)	(6.1)	(90.9)	(87.9)	(81.8)	(93.9)	(87.9)	(84.8)	(69.7)	(60.6)	(6.1)	(39.4)	33
Scheduled tribe	80.6	1.6	87.1	80.6	79.0	88.7	79.0	79.0	62.9	59.7	8.1	40.3	62
Other	88.4	6.5	90.4	86.5	83.9	90.1	86.3	81.7	71.3	65.1	7.5	39.0	415
Total	86.9	5.9	90.0	85.9	83.1	90.2	85.5	81.6	70.2	64.1	7.5	39.2	510

Note: Total includes 15 children belonging to other religions, who are not shown separately.
( ) Based on 25-49 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).

Table 9.10 shows, for children age 1-3 years, the percentage with vaccination cards shown to the interviewer and the percentage receiving various vaccinations during the first year of life, by current age of child and place of residence. The table illustrates changes in vaccination coverage over time. The method of estimating vaccination coverage by 12 months of age is the same as that used in Table 9.8. Among children without a vaccination card, the proportion vaccinated during the first year of life is estimated separately for children in each age group. The row labelled "No vaccinations" indicates the percentage of children who were not fully vaccinated by 12 months of age.

The proportion of children whose vaccination status was determined by seeing a vaccination card declines with the age of the child. This may reflect not only an upward trend in the use of vaccination cards, but also an upward trend in overall vaccination coverage. In



addition, vaccination cards in many cases may have been lost or discarded, especially for older children with completed immunizations. The highest level of vaccination coverage against all diseases is observed for children age 12-23 months; coverage then declines progressively with age up to 36-47 months. This general pattern is observed in both urban and rural areas, except that in urban areas coverage is the highest for children age 24-35 months.

Child Morbidity and Treatment Patterns

This section considers the prevalence and treatment of some of the common childhood diseases, including acute respiratory tract infection (ARI), fever and diarrhoea. Mothers of children born during the four years preceding the survey were asked a series of questions about the prevalence of cough, fever and diarrhoea during the last two weeks and the type of treatment given to the child. Table 9.11 shows the percentage of children with cough accompanied by rapid breathing (i.e., acute respiratory infection), fever and diarrhoea during the two weeks prior to the survey, as well as the percentage with diarrhoea in the 24 hours before the survey, by selected background characteristics. Acute respiratory tract infection, primarily pneumonia, is a common cause of illness and death in infancy and childhood. Early diagnoses and treatment with antibiotics can prevent a large proportion of these ARI/pneumonia deaths. Fever is a major manifestation of malaria, although it also accompanies various other illnesses.

Table 9.10 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 had received each vaccine during the first year of life, according to the current age of the child and residence, Maharashtra, 1992-93

Vaccination status	Current age of child in months			Total
	12-23	24-35	36-47	
		URBAN		
Vaccination card shown to interviewer	36.3	28.9	19.2	27.7
Percent vaccinated at 0-11 months[1]				
BCG	84.5	80.3	85.0	83.4
Polio 0	6.8	15.6	10.1	7.0
DPT				
1	87.9	88.5	77.2	84.2
2	84.2	84.8	74.8	80.9
3	78.5	81.8	70.7	76.7
Polio				
1	87.4	87.8	80.8	85.1
2	83.7	83.9	77.4	81.4
3	77.9	79.7	72.5	76.5
Measles	56.4	59.3	52.8	56.0
All vaccinations[2]	51.0	57.0	43.7	50.2
No vaccinations	8.9	11.1	14.5	11.6
Number of children	190	180	214	584
		RURAL		
Vaccination card shown to interviewer	40.9	27.4	20.9	29.9
Percent vaccinated at 0-11 months[1]				
BCG	84.7	73.7	73.2	77.3
Polio 0	5.3	5.0	8.4	2.8
DPT				
1	89.8	78.6	72.6	80.5
2	85.4	75.3	69.0	76.7
3	81.0	72.9	63.9	72.7
Polio				
1	90.4	80.6	73.7	81.7
2	85.1	76.5	68.9	76.9
3	79.8	71.4	62.6	71.3
Measles	59.3	51.1	47.9	52.8
All vaccinations[2]	53.9	44.9	41.6	46.9
No vaccinations	8.0	19.8	21.9	16.4
Number of children	320	299	311	930

Table 9.10 Vaccinations in the first year of life by current age (Contd.)

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, Maharashtra, 1992-93

Vaccination status	Current age of child in months			Total
	12-23	24-35	36-47	
	TOTAL			
Vaccination card shown to interviewer	39.2	28.0	20.2	29.1
Percent vaccinated at 0-11 months[1]				
BCG	84.6	76.3	77.2	79.4
Polio 0	5.9	9.0	9.1	8.0
DPT				
1	89.0	82.3	74.2	81.8
2	84.9	78.8	70.9	78.1
3	80.1	76.2	66.1	74.0
Polio				
1	89.2	83.4	76.3	82.9
2	84.5	79.3	71.7	78.4
3	79.1	74.5	66.0	73.1
Measles	58.2	54.1	49.5	53.9
All vaccinations[2]	52.8	49.2	42.1	47.9
No vaccinations	8.4	16.5	19.1	14.7
Number of children	510	479	525	1514

-- Less than 0.05 percent
[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).

During the two weeks before the survey, fever was more prevalent (22 percent) than cough with fast breathing (6 percent). The prevalence of fever was particularly high among children age 6-23 months (27 percent) and these children are also more vulnerable to cough (7 percent). The prevalence of fever as well as cough was almost the same among male and female children. While the prevalence of fever does not vary much according to the order of birth, cough was more prevalent among higher-order births (6+) than among lower-order births. The prevalence of fever was more or less the same in urban and rural areas, but cough accompanied by fast breathing was more prevalent in rural than in urban areas. Both fever and cough were more prevalent among children of illiterate mothers. The prevalence of fever or cough does not vary much according to either the religion or caste/tribe of the mother.

Table 9.11 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, Maharashtra, 1992-93

Background characteristic	Percentage of children suffering in previous two weeks from:					Number of children
	Cough accompanied by fast breathing	Fever	Diarrhoea[1] Any	Diarrhoea[1] Bloody	Any diarrhoea in previous 24 hours[2]	
Child's age						
< 6 months	3.5	15.1	13.1	--	10.4	259
6 -11 months	6.9	27.3	20.4	0.5	12.0	216
12-23 months	7.1	27.5	12.5	1.2	5.1	510
24-35 months	5.2	19.4	4.8	1.7	2.1	479
36-47 months	6.1	19.0	5.1	1.0	2.5	525
Sex						
Male	5.7	22.6	10.8	1.3	5.8	1010
Female	6.0	20.7	8.5	0.7	4.4	979
Birth order						
1	4.7	21.3	9.5	1.0	4.9	597
2-3	6.2	21.5	9.5	1.2	5.6	933
4-5	6.1	23.0	11.5	0.9	5.5	330
6+	8.5	20.9	6.2	--	2.3	129
Residence						
Urban	3.5	20.8	8.8	0.6	5.0	782
Rural	7.5	22.2	10.2	1.2	5.2	1207
Mother's education						
Illiterate	6.6	23.6	11.2	1.3	6.1	979
Lit., < middle complete	6.3	21.8	9.0	0.9	4.4	542
Middle school complete	4.5	15.5	9.0	0.5	5.5	200
High school and above	3.4	19.0	5.6	0.4	2.6	268
Religion						
Hindu	6.2	21.3	9.6	1.0	5.2	1434
Muslim	4.9	23.1	8.5	0.8	3.6	364
Buddhist	5.8	23.2	14.5	2.2	9.4	138
Other	3.8	17.0	7.5	--	3.8	53
Caste/tribe						
Scheduled caste	4.7	19.5	14.1	1.6	9.4	128
Scheduled tribe	7.4	23.0	11.5	1.8	4.6	217
Other	5.8	21.7	9.1	0.9	4.9	1644
Source of drinking water						
Piped water	U	U	9.3	1.1	5.0	1307
Ground water	U	U	10.9	0.5	5.2	192
Well water	U	U	10.5	0.7	6.1	428
Surface water	U	U	7.0	1.8	--	57
Total	5.9	21.7	9.7	1.0	5.1	1989

Note: Figures are for children born in the period 1-47 months prior to the survey. Total includes 5 children by "Other" source of drinking water in case of diarrhoea, who are not shown separately.
U: Not available
-- Less than 0.05 percent
[1]Includes diarrhoea in the past 24 hours
[2]Includes diarrhoea with blood

Table 9.11 provides two types of prevalence estimates for diarrhoea including (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 4 years 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.

Five percent of children under age four are reported to have had diarrhoea during the 24 hours preceding the survey. During the two weeks before the survey, the corresponding proportion is 10 percent, including 1 percent for diarrhoea with blood. Children less than two years old are most susceptible to diarrhoea; among children less than two, prevalence is highest among children age 6-11 months. It should be noted, however, that there are seasonal variations in the incidence of diarrhoea, so that the percentages shown in Table 9.11 cannot be assumed to reflect the situation throughout the year. Male children, children of birth order 4-5, children of illiterate mothers, children of Buddhist mothers and scheduled caste and scheduled tribe children are more likely to have suffered with diarrhoea in the previous 24 hours as well as during the previous two weeks. The prevalence of diarrhoea is slightly higher among children in households using ground or well water for drinking.

Treatment of ARI

Table 9.12 presents information on the type of treatment received by children suffering from cough accompanied by fast breathing, that is, acute respiratory infection (ARI). Seventy-three percent of the children who suffered from ARI symptoms during the two weeks preceding the survey were taken to a health facility for treatment or were treated privately by a doctor or other health professional. Eighteen percent of children with ARI did not receive any treatment. Thirty-six percent were given an antibiotic pill or syrup, 26 percent were given an injection and 21 percent were treated with cough syrup. A home remedy was used in 5 percent of the cases. Among children who had a cough accompanied by fast breathing during the last two weeks, children less than two years of age, male children, first-order births, children in urban areas and children of literate mothers were more likely to have been taken to a health facility or provider for treatment.

Treatment of Fever

Table 9.13 shows the type of treatment given to children suffering from fever during the two weeks preceding the survey, by selected background characteristics. Three-fourths of the children with fever were taken to a health facility or a health professional for treatment. Eight percent were treated with antimalarial medicine, 30 percent received an antibiotic pill/syrup, 27 percent were given an injection, 2 percent were treated with a home remedy and about one-half received some other kind of treatment. Higher proportions of male children, children age 6-11 months, first-order births, urban children, children born to literate mothers and children born to Muslim and non-SC/ST mothers were taken to a health facility for treatment.

Table 9.12 Treatment of acute respiratory infection

Among all children under four years of age who had cough accompanied by fast breathing during the two weeks before the survey, the percentage taken to a health facility or provider and percentage given treatment, according to selected background characteristics, Maharashtra, 1992-93

Background characteristic	Among children with cough and fast breathing							
	Percentage taken to a health facility or provider[1]	Percentage treated with						Number of children
		Antibiotic pill or syrup	Injection	Cough syrup	Home remedy/ herbal medicine	Other	None	
Child's age								
< 24 months	80.0	40.0	30.0	20.0	6.7	41.7	11.7	60
24+ months	64.9	31.6	21.1	22.8	3.5	36.8	24.6	57
Sex								
Male	84.5	39.7	27.6	24.1	1.7	44.8	12.1	58
Female	61.0	32.2	23.7	18.6	8.5	33.9	23.7	59
Birth order								
1	(78.6)	(42.9)	(25.0)	(32.1)	(7.1)	(35.7)	(14.3)	28
2+	70.8	33.7	25.8	18.0	4.5	40.4	19.1	89
Residence								
Urban	(74.1)	(37.0)	(22.2)	(18.5)	(--)	(44.4)	(18.5)	27
Rural	72.2	35.6	26.7	22.2	6.7	37.8	17.8	90
Mother's education								
Illiterate	67.7	30.8	29.2	15.4	7.7	41.5	21.5	65
Literate	78.8	42.3	21.2	28.8	1.9	36.5	13.5	52
Total	72.6	35.9	25.6	21.4	5.1	39.3	17.9	117

( ) Based on 25-49 cases
-- Less than 0.05 percent
[1]Includes government/municipal hospital, private hospital/clinic, Primary Health Centre, sub-centre, doctor, or other health professional.

Treatment of Diarrhoea

Diarrhoea is a major killer of children, especially children under five years of age. Deaths from acute diarrhoea are most often due to dehydration resulting from loss of water and electrolytes (Black, 1984). However, nearly all dehydration-related deaths can be prevented by prompt administration of rehydration solutions. Because deaths from diarrhoea are a significant proportion of all deaths to children, 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 in how to use Oral Rehydration Salt (ORS) packets, which are made widely available. The programme also promotes use of a home-made solution of sugar, salt and water, which is known as 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 television, and All India Radio frequently airs messages on 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

Table 9.13 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 type of treatment given, according to selected background characteristics, Maharashtra, 1992-93

Background characteristic	Among children with fever							
	Percentage taken to a health facility or provider[1]	Percentage treated with						Number of children
		Anti-malarial	Antibiotic pill or syrup	Injection	Home remedy/ herbal medicine	Other	None	
Child's age								
< 6 months	(71.8)	(7.7)	(28.2)	(25.6)	(5.1)	(46.2)	(23.1)	39
6-11 months	88.1	5.1	35.6	22.0	1.7	54.2	10.2	59
12-23 months	77.1	10.7	30.0	28.6	1.4	52.1	17.1	140
24-35 months	74.2	6.5	25.8	34.4	--	48.4	20.4	93
36+ months	71.0	7.0	32.0	22.0	3.0	47.0	21.0	100
Sex								
Male	78.1	9.2	29.8	26.8	1.3	53.1	16.7	228
Female	72.4	6.4	30.5	27.6	2.5	46.3	20.2	203
Birth order								
1	84.3	7.9	30.7	25.2	2.4	55.9	12.6	127
2-3	73.6	6.0	30.3	28.9	1.5	51.2	17.4	201
4-5	73.7	13.2	31.6	26.3	--	43.4	23.7	76
6+	(51.9)	(7.4)	(22.2)	(25.9)	(7.4)	(29.6)	(37.0)	27
Residence								
Urban	82.8	6.7	27.6	20.9	1.8	60.1	10.4	163
Rural	70.9	8.6	31.7	31.0	1.9	43.7	23.1	268
Mother's education								
Illiterate	70.6	6.1	25.5	30.3	2.2	47.6	24.2	231
Lit., < middle complete	75.4	10.2	34.7	23.7	1.7	50.0	13.6	118
Middle school complete	(90.3)	(6.5)	(41.9)	(35.5)	(--)	(51.6)	(6.5)	31
High school and above	88.2	11.8	33.3	15.7	2.0	58.8	9.8	51
Religion								
Hindu	74.5	8.5	27.8	29.1	2.6	48.4	19.3	306
Muslim	79.8	9.5	33.3	26.2	--	52.4	16.7	84
Buddhist	(75.0)	(--)	(40.6)	(18.8)	(--)	(56.3)	(15.6)	32
Caste/tribe								
Scheduled caste	(60.0)	(8.0)	(20.0)	(16.0)	(4.0)	(44.0)	(32.0)	25
Scheduled tribe	68.0	4.0	30.0	22.0	2.0	38.0	20.0	50
Other	77.5	8.4	30.9	28.7	1.7	52.0	17.1	356
Total	75.4	7.9	30.2	27.1	1.9	49.9	18.3	431

Note: Total includes 9 children belonging to other religions, who are not shown separately.
( ) Based on 25-49 cases
-- Less than 0.05 percent
[1]Includes government/municipal hospital, private hospital/clinic, Primary Health Centre, sub-centre, doctor, or other health professional.

last four years a series of questions regarding knowledge and use of ORS and RHS.

Table 9.14 shows percentages of mothers who know about and have ever used either WHO or commercial ORS packets. ORS is known to 47 percent of mothers of births that occurred during the last four years. Knowledge is relatively low among teenage mothers, illiterate mothers, Hindus, scheduled caste and scheduled tribe mothers and mothers not regularly exposed to the radio or television or cinema. Urban and rural areas do not differ much in the knowledge of ORS packets. The proportion of mothers who ever used ORS packets is also low (31 percent). The pattern of ever use of ORS by various background characteristics is similar to that observed for knowledge of ORS packets.

Table 9.14 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, Maharashtra, 1992-93

Background characteristic	Know about ORS packets	Have ever used ORS packets	Number of mothers
Mother's age			
15-19	37.4	24.4	238
20-24	47.1	30.8	660
25-29	50.5	32.6	436
30-34	50.9	36.5	167
35+	43.4	31.6	76
Residence			
Urban	48.2	30.4	616
Rural	45.8	31.3	965
Mother's education			
Illiterate	41.1	28.0	776
Lit., < middle complete	47.1	32.2	425
Middle school complete	50.3	27.1	155
High school and above	63.1	41.3	225
Religion			
Hindu	45.0	29.5	1160
Muslim	51.3	36.4	261
Buddhist	53.0	32.2	115
Other	(48.9)	(33.3)	45
Caste/tribe			
Scheduled caste	40.2	27.5	102
Scheduled tribe	36.1	26.6	169
Other	48.6	31.8	1310
Mother's exposure to media			
Exposed to media	51.0	32.9	945
Watches television weekly	53.9	33.9	672
Listens to radio weekly	49.5	32.1	778
Visits cinema/theatre monthly	56.9	35.9	248
Not exposed to any of the media	40.4	28.0	636
Total	46.7	30.9	1581

Note: Total includes 4 mothers age 13-14, who are not shown separately.
() Based on 25-49 cases

Table 9.15 provides information on whether medical care was sought for diarrhoeal episodes. Among children who suffered from diarrhoea during the two weeks preceding the survey, 61 percent were taken to a health facility or a health professional for treatment. A little more than one-fifth (22 percent) of children were not treated at all. Children under one year of age, male children, first-order births, rural children, and children of illiterate mothers were less likely to be taken to a health facility or provider for treatment of diarrhoea. Only 18 percent were treated with ORS packets, and 34 percent received a Recommended Home Solution. In order to reduce dehydration from diarrhoea, mothers are instructed to increase the supply of fluids to children with diarrhoea. However, 55 percent of children received neither ORS treatment nor increased fluids. Only 5 percent of children received an increased supply of fluids, such as plain water, lemon and sugar water, milk, juice, soup, coconut water, tea, barley water, or breast milk.

Table 9.15 Treatment of diarrhoea

Among children under four years who had diarrhoea in the past two weeks, the percentage taken for treatment to a health facility or provider, the percentage who received increased fluids and oral rehydration therapy (ORT), either an oral rehydration solution made from a packet (ORS) or a recommended home solution (RHS), the percentage who received neither ORT nor increased fluids, and the percentage given other treatments, according to selected background characteristics, Maharashtra, 1992-93

Background characteristic	Percent taken to a health facility or provider[1]	Oral Rehydration									Number of children with diarrhoea
		ORS packets	RHS at home	Either ORS or RHS	Increased fluids	Not given ORS, RHS or increased fluids	Antibiotics	Injection	Home remedy, other	None	
Child's age											
< 6 months	(44.1)	(11.8)	(17.6)	(23.5)	(--)	(76.5)	(14.7)	(11.8)	(44.1)	(38.2)	34
6 -11 months	(50.0)	(15.9)	(38.6)	(43.2)	(6.8)	(50.0)	(15.9)	(9.1)	(36.4)	(29.5)	44
12-23 months	73.4	21.9	34.4	46.9	3.1	51.6	28.1	28.1	53.1	12.5	64
24+ months	66.0	20.0	40.0	46.0	10.0	50.0	20.0	22.0	50.0	18.0	50
Sex											
Male	59.6	19.3	31.2	41.3	2.8	56.9	21.1	16.5	45.0	23.9	109
Female	62.7	16.9	37.3	42.2	8.4	53.0	20.5	22.9	48.2	20.5	83
Birth order											
1	52.6	14.0	22.8	29.8	7.0	64.9	19.3	14.0	40.4	28.1	57
2-3	64.0	22.5	42.7	51.7	5.6	46.1	20.2	23.6	50.6	19.1	89
4+	(65.2)	(15.2)	(30.4)	(37.0)	(2.1)	(60.8)	(23.9)	(17.4)	(45.7)	(21.7)	46
Residence											
Urban	66.7	13.0	37.7	43.5	5.8	55.1	18.8	10.1	56.5	17.4	69
Rural	57.7	21.1	31.7	40.7	4.9	55.3	22.0	24.4	40.7	25.2	123
Mother's education											
Illiterate	53.6	15.5	29.1	34.5	6.4	60.9	19.1	18.2	41.8	30.9	110
Literate	(70.7)	(22.0)	(40.3)	(51.2)	(3.6)	(47.6)	(23.2)	(20.7)	(52.4)	(11.0)	82
Total	60.9	18.2	33.9	41.7	5.2	55.2	20.8	19.3	46.4	22.4	192

Note: Figures are for children born in the period 1-47 months prior to the survey. Total includes 20 Buddhist children and 4 children belonging to other religions, who are not shown separately.
() Based on 25-49 cases
-- Less than 0.05 percent
[1]Includes government/municipal hospital, private hospital/clinic, Primary Health Centre, sub-centre, doctor, or other health professional

Although fluid therapy alone may be useful in preventing deaths from acute dehydration, treatment with antibiotics may also be useful for reducing the duration and volume of diarrhoea. Overall, 21 percent of children with diarrhoea were given antibiotics, 19 percent received injections and 46 percent were treated with a home remedy. Oral rehydration therapy (ORS or RHS) was not used extensively by any population subgroup, and such treatment was even less common for children below six months of age, children of first-birth order, children of illiterate mothers and children residing in rural areas.

In Table 9.15, the information on the treatment of diarrhoea is not provided by religion and caste/tribe because there are less than 25 cases for categories such as Muslims, Buddhists, and scheduled castes and scheduled tribes. Similarly, due to the small number of cases in some categories of mother's education, information is provided for only illiterate and literate.

When a child has diarrhoea, it is inappropriate to reduce the child's frequency of breastfeeding or the total intake of breast milk or other fluids. In the NFHS, mothers of children who suffered from diarrhoea were asked about changes in feeding practices during diarrhoea. Table 9.16 provides information on feeding practices during diarrhoea for children of different ages. For a majority of children, the frequency of breastfeeding remained the same (85 percent) or increased (1 percent) during the diarrhoea. The frequency of breastfeeding remained the same or was increased more in the case of children under age one. Breastfeeding

Table 9.16 Feeding practices during diarrhoea

Percent distribution of children under four years who had diarrhoea in the past two weeks, according to feeding practices during diarrhoea and age, Maharashtra, 1992-93

Feeding practices during diarrhoea	Age of the child		
	< 1 year[1]	1-3 years	Total[2]
Breastfeeding frequency[3]			
Same as usual	89.3	81.8	85.3
Increased	2.7	--	1.2
Reduced	6.7	12.5	9.8
Stopped	1.3	2.3	1.8
Don't know/missing	--	3.4	1.8
Total percent	100.0	100.0	100.0
Number of children	75	88	163
Amount of fluids given			
Same as usual	84.6	65.8	73.4
More	2.6	6.1	4.7
Less	12.8	27.2	21.4
Don't know	--	0.9	0.5
Total percent	100.0	100.0	100.0
Number of children with diarrhoea	78	114	192

-- Less than 0.05 percent
[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 being breastfed

was either reduced or stopped for 8 percent of children under age one and for 15 percent of children age 1-3 years. The amount of other fluids given to children was increased for only 5 percent. Slightly more than one-fifth of children with diarrhoea were given less fluids than they received before the diarrhoea began.

CHAPTER 10

INFANT FEEDING AND CHILD NUTRITION

Infant feeding practices affect both the mother and her child. They influence the child's nutritional status, which in turn has an effect on the risk of dying. In particular, breastfeeding has been shown to reduce the risk of morbidity and mortality and improve the nutritional status of children. Breastfeeding also has a direct bearing on the mother's period of postpartum infertility and hence on the length of birth intervals and overall fertility levels. These effects depend on both the duration and the intensity of breastfeeding, as well as the age at which the child receives supplemental liquids and foods.

International recommendations for the feeding of infants and young children are contained in the Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding (1990) and the report of the WHO Working Group on Infant Feeding (World Health Organization, 1991). It is recommended that infants receive 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 the complementary foods, up through the child's second birthday or beyond. It is further recommended that a feeding bottle should not be used at any age. In addition, the recommendations of the Baby Friendly Hospitals Initiative, launched by WHO, include early initiation of breastfeeding.

Several indicators of breastfeeding practices have been suggested by WHO. These include the ever breastfed rate, the exclusive breastfeeding rate, the timely complementary feeding rate, the continued breastfeeding rates, and the bottle feeding rate. The *exclusive breastfeeding* rate is based on current status information for infants whose current age is under four months; it is defined as the proportion of these infants who receive only breast milk. The *timely complementary feeding rate* is the proportion of infants in the 6-9 month age group who receive both breast milk and solid or semi-solid food. Ideally information on the quality and quantity of the complementary foods should also be available; however, this type of information is beyond the scope of broad surveys. The *continued breastfeeding rate* through one year of age is reflected in the proportion of children 12-15 months of age who are being breastfed, and the proportion of infants who are still breastfed in the 20-23 month age group constitutes the continued breastfeeding rate up through two years of age. The *bottle feeding rate* is reflected in the proportion of infants who were fed using a bottle with a nipple. The age group under one year is often chosen to examine bottle feeding. These indicators will be highlighted in the presentation of the data on breastfeeding and other feeding practices in Maharashtra.

The NFHS obtained fairly detailed information on infant feeding and child nutrition. Data on breastfeeding and supplementation were obtained from a series of questions in Section 4 of the Woman's Questionnaire, which inquired about births occurring since January 1988. These questions were asked for up to three births during this period. Information on child nutrition was obtained by measuring the weight and height of these children, using devices designed and manufactured especially for this purpose. The nutritional status of a child was judged by comparing the child's weight and height with an international reference growth curve.

The anthropometric measurements were obtained following the guidelines in the United Nations Manual "How to Weigh and Measure Children" (United Nations, 1986). The children's weight was measured to the nearest 100 grams using a hanging spring weighing machine, and their height or length was measured to the nearest 0.1 centimetres using an adjustable measuring board. Training of the measurers followed the recommendations in the UN Manual.

10.1 Breastfeeding and Supplementation

Traditionally, in India, breast milk has been the main source of nutrition for infants and young children. Breast milk not only provides the child with important nutrients but also protects the child against certain infections. Table 10.1 shows that breastfeeding is nearly universal in Maharashtra, with 97 percent of all children born in the 4 years preceding the survey having been breastfed. The percent breastfed does not vary much by selected background characteristics, ranging from 93 (for scheduled caste children) to 100 percent (for children of 'other' religions).

The early initiation of breastfeeding is important since it benefits both the mother and the nfant. As soon as the infant starts suckling at the breast, the hormone oxytocin is released, resulting in uterine contractions which reduce the risk of postpartum haemorrhage and facilitate expulsion of the placenta. Colostrum and breast milk are sufficient for newborn infants; it is not necessary to feed them anything else. In fact, when the neonate is given anything other than the breast milk, contaminants may cause infection, leading to diarrhoea. It is also recommended that the first breast milk should not be squeezed from the breast, but should be given to the child, because it contains colostrum, which provides natural immunity to the child.

Table 10.1 also shows how soon after birth breastfeeding was initiated, for children who were ever breastfed. This information was collected for a total of 1,590 children who are the most recent birth of each woman who had a birth in the four years before the survey. Although almost all children are breastfed, the early initiation of breastfeeding is not common. Only 7 percent of last-born children began breastfeeding within one hour of birth and only 18 percent began breastfeeding during the first 24 hours of their life. Moreover, a substantial majority (77 percent) of women (data not shown in the table) do squeeze the first milk from the breast before they begin breastfeeding their children. This suggests that the knowledge of the benefits associated with the early initiation of breastfeeding, and feeding babies the first milk, has not reached most women in Maharashtra, indicating a need for the launching of an educational campaign on the subject.

There is little difference in the timing of initiation of breastfeeding by sex of the child. However, there are substantial differences by other background characteristics. For example, Buddhists are twice as likely to initiate breastfeeding within one day of birth and three times as likely to initiate it within one hour of birth as Hindus and Muslims. Urban women are twice as likely to initiate breastfeeding within an hour of birth and one and a half times more likely to start breastfeeding within a day of birth as rural women. Similarly, women who had at least a high school education are twice as likely to initiate breastfeeding within an hour of birth and to start breastfeeding within a day of birth as illiterate women.

Table 10.1 Initiation of breastfeeding

Percentage of all children who were ever breastfed and the percentage of last-born children who started breastfeeding within one hour and one day of birth, among children born during the four years preceding the survey, according to selected background characteristics, Maharashtra, 1992-93

Background characteristic	Among all children:		Among last-born children:		
	Percentage ever breastfed	Number of children	Percent started breastfeeding within 1 hour of birth	Percent started breastfeeding within 1 day of birth[1]	Number of children
Sex of child					
Male	96.2	1085	6.9	18.7	823
Female	97.3	1042	7.8	17.6	767
Residence					
Urban	97.1	829	10.2	23.0	618
Rural	96.5	1298	5.6	15.1	972
Mother's education					
Illiterate	95.4	1067	5.1	13.3	780
Lit., < middle complete	98.2	566	8.4	17.5	428
Middle school complete	98.6	212	9.7	26.5	155
High school and above	97.5	282	11.5	30.4	227
Religion					
Hindu	96.4	1540	6.9	16.7	1165
Muslim	97.4	382	5.3	16.7	263
Buddhist	98.0	150	16.4	32.8	116
Other	100.0	55	(8.7)	(26.1)	46
Caste/tribe					
Scheduled caste	92.5	147	4.9	11.7	103
Scheduled tribe	95.7	231	4.7	16.5	170
Other	97.3	1749	7.9	18.9	1317
Assistance at delivery					
Health professional	97.3	1134	9.6	23.9	861
Traditional birth attendant	97.0	431	6.0	16.0	319
Other or none	96.1	559	3.7	7.8	408
Place of delivery					
Public health facility	97.1	485	11.5	27.0	348
Private health facility	96.9	453	8.8	22.6	363
Own home	96.9	750	6.0	12.9	551
Parents' home	97.9	420	3.8	12.3	317
Total	96.8	2127	7.4	18.2	1590

Note: Table is based on all children born in the four years preceding the survey, whether living or dead at the time of interview. The total among all children includes 10 children with 'other' place of delivery and 3 children with missing information on assistance at delivery; and the total among the last-born includes 9 children with 'other' place of delivery and 2 children with missing information on place of delivery, who are not shown separately.
( ) Based on 25-49 cases
[1]Includes children who started breastfeeding within one hour of birth

or illiterate women. Generally, non-scheduled caste/scheduled tribe women, women who were assisted by a health professional at delivery, and women who delivered at a health facility are much more likely to initiate early breastfeeding than other women. Although there are differences in the initiation of breastfeeding by background characteristics, the postponement of breastfeeding in all groups shows that feeding practices for newborn infants are not beneficial. Breastfeeding was initiated, as recommended, within the first hour for only 1 in 14 babies.

Overall, four out of five infants did not start breastfeeding even in the first 24 hours of life.

Mothers were also asked if the children who are currently being breastfed had been given any other liquids or solid foods at any time the previous day or night. These results are shown in Table 10.2 and Figure 10.1. 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 who were given only breast milk and those who received breast milk and plain water only. In Maharashtra, exclusive breastfeeding is not common for children over 7 months of age. On the average, only 37 percent of infants under four months of age are exclusively breastfed and 70 percent are fully breastfed. The percentage of babies being exclusively breastfed drops off rapidly after the first few months of life, to less than 5 percent at age 8-9 months and older ages. Supplements other than plain water are given in addition to breast milk to 25 percent of children age 0-1 month, 31 percent of those age 2-3 months, and more than three-quarters of those age 8-9 months. Although supplements are given to more than 80 percent of children by age 12-13 months, breastfeeding typically continues for long durations. Even after two years of life (that is, age 24-25 months), more than 44 percent of children are still being breastfed, while one

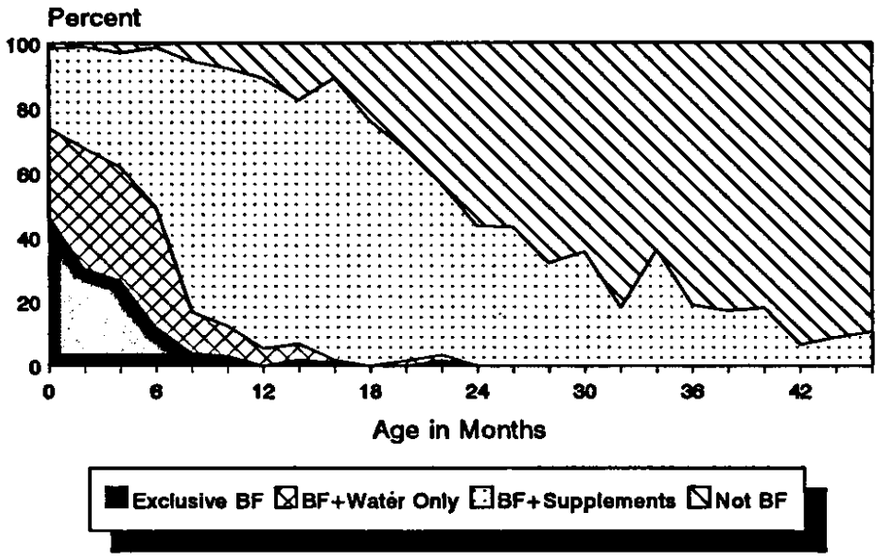
Table 10.2 Breastfeeding status by child's age

Percent distribution of living children by breastfeeding status, according to child's age in months, Maharashtra, 1992-93

Age in months	Percentage among all living children						Number of living children
	Not breast-feeding	Exclusively breast-feeding	Breastfeeding and			Total percent	
			Plain water only	Supple-ments	DK supple-ments		
0 - 1	1.4	46.6	27.4	24.7	--	100.0	73
2 - 3	1.0	30.5	37.1	31.4	--	100.0	105
4 - 5	2.9	26.7	35.2	35.2	--	100.0	105
6 - 7	1.2	12.3	37.0	49.4	--	100.0	81
8 - 9	5.6	4.2	12.7	77.5	--	100.0	71
10-11	7.8	3.1	9.4	79.7	--	100.0	64
12-13	10.8	--	5.4	83.8	--	100.0	74
14-15	17.6	2.0	4.9	75.5	--	100.0	102
16-17	10.9	0.9	0.9	87.3	--	100.0	110
18-19	23.8	--	--	75.2	1.0	100.0	105
20-21	32.8	--	1.6	65.6	--	100.0	61
22-23	43.1	1.7	1.7	53.4	--	100.0	58
24-25	56.5	--	--	42.4	1.2	100.0	85
26-27	56.7	--	--	42.3	1.0	100.0	97
28-29	68.0	--	--	32.0	--	100.0	97
30-31	64.5	--	--	35.5	--	100.0	76
32-33	81.8	--	--	18.2	--	100.0	66
34-35	63.8	--	--	36.2	--	100.0	58
36-37	81.0	--	--	16.7	2.4	100.0	84
38-39	82.7	--	--	17.3	--	100.0	98
40-41	81.8	--	--	17.2	1.0	100.0	99
42-43	93.3	--	--	6.7	--	100.0	90
44-45	91.1	--	--	8.9	--	100.0	79
46-47	89.3	--	--	9.3	1.3	100.0	75

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

Figure 10.1
Distribution of Children by Breast-feeding (BF) Status According to Age



Note: BF + Supplements includes BF + DK (Don't know) Supplements

NFHS, Maharashtra, 1992-93

in five children are being breastfed even after three years of life.

Table 10.3 and Figure 10.2 show in greater 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 numbers of children in each age group are shown in the far right column.

The percentage receiving infant formula in Maharashtra is small, appearing to increase in the first year of life, with no significant pattern thereafter. Supplementation of breast milk by other milk rises steadily with age through age 18-19 months, after which it remains fairly constant through age 22-23 months, before declining slightly. Due to the small number of cases after age 19 months, no clear pattern is discerned. Other liquids, such as juice or tea, supplement milk, rising rapidly from an average of 22 percent for those age below 6 months, to a level of over 94 percent by age two. The pattern of supplementation by solid or mushy foods is somewhat similar, rising from about 19 percent for those age 6-7 months, to 74 percent by age 12-13 months, and less rapidly thereafter. Only 26 percent of infants in the age group 6-9 months received both breast milk and solid foods as recommended by the WHO.

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 since the period of amenorrhoea is shortened when mothers feed their children from bottles with nipples. In addition, since it is difficult to sterilize the nipple properly, the use of bottles with nipples exposes children to an increased risk of developing diarrhoea and other

Table 10.3 Type of supplementation by child's age

Percentage of last-born breastfeeding children receiving food supplementation by type and percentage using a bottle with a nipple, according to child's age in months, Maharashtra, 1992-93

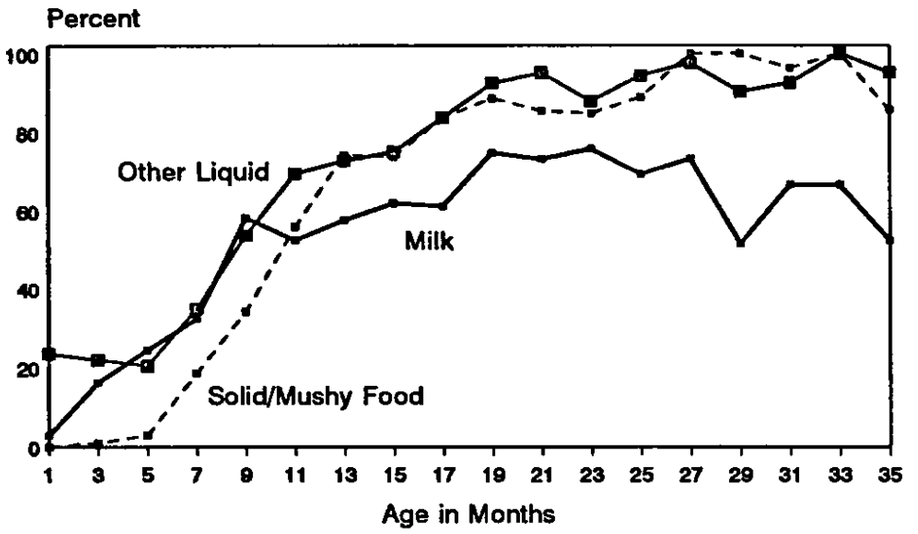
Age in months	Percentage of breastfeeding children who are: Receiving supplement: Infant formula	Other milk	Other liquid	Solid/ mushy food	Using bottle with a nipple	Number of breast-feeding children
0 - 1	--	2.8	23.6	--	1.4	72
2 - 3	1.9	16.3	22.1	1.0	8.7	104
4 - 5	4.9	24.5	20.6	2.9	8.8	102
6 - 7	8.8	32.5	35.0	18.8	13.7	80
8 - 9	6.0	58.2	53.7	34.3	10.4	67
10-11	10.2	52.5	69.5	55.9	16.9	59
12-13	3.0	57.6	72.7	74.2	10.6	66
14-15	4.8	61.9	75.0	73.8	8.3	84
16-17	6.1	61.2	83.7	83.7	2.0	98
18-19	5.1	74.7	92.4	88.6	2.5	79
20-21	(7.3)	(73.2)	(95.1)	(85.4)	(2.4)	41
22-23	(6.1)	(75.8)	(87.9)	(84.8)	(3.0)	33
24-25	(5.6)	(69.4)	(94.4)	(88.9)	(8.3)	36
26-27	(2.4)	(73.2)	(97.6)	(100.0)	(2.4)	41
28-29	(3.2)	(51.6)	(90.3)	(100.0)	(--)	31
30-31	(--)	(66.7)	(92.6)	(96.3)	(--)	27
32-35	(9.1)	(57.6)	(96.9)	(90.9)	(--)	33
36-39	(--)	(64.5)	(96.8)	(100.0)	(--)	31
40+	(--)	(62.1)	(97.3)	(100.0)	(--)	37

Note: Breastfeeding status refers to the last 24 hours. Percents by type of supplement among breastfeeding children may sum to more than 100.0 since children may have received more than one type of supplement.
() Based on 25-49 cases
-- Less than 0.05 percent

diseases. Table 10.3 shows that bottle feeding is relatively rare in Maharashtra, increasing from just over 1 percent in the first month after birth to a high of 17 percent for children age 10-11 months, after which it declines slowly to less than one percent for children above 27 months.

Table 10.4 presents data on the duration and frequency of breastfeeding by various background characteristics of mothers. The overall median length of breastfeeding is just under two years. However, supplementation begins very early, with the median length of exclusive breastfeeding being less than one month and the median length of full breastfeeding being 6 months. The mean length of breastfeeding is somewhat longer than the median length, denoting that some children are breastfed for very long periods of time. Estimates of both the means and 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

Figure 10.2
Percentage of Children Given Milk, Other Liquid, or Solid/Mushy Food the Day Before the Interview



Note: Based on youngest child under age four being breastfed; Milk refers to fresh milk and tinned/powdered milk

NFHS, Maharashtra, 1992-93

period errors). For each measure of breastfeeding, the prevalence-incidence means are very close to the means calculated in the conventional manner.

Children of urban and more educated women have slightly shorter durations of breastfeeding than other children. On the other hand, children of Buddhist mothers, mothers who are not exposed to any media, and whose birth was not attended by a health professional or trained birth attendant had slightly longer durations of breastfeeding. There is no variation in the duration of breastfeeding by the sex of the child. It is not clear why non-working mothers breastfed their children for a much shorter period than mothers who were employed by someone else outside the home.

In addition to the length of breastfeeding, the frequency with which mothers breastfeed can affect the duration of postpartum amenorrhoea. The health and nutritional status of the child may also be influenced by the frequency of breastfeeding. More than 90 percent of children under six months of age were breastfed six or more times on the day before the interview, indicating the high intensity of breastfeeding in Maharashtra.

10.2 Nutritional Status of Children

One of the major contributions of the National Family Health Survey 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. Children under two years old were measured lying down on an adjustable measuring board, while those age two and above were

Table 10.4 Median duration and frequency of breastfeeding by background characteristics

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, according to selected background characteristics, Maharashtra, 1992-93

Background characteristic	Median duration (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	22.7	0.6	4.1	1085	87.5	152
Female	23.2	0.7	6.2	1042	93.1	131
Residence						
Urban	22.0	0.7	4.3	829	91.8	110
Rural	24.8	0.7	6.2	1298	89.0	173
Mother's education						
Illiterate	26.1	1.4	6.5	1067	92.8	125
Literate, < middle complete	22.8	0.7	5.0	566	84.0	81
Middle school complete	21.1	0.5	3.6	212	(93.9)	33
High school and above	19.4	0.5	2.8	282	(90.9)	44
Religion						
Hindu	22.6	0.7	4.9	1540	89.0	200
Muslim	22.0	0.7	6.7	382	88.0	50
Buddhist	25.2	0.6	6.7	150	(100.0)	25
Other	23.1	0.8	4.5	55	*	8
Mother's work status						
Not working	21.4	0.6	4.6	1224	88.4	189
Working in family farm/business	32.6	1.2	5.2	397	(90.5)	42
Employed by someone else	27.5	3.0	7.2	449	(95.6)	45
Self-employed	23.5	0.8	0.8	57	*	7
Mother's exposure to media						
Exposed to media	21.7	0.7	4.8	1260	91.0	178
Watches television weekly	21.0	0.6	3.8	886	90.9	132
Listens to radio weekly	22.2	0.7	5.0	1033	90.7	151
Visits cinema/theatre monthly	21.8	0.8	3.9	323	(93.6)	47
Not exposed to media	25.7	0.6	6.5	867	88.6	105
Assistance at delivery						
Health professional	21.9	0.6	4.0	1134	89.4	161
Traditional birth attendant	23.8	0.6	6.1	431	88.2	51
Other or none	25.2	2.4	7.9	559	93.0	71
Total	23.0	0.7	5.5	2127	90.1	283
Mean for all children[1]	25.5	3.0	6.2	2127	NA	NA
P/I for all children[3]	25.2	2.5	5.9	2127	NA	NA

Note: For children under 4 years, total includes 3 children with missing information on assistance at delivery, who are not shown separately.
NA: Not applicable
() Based on 25-49 cases
* Percentage not shown; based on fewer than 25 cases
[1]Median and mean based on current status
[2]Either exclusively breastfed or received breastmilk and plain water only
[3]Prevalence-incidence mean

measured in a standing position. The data on weight and height were used to calculate three summary indices of nutritional status, which affect children's susceptibility to disease and their chances of survival. The following indices were calculated for children under age four:

- weight-for-age
- height-for-age
- 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 in general.

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 deemed to be severely undernourished.

Each of the indices provides somewhat different information about nutritional status. 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 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. About 15 percent of living children under age four were not weighed and measured, usually because the child was not at home or because the mother refused to allow the measurements to be taken. In addition,

Table 10.5 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, Maharashtra, 1992-93

Demographic characteristic	Weight-for-age		Height-for-age		Weight-for-height		Number of children
	Percentage below -3 SD	Percentage below -2 SD[1]	Percentage below -3 SD	Percentage below -2 SD[1]	Percentage below -3 SD	Percentage below -2 SD[1]	
Child's age							
< 6 months	1.5	8.5	2.5	5.5	2.5	14.6	199
6 -11 months	10.9	34.9	5.1	18.3	3.4	18.3	175
12-23 months	26.2	63.0	19.6	45.6	7.6	35.5	397
24-35 months	27.1	64.1	30.3	58.2	3.5	17.2	373
36-47 months	21.4	61.5	33.7	67.9	2.3	11.2	392
Sex							
Male	18.5	51.3	21.1	45.0	4.2	20.3	778
Female	22.0	54.0	22.8	47.1	4.0	20.1	758
Birth order							
1	15.4	50.5	19.9	43.3	4.1	18.0	467
2-3	22.0	51.9	20.9	45.0	4.0	20.5	726
4-5	22.3	57.8	28.3	51.8	3.6	21.5	251
6+	25.0	54.3	22.8	52.2	6.5	25.0	92
Previous birth interval							
First birth	15.6	50.5	20.0	43.3	4.1	17.9	469
< 24 months	24.3	56.8	26.4	53.2	4.6	19.6	280
24-47 months	21.9	53.9	22.7	47.0	3.5	21.6	625
48+ months	20.4	46.3	16.7	37.7	5.6	22.2	162
Total	20.2	52.6	21.9	46.0	4.1	20.2	1536

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.

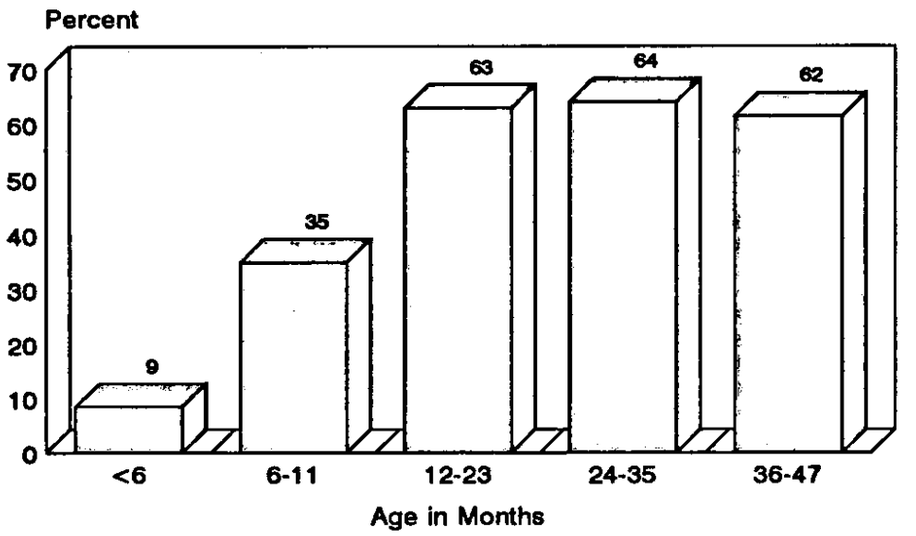
[1]Also includes the children who are below -3 standard deviations from the International Reference Population median

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 10.5 shows the nutritional status of children by selected demographic characteristics. Both chronic and acute undernutrition are very high in Maharashtra. More than half of all children are underweight and about half are stunted. The proportion of children who are severely undernourished is also notable (about 20 percent). One in five children in Maharashtra also faces one of the most serious nutritional problems, wasting.

Undernutrition varies substantially by the child's age, being lowest in the first six months of life, when most babies are being fully breastfed. The percentage of children who are underweight reaches a plateau of over 60 percent at age one year (Figure 10.3). However, the prevalence of stunting continues to grow, reaching a peak of about 68 percent among children

Figure 10.3
Percentage of Children Under Age Four Who Are Underweight by Age



Note: Percentage of children more than 2 standard deviations below the median of the International Reference Population

NFHS, Maharashtra, 1992-93

who are three years old. The prevalence of wasting, on the other hand, reaches a maximum for children in the age group 12-23 months and then declines thereafter.

Female children are slightly more likely to be undernourished than male children, although the differences are marginal. Children of birth-order 4-5 are more likely to be undernourished and stunted, while children of birth-order 6 and above are most likely to be wasted. As expected, the nutritional status of children is also affected by the length of the previous birth interval. Children having a birth interval of less than 24 months are most likely to be undernourished or stunted.

Table 10.6 shows nutritional status by selected background characteristics. Undernutrition is consistently higher in rural areas than in urban areas. Children whose mothers are Buddhists or who belong to scheduled castes or scheduled tribes are also more undernourished than other children, but these differences are not so striking. However, it is important to note that undernutrition is relatively high among all subgroups.

In contrast to the muted differences shown for other background characteristics, the variability by educational level is more striking. As expected, mother's education is inversely related to the level of undernourishment. Children of illiterate and less educated mothers are more likely to be undernourished. In fact, the percentage of children undernourished, in terms of all three measures of nutritional status, is about twice as high among children of illiterate mothers as among children of mothers who have at least a high school education. But even

Table 10.6 Nutritional status by background characteristics

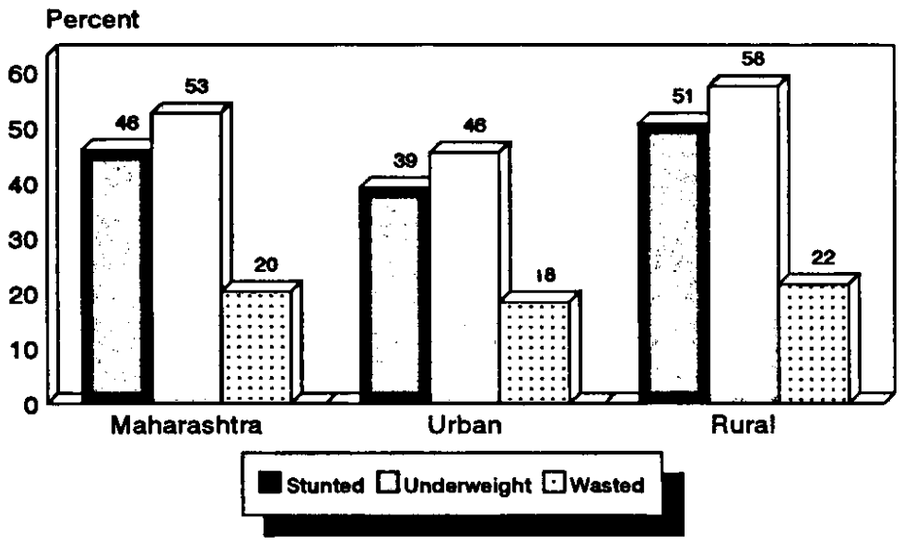
Among children under four years of age, the percentage classified as undernourished according to three anthropometric indices of nutritional status, by selected background characteristics, Maharashtra, 1992-93

Background characteristic	Weight-for-age		Height-for-age		Weight-for-height		Number of Children
	Percentage below -3 SD	Percentage below -2 SD[1]	Percentage below -3 SD	Percentage below -2 SD[1]	Percentage below -3 SD	Percentage below -2 SD[1]	
Residence							
Urban	14.6	45.5	15.7	39.1	3.8	18.3	624
Rural	24.1	57.5	26.2	50.8	4.3	21.5	912
Mother's education							
Illiterate	26.5	62.4	29.2	55.0	4.7	22.9	729
Lit., <middle complete	16.6	49.9	19.3	42.5	3.2	20.0	435
Middle school complete	17.1	44.7	15.3	38.2	5.3	21.2	170
High school and above	8.4	29.7	6.9	27.7	3.0	9.9	202
Religion							
Hindu	20.5	53.6	22.1	45.8	4.1	20.8	1129
Muslim	19.8	51.0	19.5	44.7	5.8	18.7	257
Buddhist	23.6	53.6	30.0	57.3	1.8	22.7	110
Other	(5.0)	(32.5)	(10.0)	(30.0)	(--)	(5.0)	40
Caste/tribe							
Scheduled caste	25.8	56.7	26.8	53.6	6.2	28.9	97
Scheduled tribe	28.3	63.0	28.9	54.3	2.3	26.0	173
Other	18.7	50.9	20.6	44.3	4.2	18.7	1266
Total	20.2	52.6	21.9	46.0	4.1	20.2	1536

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 below -3 standard deviations from the International Reference Population median

among children of the most highly educated mothers, undernourishment is common, with almost a third of them being either underweight or stunted.

Figure 10.4
Undernutrition Among Children Under Four Years of Age



Note: Percentage of children more than 2 standard deviations below the median of the International Reference Population

NFHS, Maharashtra, 1992-93

CHAPTER 11

VILLAGE PROFILE

The level of educational attainment, the extent of use of family planning methods and maternal and child health services and utilization of other health services depends on the availability of such services as well as on the demand for them. The NFHS has tried to assess the availability of or supply of educational, health and family planning services in rural areas with the use of a Village Questionnaire. One questionnaire was filled in for each of the 84 selected villages in Maharashtra. This chapter describes some important features of the sample villages representing rural Maharashtra.

Information was obtained regarding the quality of roads that connect the village to other places, the distance of the village from the nearest railway station and bus stand, the nearest town, and block and tehsil headquarters. Data were also collected on the availability and distance to various types of educational institutes and programmes, as well as health facilities and health personnel. The existence of important support services and facilities in the villages such as banks, cooperative societies, post offices, markets and shops, social clubs such as youth's or women's clubs and various schemes for rural development and poverty alleviation started by the government, was determined because they contribute to the quality of life in the village and can also serve as an indicator of the degree of development.

The supervisor of each interviewing team was responsible for identifying key informants in the village who were knowledgeable about village facilities and infrastructure. The village headman (*Sarpanch*) was usually contacted by the supervisor to obtain general information about the village and names of other persons who could provide more specific information. For example a teacher or headmaster might be asked about existing schools and other educational services; a doctor or health practitioner could be contacted to obtain information on health facilities; the village land record keeper (*Patwari*) could provide information on heavy equipment and other capital goods such as number of tractors or threshers used for farming; and the village extension worker (*Gram sevak*) could be contacted to collect information about availability of electricity, irrigation and other production facilities. On the basis of the information on various items, the supervisor of the team filled in the Village Questionnaire during the fieldwork in each village.

The villages were selected using probability proportional to size. This introduces a bias because bigger villages have a greater chance of being selected than smaller villages. Village weights are therefore used to adjust for this bias, and the tables are appropriately weighted. If f_{1hi} is the selection probability of the i^{th} village in the h^{th} stratum[1], then the village weights are calculated as follows:

$$w_{hi}' = \frac{1}{f_{1hi}}$$

[1] The villages in the state were ordered according to a specified stratification scheme prior to selection.

These weights are then normalized so that the weighted number of villages is equal to the unweighted number of villages. The normalized village weights are calculated as follows:

$$w_{hij} = w'_{hij} \times \frac{A}{\sum_{h,j} w'_{hij}}$$

where A is the total number of villages selected in the state.

11.1 Distance from the Nearest Town and Transportation Facility

Table 11.1 presents the distribution of sample villages according to the distance from the nearest town, railway station and bus stand. Only 7 percent of the villages are within 5 km of the nearest town, 18 percent are between 5-9 km of the nearest town and three-fourths are more than 10 km away. The median distance to the nearest town is 16 km. Regarding the distance from the nearest railway station, 12 percent are within 5 km of the nearest railway station, 11 percent are 5-9 km away, 61 percent are more than 10 km away and 17 percent have missing information. About three-fourths of the villages are within 5 km of the nearest bus stand. This indicates a fairly good network of road transportation in Maharashtra. Only 12 percent of the villages are more than 10 km away from the nearest bus stand, and the median distance from the nearest bus stand is only 2.5 km.

Table 11.1 Distance from nearest town and transportation facility

Percent distribution of villages according to distance from the nearest town, railway station and bus stand, Maharashtra, 1992-93

Distance	Nearest town	Railway station	Bus stand
< 5 km	6.6	11.6	74.6
5-9 km	18.4	10.5	13.4
10+ km	75.1	61.4	12.0
Don't know/missing	--	16.5	--
Total percent	100.0	100.0	100.0
Median distance	16.4	25.2	2.5

-- Less than 0.05 percent

11.2 Availability of Educational Facilities

Table 11.2 shows that practically every village in Maharashtra has a primary school located within the village. Eighty-one percent of villages have a middle school either within the village or within 5 km of the village. The median distance from a middle school is only 1.9 km. About 57 percent of the villages have a secondary school either within the village or within 5 km of the village, the median distance from a secondary school is 3.9 km. The majority of the villages (71 percent) have a higher secondary school more than 5 km away, with a median

Table 11.2 Distance from nearest educational facility

Percent distribution of villages according to distance from nearest educational facility, Maharashtra, 1992-93

Distance	Educational facility				
	Primary school	Middle school	Secondary school	Higher secondary school	College
Within village	99.5	42.5	19.2	4.5	1.7
< 5 km	0.5	38.5	38.1	24.2	10.3
5-9 km	--	8.8	24.9	27.8	20.8
10+ km	--	10.2	17.9	43.4	66.2
Don't know/missing	--	--	--	--	1.0
Total percent	100.0	100.0	100.0	100.0	100.0
Median distance	0.0	1.9	3.9	7.9	15.2

-- Less than 0.05 percent

distance of 7.9 km. As expected, colleges are located quite far from the villages, at a median distance of 15 km. Eighty-seven percent of the villages are more than 5 km from the nearest college. Thus, on the whole, the educational facilities for primary education are universal and those for middle school are nearly universal in the rural areas of Maharashtra.

11.3 Availability of Health Facilities

The availability of health facilities either within or close to a village is critical to the health and well-being of village mothers and their children. Table 11.3 shows the distance of villages from the nearest health facility as well as the percentage of ever-married women in rural areas who have access to health facilities. Slightly more than one-third of the villages in Maharashtra have some type of health facility located within the village, and for another 35 percent of villages the health facility is within a distance of 5 km. For 30 percent of the villages the health facility is more than 5 km away. The median distance from any health facility is 2.8 km. The most common health facility in the village is a dispensary/clinic (29 percent) followed by either a Primary Health Centre or sub-centre (24 percent). Nearly 56 percent of the villages have a sub-centre located within the village or within 5 km. The median distance to a sub-centre is 4.4 km, while the median distance to a Primary Health Centre is 7.3 km. As expected, the median distance of villages from the nearest hospital is 12 km with 59 percent of all villages more than 10 km away.

The percent distribution of ever-married women according to the nearest health facility indicates the access to health services which affects the utilization of health services in villages. The majority of ever-married women (64 percent) have access to some health facility, the most common facility being either a Primary Health Centre or sub-centre followed by a dispensary clinic. For nearly 18 percent of ever-married women the health facility is within 5 km. A large majority of women have to travel a distance of more than 10 km to reach the nearest hospital.

Table 11.3 Distance from nearest health facility

Percent distribution of villages and ever-married women age 13-49, according to distance from nearest health facility, Maharashtra, 1992-93

Distance	Health facility					
	Primary Health Centre	Sub-centre	Either PHC or sub-centre	Hospital	Dispensary/ clinic	Any health facility
			VILLAGES			
Within village	8.8	20.8	24.0	2.9	28.6	34.8
< 5 km	19.4	34.7	37.1	8.6	25.7	34.9
5-9 km	40.6	29.3	29.3	28.1	23.5	26.0
10+ km	31.0	9.8	9.7	58.6	20.3	4.3
Don't know/missing	0.2	5.4	--	1.8	1.9	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Median distance	7.3	4.4	4.2	12.0	3.8	2.8
			EVER-MARRIED WOMEN			
Within village	15.5	45.5	52.3	7.0	50.3	63.7
< 5 km	18.6	20.5	22.4	9.6	17.7	17.6
5-9 km	33.3	18.9	18.2	24.1	11.2	15.2
10+ km	30.8	7.2	7.2	54.6	18.4	3.5
Don't know/missing	1.8	7.9	--	4.7	2.5	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Median distance	7.1	1.0	0.0	11.5	0.0	0.0

-- Less than 0.05 percent

11.4 Availability of Other Facilities and Services

Health personnel are also important for the provision of health services to the women and children in the villages in Maharashtra. Table 11.4 shows the availability of health personnel in the village. About 79 percent of the villages have a health guide, 65 percent have a trained birth attendant and 66 percent have Anganwadi workers. Only 6 percent of the villages have the service of a mobile health unit. Table 11.4 also provides information on availability of various other facilities and services in the villages in Maharashtra. Fifty-eight percent of the villages have Adult Education classes and only 18 percent have *Jana Shikshana Nilayam* (an institutionalized form of a post-literacy programme). Rural electrification is almost completed in Maharashtra with 96 percent of the villages having electricity. Regarding the government rural development programmes, more than half of the villages are covered by the Integrated Rural Development Programme (IRDP), 22 percent by the National Rural Employment Programme (NREP), and 15 percent by Training the Youth for Self-employment (TRYSEM).

More than half of the villages have women's clubs (*Mahila Mandal*) and 32 percent have youth clubs. Two in 3 villages have fair price shops and 44 percent have market/shops. One in 5 villages has a bank and 47 percent have credit cooperative societies. Thirty-five percent of the villages have a post office.

Table 11.4 Availability of facilities and services

Percentage of villages having selected facilities and services, Maharashtra, 1992-93

Facility/Services	Percentage
Anganwadi	65.8
Adult education classes	58.1
Jana Shikshana Nilayam	17.7
Village health guide	79.4
Trained birth attendant	64.6
Mobile health unit	5.6
Electricity	95.8
Bank	20.8
Credit co-operative society	46.9
Post office	35.4
Market/shop	44.0
Fair price shop	66.6
Mahila Mandal	53.3
Youth club	31.8
Integrated Rural Development Programme (IRDP)	51.4
National Rural Employment Programme (NREP)	22.4
Training the Youth for Self-employment (TRYSEM)	14.7

CHAPTER 12

KNOWLEDGE OF AIDS

Acquired Immune Deficiency Syndrome, or AIDS as it is more commonly known, was first recognized in 1981. Several million individuals throughout the world are now infected with the human immunodeficiency virus (HIV), which causes AIDS. 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 the original description of the AIDS syndrome, its cause and basic immunological abnormalities were identified, and the mode of transmission of the causative virus was documented. The HIV virus may remain in a state of latency for some time without causing clinical disease. It is thought that once an individual has become infected with this 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 (and perhaps even longer in some cases), most infected people develop a long-term clinical illness, which is full-blown AIDS.

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. The available evidence indicates that the HIV cannot be transmitted through food, water, vectors, or casual contact.

Control programmes have been initiated in many countries, including India, which has initiated an AIDS prevention programme. According to an estimate of the Ministry of Health and Family Welfare, approximately 600,000 persons were HIV positive in India in 1992. The number of HIV positive cases among those screened (who tend to be from high-risk groups) has shown an increase from 2.5 per 1,000 population in 1986 to 11.2 per 1,000 population in 1992 (Ministry of Health and Family Welfare, 1993).

The NFHS in Maharashtra included a series of questions on knowledge of AIDS. These were included as state-specific questions in addition to the core questions used in all Indian states. The added questions enable measurement of the extent of knowledge about AIDS among different population sub-groups, 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 of an illness called AIDS. Respondents indicating knowledge of AIDS were asked further questions about the source of their knowledge, their knowledge of the mechanisms of AIDS transmission, whether they thought it was possible to prevent AIDS transmission and, if so, their perception of the precautions a person can take to avoid AIDS.

12.1 Knowledge of AIDS

As seen from Table 12.1, knowledge of AIDS is very limited in Maharashtra. Of the 4,106 eligible women, only 19 percent (764 women) have ever heard of AIDS. Young women, those below age 25, are less likely to have heard of AIDS than women age 25 and older. As expected, women living in urban areas are much (five times) more likely to have heard of AIDS

Table 12.1 Knowledge of AIDS

The percentage of ever-married women age 13-49 who have heard about AIDS and among women who have heard about AIDS, percentage who think AIDS can be transmitted through different modes, according to selected background characteristics, Maharashtra, 1992-93

Background characteristics	Percent who heard about AIDS	Total number of women	Among those who have heard about AIDS, percent[1] who think AIDS can be transmitted through: Sexual intercourse	Homosexual intercourse	Heterosexual intercourse	Needles/ blades/ skin punctures	Mother to child	Transfusion of infected blood	Other ways	Number of women
Age										
< 25	13.8	1302	80.0	5.6	3.9	17.2	10.6	7.8	2.2	180
25-34	21.6	1405	85.5	4.6	3.0	16.8	7.9	18.4	0.7	304
34+	20.0	1399	82.1	5.7	3.2	18.9	5.0	19.6	1.1	280
Residence										
Urban	35.3	1699	85.3	5.7	2.2	19.0	7.2	19.0	0.8	599
Rural	6.9	2407	74.5	3.6	7.3	12.7	8.5	6.7	2.4	165
Education										
Illiterate	1.8	2060	64.9	2.7	2.7	10.8	8.1	--	--	37
Lit., < middle complete	14.6	1113	77.9	3.1	2.5	16.0	3.7	10.4	1.8	163
Middle school complete	33.3	327	80.7	3.7	3.7	15.6	9.2	11.9	1.8	109
High school and above	75.1	606	86.8	6.6	3.5	19.3	8.4	20.9	0.9	455
Religion										
Hindu	17.7	3138	83.2	5.0	3.1	17.8	6.7	16.6	1.1	555
Muslim	17.4	517	82.2	3.3	5.6	16.7	7.8	11.1	1.1	90
Buddhist	16.4	304	78.0	6.0	4.0	18.0	8.0	18.0	--	50
Other	46.9	147	85.5	8.7	1.4	17.4	13.0	20.3	2.9	69
Caste/tribe										
Scheduled caste	9.1	263	*	*	*	*	*	*	*	24
Scheduled tribe	5.1	390	*	*	*	*	*	*	*	20
Other	20.9	3453	83.6	4.9	3.2	17.8	7.6	16.7	1.1	720
Exposure to mass media										
Exposed to any media	28.4	2580	83.9	5.4	3.4	18.1	7.5	16.9	1.0	734
Watches television weekly	29.5	2148	85.6	5.2	3.5	19.2	8.0	17.8	0.8	634
Listens to radio weekly	36.7	1904	84.4	5.7	3.4	18.6	7.4	17.6	1.0	699
Goes to cinema monthly	38.5	610	89.8	8.1	3.0	19.6	10.6	14.5	0.4	235
Not exposed to any media	2.0	1526	(60.0)	(--)	(--)	(6.7)	(6.7)	(3.3)	(6.7)	30
Total	18.6	4106	83.0	5.2	3.3	17.7	7.5	16.4	1.2	764

( ) Based on 25-49 cases
* Percentage not shown; based on fewer than 25 cases
-- Less than 0.05 percent
[1]Percentages may sum to more than 100.0 since multiple responses were allowed.

than rural women. Education is positively related to the extent of knowledge about AIDS, with more than three-quarters of women who have at least a high school education having heard of AIDS, in contrast to less than 2 percent of illiterate women. There does not appear to be much difference in the knowledge of AIDS among Hindu, Muslim and Buddhist women, although a higher percentage of women who belong to other religious groups have heard of AIDS. Scheduled caste and scheduled tribe women are less likely to have heard of AIDS than other women. The knowledge of AIDS is closely related to women's exposure to the mass media, with knowledge being highest among women who go to the cinema at least once a month. Only 2 percent of women who are not exposed to any form of media have heard of AIDS.

In the NFHS, women who had heard about AIDS were asked an open-ended question on how AIDS is transmitted. Interviewers were instructed to record all modes of transmission mentioned by the respondent.

Table 12.1 also shows women's knowledge about transmission of AIDS. Epidemiological studies have demonstrated that AIDS is most likely to be transmitted through sexual intercourse, from a mother to her foetus, and intravenously. Generally, women who had heard of AIDS also seem highly knowledgeable about its transmission. Most women (83 percent) who had heard of AIDS thought that AIDS is transmitted through sexual intercourse. A sizeable percentage also thought that AIDS is transmitted through needles/blades/skin puncture (18 percent), blood transfusion (16 percent), and from a mother to her child (8 percent). Women's knowledge of transmission, by background variables, closely resembles the pattern observed for women who had heard of AIDS.

12.2 Source of Knowledge about AIDS

As part of the AIDS prevention programme, the government has actively sought to inform the public about AIDS, and how to prevent its spread, through the mass media. Table 12.2 demonstrates the success of the government's dissemination programme on AIDS. The largest single source of information cited on AIDS was television (87 percent), followed by newspapers (36 percent), radio (28 percent), and magazines (14 percent). Almost 7 percent of respondents who had heard of AIDS had heard from friends and relatives. With the exception of women not exposed to any media, differentials by background characteristics are not as strong when an electronic media (radio or television) is cited as the source of knowledge on AIDS. On the other hand, more obvious differences emerge when the print media is considered as a source. Older women, women from urban areas and those who are more educated were more likely to cite newspapers and magazines as their source of information on AIDS, in contrast to younger, rural and less educated women who were more likely to cite friends/relatives as their source of knowledge on AIDS.

12.3 Misconceptions about AIDS

Respondents who had heard about AIDS were also asked about some common misconceptions about its spread, such as, if they thought they could get AIDS from a variety of everyday social situations such as shaking hands with someone who has AIDS, or sharing clothing or eating utensils with someone who has AIDS. These situations are believed to pose an extremely low risk in the transmission of AIDS. Women were also asked if they thought

Table 12.2 Source of knowledge about AIDS

Among women who have heard about AIDS, the percentage who had knowledge of AIDS from different sources, according to selected background characteristics, Maharashtra, 1992-93

Background characteristics	Among those who have heard about AIDS, percentage[1] who received information from: Radio	Tele-vision	News papers	Maga-zines	Friends/ relatives	Other sources	Number of women
Age							
< 25	30.6	83.9	29.4	13.3	8.9	0.6	180
25-34	27.0	86.8	36.8	14.1	5.3	1.0	304
34+	26.8	88.6	40.0	15.0	7.5	0.4	280
Residence							
Urban	24.9	89.5	37.2	15.2	6.5	0.8	599
Rural	38.2	77.0	32.7	10.9	8.5	--	165
Education							
Illiterate	21.6	70.3	2.7	--	16.2	--	37
Literate, < middle complete	22.7	85.9	22.1	7.4	12.3	--	163
Middle school complete	22.0	80.7	28.4	5.5	6.4	--	109
High school and above	31.4	89.9	45.9	20.0	4.4	1.1	455
Religion							
Hindu	29.4	86.8	38.9	15.0	4.9	0.9	555
Muslim	22.2	85.6	20.0	13.3	13.3	--	90
Buddhist	18.0	86.0	30.0	4.0	14.0	--	50
Other	29.0	88.4	40.6	17.4	10.1	--	69
Exposure to mass media							
Exposed to any media	28.5	88.8	36.8	14.9	5.7	0.7	734
Watches television weekly	31.7	89.7	37.7	15.3	4.7	0.6	634
Listens to radio weekly	27.3	91.3	37.3	15.0	5.4	0.6	699
Goes to cinema monthly	33.2	89.4	40.0	18.7	5.1	1.7	235
Not exposed to any media	(10.0)	(36.7)	(23.3)	(--)	(36.7)	(--)	30
Total	27.7	86.8	36.3	14.3	6.9	0.7	764

( ) Based on 25-49 cases
-- Less than 0.05 percent
[1]Percentages may sum to more than 100.0 since multiple responses were allowed.

it was possible for a healthy-looking person to be carrying the HIV or for a woman who has AIDS to give birth to a child who has the AIDS virus. Finally, women were asked if they thought that AIDS was curable or if an AIDS vaccine existed.

While only 9 percent of women who had heard of AIDS thought that it can be contracted through shaking the hands of someone with AIDS, 26 percent of women thought that it is possible to get AIDS from kissing someone who has the disease (Table 12.3). About one in five women thought that AIDS can be contracted through wearing the clothes of someone with AIDS, sharing eating utensils with someone who has AIDS and stepping on the urine/stool of a person with AIDS. About one in seven women also thought that AIDS can be spread by hugging someone with AIDS and from mosquito/fly/bedbug bites. Although misconceptions existed among all women, it was generally more common among younger (age below 25), rural and illiterate women and women not exposed to the mass media. However, the degree of

Table 12.3 Misconceptions about AIDS

Among women who have heard about AIDS, the percentage who have misconceptions about different ways of getting AIDS, according to selected background characteristics, Maharashtra, 1992-93

Background characteristic	Percent[1] who think it is possible to get AIDS from:							Percent who think:		Number of women
	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 person who has AIDS	Mosquito, fly, bedbug bite	AIDS is curable	An AIDS vaccine exists	
Age										
< 25	11.7	11.7	23.9	17.2	20.0	15.6	15.0	27.8	13.9	180
25-34	8.6	14.8	28.3	17.4	19.1	17.1	11.8	21.7	12.2	304
34+	8.9	16.4	24.3	23.2	24.6	20.7	13.6	24.3	9.3	280
Residence										
Urban	7.5	13.2	24.4	18.0	19.0	16.2	11.5	24.7	11.2	599
Rural	16.4	20.0	30.9	24.8	29.7	24.8	19.4	21.8	12.7	165
Education										
Illiterate	16.2	21.6	24.3	16.2	16.2	21.6	13.5	5.4	5.4	37
Lit., < middle complete	12.9	14.1	24.5	22.1	22.1	19.0	13.5	27.0	16.0	163
Middle school complete	15.6	23.9	29.4	28.4	31.2	23.9	16.5	25.7	13.8	109
High school and above	6.2	12.1	25.5	16.7	19.1	16.0	12.3	24.2	9.9	455
Religion										
Hindu	11.0	16.4	26.3	20.4	22.7	18.6	12.3	23.8	11.0	555
Muslim	6.7	14.4	27.8	16.7	15.6	12.2	13.3	23.3	15.6	90
Buddhist	8.0	8.0	16.0	20.0	18.0	22.0	20.0	34.0	12.0	50
Other	1.4	5.8	26.1	15.9	20.3	18.8	15.9	20.3	10.1	69
Caste/tribe										
Scheduled caste	16.7	16.7	20.8	20.8	25.0	29.2	16.7	45.8	20.8	24
Scheduled tribe	5.0	5.0	10.0	5.0	5.0	5.0	5.0	35.0	20.0	20
Other	9.3	14.9	26.4	19.9	21.7	18.1	13.3	23.1	11.0	720
Exposure to mass media										
Exposed to any media	8.9	14.9	25.9	19.3	21.3	17.8	12.5	24.5	11.7	734
Listens to radio weekly	8.4	13.7	24.9	18.3	20.2	17.0	12.4	25.0	12.0	699
Watches television weekly	8.4	14.7	25.4	18.6	21.0	17.0	11.7	24.1	11.2	634
Goes to cinema monthly	9.8	16.2	26.8	17.4	17.9	16.2	11.5	27.7	15.7	235
Not exposed to any media	(23.3)	(10.0)	(23.3)	(23.3)	(23.3)	(23.3)	(30.0)	(13.3)	(6.7)	30
Total	9.4	14.7	25.8	19.5	21.3	18.1	13.2	24.1	11.5	764

( ) Based on 25-49 cases
[1]Percentages may sum to more than 100.0 since multiple responses were allowed.

misconceptions does not vary much by type of media exposure.

About three out of four women who had heard about AIDS believed that it was possible for a healthy looking person to be infected with the HIV and for a mother who had AIDS to give birth to a child with the AIDS virus (data not shown). Almost one in four women also thought that AIDS is curable, while one in nine thought that an AIDS vaccine exists. In contrast to earlier patterns, urban and literate women thought that AIDS is curable, while only a small

percentage of illiterate women thought that AIDS is curable or that an AIDS vaccine exists.

12.4 Knowledge of AIDS Prevention

More than half of all women who had heard of AIDS believed that the disease can be avoided by practising safe sex, which includes having sex with just one person, or using a condom (Table 12.4). Another 32 percent specifically stated that using condoms during intercourse would prevent the spread of AIDS. About one in six women believed that checking blood prior to transfusion and sterilizing needles/syringes for injection would prevent AIDS transmission. Knowledge about AIDS transmission is higher among literate and educated women and those who have had some exposure to the mass media.

It is quite obvious from the above analyses that much more needs to be done in Maharashtra to increase awareness about the existence of AIDS and its transmission.

Table 12.4 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 selected background characteristics, Maharashtra, 1992-93

Background characteristic	Percent[1] who believe AIDS can be avoided by:					Number of women
	Using condoms during intercourse	Practising safe sex	Checking blood prior to transfusion	Sterilizing needles/ syringes for injection	Avoiding pregnancy when infected with AIDS	
Age						
< 25	35.0	54.4	14.4	16.1	4.4	180
25-34	32.2	59.2	17.4	16.1	4.6	304
34+	30.0	56.4	20.7	15.4	1.4	280
Residence						
Urban	31.1	60.3	19.9	15.5	3.2	599
Rural	35.8	45.5	10.9	17.0	4.2	165
Education						
Illiterate	21.6	43.2	8.1	5.4	--	37
Literate, < middle complete	30.1	51.5	11.0	15.3	2.5	163
Middle school complete	32.1	54.1	14.7	14.7	2.8	109
High school and above	33.6	60.9	22.0	17.1	4.2	455
Religion						
Hindu	32.3	57.7	17.3	16.8	3.6	555
Muslim	30.0	57.8	12.2	14.4	2.2	90
Buddhist	26.0	54.0	22.0	14.0	4.0	50
Other	37.7	53.6	27.5	11.6	2.9	69
Exposure to mass media						
Exposed to any media	32.6	57.8	18.1	16.3	3.5	734
Listens to radio weekly	32.9	58.4	18.9	17.0	3.6	699
Watches television weekly	33.4	58.7	19.6	17.7	4.1	634
Goes to cinema monthly	34.0	62.1	16.2	19.6	5.1	235
Not exposed to any media	(20.0)	(40.0)	(13.3)	(3.3)	(--)	30
Total	32.1	57.1	17.9	15.8	3.4	764

( ) Based on 25-49 cases
-- Less than 0.05 percent
[1]Percentages may sum to more than 100.0 since multiple responses were allowed.

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APPENDIX A

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 two-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 h^{th} stratum,
y_{hi}	is the sum of the values of variable y in PSU i in the h^{th} stratum,
x_{hi}	is the sum of number of cases in PSU i in the h^{th} 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 state 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 A.1. Table A.2 presents the value of the statistic (R), its standard error (SE), the number of cases (N), 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$\pm$2SE), for each variable.

Table A.1 List of selected variables for sampling errors, Maharashtra, 1992-93

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

Table A.2 Sampling errors, Maharashtra, 1992-93

Variable/ Residence	Value (R)	Standard error (SE)	Number of cases (N)	Standard error assuming SRS (SER)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	R+2SE
SEX RATIO (Household *de facto* population)								
Urban	944	19.9	4783	15.476	1.284	0.021	903.8	983.4
Rural	991	15.0	6301	13.769	1.091	0.015	961.7	1021.8
Total	970	12.0	11084	10.289	1.170	0.012	946.9	995.0
ILLITERATE (Household *de facto* population, age 6 and over)								
Urban	0.190	0.016	8038	0.006	2.699	0.087	0.157	0.223
Rural	0.421	0.012	10594	0.007	1.875	0.029	0.396	0.445
Total	0.321	0.010	18632	0.005	2.085	0.032	0.301	0.342
PIPED WATER AS SOURCE OF DRINKING WATER (Households)								
Urban	0.913	0.024	1754	0.007	3.585	0.026	0.865	0.962
Rural	0.526	0.041	2309	0.010	3.977	0.079	0.443	0.608
Total	0.693	0.026	4063	0.007	3.571	0.037	0.641	0.745
PUMPED WATER AS SOURCE OF DRINKING WATER (Households)								
Urban	0.029	0.007	1754	0.004	1.841	0.254	0.014	0.044
Rural	0.140	0.022	2309	0.007	3.041	0.157	0.096	0.184
Total	0.092	0.013	4063	0.005	2.844	0.140	0.066	0.118
WELL WATER AS SOURCE OF DRINKING WATER (Households)								
Urban	0.048	0.017	1754	0.005	3.331	0.355	0.014	0.082
Rural	0.298	0.035	2309	0.010	3.701	0.118	0.228	0.368
Total	0.190	0.021	4063	0.006	3.480	0.113	0.147	0.233
SURFACE WATER AS SOURCE OF DRINKING WATER (Households)								
Urban	0.009	0.009	1754	0.002	3.764	0.937	0.000	0.026
Rural	0.033	0.010	2309	0.004	2.760	0.311	0.012	0.053
Total	0.023	0.007	4063	0.002	2.949	0.304	0.009	0.036
OTHER SOURCE OF DRINKING WATER (Households)								
Urban	0.001	0.001	1754	0.001	0.989	0.989	0.000	0.002
Rural	0.003	0.003	2309	0.001	2.280	0.861	0.000	0.008
Total	0.002	0.002	4063	0.001	2.166	0.765	0.000	0.005
ILLITERATE (Ever-married women age 13-49)								
Urban	0.318	0.030	1699	0.011	2.656	0.094	0.258	0.378
Rural	0.631	0.019	2407	0.010	1.939	0.030	0.593	0.669
Total	0.502	0.016	4106	0.008	2.089	0.032	0.469	0.534
WITH SECONDARY EDUCATION OR MORE (Ever-married women age 13-49								
Urban	0.277	0.035	1699	0.011	3.186	0.125	0.208	0.346
Rural	0.056	0.008	2407	0.005	1.725	0.144	0.040	0.072
Total	0.148	0.015	4106	0.006	2.713	0.102	0.118	0.178
CURRENTLY MARRIED (Ever-married women age 13-49)								
Urban	0.926	0.008	1699	0.006	1.250	0.009	0.911	0.942
Rural	0.932	0.006	2407	0.005	1.253	0.007	0.919	0.945
Total	0.930	0.005	4106	0.004	1.252	0.005	0.920	0.940
MEAN NUMBER OF CHILDREN EVER BORN (Ever-married women age 13-49)								
Urban	2.758	0.069	1699	0.047	1.478	0.025	2.619	2.896
Rural	3.015	0.049	2407	0.042	1.177	0.016	2.917	3.112
Total	2.908	0.040	4106	0.031	1.276	0.014	2.828	2.988

Table A.2 Sampling errors, Maharashtra, 1992-93 (Contd.)

Variable/ Residence	Value (R)	Standard error (SE)	Number of cases (N)	Standard error assuming SRS (SER)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
MEAN NUMBER OF CHILDREN SURVIVING (Ever-married women age 13-49)								
Urban	2.500	0.057	1699	0.041	1.372	0.023	2.387	2.614
Rural	2.620	0.040	2407	0.035	1.125	0.015	2.541	2.699
Total	2.570	0.033	4106	0.027	1.216	0.013	2.505	2.636
KNOW AT LEAST ONE CONTRACEPTIVE METHOD (Currently married women age 13-49)								
Urban	0.991	0.002	1574	0.002	0.860	0.002	0.987	0.995
Rural	0.969	0.005	2244	0.004	1.338	0.005	0.960	0.979
Total	0.978	0.003	3818	0.002	1.258	0.003	0.972	0.984
KNOW SOURCE FOR ANY MODERN METHOD (Currently married women age 13-49)								
Urban	0.975	0.004	1574	0.004	1.059	0.004	0.967	0.984
Rural	0.943	0.007	2244	0.005	1.443	0.007	0.929	0.957
Total	0.956	0.005	3818	0.003	1.365	0.005	0.947	0.965
HAVE EVER USED ANY METHOD (Currently married women age 13-49)								
Urban	0.595	0.016	1574	0.012	1.292	0.027	0.563	0.627
Rural	0.572	0.016	2244	0.010	1.529	0.028	0.540	0.604
Total	0.581	0.011	3818	0.008	1.433	0.020	0.559	0.604
CURRENTLY USING ANY METHOD (Currently married women age 13-49)								
Urban	0.529	0.015	1574	0.013	1.231	0.029	0.498	0.560
Rural	0.543	0.017	2244	0.011	1.592	0.031	0.510	0.577
Total	0.537	0.012	3818	0.008	1.459	0.022	0.514	0.561
CURRENTLY USING ANY MODERN METHOD (Currently married women age 13-49)								
Urban	0.508	0.014	1574	0.013	1.114	0.028	0.480	0.536
Rural	0.538	0.016	2244	0.011	1.557	0.030	0.505	0.571
Total	0.525	0.011	3818	0.008	1.402	0.022	0.503	0.548
CURRENTLY USING PILLS (Currently married women age 13-49)								
Urban	0.023	0.004	1574	0.004	1.190	0.196	0.014	0.032
Rural	0.007	0.002	2244	0.002	1.115	0.278	0.003	0.011
Total	0.014	0.002	3818	0.002	1.148	0.158	0.009	0.018
CURRENTLY USING COPPER T/IUD (Currently married women age 13-49)								
Urban	0.046	0.005	1574	0.005	1.035	0.119	0.035	0.057
Rural	0.011	0.003	2244	0.002	1.181	0.240	0.006	0.016
Total	0.025	0.003	3818	0.003	1.067	0.108	0.020	0.031
CURRENTLY USING CONDOM (Currently married women age 13-49)								
Urban	0.044	0.007	1574	0.005	1.309	0.153	0.031	0.058
Rural	0.012	0.002	2244	0.002	1.011	0.197	0.007	0.016
Total	0.025	0.003	3818	0.003	1.268	0.128	0.019	0.032
CURRENTLY USING FEMALE STERILIZATION (Currently married women age 13-49)								
Urban	0.367	0.013	1574	0.012	1.075	0.036	0.340	0.393
Rural	0.423	0.017	2244	0.010	1.646	0.041	0.389	0.458
Total	0.400	0.012	3818	0.008	1.466	0.029	0.377	0.423
CURRENTLY USING MALE STERILIZATION (Currently married women age 13-49)								
Urban	0.028	0.005	1574	0.004	1.096	0.163	0.019	0.037
Rural	0.085	0.010	2244	0.006	1.660	0.115	0.066	0.105
Total	0.062	0.006	3818	0.004	1.555	0.098	0.049	0.074

Table A.2 Sampling errors, Maharashtra, 1992-93 (Contd.)

Variable/ Residence	Value (R)	Standard error (SE)	Number of cases (N)	Standard error assuming SRS (SER)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	R+2SE
CURRENTLY USING PERIODIC ABSTINENCE (Currently married women age 13-49)								
Urban	0.020	0.004	1574	0.004	1.071	0.190	0.012	0.027
Rural	0.004	0.001	2244	0.001	1.040	0.328	0.002	0.007
Total	0.011	0.002	3818	0.002	1.050	0.163	0.007	0.014
USING PUBLIC SOURCE FOR CONTRACEPTIVE METHOD (Current users of modern methods)								
Urban	0.552	0.025	799	0.018	1.419	0.045	0.502	0.602
Rural	0.878	0.018	1207	0.009	1.912	0.020	0.842	0.914
Total	0.748	0.015	2006	0.010	1.570	0.020	0.718	0.779
DO NOT WANT ANY MORE CHILDREN (Currently married women age 13-49)								
Urban	0.280	0.017	1574	0.011	1.471	0.060	0.246	0.313
Rural	0.151	0.011	2244	0.008	1.418	0.071	0.129	0.172
Total	0.204	0.010	3818	0.007	1.495	0.048	0.184	0.223
WANT TO DELAY AT LEAST TWO YEARS (Currently married women age 13-49)								
Urban	0.139	0.010	1574	0.009	1.107	0.070	0.119	0.158
Rural	0.132	0.008	2244	0.007	1.157	0.063	0.115	0.148
Total	0.135	0.006	3818	0.006	1.135	0.047	0.122	0.147
IDEAL NUMBER OF CHILDREN (Ever-married women age 13-49)								
Urban	2.382	0.062	1648	0.025	2.462	0.026	2.258	2.506
Rural	2.662	0.027	2296	0.018	1.454	0.010	2.608	2.715
Total	2.545	0.029	3944	0.015	1.912	0.011	2.487	2.603
IDEAL NUMBER OF SONS (Ever-married women age 13-49)								
Urban	1.089	0.042	1645	0.020	2.039	0.038	1.005	1.172
Rural	1.490	0.022	2292	0.015	1.452	0.015	1.446	1.533
Total	1.322	0.021	3937	0.013	1.633	0.016	1.281	1.363
IDEAL NUMBER OF DAUGHTERS (Ever-married women age 13-49)								
Urban	0.843	0.026	1645	0.017	1.547	0.031	0.791	0.895
Rural	0.995	0.020	2292	0.013	1.568	0.020	0.956	1.035
Total	0.932	0.015	3937	0.010	1.492	0.016	0.901	0.962
RECEIVED NO ANTENATAL CARE (Births in last 4 years)								
Urban	0.097	0.014	816	0.012	1.232	0.148	0.068	0.125
Rural	0.212	0.019	1287	0.013	1.430	0.091	0.174	0.251
Total	0.167	0.013	2103	0.010	1.391	0.079	0.141	0.194
RECEIVED TETANUS TOXOID (2 Doses)(Births in last 4 years)								
Urban	0.869	0.019	816	0.014	1.352	0.021	0.832	0.906
Rural	0.775	0.020	1287	0.014	1.482	0.026	0.735	0.816
Total	0.812	0.014	2103	0.010	1.444	0.018	0.783	0.840
RECEIVED MEDICAL ASSISTANCE AT DELIVERY (Births in last 4 years)								
Urban	0.779	0.021	816	0.017	1.260	0.027	0.737	0.822
Rural	0.375	0.022	1287	0.016	1.385	0.058	0.332	0.419
Total	0.532	0.017	2103	0.013	1.338	0.032	0.498	0.566
HAD DIARRHOEA IN THE LAST 24 HOURS (Children under 4 years)								
Urban	0.050	0.008	782	0.008	1.016	0.162	0.034	0.066
Rural	0.052	0.006	1207	0.007	0.964	0.123	0.039	0.065
Total	0.051	0.005	1989	0.005	0.983	0.098	0.041	0.061

Table A.2 Sampling errors, Maharashtra, 1992-93 (Contd.)

Variable/ Residence	Value (R)	Standard error (SE)	Number of cases (N)	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 of age)								
Urban	0.088	0.008	782	0.010	0.815	0.095	0.072	0.105
Rural	0.102	0.009	1207	0.009	1.040	0.092	0.083	0.121
Total	0.097	0.007	1989	0.007	0.966	0.068	0.083	0.110
TREATED WITH ORS (Children with diarrhoea in the last 2 weeks)								
Urban	0.130	0.041	69	0.041	1.010	0.315	0.048	0.213
Rural	0.211	0.045	123	0.039	1.167	0.213	0.121	0.301
Total	0.182	0.033	192	0.029	1.137	0.181	0.116	0.248
CONSULTED MEDICAL PERSONNEL FOR DIARRHOEA (Children with diarrhoea in the last 2 weeks)								
Urban	0.667	0.056	69	0.057	0.985	0.085	0.554	0.779
Rural	0.577	0.051	123	0.047	1.083	0.088	0.476	0.679
Total	0.609	0.038	192	0.037	1.031	0.062	0.534	0.685
HAVING VACCINATION CARD (Children age 12-23 months)								
Urban	0.363	0.040	190	0.035	1.158	0.111	0.282	0.444
Rural	0.409	0.029	320	0.028	1.060	0.072	0.351	0.468
Total	0.392	0.024	510	0.022	1.096	0.061	0.345	0.440
RECEIVED BCG VACCINATION (Children age 12-23 months)								
Urban	0.863	0.027	190	0.025	1.079	0.031	0.809	0.917
Rural	0.872	0.024	320	0.019	1.279	0.027	0.824	0.920
Total	0.869	0.018	510	0.015	1.207	0.021	0.833	0.905
RECEIVED DPT VACCINATION (3 DOSES) (Children age 12-23 months)								
Urban	0.816	0.028	190	0.028	0.978	0.034	0.761	0.871
Rural	0.841	0.026	320	0.020	1.281	0.031	0.788	0.893
Total	0.831	0.019	510	0.017	1.175	0.023	0.792	0.870
RECEIVED POLIO VACCINATION (3 DOSES) (Children age 12-23 months)								
Urban	0.795	0.029	190	0.029	0.996	0.037	0.736	0.853
Rural	0.828	0.025	320	0.021	1.203	0.031	0.777	0.879
Total	0.816	0.019	510	0.017	1.130	0.024	0.777	0.855
RECEIVED MEASLES VACCINATION (Children age 12-23 months)								
Urban	0.674	0.036	190	0.034	1.072	0.054	0.601	0.747
Rural	0.719	0.032	320	0.025	1.284	0.045	0.654	0.783
Total	0.702	0.025	510	0.020	1.213	0.035	0.653	0.751
FULLY VACCINATED (Children age 12-23 months)								
Urban	0.616	0.037	190	0.035	1.038	0.060	0.543	0.689
Rural	0.656	0.037	320	0.027	1.405	0.057	0.582	0.731
Total	0.641	0.027	510	0.021	1.280	0.042	0.587	0.696
KNOW ABOUT AIDS (Ever-married women age 13-49)								
Urban	0.353	0.034	1699	0.012	2.933	0.096	0.285	0.421
Rural	0.069	0.010	2406	0.005	1.890	0.142	0.049	0.088
Total	0.186	0.015	4105	0.006	2.499	0.082	0.156	0.216

Table A.2 Sampling errors, Maharashtra, 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	2.537	0.110	0.043	2.317	2.756
Rural	3.120	0.098	0.032	2.932	3.317
Total	2.858	0.073	0.026	2.711	3.004
TOTAL FERTILITY RATE (Women age 15-44)					
Urban	2.537	0.110	0.043	2.317	2.756
Rural	3.120	0.098	0.032	2.932	3.317
Total	2.858	0.073	0.026	2.711	3.004
AGE-SPECIFIC FERTILITY RATE (Age group 15-19)					
Urban	0.088	0.007	0.080	0.074	0.102
Rural	0.183	0.007	0.037	0.169	0.196
Total	0.141	0.005	0.035	0.131	0.151
AGE-SPECIFIC FERTILITY RATE (Age group 20-24)					
Urban	0.196	0.010	0.053	0.175	0.217
Rural	0.252	0.012	0.046	0.228	0.275
Total	0.227	0.008	0.035	0.211	0.242
AGE-SPECIFIC FERTILITY RATE (Age group 25-29)					
Urban	0.151	0.012	0.078	0.128	0.175
Rural	0.118	0.009	0.076	0.100	0.136
Total	0.132	0.008	0.057	0.117	0.148
AGE-SPECIFIC FERTILITY RATE (Age group 30-34)					
Urban	0.054	0.008	0.153	0.037	0.070
Rural	0.052	0.008	0.147	0.037	0.067
Total	0.053	0.006	0.105	0.042	0.064
AGE-SPECIFIC FERTILITY RATE (Age group 35-39)					
Urban	0.014	0.004	0.296	0.006	0.023
Rural	0.010	0.004	0.360	0.003	0.017
Total	0.012	0.003	0.228	0.007	0.018
AGE-SPECIFIC FERTILITY RATE (Age group 40-44)					
Urban	0.003	0.002	0.704	0.000	0.008
Rural	0.009	0.004	0.398	0.002	0.016
Total	0.006	0.002	0.345	0.002	0.011
NEONATAL MORTALITY (5-year period preceding survey)					
Urban	23.749	4.982	0.210	13.786	34.712
Rural	44.145	5.953	0.135	32.238	56.051
Total	36.443	4.141	0.114	28.161	44.726
INFANT MORTALITY $_1q_0$ (5-year period preceding survey)					
Urban	33.335	5.882	0.176	21.572	45.099
Rural	60.812	6.918	0.114	46.975	74.648
Total	50.455	4.911	0.097	40.634	60.276
CHILD MORTALITY $_4q_1$ (5-year period preceding survey)					
Urban	19.771	5.433	0.275	8.906	30.637
Rural	21.587	3.341	0.155	14.905	28.270
Total	20.893	2.888	0.138	15.117	26.668

Table A.2 Sampling errors, Maharashtra, 1992-93 (Contd.)

Variable/Residence	Value (R)	Standard error (SE)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
UNDER-FIVE MORTALITY $_5q_0$ (5-year period preceding survey)					
Urban	52.448	8.401	0.160	35.646	69.250
Rural	81.107	7.366	0.091	66.375	95.839
Total	70.305	5.619	0.080	59.068	81.543
CRUDE BIRTH RATE (Based on Household Questionnaire)					
Urban	23.190	1.386	0.060	20.419	25.962
Rural	25.979	0.887	0.034	24.205	27.753
Total	24.801	0.784	0.032	23.233	26.368
CRUDE DEATH RATE (Based on Household Questionnaire)					
Urban	7.038	0.691	0.098	5.656	8.421
Rural	7.965	0.615	0.077	6.734	9.196
Total	7.573	0.459	0.061	6.656	8.491
CRUDE RATE OF NATURAL INCREASE (Based on Household Questionnaire)					
Urban	16.152	1.421	0.088	13.309	18.994
Rural	18.014	1.028	0.057	15.958	20.071
Total	17.227	0.844	0.049	15.540	18.915
CRUDE BIRTH RATE (Based on birth history)					
Urban	24.354	1.021	0.042	22.312	26.395
Rural	28.437	0.958	0.034	26.521	30.354
Total	26.719	0.705	0.026	25.308	28.129

APPENDIX B

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. Whereas Appendix A is concerned with sampling errors and their effects on the survey results, the tables in this appendix refer to possible *nonsampling* errors: for example, digit preference; 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 or refusal to have children measured and weighed. A description of the likely magnitude of such nonsampling errors is provided in the following paragraphs.

The distribution of the *de facto* household population by single years of age is presented in Table B.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 if 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 the typical pattern of heaping on ages 8, 10 and 12 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). 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 Maharashtra, age was missing for only 5 persons out of a total of 21,840 persons listed on the household schedules.

Table B.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 B.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 in Maharashtra.

Table B.1 Household age distribution

Single year age distribution of the *de facto* household population by sex, Maharashtra, 1992-93

	Male		Female			Male		Female	
Age	Number	Percent	Number	Percent	Age	Number	Percent	Number	Percent
<1	265	2.4	253	2.4	38	119	1.1	145	1.3
01	272	2.5	258	2.4	39	49	0.4	106	1.0
02	245	2.2	266	2.5	40	316	2.9	131	1.2
03	297	2.7	267	2.5	41	49	0.4	101	0.9
04	267	2.4	229	2.1	42	123	1.1	101	0.9
05	289	2.6	299	2.8	43	50	0.5	61	0.6
06	309	2.8	268	2.5	44	41	0.4	78	0.7
07	264	2.4	272	2.5	45	284	2.6	120	1.1
08	293	2.6	263	2.4	46	42	0.4	59	0.5
09	231	2.1	247	2.3	47	48	0.4	65	0.6
10	313	2.8	313	2.9	48	68	0.6	67	0.6
11	235	2.1	216	2.0	49	32	0.3	60	0.6
12	322	2.9	277	2.6	50	210	1.9	90	0.8
13	195	1.8	196	1.8	51	32	0.3	72	0.7
14	250	2.3	228	2.1	52	84	0.8	84	0.8
15	223	2.0	195	1.8	53	27	0.2	82	0.8
16	215	1.9	244	2.3	54	35	0.3	39	0.4
17	173	1.6	212	2.0	55	186	1.7	190	1.8
18	265	2.4	258	2.4	56	39	0.4	79	0.7
19	144	1.3	202	1.9	57	30	0.3	42	0.4
20	282	2.5	297	2.8	58	56	0.5	52	0.5
21	176	1.6	213	2.0	59	21	0.2	20	0.2
22	250	2.3	229	2.1	60	204	1.8	230	2.1
23	159	1.4	176	1.6	61	13	0.1	23	0.2
24	162	1.5	218	2.0	62	41	0.4	61	0.6
25	333	3.0	223	2.1	63	14	0.1	24	0.2
26	153	1.4	175	1.6	64	16	0.1	12	0.1
27	137	1.2	179	1.7	65	196	1.8	165	1.5
28	178	1.6	168	1.6	66	10	0.1	26	0.2
29	86	0.8	126	1.2	67	8	0.1	20	0.2
30	342	3.1	152	1.4	68	22	0.2	20	0.2
31	60	0.5	115	1.1	69	13	0.1	9	0.1
32	207	1.9	145	1.3	70+	333	3.0	275	2.6
33	67	0.6	135	1.3	Don't				
34	75	0.7	135	1.3	Know/				
35	372	3.4	167	1.6	missing	3	--	2	0.0
36	88	0.8	129	1.2					
37	76	0.7	100	0.9	Total	11084	100.0	10756	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. In the NFHS in Maharashtra, the extent of missing information is very low on all of the measures shown except for the measurement of the height and weight of young children (Table B.3). The data are exceptionally complete for month and year of birth, age at death, age at first union, woman's education, child's size at birth and prevalence of diarrhoea in the two weeks preceding the NFHS. 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,

Table B.2 Age distribution of eligible and interviewed women

Percent distribution of the *de facto* household population of women age 10-54 and of interviewed women age 13-49, and percentage of eligible women who were interviewed, Maharashtra, 1992-93

Age	All women	Ever-married women	Interviewed women		Percent interviewed
			Number	Percent	
10 - 12	806	7	NA	NA	NA
13 - 14	424	28	27	0.7	96.4
15 - 19	1111	421	400	9.7	95.0
20 - 24	1133	927	874	21.3	94.3
25 - 29	871	826	764	18.6	92.5
30 - 34	682	670	642	15.6	95.8
25 - 39	647	640	610	14.9	95.3
40 - 44	472	469	442	10.8	94.2
45 - 49	371	369	347	8.5	94.0
50 - 54	367	365	NA	NA	NA
13 - 49	5711	4350	4106	100.0	94.4

Note: The *de facto* population includes all residents and nonresidents who slept in the household the night before the interview.
NA: Not applicable

either the child refused to be weighed or the mother refused to allow the child to be weighed because of cultural beliefs, and no amount of persuasion could change her mind.

Another measure of data quality is the completeness and accuracy of information on births. Table B.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, 97 percent of living children listed in the birth history had complete birth dates recorded as did 90 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. In Maharashtra, the cutoff date for asking the health questions was 1 January 1988. An examination of Table B.4 indicates that there is little or no age displacement across this boundary for living children. There does, however, appear to be some likely omission of dead children since 1987, although much of the decline in the number of deaths to children born after 1987 may be real. The proportion of dead children who died will naturally decrease with each successive calendar year because the more recent births have been subject to the risk of mortality for a shorter period of time.

Table B.3 Completeness of reporting

Percentage of observations missing information for selected demographic and health questions, Maharashtra, 1992-93

Subject	Reference group	Percentage missing information	Number of cases
Birth date	Births in last 15 years		
Month only		3.20	7786
Month and year		0.04	7786
Age at death	Deaths to births in last 15 years	0.00	626
Age at 1st union	Ever-married women	0.12	4106
Woman's education	Ever-married women	0.00	4106
Child's size at birth	All births in last 0-47 months	0.24	2127
Anthropometry[1]	Living children age 0-47 months		
Height		18.68	2013
Weight		18.28	2013
Height or weight		19.27	2013
Diarrhoea in last 2 weeks	Living children age 0-47 months	0.45	2013

[1]Child not measured

Table B.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 Maharashtra, because the ratios of deaths under seven days to all neonatal deaths are quite high (a ratio of less than 25 percent is often used as a guideline to indicate underreporting of early neonatal deaths). The ratio decreases with the increase in the time period prior to the survey. The ratios for the period 0-4, 5-9 and 10-14 years before the survey are 76, 72 and 68 respectively. Although there was no severe underreporting in Maharashtra, there was some misreporting of age at death due to a preference for reporting the age at death at 3, 7, 12 and 15 days (see Table B.5).

Table B.6 shows the ratios for 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 61 to 74 percent. One problem that is inherent in most retrospective surveys is heaping of the age at death on certain digits, e.g., 6, 12 and 18 months. Misreporting of age at death will bias estimates of the age pattern of mortality if the net result of misreporting is the transference of deaths between age segments for which the rates are calculated; for example, an overestimate of child mortality relative to infant mortality may result if children dying during the first year of life are reported as having died at age one or older. Thus, heaping at 12 months can bias the mortality estimates because a certain fraction of these deaths, which are reported to have occurred after infancy (that is, at ages 12-23 months), may have actually occurred during infancy (that is, at ages 0-11 months). In this case, heaping would bias the infant mortality rate downward and child mortality upward.

Examination of the distribution of deaths under age two years during the 15 years before the survey by month of death (Table B.6) indicates that the calculated infant mortality rates for

Table 8.4 Births by calendar year

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, Maharashtra, 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	21	0	21	100.0	NC	100.0	750	NC	750	NA	NA	NA
1992	505	30	535	100.0	100.0	100.0	920	364	877	NA	NA	NA
1991	511	23	534	99.4	95.7	99.3	988	643	971	104	82	103
1990	479	26	505	98.5	96.2	98.4	1047	1000	1044	93	84	92
1989	519	39	558	98.7	97.4	98.6	944	1167	958	113	130	114
1988	438	34	472	98.4	91.2	97.9	856	790	851	81	76	81
1987	561	51	612	96.1	88.2	95.4	1004	759	981	115	146	117
1986	538	36	574	95.7	86.1	95.1	875	800	870	105	73	102
1985	464	47	511	96.3	93.6	96.1	1090	1044	1086	90	113	92
1984	494	47	541	95.7	87.2	95.0	915	958	918	108	107	108
1983	449	41	490	95.8	92.7	95.5	1023	640	984	88	87	88
1982	532	47	579	97.0	91.5	96.5	1054	1136	1060	237	229	236
1987-91	2508	173	2681	98.2	93.1	97.8	969	860	961	NA	NA	NA
1982-86	2477	218	2695	96.1	90.4	95.7	985	912	979	NA	NA	NA
1977-81	1993	264	2257	96.9	88.6	95.9	931	872	924	NA	NA	NA
1972-76	1622	307	1929	96.1	91.2	95.3	950	955	951	NA	NA	NA
1971 or earlier	1428	395	1823	94.8	86.6	93.0	889	985	909	NA	NA	NA
All	10554	1387	11941	96.8	89.7	95.9	948	911	944	NA	NA	NA

NA: Not applicable
NC: Not calculated because there were no deaths to children born in 1993
[1]Both year and month of birth given
[2]$(B_f/B_m)x1000$, where B_f and B_m are the numbers of female and male births, respectively
[3]$[2B_x/(B_{x-1}+B_{x+1})]x100$, where B_x is the number of births in calendar year x

the population of Maharashtra as a whole are not likely to be understated by more than 1-2 percent because of age misreporting. There is surprisingly little heaping on particular months of death, and, because of strong emphasis during training, there were no cases where the age of death was reported as "one year", making any adjustment of infant and child mortality rates unnecessary.

This brief check on internal consistency of the Maharashtra NFHS childhood mortality data suggests that there is no serious underreporting of deaths during the time periods for which mortality rates are estimated. However, some proportion of the decline in the number of deaths after 1987 is undoubtedly due to omission or misreporting. 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.

Table B.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, Maharashtra, 1992-93

Age at death (days)	Years preceding survey			
	0-4	5-9	10-14	0-14
<1	19	16	16	51
1	20	29	24	73
2	9	9	9	27
3	11	7	9	27
4	2	8	2	12
5	4	6	6	16
6	3	3	3	9
7	5	5	5	15
8	4	3	3	10
9	2	1	0	3
10	0	2	4	6
11	1	2	2	5
12	2	2	6	10
13	0	1	0	1
14	2	1	0	3
15	4	6	7	17
16	0	1	1	2
18	1	2	0	3
20	0	1	1	2
21	1	1	0	2
24	0	1	1	2
26	0	0	1	1
28	0	0	1	1
29	0	1	0	1
0-29	90	108	101	299
Percent early neonatal[1]	76	72	68	72

[1]0-6 days/0-30 days

Table B.6 Reporting of age at death in months

Distribution of reported deaths under two years of age by age at death in months and the percentage of infant deaths reported to occur at age under one month, for five-year periods of birth preceding the survey, Maharashtra, 1992-93

Age at death (months)	Years preceding survey			
	0-4	5-9	10-14	0-14
<1	90	108	101	299
01	10	17	18	45
02	6	9	8	23
03	3	9	7	19
04	3	1	4	8
05	0	3	4	7
06	3	8	5	16
07	1	2	4	7
08	1	1	3	5
09	3	2	5	10
10	2	4	5	11
11	0	3	1	4
12	10	12	17	39
13	0	0	1	1
14	1	0	2	3
15	1	3	0	4
16	0	0	1	1
18	1	2	8	11
19	0	1	0	1
23	1	0	0	1
0-11	122	167	165	454
Percent neonatal[1]	74	65	61	66

[1]Under 1 month / under 1 year

APPENDIX C

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APPENDIX D

SURVEY INSTRUMENTS

NATIONAL FAMILY HEALTH SURVEY
(MCH AND FAMILY PLANNING)
HOUSEHOLD QUESTIONNAIRE

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 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 HOUSEHOLD 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 OLDER		
							MARITAL STATUS**	EDUCATION	
	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	CH S M D WM	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	

Now I would like some information about the people who usually live in your household or who are staying with you now.

ER		AFTER COMPLETING COLUMNS 1-14 FOR ALL LISTED PERSONS, ASK:					ELIGI-BILITY
ED SCHOOL	OCCUPATION	Does anyone listed suffer from:					
IF AGED LESS THAN 15 YEARS: Is (NAME) still in school? (13)	What kind of work does (NAME) do most of the time? (14)	Blindness? RECORD FOR EACH PERSON (15)	Tuberculosis? RECORD FOR EACH PERSON (16)	Leprosy? RECORD FOR EACH PERSON (17)	Any physical impairment of limbs? RECORD FOR EACH PERSON (18)	Did anyone listed suffer from malaria any time during the last THREE months? (19)	CIRCLE LINE NUMBER OF WOMEN ELIGIBLE FOR INDIVIDUAL INTERVIEW (EVER MARRIED FEMALES AGED 13-49) (20)
YES 1 NO 2		YES PARTIAL 1 YES COMPLETE 2 NO 3	YES 1 NO 2	YES 1 NO 2	YES HANDS 1 YES LEGS 2 YES BOTH 3 NO 4	YES 1 NO 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

HOUSEHOLD SCHEDULE (CONTINUED)

(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
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
02= WIFE OR HUSBAND
03= SON OR DAUGHTER
04= SON OR DAUGHTER-IN-LAW
05= GRANDCHILD
06= PARENT
07= PARENT-IN-LAW
08= BROTHER OR SISTER
09= BROTHER OR SISTER-IN-L
10= OTHER RELATIVE
11= ADOPTED/FOSTER CHILD
12= NOT RELATED
98= DK

(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
YES NO 1 2		YES PARTIAL 1 YES COMPLETE 2 NO 3	YES 1 NO 2	YES 1 NO 2	YES HANDS 1 YES LEGS 2 YES BOTH 3 NO 4	YES 1 NO 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

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 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 OTHER _____ 81 (SPECIFY)	24 24 24
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 NO.....2	26
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_____ (SPECIFY) 5	
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_____ (SPECIFY) 09	
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_____ (SPECIFY) 10	
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	

5

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	

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 member 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 Sankranti/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 BIRTHS ☐ ↓ NO BIRTHS ☐		→58

7

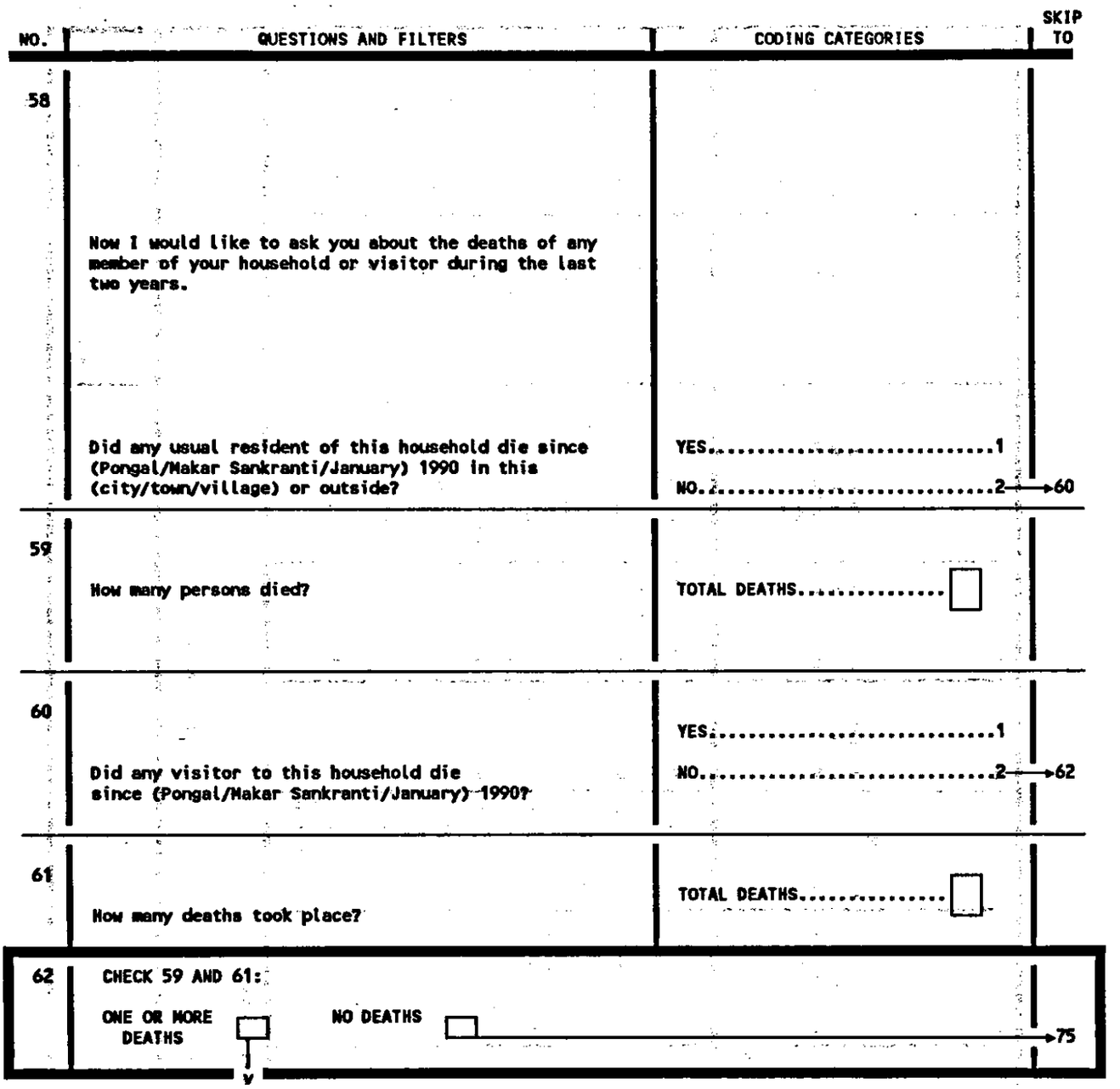
RECORD NAMES OF BIRTHS SINCE JANUARY 1990 IN 48. RECORD TWINS AND TRIPLETS ON SEPARATE LINES.

48 What name was given to the baby born (first/next)?	49 Was the mother a usual resident of the household or a visitor?	50 RECORD LINE NUMBER OF MOTHER IN THE HOUSEHOLD SCHEDULE.	51 How old was the mother at the time of birth of (NAME)? RECORD AGE IN COMPLETED YEARS.	52 RECORD SINGLE OR MULTIPLE BIRTH STATUS.	53 Is (NAME) a boy or a girl?	54 In what month and year was (NAME) born? PROBE: What is his/her birthday? OR: In what season was he/she born?	55 Is (NAME) still alive?	56 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 NUMBER ☐☐ 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 NUMBER ☐☐ 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 NUMBER ☐☐ 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 NUMBER ☐☐ 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 NUMBER ☐☐ 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 NUMBER ☐☐ 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


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 DEATHS
NO DEATHS
→ 75

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 ☐ → V

NUMBERS ARE DIFFERENT ☐ → PROBE AND RECONCILE

75 RECORD THE TIME.

HOUR..... ☐☐

MINUTES..... ☐☐

NATIONAL FAMILY HEALTH SURVEY
(MCH AND FAMILY PLANNING)
WOMAN'S QUESTIONNAIRE

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 / TIME				TOTAL NUMBER OF VISITS

*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 DIVORCED.....4 NEVER MARRIED.....5	→111 →END
108	Are you living with your husband now or is he staying elsewhere?	LIVING WITH HIM.....1 STAYING ELSEWHERE.....2	→111

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 NO.....2	→111
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 MORE THAN ONCE.....2	→115
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 ☐ GRADE 13+ ☐	→126 →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
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	How 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_____ (NAME)	→149
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 <u>non-irrigated</u> land under cultivation, in acres?	ACRES..... NONE.....000 LESS THAN ONE.....996	
151	What is the size of <u>irrigated</u> land under cultivation, in acres?	ACRES..... NONE.....000 LESS THAN ONE.....996	

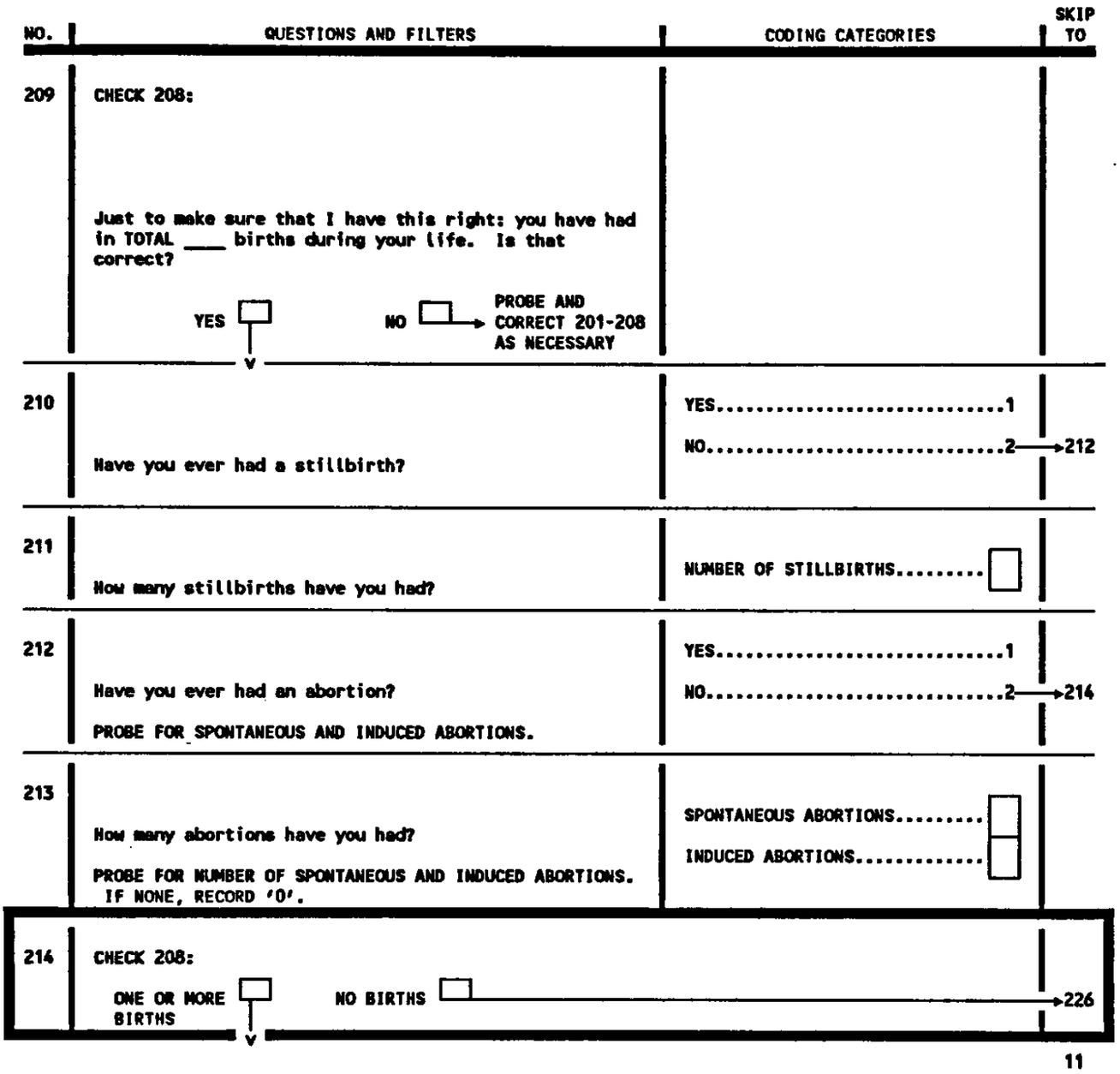
8

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	
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 tractor?	TRACTOR.....1 2	
	A thresher?	THRESHER.....1 2	
	A bullock cart?	BULLOCK CART.....1 2	
	A water pump?	WATER PUMP.....1 2	
156	How many people are there in your household?	NUMBER OF PERSONS..... ☐☐	

SECTION 2. REPRODUCTION

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


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 BIRTHS
NO BIRTHS → 226

215

Now I would like to talk to you about all the births in your lifetime, whether currently alive or not, starting with the first one you had.

RECORD NAMES OF ALL THE BIRTHS IN 216. RECORD TWINS AND TRIPLETS ON SEPARATE LINES.

216 What name was given to your (first, next) baby?	217 RECORD SINGLE OR MULTIPLE BIRTH STATUS.	218 Is (NAME) a boy or a girl?	219 In what month and year was (NAME) born? PROBE: What is his/her birthday? OR: In what season was he/she born?	220 Is (NAME) still alive?	221 IF ALIVE: How old was (NAME) at his/her last birthday? RECORD AGE IN COMPLETED YEARS.	222 IF ALIVE: Is (NAME) living with you?	223 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 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 What name was given to your next baby?	217 RECORD SINGLE OR MULTIPLE BIRTH STATUS.	218 Is (NAME) a boy or a girl?	219 In what month and year was (NAME) born? PROBE: What is his/her birthday? OR: In what season was he/she born?	220 Is (NAME) still alive?	221 IF ALIVE: How old was (NAME) at his/her last birthday? RECORD AGE IN COMPLETED YEARS.	222 IF ALIVE: Is (NAME) living with you?	223 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 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:

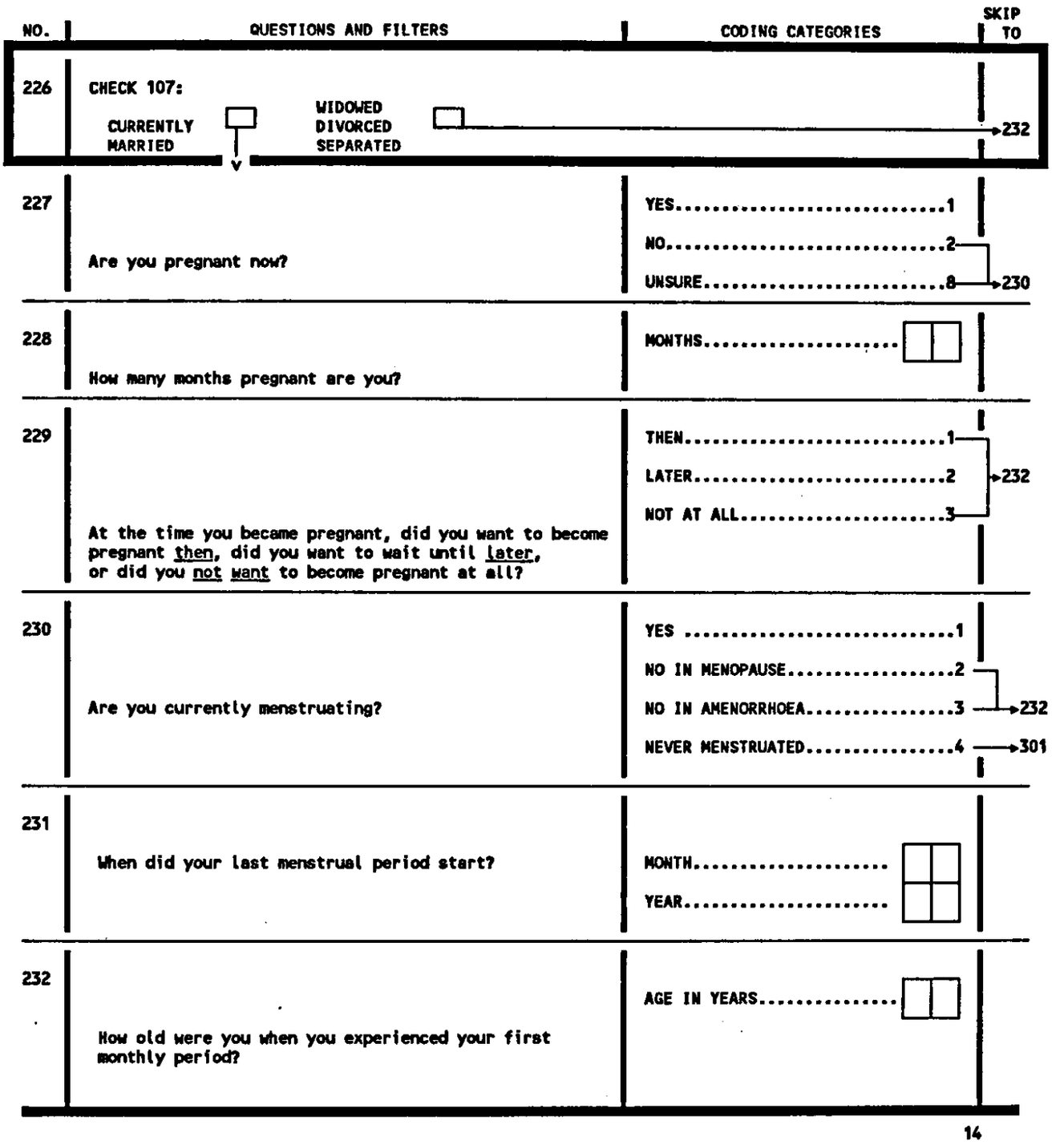
NUMBERS ARE SAME → ☐

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


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
NOT AT ALL....3
232
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....

SECTION 3. CONTRACEPTION

301

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?

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

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	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	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
Male sterilization Men can have an operation to avoid having any more children.			
07	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
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.			
08	YES/SPONTANEOUS.....1 YES/PROBED.....2 NO.....3 →	YES.....1 NO.....2	
Withdrawal Men can be careful and pull out before climax.			
09	YES/SPONTANEOUS.....1 NO.....3 →	YES.....1 NO.....2	
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.....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

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 MARRIED ☐ ↓ WIDOWED, DIVORCED, SEPARATED ☐		→352
310	CHECK 227: NOT PREGNANT OR UNSURE ☐ ↓ PREGNANT ☐		→345
311	CHECK 303: NEITHER STERILIZED ☐ ↓ HE OR SHE 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 313A	Which method are you using? CIRCLE '05' FOR FEMALE STERILIZATION. CIRCLE '06' FOR MALE STERILIZATION.	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)	→321 →328 →330 →332 →341
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)	

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	

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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..... ☐☐ 8 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

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	

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

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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 MARRIED ☐ → WIDOWED / DIVORCED / SEPARATED ☐		→352
345	Do you intend to use a method to delay or avoid pregnancy at any time in the future?	YES.....1 NO.....2 DK.....8	→347 →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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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	

SECTION 4A. PREGNANCY AND BREASTFEEDING

CHECK 225:
ONE OR MORE BIRTHS SINCE JAN. 1988 ☐ → NO BIRTHS SINCE JAN. 1988 ☐ → (SKIP TO 501)

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	☐☐	☐☐	☐☐
FROM Q. 216 AND Q. 220	LAST BIRTH NAME _____ ALIVE ☐ DEAD ☐	NEXT-TO-LAST BIRTH NAME _____ ALIVE ☐ DEAD ☐	SECOND-FROM-LAST BIRTH NAME _____ ALIVE ☐ DEAD ☐
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)
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
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)
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_____ (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)

	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
Were you given any iron folic tablets during this pregnancy?	YES.....1 NO.....2	YES.....1 NO.....2	YES.....1 NO.....2
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
During this pregnancy how many times did you get this injection?	TIMES..... ☐ DK.....8	TIMES..... ☐ DK.....8	TIMES..... ☐ DK.....8
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)

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		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)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
3	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
4	Has your period returned since the birth of (NAME)?	YES .....1 (SKIP TO 426) NO.....2 (SKIP TO 427)		
5	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)
6	For how many months after the birth of (NAME) did you not have a period?	MONTHS..... ☐☐ DK.....98	MONTHS..... ☐☐ DK.....98	MONTHS..... ☐☐ DK.....98
7	CHECK 227: RESPONDENT PREGNANT?	NOT PREGNANT ☐ PREGNANT OR UNSURE ☐ (SKIP TO 429)		
8	Have you resumed sexual relations since the birth of (NAME)?	YES.....1 NO.....2 (SKIP TO 430)		
9	For how many months after the birth of (NAME) did you not have sexual relations?	MONTHS..... ☐☐ DK.....98	MONTHS..... ☐☐ DK.....98	MONTHS..... ☐☐ DK.....98

		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?:	YES NO		
	Plain water?	PLAIN WATER.....1 2		
	Sugar/honey water?	SUGAR/HONEY WATER....1 2		
	Juice?	JUICE.....1 2		
	Tea?	TEA.....1 2		
	Baby formula?	BABY FORMULA.....1 2		
	Fresh milk?	FRESH MILK.....1 2		
	Tinned/powdered milk?	TINNED/POWDERED MILK.1 2		
	Other liquids?	OTHER LIQUIDS.....1 2		
	Any solid or mushy food?	SOLID/MUSHY FOOD.....1 2		
439	CHECK 438: FOOD OR LIQUID GIVEN YESTERDAY?	"YES" TO ONE OR MORE → (SKIP TO 444); "NO" TO ALL → (SKIP TO 443)		
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_____ (SPECIFY) 11	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_____ (SPECIFY) 11	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_____ (SPECIFY) 11
442	CHECK 220: CHILD ALIVE?	ALIVE → (SKIP TO 444); DEAD	ALIVE → (SKIP TO 444); DEAD	ALIVE → (SKIP TO 444); DEAD

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		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
43	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)
44	How many months old was (NAME) when you started giving the following on a regular basis?			
	Plain water?	AGE IN MONTHS..... ☐☐ NOT GIVEN.....96	AGE IN MONTHS..... ☐☐ NOT GIVEN.....96	AGE IN MONTHS..... ☐☐ NOT GIVEN.....96
	Formula or milk other than breastmilk?	AGE IN MONTHS..... ☐☐ NOT GIVEN.....96	AGE IN MONTHS..... ☐☐ NOT GIVEN.....96	AGE IN MONTHS..... ☐☐ NOT GIVEN.....96
	Other liquids?	AGE IN MONTHS..... ☐☐ NOT GIVEN.....96	AGE IN MONTHS..... ☐☐ NOT GIVEN.....96	AGE IN MONTHS..... ☐☐ NOT GIVEN.....96
	Any solid or mushy food?	AGE IN MONTHS..... ☐☐ NOT GIVEN.....96	AGE IN MONTHS..... ☐☐ NOT GIVEN.....96	AGE IN MONTHS..... ☐☐ NOT GIVEN.....96
	IF LESS THAN 1 MONTH, RECORD '00'.		(SKIP TO 447)	(SKIP TO 447)
45	CHECK 220: CHILD ALIVE?	ALIVE ☐ DEAD ☐ → (SKIP TO 447)		
46	Did (NAME) drink anything from a bottle with a nipple yesterday or last night?	YES.....1 NO.....2 DK.....8		
47	→	GO BACK TO 403 FOR NEXT BIRTH; OR, IF NO MORE BIRTHS, GO TO FIRST COLUMN OF 448.		

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	☐☐	☐☐	☐☐
	FROM Q. 216 AND Q. 220	LAST BIRTH NAME _____ ALIVE ☐ DEAD ☐	NEXT-TO-LAST BIRTH NAME _____ ALIVE ☐ DEAD ☐	SECOND-FROM-LAST BIRTH NAME _____ 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.	DAY MO YR	DAY MO YR	DAY MO YR
	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

		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 _____
465	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
466	Did (NAME) ever have:	YES NO	YES NO	YES NO
	Whooping cough?	WHOOPING COUGH.... 1 2	WHOOPING COUGH.... 1 2	WHOOPING COUGH.... 1 2
	Measles?	MEASLES..... 1 2	MEASLES..... 1 2	MEASLES..... 1 2
	Polio?	POLIO..... 1 2	POLIO..... 1 2	POLIO..... 1 2
	Diphtheria?	DIPHTHERIA..... 1 2	DIPHTHERIA..... 1 2	DIPHTHERIA..... 1 2
	Chicken pox?	CHICKEN POX..... 1 2	CHICKEN POX..... 1 2	CHICKEN POX..... 1 2
	Rickets?	RICKETS..... 1 2	RICKETS..... 1 2	RICKETS..... 1 2
467	CHECK 220: CHILD ALIVE?	ALIVE ☐ DEAD ☐ (SKIP TO 459)	ALIVE ☐ DEAD ☐ (SKIP TO 459)	ALIVE ☐ DEAD ☐ (SKIP TO 459)
468	→	GO BACK TO 449 FOR NEXT BIRTH; OR, IF NO MORE BIRTHS, SKIP TO 489.		
469	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
470	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
471	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

		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

	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
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)
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
→ GO BACK TO 449 FOR NEXT BIRTH; OR, IF NO MORE BIRTHS, SKIP TO 489.			
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
For how many days (has the diarrhoea lasted/did the diarrhoea last)? IF LESS THAN 1 DAY, RECORD '00'	DAYS..... ☐☐	DAYS..... ☐☐	DAYS..... ☐☐
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)
CHECK 430/435: LAST CHILD STILL BREASTFEEDING?	YES ☐ ↓ NO ☐ ↓ (SKIP TO 477)		
During (NAME)'s diarrhoea, did you change the frequency of breastfeeding?	YES.....1 NO.....2 (SKIP TO 477)		
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)

	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
CHECK 481: ORS FLUID FROM PACKET MENTIONED?	YES, ORS FLUID MENTIONED ☐ → (SKIP TO 484) NO, ORS FLUID NOT MENTIONED ☐ ↓	YES, ORS FLUID MENTIONED ☐ → (SKIP TO 484) NO, ORS FLUID NOT MENTIONED ☐ ↓	YES, ORS FLUID MENTIONED ☐ → (SKIP TO 484) NO, ORS FLUID NOT MENTIONED ☐ ↓
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
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
CHECK 481: RECOMMENDED HOME-FLUID MENTIONED?	YES, HOME FLUID MENTIONED ☐ → (SKIP TO 487) NO, HOME FLUID NOT MENTIONED ☐ ↓	YES, HOME FLUID MENTIONED ☐ → (SKIP TO 487) NO, HOME FLUID NOT MENTIONED ☐ ↓	YES, HOME FLUID MENTIONED ☐ → (SKIP TO 487) NO, HOME FLUID NOT MENTIONED ☐ ↓
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
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
→ GO BACK TO 449 FOR NEXT BIRTH; OR, IF NO MORE BIRTHS, GO TO 489.			

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
489	CHECK 481 AND 483 (ALL COLUMNS): ORS FLUID FROM PACKET GIVEN TO ANY CHILD → 492 ORS FLUID FROM PACKET NOT GIVEN TO ANY CHILD OR 481 AND 483 NOT ASKED →		
490	Have you ever heard of a special product called ORS you can get for the treatment of diarrhoea?	YES.....1 → 492 NO.....2	
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_____ (SPECIFY) 906 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_____ (SPECIFY) X	

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
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	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)	

SECTION 5. FERTILITY PREFERENCES

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
501	CHECK 107: CURRENTLY MARRIED ☐ → (next) WIDOWED, DIVORCED, SEPARATED ☐ → 514		
502	CHECK 313: NEITHER STERILIZED ☐ → (next) HE OR SHE 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) OR PREGNANT?	YES ☐ → 507 NO ☐	→ 510
507	CHECK 227: NOT PREGNANT OR UNSURE ☐ → How old would you like your youngest child to be when your next child is born? PREGNANT ☐ → How old would you like the child you are expecting to be when your next child is born?	AGE OF CHILD YEARS..... ☐☐ DK.....98	→ 510
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 SIDE EFFECTS.....4 OTHER _____ (SPECIFY) 5	→ 514
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	

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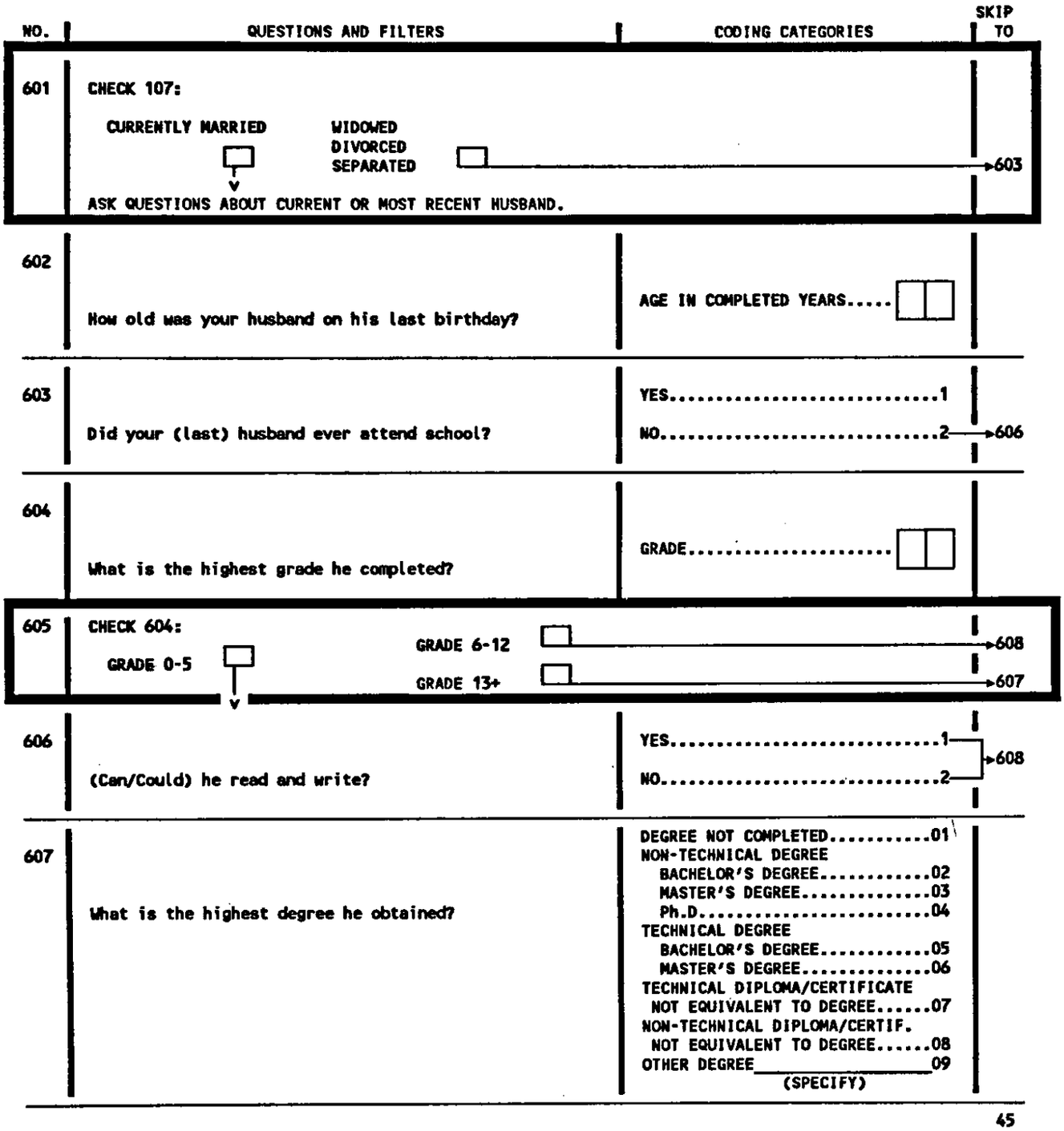
NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
513	Do you think your husband wants the <u>same</u> number of children that you want, or does he want <u>more</u> or <u>fewer</u> than you want?	SAME NUMBER.....1 MORE CHILDREN.....2 FEWER CHILDREN.....3 DK.....8	
514	How long should a couple wait before starting sexual intercourse after the birth of a baby?	DAYS.....1 ☐☐ MONTHS.....2 ☐☐ YEARS.....3 ☐☐ UP TO COUPLE.....995 OTHER_____ (SPECIFY) 996	
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) ☐ → V NO LIVING CHILDREN ☐ → V If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be? If you could choose exactly the number of children to have in your whole life, how many would that be? RECORD SINGLE NUMBER OR OTHER ANSWER.	NUMBER..... ☐☐ OTHER ANSWER_____ (SPECIFY) 96 →	518
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_____ (SPECIFY) 999996	
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_____ (SPECIFY) 996	

SECTION 5A. STATE SPECIFIC QUESTIONS: AIDS

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
519	Now I have a few questions about a very important topic. Have you heard of an illness called AIDS?	YES.....1 NO.....2	→601
520	From which sources of information or persons have you heard about AIDS? RECORD ALL MENTIONED	RADIO.....A TV.....B NEWS PAPERS.....C MAGAZINES.....D SLOGANS/PAMPHLETS/POSTERS.....E HEALTH WORKERS.....F SCHOOL TEACHERS.....G COMMUNITY MEETINGS.....H FRIENDS/RELATIVES.....I OTHER _____ J (SPECIFY)	
521	How is AIDS transmitted? RECORD ALL MENTIONED	SEXUAL INTERCOURSE.....A HOMOSEXUAL INTERCOURSE.....B HETEROSEXUAL INTERCOURSE.....C NEEDLES/BLADES/SKIN PUNCTURE....D MOTHER TO CHILD.....E TRANSFUSION OF INFECTED BLOOD...F OTHER _____ G (SPECIFY) DON'T KNOW.....H	
522	Do you think that you can get AIDS from:	YES NO	
	shaking hands with someone who has AIDS?	HAND SHAKING.....1 2	
	hugging someone who has AIDS?	HUGGING.....1 2	
	kissing someone who has AIDS?	KISSING.....1 2	
	wearing the clothes of someone who has AIDS?	SHARING CLOTHES.....1 2	
	sharing eating utensils with someone who has AIDS?	SHARING EATING UTENSILS....1 2	
	stepping on the urine or stool of someone with AIDS?	STEPPING ON URINE/STOOL....1 2	
	mosquito, flea or bedbug bites?	MOSQUITO/FLEA/BEDBUG BITES.1 2	
523	Is it possible for a healthy looking person to be infected with the AIDS virus?	YES.....1 NO.....2 DK.....8	
524	Do you think AIDS is a curable disease?	YES.....1 NO.....2 DK.....8	
525	In your knowledge, is there any vaccine to prevent AIDS?	YES.....1 NO.....2 DK.....8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
526	How do you think one can avoid AIDS? RECORD ALL MENTIONED	USING CONDOMS DURING EACH SEXUAL INTERCOURSE.....A SAFE SEX.....B CHECKING BLOOD PRIOR TO TRANSFUSION.....C STERILIZING NEEDLES AND SYRINGES FOR INJECTION.....D AVOIDING PREGNANCY WHEN HAVING AIDS VIRUS.....E OTHER ——— F (SPECIFY) DK.....G	
527	Is it possible for a woman who has the AIDS virus to give birth to a child with the AIDS virus?	YES.....1 NO.....2 DK.....8	
528	What do you suggest the government should do for the people who are suffering from AIDS? RECORD ALL MENTIONED	PROVIDE MEDICAL TREATMENT.....A HELP RELATIVES PROVIDE CARE.....B ISOLATE/QUARANTINE/JAIL.....C NOT TO BE INVOLVED.....D OTHER ——— E (SPECIFY) DK.....F	

SECTION 6. HUSBAND'S BACKGROUND AND WOMAN'S WORK



45

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
608	What kind of work does (did) your (last) husband mainly do?	☐☐	
609	CHECK 608: WORKS (WORKED) IN AGRICULTURE ☐ → 610 DOES (DID) 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 NO.....2	→613
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	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
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_____ (SPECIFY) 09	
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

INTERVIEWER'S OBSERVATIONS
(To be filled in after completing interview)

Comments About Respondent: _____

_____

_____

_____

Comments on Specific Questions: _____

_____

_____

_____

Any Other Comments: _____

_____

SUPERVISOR'S OBSERVATIONS

_____

_____

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Name of Supervisor: _____ Date: _____

EDITOR'S OBSERVATIONS

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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 Gobar 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 THE SOURCES)

Sarpanch.....A
Patwari.....B
Gram Sevak.....C
School Teacher.....D
Health personnel.....E
Others——————F
(Specify)

36. Any other relevant comments: