PN ABX-618

Punjab

National Family Health Survey
1993

Population Research Centre
Centre for Research in Rural and Industrial Development
Chandigarh

International Institute for Population Sciences
Bombay

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(MCH and Family Planning)

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Bombay

September 1995

Suggested citation: Population Research Centre, Centre for Research in Rural and Industrial Development (PRC, CRRID) and International Institute for Population Sciences (IIPS). 1993. *National Family Health Survey (MCH and Family Planning), Punjab 1993.* Bombay: PRC, CRRID and IIPS.

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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.

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

The NFHS covered 24 states and the National Capital Territory of Delhi, 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 March 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 Vadodara, 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 are being written by representatives 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 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 Punjab. 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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ACKNOWLEDGEMENTS

The National Family Health Survey could not have been successfully completed without cooperation and support from innumerable sources at various stages of the project. Although it is not possible to individually acknowledge everyone involved in the survey, several persons and organizations deserve special mention.

The first and foremost organization whose help, timely guidance and strong support are gratefully acknowledged is the Ministry of Health and Family Welfare (MOHFW), New Delhi. Mr. K.K. Mathur and Mr. S.B. Mishra, the then-Secretary and Joint Secretary of the Department of Family Welfare, Government of India, New Delhi, initiated the Project to Strengthen the Survey Research Capabilities of the Population Research Centres (PRC Project), which incorporates the NFHS, and designated the International Institute for Population Sciences as the nodal agency for the project. They also formed the Steering Committee, the Administrative and Financial Management Committee and the Technical Advisory Committee for the smooth and efficient running of the project. Mrs. Usha Vohra, the former Secretary of the Department of Family Welfare, New Delhi, continued to take an intense interest in the NFHS. Her valuable help to the NFHS project is gratefully acknowledged. Special thanks are due to Mr. V.K. Shunglu, who later became the Secretary of the Department of Family Welfare, New Delhi, for his timely guidance and support to the project. The continued interest and support given by Mr. J.C. Pant, the present Secretary, Department of Family Welfare, are gratefully acknowledged. The contributions of Mrs. A.P. Ahluwalia, Joint Secretary (F.A.), and Mr. R.L. Narasimhan, Director (Marketing), Department of Family Welfare, are acknowledged with gratitude. The PRC Project and the NFHS could not have been successful without their active support, interest and valuable advice.

The NFHS has received immense help from the Office of the Registrar General, India, New Delhi for carrying out the entire sampling design for all the states. Grateful thanks are due to Mr. A.R. Nanda, former Registrar General of India, Mr. K.S. Natarajan, Deputy Registrar General of India and Mr. K.N. Unni, Joint Director (E.D.P.), Office of the Registrar General, India. Thanks are due to the National Sample Survey Organization, for making available the urban sampling frames for the first phase of the NFHS. Special mention and thanks are due to Ms. Thanh Lê and Dr. Vijay K. Verma for their participation and help in preparing a very thorough sampling design for all the states.

The Department of Health and Family Welfare, Government of Punjab, Chandigarh, was a great help to the Consulting Organization in data collection operations. Special thanks are due to Shri. A. S. Chatha, Chief Secretary, Punjab, Shri. G. P. S. Sahi, the then-Secretary, Department of Health and Family Welfare, Ms. Poonam Khetarpal Singh, the present Secretary, Department of Health and Family Welfare, and Dr. Dalbir Singh, Director, Health Services, Government of Punjab, Chandigarh, for their kind cooperation in this regard. Thanks are also due to the Chief Medical Officers, District Family Welfare Officers and the Block Medical Officers in the study districts for facilitating the data collection work.

Dr. K. Srinivasan was the Director of IIPS during the development of the project and through the first phase of data collection. His immense interest and great assistance to the NFHS are gratefully acknowledged.

UNICEF and Foster Parents Plan International, New Delhi, in keeping with their interest in the well-being of children, supplied the NFHS with 125 weighing scales, without any charge. Their timely help is gratefully acknowledged.

The United States Agency for International Development (USAID), Washington and New Delhi, provided generous funding for the NFHS and the entire PRC Project. Their contribution to the project is sincerely acknowledged. Special thanks are due to Mr. J.K. Raman, former Program Specialist, USAID/New Delhi, for his initiative, untiring efforts, and active involvement in the PRC Project. The data analysis and report writing for the NFHS received substantial funding from the East-West Center. Special thanks are due to Dr. Robert D. Retherford and Mr. Phil Estermann for their support at this stage of the NFHS project.

The overall content and format of the NFHS Questionnaires were determined in a workshop on Questionnaire Design. Thanks are due to the Gokhale Institute of Politics and Economics, Pune, for coordinating this workshop. Thanks are also due to the Population Research Centre, the Gandhigram Institute for Rural Health and Family Welfare Trust, Ambathurai R.S., for coordinating the Sample Design Workshop held at Madurai. The help and cooperation rendered by the Population Research Centre, Directorate of Economics and Statistics, Government of Madhya Pradesh, Bhopal in pretesting the NFHS questionnaires are gratefully acknowledged. Thanks are also due to the Population Research Centre, Faculty of Science, the M.S. University of Baroda, Vadodara, which helped in organizing the workshop at Vadodara where the tabulation plan for the NFHS state-level reports was discussed and finalized.

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.

In order to validate the data collected in the NFHS, a post-survey check of five percent of the NFHS sample was undertaken by the Institute for Research in Medical Statistics (IRMS), New Delhi. The quality of data collected in the NFHS was reconfirmed through this five percent post-survey check. Special thanks are due to Dr. Padam Singh, Director, IRMS, New Delhi, for undertaking this tedious task of the post-survey check.

The unflinching efforts, the interest and the initiative taken by Prof. Tara Kanitkar, Prof. T.K. Roy, Dr. B.M. Ramesh of IIPS and Dr. Fred Arnold and Dr. Pavalavalli Govindasamy of the East-West Center/Macro International in the PRC Project are appreciated and acknowledged. It is only due to their hard work that the NFHS could be completed successfully, according to schedule. The help of all Research Officers at IIPS, especially that of Mr. Prakash H. Fulpagare in the preparation of the report and that of Dr. B.S. Singh in producing the graphs for the report, are acknowledged.

Very special thanks are due to Shri. Rashpal Malhotra, Director, Centre for Research in Rural and Industrial Development, Chandigarh for his continuous guidance, support and encouragement at various stages of implementation of this project.

The congenial cooperation and guidance provided by Prof. K. B. Pathak, Director and Prof. (Mrs.) Tara Kanitkar of IIPS, Bombay during the field visits of Amritsar and Jalandhar districts are greatfully acknowledged.

Special thanks are also due to Mr. David Cantor for his immense help in the data entry operation, data analysis and the preparation of tables for Punjab. Mr. Sanjay Tiwari and Mr. D. Sahu who assisted in data processing for Punjab need special mention. Macro International made available the ISSA (Integrated System for Survey Analysis) computer package for data entry and tabulation. The help of Ms. Sandra Rowland and Ms. Sandra Ward in editing this state-level report for Punjab and that of Dr. S. Parasuraman, Professor, Tata Institute of Social Sciences, Bombay for reviewing the report and recommending necessary modifications, are gratefully acknowledged.

The complex task of conducting the NFHS in Punjab could be completed only with the dedicated and unflinching collaborative efforts put forth by IIPS; the Population Research Centre, CRRID, Chandigarh; the Centre for Research in Rural and Industrial Development (CRRID), Chandigarh; USAID, New Delhi; 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, editors and supervisors in collecting data in Punjab. The interviewing teams, who have been the architects of this important survey, deserve our special thanks.

Last but not least, the credit goes to the 2,995 ever-married women and the 3,213 household respondents of Punjab who willingly 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 effort to strengthen 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 Punjab, which was conducted between 8 July and 4 September 1993, gathered information on a representative sample of 2,995 ever-married women age 13-49 from 3,213 households. The survey also collected extensive health-related information on 1,470 of these women's children who were born during the four years preceding the survey. In this report, the survey findings are generally shown separately for urban and rural areas as well as for the whole state.

The survey collected a variety of socioeconomic background information about the population of Punjab. Twenty-eight percent of the sample population reside in urban areas. Sixty-six percent of males and 52 percent of females age 6 and above are literate. The median number of years of schooling is 5.2 years for males, and 2.0 years for females. The school attendance rate at age 6-14 is 83 percent for males and 78 percent for females. Mean household size is 5.5 persons per household in urban areas and 5.7 in rural areas. The average number of persons per room is 2.7 in the state as a whole, and varies little by residence. Overall, 58 percent of household heads are Sikh, 40 percent Hindu, 1 percent Muslim and 2 percent from other religions. Twenty-eight percent of household heads belong to scheduled castes and there are no scheduled tribes in the state.

The age distribution of the household population covered in the Punjab NFHS is typical of moderately declining fertility populations. Thirty-five percent of the population is below age 15, and 10 percent is of age 60 or older. In the NFHS in Punjab, the population sex ratio is less in favour of females, at 912 usual resident females to 1,000 usual resident males. More than one-third of ever-married women are not regularly exposed to any kind of electronic mass media (television, radio or cinema).

Marriage is universal in Punjab and the age at marriage is relatively high. Women marry much younger than men, and both men and women marry younger in rural areas than in urban areas. The singulate mean age at marriage is 24.8 years for males and 21.1 years for females. The median age at first marriage for women age 20-49 is 19.5 years. After age 24, only a very small percentage of women have never married. The age at first marriage and age at cohabitation are the same in Punjab. Marriage patterns are not characterized by consanguinity, with 95 percent of marriages between unrelated persons.

Fertility is moderate in Punjab. According to the NFHS, at current fertility levels, women will have an average of 2.9 children each during their childbearing years compared with 3.4 children per woman for India. The state has experienced a steady decline in fertility in all

groups. Fertility in Punjab varies substantially by place of residence, education, religion and caste. The largest differential in fertility is found by education. Women with at least a high school education have a TFR of 2.2, whereas illiterate women have a TFR of 3.7, which is 65 percent higher. Socioeconomic differentials in number of children ever born are large, reflecting larger fertility differentials in the past, especially for older women.

Knowledge of family planning is nearly universal in Punjab. Currently married women are most familiar with female sterilization (100 percent), followed by male sterilization (99 percent), the IUD (88 percent), the pill (84 percent) and the condom (82 percent). Injection is the least heard-of method (47 percent). Traditional methods of contraception are known to 64 percent of women, with periodic abstinence and withdrawal known to 56 and 42 percent, respectively. Urban and rural women are about equal in their knowledge of sterilization, but rural women are less likely to know about modern spacing methods. Knowledge of sources of contraceptives is high, with over 99 percent knowing where to obtain at least one method of family planning. Women are most knowledgeable about the source of sterilization. Spacing methods are not only less well known, but knowledge about their sources is also more limited.

Almost 59 percent of currently married women age 15-49 years are currently using a contraceptive method, with 51 percent using a modern method. Female sterilization is the most popular method (32 percent), followed by condoms (9 percent). The IUD (6 percent), male sterilization (3 percent), and pills (2 percent) are less popular. Among traditional methods, periodic abstinence (4 percent) and withdrawal (3 percent) account for almost all usage. Current use of contraception is higher in urban areas (63 percent) than in rural areas (57 percent). Current use of spacing methods (with the exception of pills) is higher in urban areas. On the other hand, acceptance of female sterilization is higher in rural areas than in urban areas.

The use of contraception peaks in the age group 35-39, at 81 percent. Socioeconomic differentials in contraceptive use are large. Sikhs and Hindus, two major religious groups in the state, do not differ much in the current use of family planning. A positive relationship exists between education and the level of current use. Although the relationship between sterilization and education is negative, the relationship between spacing methods and education is positive. A positive association exists between the number of living children a woman has and current use of contraception.

The public sector supplies 77 percent of all users of modern methods, and the private medical sector supplies 11 percent. Other private nonmedical sources supply 12 percent. The public sector is the major source of supply for sterilization and the IUD, and the private sector is the primary source for condoms and pills.

Overall, only 25 percent of currently married women say they want another child sometime in the future, and nearly half of these women (13 percent of all currently married women) say they would like to wait at least two years before having the next child. Only 11 percent of women express a desire to have a child within two years. Thirty-eight percent of women report that they want no more children at all in the future, and 34 percent of women (or their husbands) are sterilized and cannot have any more children. These latter two groups together constitute 72 percent of all currently married women.

Among women who want another child, there is a strong preference for having a son as the next child. More than half (59 percent) say that they want a son, only 6 percent express a desire for a daughter, and the rest say that the sex of the child does not matter (23 percent) or that it is up to God (12 percent). The desire for a son is particularly strong in rural areas and among high parity women. Almost three-fourths of ever-married women in Punjab are aware that technologies are available to determine the sex of the foetus. Among those who are aware of sex preselection procedures, 23 percent approve of the practice of aborting unwanted female foetuses.

The desire to stop having children increases with age, and the desire to space births decreases with age. Thirteen percent of currently married women in Punjab have an unmet need for family planning, that is, they are not using contraception even though they do not want any more children or want to wait at least two years before having their next child.

Among the household population surveyed, malaria during the three moths prior to the survey is reported for 26 per 1,000 population. The estimated prevalence rates for other diseases are 9 per 1,000 for blindness (partial or complete), 8 per 1,000 for physical impairment of the limbs, 2 per 1,000 for tuberculosis and less than 1 per 1,000 for leprosy. All of these conditions except tuberculosis are more prevalent in rural than in urban areas.

In the NFHS, the infant mortality rate for the five-year (1988-92) period immediately preceding the survey is estimated to be 54 per 1,000 live births. Child mortality (age 1-4) is 15 per 1,000 children surviving to age 1, and under-five mortality is 68 per 1,000 live births. The infant mortality rate is 61 percent higher in rural areas than in urban areas, and is almost twice as high for children of illiterate mothers as for children of mothers with at least a high school education. Child mortality is 81 percent higher for females than for males. Births with a previous birth interval of less than two years have comparatively high mortality risks, suggesting that greater family welfare programme emphasis on spacing methods would reduce child mortality as well as fertility.

Mothers received antenatal care for 88 percent of their births during the four years preceding the survey. Mothers in rural areas are less likely than mothers in urban areas to visit a health institution for antenatal care. Use of antenatal care services is higher for more educated women; 78 percent of births to mothers with no education received antenatal care, compared with 99 percent of births to mothers with at least high school education. Eighty-three percent of mothers who gave birth during the last four years received two doses of tetanus toxoid vaccination during their pregnancy.

Only 25 percent of births occurring in the four-year period preceding the survey occurred in public or private health facilities. Delivery in health facilities is higher in urban areas (36 percent) than in rural areas (21 percent). In the state as a whole, 48 percent of births were assisted by a doctor or nurse/midwife, and 50 percent were attended by traditional birth attendants.

The Universal Immunization Programme in Punjab has met with some success. Among children 12 to 23 months of age, around three-fourths have received BCG and all the three doses of DPT and polio. Sixty-five percent of the children age 12-23 months have been vaccinated

against measles. Sixty-two percent have received all of the recommended vaccinations, and 55 percent received all the recommended vaccinations by age 12 months. At the other extreme, 18 percent received no vaccinations at all. Vaccination coverage is higher among male children and first-birth-order children. Children in urban areas have higher vaccination coverage (76 percent have all recommended vaccinations) than children in rural areas (58 percent). There is a positive relationship between educational level of mothers and vaccination coverage.

Twenty percent of children under age four suffered from fever during the two weeks before the survey. Ninety-two percent of children with fever were taken to a health facility for treatment. Three percent of children under the age of four had been ill with symptoms of acute respiratory infection (cough accompanied by fast breathing - ARI) during the two weeks before the survey. Eighty-eight percent of children who suffered ARI symptoms were taken to a health facility for treatment.

Four percent of children under age four had diarrhoea during the 24 hours before the survey, and 11 percent had it during the two weeks before the survey. Infants under six months are most susceptible to diarrhoea. Eighty-six percent of children with diarrhoea were taken to a health facility for treatment. However, 33 percent were treated with either ORS (oral rehydration salt) packets or recommended home solution (RHS), and only 20 percent received increased fluids. ORS is known to 52 percent of mothers, but only 29 percent have ever used ORS packets to treat diarrhoea. During diarrhoea, 16 percent of mothers reduced the frequency of breastfeeding, and 23 percent of the children received a reduced amount of fluids, contrary to treatment guidelines.

Breastfeeding is nearly universal in Punjab. Ninety-six percent of all children born in the last four years were breastfed, and this proportion varies little by background characteristics. Twenty-four percent of children are breastfed from the first day of birth. Only 6 percent of children age 0-1 month received exclusive breastfeeding. The median duration of breastfeeding is 18.4 months, and the mean duration of breastfeeding is 20.9 months.

Both chronic and severe undernutrition are high in Punjab. Forty-six percent of children under four years of age are underweight and 40 percent are stunted. The proportion of children who are severely undernourished is also notable -- 14 percent in the case of weight-for-age and 16 percent in the case of height-for-age. Wasting, which is the most serious nutritional problem measured, affects 20 percent of children in Punjab. Undernutrition is relatively more common among female children than male children and among rural children than urban children. A higher percentage of Hindu children are underweight and stunted than Sikh children, but a higher percentage of Sikh children are wasted than Hindu children. Mother's education is the most important variable affecting the nutritional status of children. Twice as many children of illiterate mothers are undernourished as children of mothers with at least a high school education.

CHAPTER 1

INTRODUCTION

1.1 Background of the Survey

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

The NFHS covers the population in 24 states and the National Capital Territory of Delhi (the erstwhile Union Territory of Delhi), which contain 99 percent of the population of India. The NFHS is a household survey with an overall sample size of 89,777 ever-married women in the age group 13-49. Because of the scale of this undertaking, the data collection under the NFHS was carried out in three phases in 1992 and 1993. The first phase included Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Tamil Nadu, and West Bengal. The second phase included Assam, Goa, Haryana, Karnataka, Kerala, Maharashtra, Rajasthan, and Uttar Pradesh. The third phase covered 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.

The NFHS is a collaborative project 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. The MOHFW designated IIPS, Bombay, as the nodal organization, responsible for providing coordination and technical guidance for the NFHS. The PRCs participated in all stages of survey implementation for the states in which they are located. IIPS and the PRCs collaborated with a number of COs in India for survey implementation. Each CO was responsible for facilitating survey activities in one or more states covered by the NFHS. Technical assistance for the NFHS was provided by the East-West Center/Macro International.

The Centre for Research in Rural and Industrial Development (CRRID), Chandigarh, an autonomous research organization, was selected to be the CO for the NFHS in Punjab. The Population Research Centre, situated in CRRID, Chandigarh, collaborated with the CO in the implementation of the survey in Punjab.

1.2 Origin of the State

Punjab, which derives its name from the Persian words *punj*, meaning "five", and *ab*, meaning "water", was once watered by five rivers -- the Satluj, the Beas, the Ravi, the Chenab, and the Jhelum. Consequent upon its partition in 1947, Punjab lost the Chenab and the Jhelum to Pakistan. But the old name and the spirit, culture, and language of the area persist and flourish.

The erstwhile Punjab stretched from the Yamuna in the east to the Indus in the west. In 1901 the Northwestern Frontier Province, now part of Pakistan, was separated from it. In 1947, Punjab was again partitioned, the most prosperous and developed section becoming part of Pakistan and the relatively backward eastern part remaining in India. Punjab in its present form came into existence on 1 November 1966 under the Punjab Reorganization Act of 1966, which divided the area into Punjab and Haryana. Its capital is Chandigarh.

1.3 Geographic Features

Physical Characteristics

Triangular in shape, Punjab lies between 29° 33′ N and 32° 31′ N latitude and between 73° 53′ E and 76° 56′ E longitude. With Pakistan bordering to its west, Punjab occupies a position of great strategic importance. It is adjoined by Jammu and Kashmir to the north, Himachal Pradesh to the northeast and east, Haryana to the southeast and south, and Rajasthan to the southwest.

Lying between the rivers Ravi in the northwest and Ghaggar in the southeast, Punjab consists mainly of an alluvial plain gently sloping from 300 metres above sea level in the northeast to 180 metres in the southwest. The plain is the product of alluvium deposited by the Ravi, the Beas, the Satluj, and the Ghaggar, which are the principal streams bordering with or traversing the state. With more than 90 percent of the total area as low-lying flood plains along the rivers and flat upland plains elsewhere, Punjab surpasses all other states of India in possessing a large, level topography. In the north and northeast rise the hills of the Shiwalik range.

The 1981 Census divided Punjab into three geographical regions (Director of Census Operations, Punjab, 1988): (1) the Hilly Tract, (2) the Foot-Hill Plains, and (3) the Flat Plains. The *Hilly Tract*, which forms part of the Shiwalik hills, extends along the north and northeastern border of the state. This tract covers parts of Gurudaspur, Hoshiarpur, and Rupnagar districts. The elevation of the hills varies between 400 and 600 metres above sea level. These have steeper slopes towards the south and southwest. The *Foot-Hill Plains* are located between the Hilly Tract and the Flat Plains in the north and northeastern parts of the state. The *Flat Plains* form the major part of Punjab. Its alluvium deposits of clay and sand provide a fertile environment for agriculture. During the rainy season, flooding occurs along the rivers of this region.

The Ravi, the Beas, and the Satluj are the perennial streams of Punjab and have their sources in the glacier region of the Himalaya. Because their discharge fluctuates widely from season to season, dams and barrages have been constructed for regulating the water supply needed to feed irrigation channels and power houses throughout the year. The rich reservoir of underground water over large parts of Punjab has permitted tubewell irrigation on a large scale.

Punjab's soils are generally sandy loam to loam in texture. The upland plain has loamy soils that are deep, well drained, and fertile. The mosquito-infested plain is covered by poor, sandy soils that give low yields. Silty loam is found in the low-lying areas. Soils there are

generally deficient in nitrogen and organic matter and therefore need heavy manuring for good yields. Moderate amounts of phosphorus and potassium are found in soils where water levels are high. In some areas the sub-soil water depth exceeds 10 metres, but in other areas it is not more than 2 metres.

Although once fairly forested, Punjab has been largely cleared for agriculture. Hardly 1.5 percent of its area is under forests. Vegetation is of the tropical deciduous type. *Sheesham*, *Safeda*, *Keekar*, *Jamoa*, *Neem*, *Peepal*, and *Ber* are the most common trees. Trees are generally found along roads, railways, and canals, in common lands, and around settlements and irrigation wells in the villages. Attempts are being made to reforest the Shiwalik hills.

In short, the physical setting of Punjab is characterized by an extensive level topography and by sparse vegetation covering fertile soils. These conditions make it well suited for agricultural development.

Climate, Rainfall, and Seasons

Although Punjab lies in the warm temperate zone, its sub-tropical inland location causes its climate to vary from semi-arid to sub-humid. Winter lasts from October to February, summer from March to June, and monsoon rains from July to September. Winters are fairly cold, with average temperatures ranging from 11°C to 31°C and night temperature occasionally approaching the freezing point; January is the coldest month. Summers are scorching hot. Maximum temperature averages 34°C but exceeds 45°C on very hot days during the months of May and June.

Most of Punjab's rainfall is caused by the monsoon, which comes from the Bay of Bengal and the Arabian Sea. The rainfall is heaviest in the Shiwalik hills (about 125 cm). It gradually decreases towards the southwest, where it averages only 25 cm. About 70 percent of the annual rainfall is concentrated during the monsoon period, from July to September; but winter rain from the western disturbances accounts for nearly 15 percent of the total and is extremely important for *rabi* crops. Agriculture is heavily dependent on tubewell irrigation (Gosal and Gopal Krishan, 1984).

1.4 Area and People

Area and Administrative Divisions

Punjab has a land area of 50,362 km^2. In 1991, its share of India's total population was less than 2 percent and its share of area was 1.5 percent. Chandigarh, the capital, is located at the eastern end of the state. In fact, Chandigarh is the seat of three governments: Punjab, Haryana, and the Union Territory of Chandigarh. Punjab is divided into three administrative divisions (Jalandhar, Patiala, and Firozpur) and 12 districts (Gurdaspur, Amritsar, Kapurthala, Jalandhar, Hoshiarpur, Rupnagar, Ludhiana, Sangrur, Patiala, Firozpur, Bathinda, and Faridkot). Recently two more districts, Fatehgarh Sahib and Mansa, have been created. The districts are divided into 46 *tahsils* (sub-divisions), 48 sub-*tahsils*, 118 blocks, 128 urban centres/towns, and 12,795 villages -- 12,428 inhabited and 367 uninhabited. (Office of the Registrar General and Census Commissioner, 1992).

People, Culture, Religion, and Language

Punjab is one of the earliest settled parts of India. The rise of civilization, associated with developments in the Indus Valley, took place there almost five thousand years ago. Ancient Punjab saw the rise and fall of such powers as the Mauryas, Bactrian Greeks, Sakas, Kushans, and Guptas. Medieval Punjab saw the supremacy of the Muslims. The first Muslim dynasty was followed by the Ghoris, the Slaves, the Khiljis, the Tughlaks, the Sayyids, the Lodhis, and the Mughals. During the fifteenth and sixteenth centuries, the Bhakti movement, which was devoted to fighting religious and social evils, received a great impetus from the advent of Sikhism. The tenth Sikh Guru, Gobind Singh, transformed the Sikhs into a militant sect and created the brotherhood known as Khalsa. The Sikhs challenged and overthrew the Mughal empire in the north. With the decline of Mughal power in Delhi in the early eighteenth century, the Sikhs organized themselves under Misls confederacies. In one of the confederacies was born Ranjit Singh, who united the other confederacies and established a Sikh kingdom. In the middle of the nineteenth century, the British annexed Punjab. After independence, Punjab suffered the dislocations of partition. Throughout its history, Punjab has experienced frequent invasions from the northwest, bringing not only new inhabitants, but also new cultural traits and challenges. These events have caused the people of Punjab to become courageous, adjustable to new conditions, and receptive to fresh ideas.

According to the 1981 Census, the population of Punjab is 61 percent Sikh, 37 percent Hindu, 1 percent Muslim, and 1 percent Christian (Office of the Registrar General and Census Commissioner, 1984a). The remaining religious groups comprise less than 1 percent. The major language of the people is Punjabi, written in Gur Mukhi script and spoken in the regional Punjabi dialect. Punjabi is also the official language of the state. Hindi is another prevalent language, and a small number of people speak Urdu.

1.5 Economy

Among India's states, Punjab ranks first in per capita income (Rs. 8,281 at current prices in 1990-91, as compared with Rs. 4,974 for India at large). During 1987-88, only 7 percent of the population was estimated to be below the poverty line, compared with 30 percent of the Indian population at large[1] (Centre for Monitoring Indian Economy, 1991). The state's economy grew at the annual compound rate of 3.88 percent in 1990-91, while the corresponding growth rate of India's economy was 5.59 percent (Government of Punjab, Economics and Statistics Organization, 1991).

Agriculture is the single largest sector of the economy. About 83.5 percent of the geographical area of Punjab is under cultivation. According to the 1991 Census, 55 percent of

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

the labour force was employed in agriculture as cultivators and labourers (Office of the Registrar General and Census Commissioner, 1992). The dependence on agriculture has declined slightly since 1981, however, when 58 percent of the labour force was employed in agriculture. The contribution of agriculture to Punjab's net income was 31 percent in 1990-91. Punjab grows both *kharif* and *rabi* crops, and major agricultural products are wheat, rice, sugar cane, cotton, oilseeds, and potatoes. Punjab ranks first among Indian states in per capita production of food grains; its average annual per capita food grain production was 913.2 kilograms in 1989-90. It also ranks first in the growth rate of food grain production, the compound annual growth rate of food grain production averaging 5.4 percent from 1969-70 to 1989-90 (Centre for Monitoring Indian Economy, 1991b). With only 1.54 percent of the geographical area of the country, Punjab contributed 61 percent of the nation's wheat and 43 percent of its rice to the central pool during the 1991-92 crop season (Ministry of Information and Broadcasting, 1993). The index of agricultural production (base year 1969-70 = 100) stood at 270.26 in 1990-91 (Government of Punjab, Economics and Statistics Organisation, 1991).

Despite remarkable progress in industrial production, Punjab's performance in this sector lags behind its success in agriculture. The industrial sector accounted for 14 percent of the state's income in 1988-89 as against the all-India average of 17 percent (Centre for Monitoring Indian Economy, 1991a). The major industrial concentrations in Punjab are in and around big cities situated on the Ambala-Amritsar railway line. Some of the important industrial centres strung along this major rail route include Gobindgarh, Ludhiana, Phillaur, Goraya, Phagwara, Jalandhar, Amritsar, and Chhahrahta. Batala is another industrial town of great prominence. In southeast Punjab, Bathinda, Derabassi, and Mohali are emerging as an important industrial node. Nangal is a notable modern industrial town in the northeast. In all these places, medium-size and large industrial units produce bicycle and automobile parts; sewing machines; hand and machine tools; electronic items; sports and leather goods; hosiery, knitwear, and textiles; fasteners; nuts and bolts; surgical and pharmaceutical products; and sugar and vegetable oils. The industrial strength of Punjab lies in its small production units, which are dispersed throughout the state. As of March 1992, the state's 175,000 small industrial units, with an investment of Rs. 14,750 million gave employment to 720,000 persons, and its 395 large and medium-size units, with an investment of over Rs. 47,000 million gave employment to more than 196,000 persons (Ministry of Information and Broadcasting, 1993). The index of industrial production (base year 1975-76 = 100) increased to 325 in 1989-90 (Government of Punjab, Economics and Statistics Organization, 1991).

Punjab derives important irrigation, power, and electricity works from Bhakra Nangal Dam, the Bhakra canals, Harike Barrage with its new lined canal (called Sirhind Feeder), and the remodelling of Madhopur head-works into a barrage. Madhopur-Beas link was constructed to transfer surplus water from the Ravi to the Beas. A similar project, the Satlej-Beas Link Project, has been completed. Pong Dam, on the Beas, is an important hydro-electric project. The first power house, comprising three units of Mukerian Hydel Project, was commissioned in October 1983. Guru Gobind Singh Thermal Plant (earlier known as Ropar Thermal Plant) was commissioned in 1984. Rice Straw Thermal Plant in Jalkheri, a nonconventional source of energy, is the first project of its kind in India. The Ranjit Sagar Dam is under construction. Three other dams -- namely Dholbaha, Janauri, and Maile -- have already been constructed under Phase I of the World Bank agreement. Punjab achieved 100 percent electrification by 1976, and by 1992 its total installed power capacity was 3,291 mw (Ministry of Information and

Broadcasting, 1993). Besides the canal irrigation projects, numerous tubewells and wells are used for agricultural development. In 1990-91, the gross irrigated area of Punjab state was 7,124 thousand hectares; net irrigated area was 3,910 thousand hectares (Government of Punjab, Economics and Statistics Organization, 1991).

1.6 Basic Demographic Indicators

Table 1.1 compares the basic demographic indicators for Punjab with those of India. According to the most recent census, Punjab had a population of 20.3 million in 1991. Its decadal population growth rate during 1981-91 (20.8 percent) was lower than that for India as a whole (23.9 percent). Its population density (persons per km^2) in 1991, however, was much higher (403) than the national average (273). Within the state, population pressure on land varies greatly from district to district. According to the 1991 Census, population density is highest in the districts of Ludhiana (629), Jalandhar (598), Gurdaspur (492), Amritsar (491), Rupnagar (434), and Patiala (415) -- all industrial focal points. Population density is lowest in the districts of Ferozpur (272), Bathinda (280), Faridkot (301), Sangrur (333), and Hoshiarpur

Table 1.1 Basic demographic indicators

Basic demographic indicators for Punjab and India, 1981-1992

Index	Punjab	India
Population (1991)	20,281,969	846,302,688
Percent population increase (1981-91)	20.8	23.9
Density (Population/km^2) (1991)	403	273
Percent urban (1991)	29.6	26.1
Sex ratio (1991)	882	927
Percent 0-14 years old (1981)	36.9	39.6
(1991)	33.8	36.3
Percent 65+ years old (1981)	3.6	3.8
(1991)	4.8	3.8
Percent scheduled caste (1991)	28.3	16.7
Percent scheduled tribe (1991)	0.0	8.0
Percent literate (1991)[1]		
Male	65.7	64.1
Female	50.4	39.3
Total	58.5	52.2
Crude birth rate (1992)	27.1	29.2
Crude death rate (1992)	8.2	10.1
Exponential growth rate (1981-91)	1.89	2.14
Total fertility rate (1992)	3.1	3.6
Infant mortality rate (1992)	56	79
Life expectancy (1986-90)		
Male	64.7	57.7
Female	66.9	58.1
Couple protection rate (1992)	73.6	43.5

[1]Based on population age 7 and above

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

(369); in those districts, poor soil accounts for less intense agricultural cultivation and there are fewer industrial units.

Punjab is a predominantly agricultural state, and 70 percent of the inhabitants live in rural areas (compared with the national average of 74 percent). Within the state there are major differences among districts. In Ludhiana, only 50 percent of the population is rural, whereas 85 percent of Hoshiarpur's inhabitants live in rural areas.

The low status of women in Punjab is reflected in an overall low sex ratio of 882 females per 1,000 males in 1991, compared with 927 females per 1,000 males for all India. As estimated by the 1991 SRS, the proportion of the population in the age group 0-14 years is lower in Punjab (34 percent) than in India as a whole (36 percent), reflecting the state's low birth rate. The proportion of the population age 65 and above is higher for Punjab (5 percent) than for India (4 percent).

In 1991, persons from scheduled castes[2] comprised 28 percent of the state population, compared with 17 percent for all India. There are no scheduled tribes[3] in Punjab, whereas in India as a whole 8 percent of the population belong to scheduled tribes.

Punjab is one of the educationally advanced states in the country. According to the 1991 Census, the literacy rate for the population age 7 years and above is 59 percent, compared with 52 percent for all India. The literacy rates are 66 percent for males and 50 percent for females in Punjab, compared with 64 percent and 39 percent for males and females, respectively, for the whole of India. Although the female literacy rate in Punjab is much better than that in the country as a whole, the male literacy rate is only slightly better than the all-India rate.

Punjab's crude birth rate of 27.1 births per 1,000 population is lower than the all-India rate of 29.2, and similarly the crude death rate for the state (8.2 deaths per 1,000 population) is lower than the national rate (10.1 deaths per 1,000 population), as estimated by the Sample Registration System (SRS) in 1992 (Office of the Registrar General, 1994a).

The total fertility rate (TFR) of 3.1 children per woman in Punjab, as estimated by the SRS in 1991, is somewhat lower than all-India TFR of 3.6. The state population's annual exponential growth rate during 1981-91 was 1.89 percent, compared with 2.14 percent for all India.

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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 has conferred on them special protection. The term "scheduled caste" was used for these caste groups for the first time in India in the Government of India Act of 1935 (Office of the Registrar General and Census Commissioner, 1984b). 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 of 1976). Scheduled castes refer to such castes, races or tribes or parts of groups, within such castes, races or tribes as are declared to be scheduled castes by the President of India by public notification.

[3] Scheduled tribes refer to such tribes or tribal communities or parts of or groups within such tribes or tribal communities as are declared to be scheduled tribes by the President of India by public notification (Office of the Registrar General and Census Commissioner, 1984b).

The infant mortality rate for Punjab, estimated by the SRS for the year 1992, is 56 deaths per 1,000 live births -- considerably lower than that for India (79 per 1,000 live births). The estimated life expectancy at birth for males in Punjab is 65 years, seven years longer than male life expectancy for all India. Female life expectancy in Punjab is 67 years, or nine years longer than the national average. Whereas nationally the life expectancy for females is only a half year more than that for males, female life expectancy in Punjab is two years more than that for males.

In 1992 the couple protection rate (defined as the percentage of married couples effectively protected by various methods of family planning) was 74 percent in Punjab. This rate was much higher than the national average of 44 percent.

Major demographic trends for Punjab are analyzed in Table 1.2. The state's population was 13.6 million in 1971, 16.8 million in 1981, and 20.3 million in 1991. The decadal growth rate of the population reveals an increasing trend. It was 21.7 percent during 1961-71 and

Table 1.2 Trends in basic demographic indicators

Trends in basic demographic indicators, Punjab, 1971-91

Index	1971	1981	1991
Population	13,551,060	16,788,915	20,281,969
Percent population increase (previous decade)	21.7	23.9	20.8
Density (Population/km^2)	269	333	403
Percent urban	23.7	27.7	29.6
Sex ratio	865	879	882
Percent 0-14 years old	41.3	36.9	33.8
Percent 65+ years old	4.5	3.6	4.8
Percent scheduled caste	24.7	26.9	28.3
Percent scheduled tribe	0.0	0.0	0.0
Percent literate[a]			
Male	40.4	47.2	65.7
Female	25.9	33.7	50.4
Total	33.7	40.9	58.5
Crude birth rate	34.2	30.3	27.1[b]
Crude death rate	10.4	9.4	8.2[b]
Exponential growth rate	1.96	2.14	1.89
Total fertility rate	5.2	4.0	3.1
Infant mortality rate	102	81	56[b]
Life expectancy			
Male	U	64.3[c]	64.7[d]
Female	U	64.3[c]	66.9[d]
Couple protection rate	17.8	24.1	73.6[b]

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
[c]1981-86
[d]1986-90
Source: Office of the Registrar General (1982, 1985, 1992, 1993, 1994a, 1994b), Office of the Registrar General and Census Commissioner (1974, 1976, 1984b), Ministry of Health and Family Welfare (1989, 1991, 1992)

slightly higher, 23.9 percent, in 1971-81 but thereafter declined to 20.8 percent in 1981-91. Nevertheless, the absolute number of people added during 1981-91 was slightly larger than that added in 1971-81. The population density rose from 269 persons per km^2 in 1971 to 333 in 1981 and further increased to 403 in 1991. The increase is indicative of the growing population pressure on the state's land and other resources. Punjab has also been undergoing fairly rapid urbanization. The percentage of the population that was urban grew from 23.7 in 1971 to 27.7 in 1981 and to 29.6 in 1991.

The sex ratio increased from 865 females per 1,000 males in 1971 to 879 in 1981 and further increased to 882 in 1991. The proportion of the population in the 0-14 age group has been falling, from 41.3 percent in 1971 to 36.9 percent in 1981 and to 33.8 percent in 1991. The proportion of the population in the age group 65 and above declined from 4.5 percent to 3.6 percent in 1971-81 but rose again, to 4.8 percent, in 1991. The share of the scheduled caste population in the total population of Punjab has risen from 24.7 percent in 1971 to 26.9 percent in 1981 and to 28.3 percent in 1991.

Punjab's literacy rate has increased significantly in the past two decades, from 34 percent in 1971 to 59 percent in 1991. Although the relative improvement has been greater for females than for males, still the female literacy levels continue to be lower than male levels.

Fertility has declined substantially in Punjab over the two decades. The total fertility rate fell from 5.2 children per woman in 1971 to 3.1 children per woman by 1991, a net reduction of 2.1 children per woman over the 20-year period. The crude birth rate declined from 34 per 1,000 population in 1971 to 27 per 1,000 population in 1992.

Infant mortality in the state declined from 102 to 56 deaths per 1,000 live births between 1971 and 1992. The crude death rate fell from 10 to 8 per 1,000 population over the same period. Between 1981-86 and 1986-90 male life expectancy increased by less than 0.5, female life expectancy by two and half years. By 1986-90, life expectancy was two years lower for males.

The exponential growth rate of Punjab's population rose during the 1971-81 decade, from 2.0 to 2.1 percent but declined to 1.9 percent in 1991. According to government service statistics, the couple protection rate jumped from 18 percent in 1971 to 74 percent by 1992.

1.7 Population and Family Welfare Policies and Programmes

The family welfare programme in India promotes responsible parenthood and a two-child family norm (regardless of the sex of the children) through the voluntary use of contraceptive methods best suited to each couple (Ministry of Health and Family Welfare, 1991). Health and family planning services in Punjab, as in other states, are provided through a network of sub-centres, Primary Health Centres, hospitals, Community Health Centres, dispensaries and private clinics, and other facilities in accordance with the national family welfare policy and guidelines provided under India's family welfare programme.

The national family planning programme was launched in 1951 with a clinical approach. This was followed by the extension education approach, which was introduced in 1963-64. Mass

vasectomy camps were organized during 1970-73. During the 1970's, a community-oriented service network was developed, in which family planning services were offered as part of the overall package of health services. This integrated and coordinated approach was implemented during 1974-77. The mother and child care approach, which commenced in 1977-78, continues. In 1978, the Expanded Programme on Immunization (EPI) was introduced with the objective of providing free vaccination services to all eligible children and expectant mothers. To step up the pace of immunization, the government introduced a Universal Immunization Programme (UIP) in 1985-86 and is implementing it through the existing network of Primary Health Centres (PHCs), sub-centres, and referral centres called Community Health Centres.

In Punjab, as in other states, the family welfare programme is voluntary, leaving the choice of methods to individual couples. Although the programme has relied principally on sterilization, temporary contraceptive methods such as the IUD, condom, and pill, are offered under a cafeteria approach. Mass media and interpersonal communications are utilized to explain the various methods of contraception and to remove sociocultural barriers to their use. The government's long-term national goal is to reach a net reproduction rate of 1.0 by 2011-16.

1.8 Health Priorities and Programmes

Health conditions in Punjab are fairly good compared with other states of India. The morbidity and mortality rates remain low, and the low rate of population growth continues to have a good effect on the health of people and the quality of life. Although private health services are widely available in the state, the delivery of health services is governed mainly by the National Health Policy, which was approved by the Parliament in 1983. The policy places a major emphasis on ensuring primary health care to all by the year 2000. It also identifies nine specific areas needing special attention: (1) adequate nutrition for all segments of the population, (2) the immunization programme, (3) maternal and child health care, (4) the prevention of food adulteration and the maintenance of quality of drugs, (5) water supply and sanitation, (6) environmental protection, (7) school health programmes, (8) occupational health services, and (9) the prevention and control of locally endemic diseases. Active community participation is considered to be one of the most important supportive activities for successful implementation of the health programmes.

After India became a signatory to the Alma Ata Declaration of 1978, committing itself to attaining the goal of "Health for All" by the year 2000, the government began to develop a rural health infrastructure. This was done to provide health care services to the rural population, which had remained largely neglected. By June, 1993, Punjab had 104 Community Health Centres, 472 Primary Health Centres, and 2,964 sub-centres, which provide health and family welfare services to the state's rural population (Ministry of Health and Family Welfare, 1993).

CHAPTER 2

SURVEY DESIGN AND IMPLEMENTATION

2.1 Objectives of the NFHS

The primary objective of the NFHS is to provide national-level and state-level data on fertility, nuptiality, family size preferences, knowledge and practice of family planning, the potential demand for contraception, the level of unwanted fertility, utilization of antenatal services, breastfeeding and food supplementation practices, child nutrition and health, immunizations, and infant and child mortality. The NFHS is also designed to explore the demographic and socioeconomic determinants of fertility, family planning, and maternal and child health. The NFHS is comparable not only across states of India but also with the Demographic and Health Surveys (DHS) conducted in many countries[1]. The NFHS is specifically designed to provide a source of demographic data for inter-state comparisons, and to this end the NFHS used uniform questionnaires and uniform methods of sampling, data collection and analysis for all the states. Information from the survey is intended to assist policymakers, administrators and researchers to assess and evaluate population and family welfare programmes and strategies.

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 Questionnaire Design Workshop held in Pune in September 1991. The workshop was attended by representatives from all the PRCs, the Consulting Organizations, MOHFW, IIPS, other Indian organizations, USAID and the East-West Center/Macro International. The contents and design of the questionnaires were based broadly on the DHS Model B Questionnaire, which is designed for use in countries with low contraceptive prevalence. Keeping in view the Indian sociocultural milieu and the objectives of the NFHS, additions and modifications were made to the model questionnaire after extensive deliberations at the workshop. In addition to a standard set of questions to be used in all the states of the NFHS, it was decided at the workshop that individual states could recommend a number of state-specific questions which would be formulated after considering the issues of importance in 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 IIPS with the help of the PRC, Bhopal, in October 1991. A 10-day training session for interviewers and supervisors was conducted at the PRC. In total, 150 pretest interviews were completed in two villages near Bhopal and a few urban blocks within Bhopal city. Appropriate changes were made in the questionnaires, based on the experience of the pretest. The NFHS in Punjab used the standard Household

[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.

Questionnaire, the Woman's Questionnaire, and the Village Questionnaire. In addition, state-specific questions on the topic of international migration were added to the Household Questionnaire and questions on sex preselection (amniocentesis) were added to the Woman's Questionnaire. Questionnaires used in the Punjab NFHS were bilingual, consisting of questions in both Hindi and English. A pretest of the Hindi version of the questionnaires was carried out in June, 1993, in two villages, Bakarpur and Chanalo of Patiala and Ropar districts, and in two urban areas of Chandigarh and Mohali. After the pretest, appropriate changes were made in the Hindi translation of the questionnaire based on the experience of the pretest.

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

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

Section 1. Respondent's Background: Questions on age, marital status, age at marriage, and education of the eligible 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 given birth to; information about stillbirths and abortions; a complete birth history including month and year of birth, current age, sex, survival status, and, if dead, age at death for each of the live births; and information about current pregnancy and menstruation.

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 the method, and problems experienced with use.

Section 4. Health of Children: The questions in this section relate to births in the year of the survey and to all births in the previous four calendar years. The objective of this section is to obtain information related to the health of children. The topics include antenatal

care, breastfeeding, vaccinations, and recent illnesses of young children. The questions are organized into two subsections: Section 4A, containing questions on pregnancy and breastfeeding, and Section 4B, containing questions on the immunization and health of children.

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

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

Section 7. Height and Weight: All living children born since 1 January 1989 to the eligible women interviewed were weighed and measured. The results were recorded in this section of the Woman's Questionnaire. The NFHS is the first national survey that collected demographic, health, and anthropometric data simultaneously. The measurement of height and weight was a separate operation that was conducted after the individual interview was completed. All interviewers, editors, and supervisors were trained in taking anthropometric measurements. For measuring the weight of the children, standard spring balance weighing machines (Salter Scales) were used. The height or length of each child was measured by means of an adjustable board made of acrylic or other synthetic material with a metal frame providing stability and durability, suitable for measuring either the length or the height of children.

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

2.3 Sample Design

The sample design adopted for the NFHS is a systematic, multi-stage stratified sample of households. The sample for the Punjab survey was designed to provide statistical estimates for the state as a whole and for urban and rural areas of the state. The universe consists of all urban and rural areas of the state.

Sample Size and Allocation

The overall target sample size for Punjab was 3,000 completed interviews with eligible women. The target sample size was set considering the size of the state, the time and resources available for the survey, and the need for separate estimates for urban and rural areas of the state. 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 by 10 percent to a total of 3,300 women to be selected. The sampling rate (sampling fraction) was the same in the urban and rural areas, and the sample was self-weighted. The overall sampling fraction (the probability, f, of selecting a woman from Punjab) was 0.000925, computed as follows:

$$f = \frac{n \times 1.10}{N}$$

where

n = number of women to be interviewed in Punjab, adjusted upward to account for nonresponse and other loss; and

N = projected population of eligible women in Punjab in 1993.

All the districts in Punjab were subdivided into four contiguous regions according to their geophysical characteristics, each representing one or more of the 1991 Census regions. The district composition of the regions is as follows:

Region I	:	Gurdaspur, Amritsar, Firozpur
Region II	:	Jalandhar, Kapurthala, Hoshiarpur, Rupnagar
Region III	:	Ludhiana, Patiala, Sangrur
Region IV	:	Bathinda, Faridkot

The Rural Sample: The Frame, Stratification, and Selection

In rural areas, the 1991 Census list of villages served as the sampling frame. A two-stage sample design was adopted, with the villages selected in the first stage and the households within chosen villages selected in the next stage. There were three levels of stratification. The first level was geographic, with the districts being subdivided into four regions according to their geophysical characteristics as described above. In the second level, villages were stratified according to population size; within each region, four size classes were created, each containing one-fourth of the population of the region. The third level of stratification consisted of ordering the villages within each size stratum of the region by the proportion of scheduled caste/scheduled tribe in the village population.

Altogether, 66 rural Primary Sampling Units (PSUs) were selected in the state. The selection of PSUs was systematic, with probability proportional to population size (PPS). An average of 30 households was selected for interviewing in PSUs that had fewer than 500 households, according to the 1991 Census, and an average of 40 households was selected from larger PSUs.

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 in rural Punjab
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 one week prior to the 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 those structures, identifying the residential structures, and listing the names of heads of all the households in the residential structures. Six household listing teams, each team comprising a lister and a mapper, were trained during 25-30 June 1993 at Chandigarh. The household listing operation started on 1 July 1993. This operation was supervised by the senior field staff of Centre for Research in Rural and Industrial Development (CRRID), Chandigarh, and the Population Research Centre (PRC), CRRID, Chandigarh. A complete household listing was done in PSUs having fewer than 500 households. PSUs with 500 or more households were segmented on the basis of existing wards, 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 by means of systematic sampling with equal probability.

The probability of selecting a household from a selected PSU (f_2) was computed as:

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

An attempt was made to contact all the selected households during data collection, and no replacement was made if a selected household was absent during data collection.

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. In the first level of stratification, all cities and towns were subdivided into three strata: self-selecting cities, district headquarter towns, and other towns. A self-selecting city was defined as one whose selection probability was unity (that is, whose population in 1991 was larger than the sampling interval). Within each stratum, the cities/towns were arranged according to 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. In the other two strata, a three-stage sample design was adopted: selection of towns with PPS, followed by selection of two census blocks per selected town with equal probabilities, followed by selection of households from each selected block. The frame used for selection of towns was the 1991 Census.

In Punjab, a total of 17 cities/towns and 44 blocks within these cities/towns was selected. As in the rural areas, a household listing was carried out in the selected blocks and, on average, 20 households per block were selected systematically.

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 the selected city/town (f_2) was computed as:

$$f_2 = \frac{b}{P}$$

where b = number of blocks to be selected from the city/town
P = total number of blocks in the city/town

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

To maintain uniform survey procedures across the states, four manuals dealing with various aspects of the survey were prepared at IIPS. The *Interviewer's Manual* consisted of instructions for the interviewers on interviewing techniques, field procedures, and 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. It included a list of checks to be made by the field editor in the filled-in questionnaires. The *Household Listing Manual*, meant for household listing teams, 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 the various states. Detailed discussions were held on the objectives of the NFHS, various aspects of the survey, the roles of the participating organizations, 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 CRRID and the PRC were trained at the first and second Training of the Trainers Workshops held at Lonavala during December, 1991 and July, 1992, respectively. Persons who participated in the workshops subsequently trained the field staff in each state according to the workshops' standard procedures.

All interviewers and editors were women who had received a bachelor's or a master's degree. The training of field staff for the main survey took place at CRRID, Chandigarh. A total of 35 persons (6 men and 29 women) received training during the period from 25 June to 2 July 1993. The staff from CRRID, including the PRC at CRRID, provided the training. The standard training period of three weeks was shortened to one week because the field staff had already been trained and had conducted the fieldwork for the Jammu NFHS.

The one-week training course consisted of instruction in interviewing techniques and field procedures, a detailed review of each item in the questionnaire, instruction and practice in weighing and measuring children, mock interviews between participants in the classroom, and practice interviews in the field. In addition, two special lectures were arranged: one on the topic of family planning, which took place at the beginning of the section on contraception in the Woman's Questionnaire, and the other on maternal and child health practices, including immunizations, which took place at the beginning of the section on health of children. Medical consultants with the state's Maternal and Child Health (MCH) programme were the resource persons for these lectures. Female trainees who performed satisfactorily in the training programme were selected as interviewers for the main survey. An additional five days of training was specially arranged for field editors and supervisors during 20-24 June 1993. The editors were trained to detect errors in the filled-in questionnaires and to resolve such problems. They also received a list of checks to be made while editing the filled-in questionnaires.

The fieldwork for the NFHS in Punjab was carried out by four interviewing teams, each consisting of one field supervisor, one field editor, and five female interviewers (see Appendix C for a complete list of survey staff). The fieldwork took place between 8 July and 4 September 1993. The staff of CRRID assigned the teams to the Primary Sampling Units (PSUs) and made various logistical decisions. Each team was allowed a fixed period of time to complete the fieldwork in a PSU before moving to the next PSU. Interviewers were instructed not to conduct more than three individual interviews a day. They were also required to make a minimum of three callbacks, 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, filter questions, age information, and completeness of the birth history and the health section. If the problems were major, such as discrepancies between the birth history and the health section, the interviewers were required to revisit the respondent to correct the discrepancies. If a return visit was not possible, the editor tried to establish, with the interviewer's assistance, the correct response. 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 ongoing interviews and verify the accuracy of the method of asking questions, recording answers and following skip instructions correctly.

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

The monitoring and supervision of the data collection operations were the responsibility of the coordinators and senior staff of CRRID and the PRC. Throughout the survey, the staff

from CRRID, and the PRC, maintained close contacts with all the teams through direct communication and spot-checking. Their objective was to provide support and advice to staff in the field and to enhance the data quality and efficiency of the interviewers. They accomplished this objective by communicating data problems 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 during the fieldwork to assess the quality of the data and identify problem areas. The monitors discussed these tables with the interviewing teams and supervisors during the fieldwork so that the field workers could improve their performance if necessary. 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

Every survey is subject to some field problems, which cannot be fully anticipated. In Punjab, however, no major problems were encountered.

2.6 Data Processing

The completed questionnaires for the Punjab NFHS were sent to the office of CRRID in Chandigarh for data processing. This process consisted of office editing, coding, data entry, and machine editing. Although field editors had examined the completed questionnaires in the field, the questionnaires were re-edited at the CRRID office by specially trained office editors. This re-examination included checking all skip sequences, circled response codes, and the information recorded in the filter questions. Special attention was paid to the consistency of responses to questions about age and the accurate completion of the birth history. A second stage of office editing consisted of assigning appropriate codes to the information on occupation, caste, and cause of death; also added to the coding scheme were commonly mentioned "other" responses. One supervisor and four data entry operators were responsible for the data entry and computer editing operations. The data were processed with four microcomputers using the data entry and editing software known as the Integrated System for Survey Analysis (ISSA). The data entry, done directly from the precoded questionnaires, started within one week of the receipt of the first set of completed questionnaires. All data entry and editing operations were completed by the first half of October, 1993.

A preliminary report highlighting the important findings of the Punjab survey was prepared in November, 1993. Its primary purpose was to disseminate the data on basic demographic and health parameters to programme planners, policymakers, and administrators soon after the data collection was completed. The report contained 15 tables and a short description of the findings on fertility, knowledge and use of contraception, utilization of antenatal services, immunization, feeding practices and the health of children, and infant and child mortality.

To ensure comparability in the data analysis among all the states, a workshop was held in Vadodara in December, 1992, to finalize the tabulation plan for the detailed state reports. The final tables for Punjab were produced at IIPS on the basis of this tabulation plan, with additional tables for the state-specific questions.

2.7 Areas for Reporting Survey Results

This report presents the survey results for all of Punjab. In addition, it presents separate findings for the 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 3,391 households selected in Punjab, interviews were completed in 95 percent of the cases. Only 0.5 percent of the selected households were found to be vacant. The household response rate (the number of households interviewed per 100 occupied households) was 95 percent. A slightly higher response rate for the household interview was recorded in rural areas of the state (96 percent) than in urban areas (94 percent).

In the interviewed households, 3,262 women were identified as eligible for the individual interview. Interviews were successfully completed for 2,995 eligible women (92 percent). The individual response rate was slightly lower in urban areas (91 percent) than in rural areas (93 percent).

Nonresponse at both the household and individual levels was due primarily to households being absent or an eligible female respondent not being at home despite repeated household visits. Cases in which an eligible woman refused to give an interview were rare (overall, only 0.3 percent).

Table 2.1 Sample results

Sample results for households and eligible women, Punjab, 1993

Result	Urban		Rural		Total	
	Number	Percent	Number	Percent	Number	Percent
Households selected	1001	100.0	2390	100.0	3391	100.0
Households completed (C)	937	93.6	2276	95.2	3213	94.8
Households with no competent respondent (HP)	7	0.7	9	0.4	16	0.5
Households absent (HA)	47	4.7	80	3.3	127	3.7
Households refused (R)	7	0.7	4	0.2	11	0.3
Households vacant/no dwelling (DV)	1	0.1	15	0.6	16	0.5
Dwellings destroyed (DD)	0	--	1	--	1	--
Other (HO)	2	0.2	5	0.2	7	0.2
Households occupied	998	100.0	2369	100.0	3367	100.0
Households interviewed	937	93.9	2276	96.1	3213	95.4
Households not interviewed	61	6.1	93	3.9	154	4.6
Household response rate (HHR)[1]	NA	93.9	NA	96.1	NA	95.4
Eligible women	925	100.0	2337	100.0	3262	100.0
Women interviewed (EWC)	836	90.4	2159	92.4	2995	91.8
Women not at home (EWNH)	76	8.2	155	6.6	231	7.1
Women refused (EWR)	5	0.5	5	0.2	10	0.3
Women partly interviewed (EWPC)	1	0.1	2	0.1	3	0.1
Other (EWO)	7	0.8	16	0.7	23	0.7
Individual response rate (EWRR)[2]	NA	91.1	NA	93.0	NA	92.5
Overall response rate (ORR)[3]	NA	85.5	NA	89.4	NA	88.2

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:

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

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

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

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

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

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 (SRS).

The NFHS household population can be tabulated in two ways: *de facto* (the place each person slept the night before the survey interview) and *de jure* (the place of usual residence). The *de facto* and *de jure* populations in Punjab may differ because of temporary population movements. Most tables in this and the following chapters are based on the *de facto* sample, unless they are otherwise specified. It is expected that the *de facto* sample will be more representative of women in the state as a whole because 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 elsewhere at the time of the survey.

3.1 Age-Sex Distribution of the Household Population

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 17,975. The sample is 28 percent urban compared to 30 percent in 1991 Census.

The age distribution of Punjab reflects a moderate fertility decline in recent years. Thirty-five percent of the population is below 15 years of age and 10 percent is age 60 or more. The child population (below age 15) does not differ much in urban areas (34 percent) and rural areas (36 percent).

Data on age in developing countries are typically prone to errors due to age misstatements and preferences for ages ending in particular digits. Examination of the single-year age distributions (see Appendix Table B.1 and Figure 3.1) indicates substantial distortions of the data due to misreporting of age and preference for particular digits. 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 10 digits, from 0 to 9. Myers' Indices computed for the male and female populations are 61.1 and 22.5, respectively. The corresponding indices for males and females in Punjab from the 1981 Census are 63.5 and 63.8, respectively (Office of the Registrar General and Census Commissioner, 1984c). Although the method of collecting information on the age of household members was almost the same in the census and the NFHS, age reporting in the NFHS seems to be considerably better for females. In the NFHS, as in the census, the interviewer collected information on the ages of household members from the head of the household or any responsible adult member of the household. The Myers Indices for males and females in the NFHS indicate that age reporting is better in the case of females than in the case of 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 in

Table 3.1 Household population by age and sex

Percent distribution of the *de facto* household population by age, according to sex and residence, Punjab, 1993

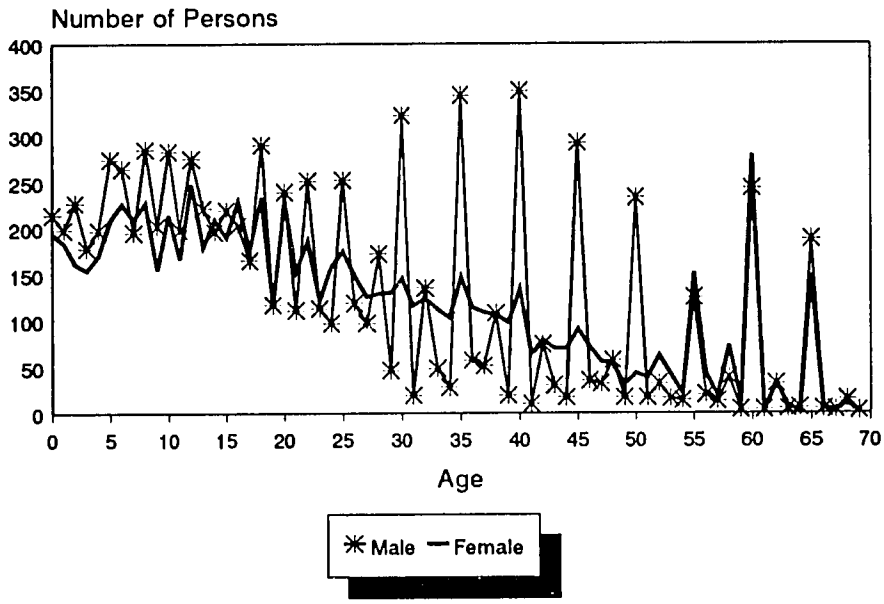
Age	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
< 1	2.4	1.7	2.1	2.2	2.5	2.3	2.3	2.3	2.3
1 - 4	7.5	6.2	6.9	8.9	8.4	8.7	8.5	7.8	8.2
5 - 9	13.1	12.0	12.6	12.9	11.9	12.5	13.0	12.0	12.5
10-14	13.2	12.3	12.8	12.2	11.7	12.0	12.5	11.9	12.2
15-19	8.8	10.9	9.8	11.3	11.1	11.2	10.6	11.0	10.8
20-24	9.8	8.8	9.3	8.2	10.3	9.2	8.6	9.9	9.2
25-29	7.2	9.0	8.1	7.3	8.0	7.6	7.3	8.3	7.8
30-34	6.8	7.9	7.4	5.5	6.6	6.0	5.9	7.0	6.4
35-39	6.3	6.4	6.4	6.1	6.8	6.4	6.2	6.7	6.4
40-44	5.4	5.6	5.5	5.0	4.6	4.8	5.1	4.9	5.0
45-49	5.1	3.2	4.2	4.4	3.6	4.1	4.6	3.5	4.1
50-54	3.3	3.1	3.2	3.3	2.1	2.8	3.3	2.4	2.9
55-59	2.3	3.8	3.0	2.1	3.3	2.7	2.1	3.5	2.8
60-64	2.6	3.7	3.2	3.3	3.8	3.5	3.1	3.8	3.4
65-69	1.9	2.3	2.1	2.4	1.9	2.2	2.3	2.0	2.1
70-74	2.4	1.3	1.9	2.5	1.5	2.0	2.4	1.4	2.0
75-79	0.6	0.5	0.5	0.7	0.6	0.7	0.7	0.5	0.6
80+	1.2	1.2	1.2	1.6	1.3	1.4	1.5	1.2	1.4
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	2631	2432	5063	6762	6150	12912	9393	8582	17975
Sex ratio	NA	NA	924	NA	NA	909	NA	NA	914

NA: Not applicable

the age group 13-49 in the NFHS is due mainly to the difference in the method of collecting age information for males and females in the reproductive ages. In the Household Questionnaire, the ages of all males and females are reported by the head of the household or other household respondent. No extensive probing techniques were adopted for obtaining age information in the household listing. For eligible women who were interviewed using the Woman's Questionnaire, the age reported by the woman herself replaces the age reported in the Household Questionnaire if there was a discrepancy. Her age on 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 were used to elicit accurate age information from the respondent. The NFHS data suggest that probing and other elaborate measures used for arriving at the age of the eligible women have helped in reducing the biases in age reporting due to digit preference.

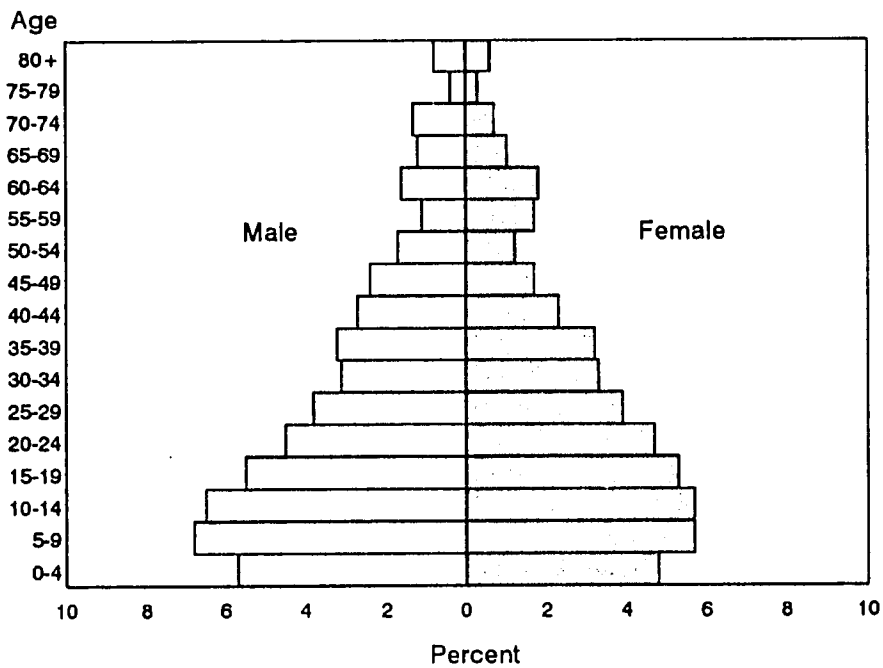
The distribution of males and females by five-year age groups is shown in the population pyramid in Figure 3.2. The irregular dip in the proportion of women at age 50-54 is indicative of a possible shifting of the age of women from age 50-54 to age 45-49 and age 55-59. This is an unusual phenomenon because in DHS surveys, it is generally found that there is a slight tendency to displace the age of women from age group 45-49 to 50-54, presumably to reduce the work load of the interviewer (Rutstein and Bicego, 1990). Perhaps, interviewers in the NFHS in Punjab were overcompensating because of warnings that questionnaires would be carefully scrutinized in the case of women recorded as age 50. However, the impact of this apparent shifting of age on the quality of data is minimal because the shifting is not pronounced

Figure 3.1
Number of Persons Reported at Each Age by Sex



NFHS, Punjab, 1993

Figure 3.2
Population Pyramid of Punjab



NFHS, Punjab, 1993

and involves a small number of older women.

The *de facto* population sex ratio (females per 1,000 males) is 924 in urban areas, 909 in rural areas, and 914 for the state as a whole. Roughly comparable figures from the 1991 Census are 870 for urban areas, 895 for rural areas and 882 for the state as a whole (Office of the Registrar General and Census Commissioner, 1992). The discrepancy between the two sources is five percentage points (54 per 1,000) in urban areas and one percentage point (14 per 1,000) in rural areas, with the sex ratio consistently higher in the NFHS. Possible reasons for this pattern of differences are discussed later.

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, 1993). By and large, the age distributions for females are quite similar for the 1991 SRS and the NFHS but there is a difference of three percentage points for males age 5-14 and age 15-29. In the NFHS, the percentage is higher for the age group 5-14 and lower for age group 15-29 than in the SRS.

Table 3.2 also provides information on sex ratios by age for the NFHS. It is noteworthy that the sex ratios are particularly low in the age groups below 15 mainly because of the higher female mortality ratios in these ages (see Table 8.2) and probably because of preselection of sex of the foetus and in the age group of 65 and over, perhaps because of underenumeration of older females. No sex ratios by age can be computed from the SRS published results because only percent distributions for the sample registration areas are given and information is not available on absolute numbers of population. The total population sex ratio for Punjab was 879 in the 1981 Census, 882 in the 1991 Census, and 912 in the NFHS *de jure* sample and 914 in the *de facto* sample. The two census values are quite close, but the NFHS *de jure* and *de facto* values are about three percentage points higher than the 1991 Census estimate (Office of the Registrar General and Census Commissioner, 1992). Since the 1991 Census and the NFHS were

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, Punjab, 1991-93

	SRS (1991)		NFHS (1993)		
Age	Male	Female	Male	Female	Sex ratio
0 - 4	11.7	11.7	11.0	10.1	838
5 -14	22.3	22.0	25.4	23.7	848
15-29	29.4	29.7	26.5	29.2	1006
30-49	23.3	22.7	21.7	22.2	935
50-64	8.8	9.1	8.5	9.5	1021
65+	4.6	4.8	7.0	5.3	698
Total	100.0	100.0	100.0	100.0	912
Median age	U	U	21.3	22.4	NA

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

conducted about two years apart, sex ratios from the two sources should be more or less 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 the coverage, the discrepancies in population sex ratios between the NFHS and the 1991 Census in Punjab could occur if the NFHS missed more males than females, 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, since the Punjab sample is fairly large. In fact, the sampling error for the *de facto* NFHS sex ratio is 11.1, yielding a confidence interval of 891-936 (see Table A.2 in Appendix A). Even the lowest value in this range is higher than the census estimates. 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.

Given the comparatively low status of women in Punjab, it seems highly unlikely that the NFHS missed more males than females. Moreover, the training and supervision of interviewers were 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 the females in the 1991 Census, a possibility that has been mentioned by Premi (1991), among others. In general, according to postenumeration checks, Indian censuses have consistently underenumerated females more than males, although the gap has been decreasing with each successive census. Not yet published findings from the 1991 Census postenumeration check for Punjab 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 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 census and the NFHS.

3.2 Marital Status

The NFHS gathered information on the marital status of all household members age 6 and over. Table 3.3 shows the marital status distribution of the *de facto* household population by age, sex and residence. Among females age 6 or more years, 53 percent are currently married and 40 percent have never been married. The percentage never married is higher for males (49 percent) than females. However, the proportion of females never married does not vary by residence. Also, for males the proportion never married is the same in rural as in urban areas (49 percent). The proportion divorced and separated is small in Punjab, and the impact of widowhood is also quite limited until the older ages. However, 19 percent of women age 55-59 and 44 percent of women age 60 and above are widows. Among males age 60 and over, nearly one-fifth are widowers.

Of more interest is the proportion of persons who marry young. At age 15-19, the proportions ever married are 3 percent of males and 10 percent of females in urban areas, 2 percent of males and 16 percent of females in rural areas, and 2 percent of males and 15 percent of females in the state as a whole. By ages 25-29, marriage is nearly universal for females and the proportions of males ever married reach 71 percent in urban areas, 77 percent in rural areas,

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, Punjab, 1993

Age	Marital status						Total percent
	Never married	Currently married	Widowed	Divorced	Separated	DK/ missing	
			URBAN				
			Male				
6 -12	99.2	0.4	--	--	0.2	0.2	100.0
13-14	98.3	1.7	--	--	--	--	100.0
15-19	97.4	2.6	--	--	--	--	100.0
20-24	80.5	19.1	--	--	0.4	--	100.0
25-29	28.9	68.9	1.6	--	0.5	--	100.0
30-34	5.6	93.9	--	0.6	--	--	100.0
35-39	2.4	97.0	0.6	--	--	--	100.0
40-44	3.5	95.8	--	--	0.7	--	100.0
45-49	4.5	94.0	0.7	0.7	--	--	100.0
50-54	--	94.2	5.8	--	--	--	100.0
55-59	--	93.4	6.6	--	--	--	100.0
60+	1.7	81.3	17.0	--	--	--	100.0
Total	49.4	48.0	2.3	0.1	0.2	--	100.0
			Female				
6 -12	99.3	0.7	--	--	--	--	100.0
13-14	100.0	--	--	--	--	--	100.0
15-19	89.8	10.2	--	--	--	--	100.0
20-24	36.7	62.8	--	0.5	--	--	100.0
25-29	6.4	92.2	0.5	--	0.9	--	100.0
30-34	--	96.4	2.6	--	1.0	--	100.0
35-39	2.6	91.7	5.1	--	0.6	--	100.0
40-44	--	93.3	5.2	0.7	0.7	--	100.0
45-49	1.3	83.5	15.2	--	--	--	100.0
50-54	--	88.0	12.0	--	--	--	100.0
55-59	--	69.9	30.1	--	--	--	100.0
60+	0.5	52.5	46.6	--	0.5	--	100.0
Total	39.8	51.9	7.9	0.1	0.3	--	100.0
			RURAL				
			Male				
6 -12	99.7	0.3	--	--	--	--	100.0
13-14	99.7	0.3	--	--	--	--	100.0
15-19	97.6	2.4	--	--	--	--	100.0
20-24	68.4	30.7	0.2	0.2	0.2	0.2	100.0
25-29	23.0	75.8	0.2	0.4	0.6	--	100.0
30-34	7.0	91.7	0.8	0.3	0.3	--	100.0
35-39	2.7	95.4	1.2	0.2	0.5	--	100.0
40-44	5.0	93.8	1.2	--	--	--	100.0
45-49	3.7	94.0	2.0	--	0.3	--	100.0
50-54	4.9	88.9	6.2	--	--	--	100.0
55-59	2.1	90.7	7.1	--	--	--	100.0
60+	4.7	76.1	18.9	--	0.3	--	100.0
Total	48.9	47.7	3.1	0.1	0.2	--	100.0

Table 3.3 Marital status of the household population (Contd.)

Percent distribution of the *de facto* household population age 6 and above by marital status, according to age, sex and residence, Punjab, 1993

Age	Marital status						Total percent
	Never married	Currently married	Widowed	Divorced	Separated	DK/ missing	
			RURAL Female				
6 -12	99.9	--	0.1	--	--	--	100.0
13-14	99.6	0.4	--	--	--	--	100.0
15-19	83.8	16.2	--	--	--	--	100.0
20-24	31.6	67.5	0.2	0.3	0.5	--	100.0
25-29	5.3	93.3	1.0	0.4	--	--	100.0
30-34	0.7	94.9	2.9	0.7	0.7	--	100.0
35-39	--	96.7	2.6	0.2	0.5	--	100.0
40-44	--	91.1	8.2	0.4	0.4	--	100.0
45-49	0.4	90.2	8.9	--	0.4	--	100.0
50-54	2.3	82.6	15.2	--	--	--	100.0
55-59	0.5	85.9	13.6	--	--	--	100.0
60+	0.7	56.3	42.4	0.4	0.2	--	100.0
Total	39.5	53.4	6.7	0.2	0.2	--	100.0
			TOTAL Male				
6 -12	99.6	0.3	--	--	0.1	0.1	100.0
13-14	99.3	0.7	--	--	--	--	100.0
15-19	97.6	2.4	--	--	--	--	100.0
20-24	72.4	27.0	0.1	0.1	0.2	0.1	100.0
25-29	24.6	73.9	0.6	0.3	0.6	--	100.0
30-34	6.5	92.4	0.5	0.4	0.2	--	100.0
35-39	2.6	95.9	1.0	0.2	0.3	--	100.0
40-44	4.6	94.4	0.8	--	0.2	--	100.0
45-49	3.9	94.0	1.6	0.2	0.2	--	100.0
50-54	3.5	90.4	6.1	--	--	--	100.0
55-59	1.5	91.5	7.0	--	--	--	100.0
60+	3.9	77.4	18.4	--	0.2	--	100.0
Total	49.1	47.8	2.9	0.1	0.2	--	100.0
			Female				
6 -12	99.7	0.2	0.1	--	--	--	100.0
13-14	99.7	0.3	--	--	--	--	100.0
15-19	85.5	14.5	--	--	--	--	100.0
20-24	32.9	66.3	0.1	0.4	0.4	--	100.0
25-29	5.6	92.9	0.8	0.3	0.3	--	100.0
30-34	0.5	95.3	2.8	0.5	0.8	--	100.0
35-39	0.7	95.3	3.3	0.2	0.5	--	100.0
40-44	--	91.8	7.2	0.5	0.5	--	100.0
45-49	0.7	88.4	10.6	--	0.3	--	100.0
50-54	1.4	84.5	14.0	--	--	--	100.0
55-59	0.3	80.9	18.7	--	--	--	100.0
60+	0.6	55.2	43.6	0.3	0.3	--	100.0
Total	39.6	52.9	7.0	0.2	0.2	--	100.0

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

and 75 percent in the state as a whole. Overall, the table shows that as in the rest of India, women marry at younger ages than men, and that both men and women in rural areas marry at lower ages than in urban areas but a higher proportion of rural males than urban males in Punjab remain unmarried after age 50. A more comprehensive discussion of marriage patterns is contained in the next chapter, which is devoted completely to the topic of 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, caste), and the number of usual household members. Over 90 percent of household heads are male, 91 percent in urban areas and 93 percent in rural areas. The median age of household heads also hardly varies by residence, being about 45 years in all cases. However, in urban areas household heads are slightly more concentrated in the middle age group of 30-44. Nine percent of the household heads in Punjab are widowed. Overall, 58 percent of household heads are Sikh, 40 percent are Hindu, less than 2 percent are Christians and 1 percent are Muslim. The proportion of Sikhs is higher in the rural areas, where they constitute 65 percent of households, and the proportion of Hindus is higher in the urban areas, where they constitute 60 percent of the households. Twenty-eight percent of household heads belong to scheduled castes. According to the 1991 Census also (Office of the Registrar General and Census Commissioner, 1992) 28 percent of the population in Punjab belong to scheduled castes. Unlike in other states in India, no tribe in Punjab is classified as scheduled tribe by the state government. However, in the case of three households, the heads have been reported as belonging to scheduled tribes. In subsequent analysis the scheduled tribe households and scheduled tribe respondents are not shown separately, but are included in the "other" category, that is all those who do not belong to scheduled caste. The mean NFHS household size is 5.6 persons per household and is more or less the same in urban areas (5.5) and rural areas (5.7).

Table 3.5 shows the percent distribution of the *de facto* household population (that is, usual residents and visitors) by age, residence, and sex. Overall, 3 percent of the *de facto* population listed in the sample households at the time of the interview were visitors who did not usually live in the household. Visiting was particularly common among young women in the childbearing ages and their children. This pattern undoubtedly results from the common practice of women returning to their parents' house to have their children (particularly the first one or two children) and staying there during the postpartum period. Rural households are slightly more likely to have visitors than urban households.

3.4 Educational Attainment

The educational level of household members is an important characteristic because educational attainment often affects reproductive behaviour, the use of contraceptives, the health of children, and proper hygienic practices. Table 3.6 shows the extent of literacy and level of education of the *de facto* male and female household population age 6 and above by age and residence. A little less than one-half of females age 6 and above (48 percent) and one-third of males in that age range (34 percent) are illiterate. The NFHS levels of illiteracy are very close

Table 3.4 Household composition

Percent distribution of households by selected characteristics of household head and size, according to residence, Punjab, 1993

Characteristic	Residence		
	Urban	Rural	Total
Sex of household head			
Male	91.0	92.8	92.3
Female	9.0	7.2	7.7
Age of household head			
< 30	6.9	10.2	9.2
30-44	40.9	35.8	37.3
45-59	30.2	29.0	29.3
60+	22.0	25.0	24.1
Median age	45.3	45.5	45.4
Marital status of household head			
Never married	0.9	2.1	1.7
Currently married	89.3	88.5	88.8
Widowed	9.5	8.8	9.0
Divorced	0.3	0.2	0.2
Separated	--	0.4	0.2
Religion of household head			
Hindu	59.7	31.5	39.7
Muslim	0.4	1.5	1.2
Sikh	39.2	65.0	57.5
Christian	0.5	1.8	1.5
Other	0.2	0.1	0.1
Caste of household head			
Scheduled caste	28.6	27.7	28.0
Other	71.4	72.3	72.0
Number of usual members			
1	1.4	2.2	2.0
2	6.2	4.9	5.3
3	8.9	8.3	8.4
4	18.5	16.4	17.0
5	22.5	21.7	22.0
6	15.7	16.7	16.4
7	13.7	12.1	12.5
8	6.3	6.5	6.4
9+	6.9	11.1	9.9
Mean size	5.5	5.7	5.6
Total percent	100.0	100.0	100.0
Number of households	937	2276	3213

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

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, Punjab, 1993

Characteristic	Resident status		Total percent	Number
	Usual resident	Visitor		
MALE				
Age				
< 1	89.7	10.3	100.0	214
1 - 4	95.9	4.1	100.0	800
5 -14	99.1	0.9	100.0	2393
15-19	98.8	1.2	100.0	994
20-24	97.3	2.7	100.0	811
25-29	96.8	3.2	100.0	686
30-34	97.3	2.7	100.0	552
35-39	97.9	2.1	100.0	579
40-44	98.5	1.5	100.0	480
45-49	99.3	0.7	100.0	433
50+	98.7	1.3	100.0	1451
Residence				
Urban	98.8	1.2	100.0	2631
Rural	97.7	2.3	100.0	6762
Total	98.0	2.0	100.0	9393
FEMALE				
Age				
< 1	89.2	10.8	100.0	194
1 - 4	95.8	4.2	100.0	668
5 -14	98.5	1.5	100.0	2044
15-19	95.4	4.6	100.0	945
20-24	92.1	7.9	100.0	848
25-29	93.8	6.2	100.0	709
30-34	97.3	2.7	100.0	601
35-39	98.3	1.7	100.0	574
40-44	99.0	1.0	100.0	417
45-49	98.3	1.7	100.0	303
50+	96.6	3.4	100.0	1279
Residence				
Urban	97.8	2.2	100.0	2432
Rural	95.8	4.2	100.0	6150
Total	96.4	3.6	100.0	8582
TOTAL				
Age				
< 1	89.5	10.5	100.0	408
1 - 4	95.8	4.2	100.0	1468
5 -14	98.9	1.1	100.0	4437
15-19	97.2	2.8	100.0	1939
20-24	94.6	5.4	100.0	1659
25-29	95.3	4.7	100.0	1395
30-34	97.3	2.7	100.0	1153
35-39	98.1	1.9	100.0	1153
40-44	98.8	1.2	100.0	897
45-49	98.9	1.1	100.0	736
50+	97.7	2.3	100.0	2730
Residence				
Urban	98.3	1.7	100.0	5063
Rural	96.8	3.2	100.0	12912
Total	97.2	2.8	100.0	17975

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 schooling, according to age, sex, and residence, Punjab, 1993

Age	Illiterate	Educational level: 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	38.1	61.9	--	--	--	--	--	100.0	281	1.6
10-14	9.5	27.9	51.4	10.9	0.3	--	--	100.0	348	5.6
15-19	11.7	3.5	18.2	22.1	42.4	2.2	--	100.0	231	9.7
20-24	15.2	1.9	9.3	11.7	42.4	19.5	--	100.0	257	10.5
25-29	16.8	1.6	12.1	18.9	35.8	14.7	--	100.0	190	10.0
30-34	15.0	3.3	13.3	16.1	35.0	17.2	--	100.0	180	10.1
35-39	17.5	4.2	15.7	18.1	27.1	17.5	--	100.0	166	9.0
40-44	16.2	3.5	9.2	15.5	31.0	24.6	--	100.0	142	10.2
45-49	24.6	3.7	14.2	15.7	30.6	11.2	--	100.0	134	8.6
50+	40.3	4.5	12.7	10.3	27.1	5.0	--	100.0	377	5.7
Total	21.8	14.2	17.3	12.8	24.8	9.2	--	100.0	2306	7.3
					Female					
6 - 9	37.7	62.3	--	--	--	--	--	100.0	236	1.7
10-14	10.3	26.0	48.7	15.0	--	--	--	100.0	300	5.7
15-19	13.3	1.5	13.6	19.3	45.8	6.4	--	100.0	264	10.1
20-24	20.0	0.9	14.9	14.9	27.9	21.4	--	100.0	215	9.7
25-29	24.3	2.8	17.4	7.8	33.5	14.2	--	100.0	218	9.2
30-34	30.6	1.0	15.0	9.8	31.1	12.4	--	100.0	193	8.4
35-39	26.3	3.2	16.0	12.8	26.9	14.7	--	100.0	156	8.4
40-44	48.1	0.7	11.9	7.4	21.5	10.4	--	100.0	135	5.3
45-49	40.5	2.5	19.0	16.5	11.4	10.1	--	100.0	79	5.5
50+	74.2	3.1	10.9	5.4	5.4	0.8	0.3	100.0	387	0.0
Total	33.7	11.9	17.4	10.4	19.0	7.6	--	100.0	2183	5.5
					Total					
6 - 9	37.9	62.1	--	--	--	--	--	100.0	517	1.6
10-14	9.9	27.0	50.2	12.8	0.2	--	--	100.0	648	5.6
15-19	12.5	2.4	15.8	20.6	44.2	4.4	--	100.0	495	9.9
20-24	17.4	1.5	11.9	13.1	35.8	20.3	--	100.0	472	10.3
25-29	20.8	2.2	15.0	13.0	34.6	14.5	--	100.0	408	9.8
30-34	23.1	2.1	14.2	12.9	33.0	14.7	--	100.0	373	9.1
35-39	21.7	3.7	15.8	15.5	27.0	16.1	--	100.0	322	8.7
40-44	31.8	2.2	10.5	11.6	26.4	17.7	--	100.0	277	8.7
45-49	30.5	3.3	16.0	16.0	23.5	10.8	--	100.0	213	8.0
50+	57.5	3.8	11.8	7.9	16.1	2.9	0.1	100.0	764	0.0
Total	27.6	13.1	17.3	11.7	22.0	8.4	--	100.0	4489	6.1
					RURAL					
					Male					
6 - 9	43.5	56.4	0.2	--	--	--	--	100.0	665	1.4
10-14	17.1	31.6	43.2	8.0	0.1	--	--	100.0	825	5.1
15-19	22.3	4.2	19.1	26.7	26.6	1.0	--	100.0	763	8.5
20-24	24.7	3.4	19.0	13.4	35.7	3.8	--	100.0	554	8.4
25-29	31.7	3.2	20.4	14.3	25.8	4.6	--	100.0	496	7.4
30-34	40.3	3.2	14.2	16.1	20.2	5.9	--	100.0	372	6.0
35-39	41.6	5.6	18.6	14.8	16.0	3.4	--	100.0	413	5.3
40-44	49.4	2.4	13.6	12.4	17.2	5.0	--	100.0	338	3.0
45-49	47.8	5.0	13.7	11.4	19.4	2.7	--	100.0	299	3.6
50+	68.2	5.2	8.8	6.7	9.5	1.7	--	100.0	1074	0.0
Total	38.9	14.1	17.6	11.8	15.3	2.3	--	100.0	5799	4.3

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 schooling, according to age, sex, and residence, Punjab, 1993

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	47.2	52.8	--	--	--	--	--	100.0	581	1.2
10-14	24.9	23.5	40.7	10.9	--	--	--	100.0	718	5.1
15-19	31.4	2.1	16.9	22.2	26.6	0.9	--	100.0	681	7.9
20-24	37.4	3.2	19.9	11.2	24.3	3.9	--	100.0	633	5.8
25-29	54.2	2.6	19.1	7.5	14.5	2.0	--	100.0	491	0.0
30-34	57.8	2.0	22.1	6.9	9.1	2.2	--	100.0	408	0.0
35-39	62.2	2.4	17.0	10.0	6.7	1.7	--	100.0	418	0.0
40-44	72.3	3.9	13.5	4.3	4.6	1.4	--	100.0	282	0.0
45-49	77.2	3.6	11.6	3.6	4.0	--	--	100.0	224	0.0
50+	92.7	1.6	3.9	1.0	0.7	0.1	--	100.0	892	0.0
Total	53.9	10.8	16.6	8.2	9.4	1.2	--	100.0	5328	0.0
Total										
6 - 9	45.2	54.7	0.1	--	--	--	--	100.0	1246	1.3
10-14	20.7	27.9	42.0	9.3	0.1	--	--	100.0	1543	5.1
15-19	26.6	3.2	18.1	24.6	26.6	1.0	--	100.0	1444	8.2
20-24	31.5	3.3	19.5	12.2	29.7	3.9	--	100.0	1187	7.2
25-29	42.9	2.9	19.8	10.9	20.2	3.3	--	100.0	987	5.4
30-34	49.5	2.6	18.3	11.3	14.4	4.0	--	100.0	780	3.7
35-39	52.0	4.0	17.8	12.4	11.3	2.5	--	100.0	831	0.0
40-44	59.8	3.1	13.5	8.7	11.5	3.4	--	100.0	620	0.0
45-49	60.4	4.4	12.8	8.0	12.8	1.5	--	100.0	523	0.0
50+	79.3	3.6	6.6	4.1	5.5	1.0	--	100.0	1966	0.0
Total	46.1	12.5	17.1	10.1	12.5	1.7	--	100.0	11127	2.6
TOTAL Male										
6 - 9	41.9	58.0	0.1	--	--	--	--	100.0	946	1.4
10-14	14.8	30.5	45.6	8.9	0.2	--	--	100.0	1173	5.2
15-19	19.8	4.0	18.9	25.7	30.3	1.3	--	100.0	994	8.9
20-24	21.7	3.0	15.9	12.8	37.9	8.8	--	100.0	811	9.3
25-29	27.6	2.8	18.1	15.6	28.6	7.4	--	100.0	686	8.1
30-34	32.1	3.3	13.9	16.1	25.0	9.6	--	100.0	552	8.1
35-39	34.7	5.2	17.8	15.7	19.2	7.4	--	100.0	579	6.2
40-44	39.6	2.7	12.3	13.3	21.2	10.8	--	100.0	480	6.6
45-49	40.6	4.6	13.9	12.7	22.9	5.3	--	100.0	433	5.6
50+	60.9	5.0	9.8	7.6	14.1	2.5	--	100.0	1451	0.0
Total	34.1	14.1	17.5	12.1	18.0	4.2	--	100.0	8105	5.2
Female										
6 - 9	44.4	55.6	--	--	--	--	--	100.0	817	1.3
10-14	20.6	24.3	43.0	12.1	--	--	--	100.0	1018	5.3
15-19	26.3	1.9	16.0	21.4	32.0	2.4	--	100.0	945	8.5
20-24	33.0	2.6	18.6	12.1	25.2	8.4	--	100.0	848	7.0
25-29	45.0	2.7	18.6	7.6	20.3	5.8	--	100.0	709	5.2
30-34	49.1	1.7	19.8	7.8	16.1	5.5	--	100.0	601	4.5
35-39	52.4	2.6	16.7	10.8	12.2	5.2	--	100.0	574	0.0
40-44	64.5	2.9	12.9	5.3	10.1	4.3	--	100.0	417	0.0
45-49	67.7	3.3	13.5	6.9	5.9	2.6	--	100.0	303	0.0
50+	87.1	2.0	6.0	2.3	2.1	0.3	0.1	100.0	1279	0.0
Total	48.0	11.1	16.9	8.8	12.2	3.0	--	100.0	7511	2.0

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 schooling, according to age, sex and residence, Punjab, 1993

Age	Educational level: Illiterate	Literate, <primary	Primary school complete	Middle school complete	High school complete	Above high school	Missing	Total percent	Number	Median number of years of schooling
					TOTAL					
					Total					
6 - 9	43.1	56.9	0.1	--	--	--	--	100.0	1763	1.4
10-14	17.5	27.6	44.4	10.4	0.1	--	--	100.0	2191	5.3
15-19	23.0	3.0	17.5	23.6	31.1	1.9	--	100.0	1939	8.7
20-24	27.5	2.8	17.3	12.5	31.4	8.6	--	100.0	1659	8.3
25-29	36.4	2.7	18.4	11.5	24.4	6.6	--	100.0	1395	6.0
30-34	40.9	2.4	17.0	11.8	20.4	7.5	--	100.0	1153	5.6
35-39	43.5	3.9	17.3	13.3	15.7	6.3	--	100.0	1153	5.3
40-44	51.2	2.8	12.6	9.6	16.1	7.8	--	100.0	897	0.0
45-49	51.8	4.1	13.7	10.3	15.9	4.2	--	100.0	736	0.0
50+	73.2	3.6	8.0	5.2	8.5	1.5	--	100.0	2730	0.0
Total	40.8	12.7	17.2	10.5	15.2	3.7	--	100.0	15616	4.1

-- Less than 0.05 percent

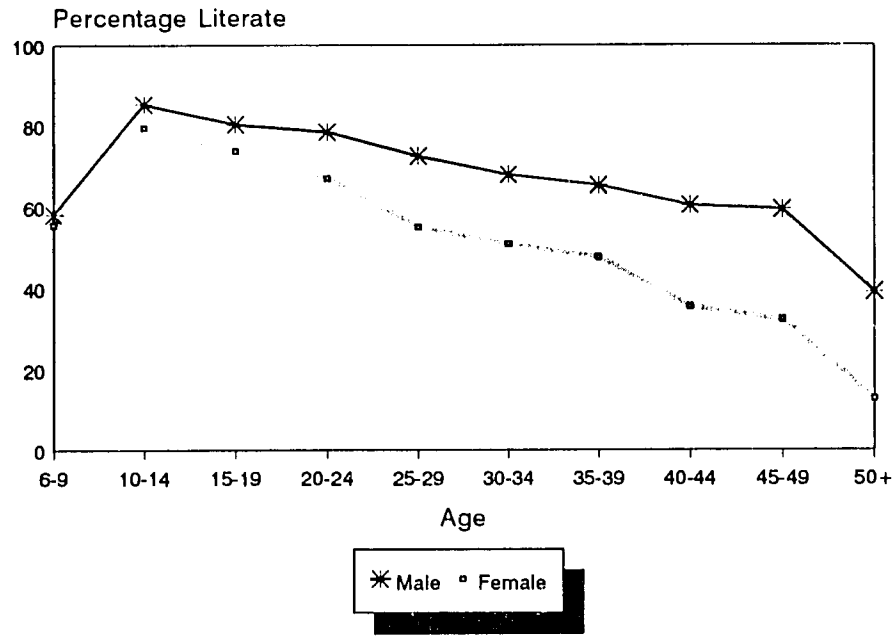
to the 1991 Census rates of 50 percent for females and 34 percent for males age 7 and above (Table 1.1). With respect to educational attainment, a higher percentage of males than of females has completed each level of schooling. The median number of years of schooling for males is 5.2 and for females is 2.0.

Urban areas have a wide lead over rural areas in both literacy and the level of education achieved. Urban women are much more likely to be literate than rural women (66 percent compared with 46 percent). The difference in literacy rate by residence is less marked for males (78 percent in urban areas compared with 61 percent in rural areas). Sex differentials in educational attainment are particularly marked in rural areas and at higher levels of education.

Despite the overall low level of literacy, there has been steady progress over time (Figure 3.3). For example, whereas only 13 percent of women age 50 and over are literate, the literacy rate for females climbs to 36 percent for those age 40-44, 67 percent for those age 20-24, and 79 percent for those age 10-14. The literacy gap between males and females has narrowed over time; and almost disappeared in urban areas but even at age 10-14 in rural areas, males are more likely to be literate (83 percent) than females (75 percent).

Table 3.7 and Figure 3.4 show the proportion attending school among 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 through age 14. In the state as a whole, 81 percent of children age 6-14 are attending school. The proportion attending school is only marginally higher for males than for females (Figure 3.4) and in the state as a whole is 83 percent for males and 78 percent for females age 6-14.

Figure 3.3
Percentage Literate by Age and Sex



NFHS, Punjab, 1993

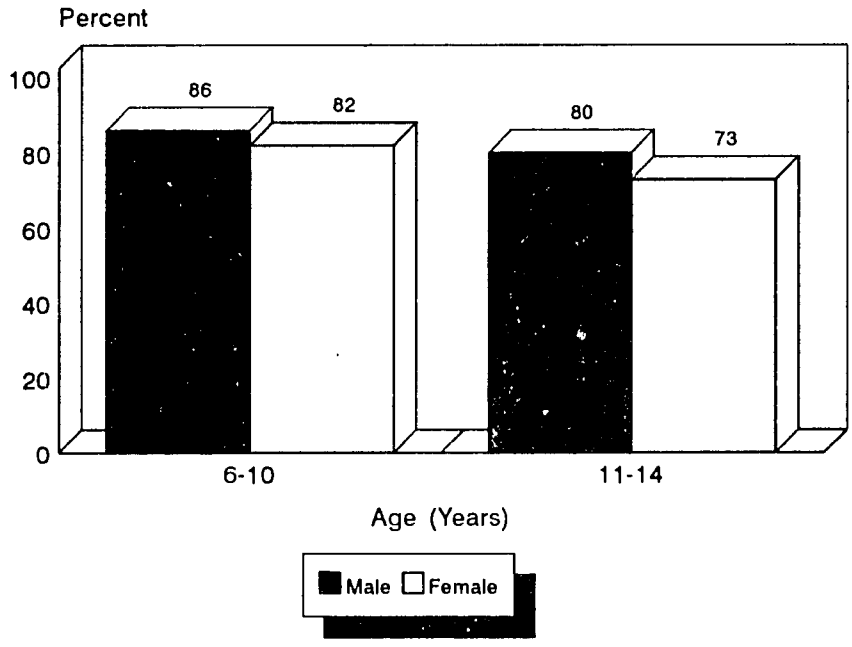
Urban-rural differences in school attendance for males are 6 percentage points at age 6-10 and 10 percentage points at age 11-14, (in favour of urban areas). The urban-rural differences in female school attendance is much larger (14 percentage points at age 6-10 and 18 percentage points at age 11-14). The proportion of rural females attending school is 73 percent for the age group 6-14. In spite of substantial educational advances that have been made over time, almost a quarter of school-age girls in Punjab are not attending school.

Table 3.7 School attendance

Percentage of the *de facto* household population age 6-14 years attending school by age, sex, and residence, Punjab, 1993

	Male			Female			Total		
Age	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
6 -10	90.2	83.8	85.7	91.4	77.5	81.6	90.8	80.9	83.8
11-14	87.1	77.4	80.3	85.9	67.5	72.9	86.5	72.7	76.8
6 -14	88.9	81.1	83.4	89.0	73.1	77.8	88.9	77.4	80.8

Figure 3.4
School Attendance by Age and Sex



NFHS, Punjab, 1993

3.5 Housing Characteristics

Table 3.8 provides information on housing characteristics by residence. A large majority of households in urban and rural areas have electricity (97 percent and 90 percent, respectively). In the state as a whole, 92 percent of households have electricity.

The types of water and sanitary facilities are important determinants of the health status of household members, particularly of children. The seriousness of major childhood diseases such as diarrhoea can be reduced by proper hygienic practices. The NFHS questionnaire contains questions on sanitary facilities and the source of water the household uses for bathing and washing as well as the source of drinking water. The sources of water used for drinking and bathing are very similar. For drinking, 30 percent of households have piped water, 69 percent get their water from a handpump, and only 1 percent use water from open wells. There are large urban-rural differences in the source of drinking water. The proportion of households with piped drinking water is 56 percent in urban areas but only 19 percent in rural areas.

Regarding sanitation facilities, only 23 percent of households have a flush toilet (using either piped water or bucket water for flushing), 14 percent have a pit toilet or latrine, and 63 percent have no facility. Again there are large urban-rural differences; 58 percent of households in urban areas and 8 percent in rural areas have a flush toilet, whereas 26 percent of households in urban areas and 79 percent in rural areas have no toilet facility.

Table 3.8 Housing characteristics

Percent distribution of households by housing characteristics, according to residence, Punjab, 1993

Housing characteristic	Residence		
	Urban	Rural	Total
Electricity			
Yes	97.0	89.9	92.0
No	3.0	10.1	8.0
Source of bathing/washing water			
Piped	55.2	18.4	29.1
Handpump	44.0	79.6	69.2
Well water	0.1	1.3	0.9
Surface water	0.5	0.5	0.5
Other	0.2	0.3	0.2
Source of drinking water			
Piped	55.8	19.0	29.8
Handpump	43.8	79.2	68.8
Well water	--	1.4	1.0
Surface water	0.2	0.1	0.1
Other	0.2	0.3	0.2
Sanitation facility			
Flush	58.3	8.1	22.8
Pit toilet/latrine	15.5	13.0	13.7
Other	0.5	--	0.2
No facility	25.7	78.8	63.3
Type of fuel for cooking			
Wood	19.6	55.3	44.9
Cow dung cakes	10.5	32.6	26.1
Coal/coke/lignite/charcoal	0.9	0.3	0.5
Kerosene	21.6	6.3	10.7
Electricity	--	--	--
Liquid petroleum gas	47.3	5.2	17.5
Other	0.2	0.3	0.2
Type of house			
Kachcha	1.2	7.5	5.7
Semi-pucca	14.6	52.9	41.7
Pucca	84.2	39.6	52.6
Place where livestock is kept			
Inside the house	9.1	35.1	27.5
Outside the house	10.6	42.3	33.1
No livestock	80.4	22.5	39.4
Persons per room			
< 3.0	63.6	63.4	63.4
3.0-4.9	24.0	24.2	24.1
5.0-6.9	9.6	9.1	9.2
7.0 +	2.7	3.4	3.2
Don't know/missing	0.1	--	0.1
Mean	2.6	2.7	2.7
Total percent	100.0	100.0	100.0
Number of households	937	2276	3213

-- Less than 0.05 percent

Several types of fuel are used for cooking in Punjab, but wood is the most common fuel. In the state as a whole, 45 percent of households rely on wood, 26 percent on cow dung cakes, and 29 percent on other fuels, primarily liquid petroleum gas. Again there are wide urban-rural differences, with the majority of urban households (69 percent) relying on liquid petroleum gas or kerosene, while more than one-half of rural households use wood for cooking.

Regarding type of housing construction, 53 percent of houses are *pucca* (with high-quality materials throughout, including roof, walls, and floor), 42 percent are semi-*pucca* (consisting of partly low-quality and partly high-quality materials), and only 6 percent are *kachcha* (made from mud, thatch, or other low-quality materials). There are large urban-rural differences. More than one-half of the houses in rural areas are classified as semi-*pucca*, whereas more than four-fifths of the houses in urban areas are *pucca*.

The NFHS also collected information on whether households own any livestock. Sixty-one percent of the households in Punjab own livestock, 77 percent in rural areas and 20 percent in urban areas. A follow-up question was asked about where the livestock are kept at night, since keeping them inside the house may adversely affect the health of the residents. More than one-quarter of all households and one-third of rural households have livestock that are kept inside the house at night.

Crowded conditions may also be related to health as well as to the quality of life. Congestion in the household is the same in urban and rural areas (2.6 and 2.7 persons per room, respectively). A majority of households have fewer than three persons per room. Twelve percent of households, however, have five or more persons per room and 3 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 by type, and consumer durable goods by type. Overall, 61 percent of households are landless; urban households (90 percent) are more likely to be landless than rural households (49 percent). In rural areas, among those who have agricultural land, 78 percent have irrigated land only and 14 percent irrigate at least some of their land, and 8 percent have non-irrigated land only. More than three-fifths of all households have livestock, and rural households are nearly four times as likely to own livestock as urban households. Two-thirds of rural households have one or more head of buffalo, 30 percent have cows, 18 percent have bullocks, 4 percent have goats, and 1 percent have other kinds of 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, a refrigerator prolongs the wholesomeness of food, and a means of transportation allows greater access to many services outside the local area. Having access to a radio or television may expose household members to innovative ideas.

Table 3.9 shows that in the state as a whole, most households have a clock or watch (74 percent), bicycle (68 percent), sewing machine (65 percent), television set (52 percent), and radio (51 percent). Other durable goods found in less than one-quarter of households are refrigerators (24 percent), water pumps (21 percent), and motorcycles/scooters (18 percent). A smaller percentage owns cars (2 percent). Urban households are much more likely to have

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, Punjab, 1993

Item owned	Residence		
	Urban	Rural	Total
Agricultural land			
No land	90.4	49.1	61.2
Irrigated land only			
< 1 acre	0.3	2.2	1.6
1-5 acres	4.5	21.1	16.2
6+ acres	2.5	16.4	12.3
Non-irrigated land only			
< 1 acre	0.1	0.8	0.6
1-5 acres	0.3	3.0	2.2
6+ acres	--	0.2	0.1
Irrigated and non-irrigated land			
< 1 acre	--	0.5	0.4
1-5 acres	0.6	2.9	2.3
6+ acres	1.3	3.8	3.1
Total Percent	100.0	100.0	100.0
Livestock			
Bullock	1.9	17.5	13.0
Cow	7.7	29.5	23.1
Buffalo	14.4	66.7	51.5
Goat	0.7	3.7	2.8
Sheep	--	0.8	0.6
Camel	--	0.3	0.2
No livestock	80.4	22.5	39.4
Consumer durable goods			
Sewing machine	74.9	60.9	65.0
Clock/watch	86.7	69.2	74.3
Radio	64.6	45.1	50.8
Television	76.0	41.9	51.9
Refrigerator	46.2	14.8	23.9
Bicycle	68.0	68.1	68.1
Motorcycle/scooter	30.1	13.6	18.4
Car	3.6	0.7	1.5
Bullock cart	1.4	12.7	9.4
Thresher	1.4	6.6	5.1
Tractor	2.1	14.5	10.9
Water pump	6.1	26.6	20.6
Number of households	937	2276	3213

-- Less than 0.05 percent

each of these durable goods than are rural households, except for bicycles, where the urban and rural percentages are the same. Rural households are much more likely than urban households to own agricultural equipment, such as tractors, threshers, bullock carts, and water pumps.

3.6 Background Characteristic of Respondents

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

Table 3.10 shows several important background characteristics of respondents. Through age 25-29, the percentage in each age group increases reflecting the increase in the proportion married in successive age groups. The decline after age 25-29, by which time most women have already married, reflects the normal pyramidal shape of the age distribution. This age pattern is similar across urban and rural residence categories (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-six percent of respondents (ever-married women) are currently married, and among the remainder most are widowed. Less than 1 percent are divorced or separated. The pattern of distribution of respondents by religion and caste is similar to the pattern of distribution of households by these same characteristics, as discussed in the previous section.

Table 3.10 also shows the distribution of respondents by respondent's education, work status, and husband's education. More than one-half (53 percent) of all respondents are illiterate, and only 18 percent have completed at least high school level. Illiteracy in rural areas (60 percent) is nearly twice as high as in urban areas (33 percent). In the NFHS, work is defined as any kind of job for which the woman is paid in cash or in kind, and also unpaid work on a family farm or business. Ninety-two percent of respondents report that they are not working, and this percentage differs little by residence. The proportion currently working is very low: between 1 and 2 percent of women report that they are working on a family farm or in a family business, 5 percent are employed in a nonfamily business, and 1 percent report they are self-employed. Overall, 36 percent of husbands are illiterate (18 percent in urban areas and 42 percent in rural areas). The percentage of husbands with at least a high school education is nearly twice as high in urban areas (50 percent) as in rural areas (26 percent).

Table 3.11 shows respondents' education by selected background characteristics. The proportion illiterate is generally higher among older women, reflecting improvements in levels of education over time. Nevertheless, most (60 percent) of interviewed women age 15-19 are illiterate. That is because women who marry young tend to be drawn selectively from among the less educated. Among never-married women the proportion illiterate is only one-third as much as among those who have married in the same age group. Regarding religion, the percentage illiterate is 48 percent among Hindus, 86 percent among Muslims, 55 percent among Sikhs, and 83 percent among Christians. Whereas 69 percent of the women belonging to scheduled castes are illiterate, 47 percent of women belonging to other groups are illiterate. Moreover, a higher percentage of women in the "other" category than of those belonging to the scheduled caste group have completed each level of schooling. With respect to husband's

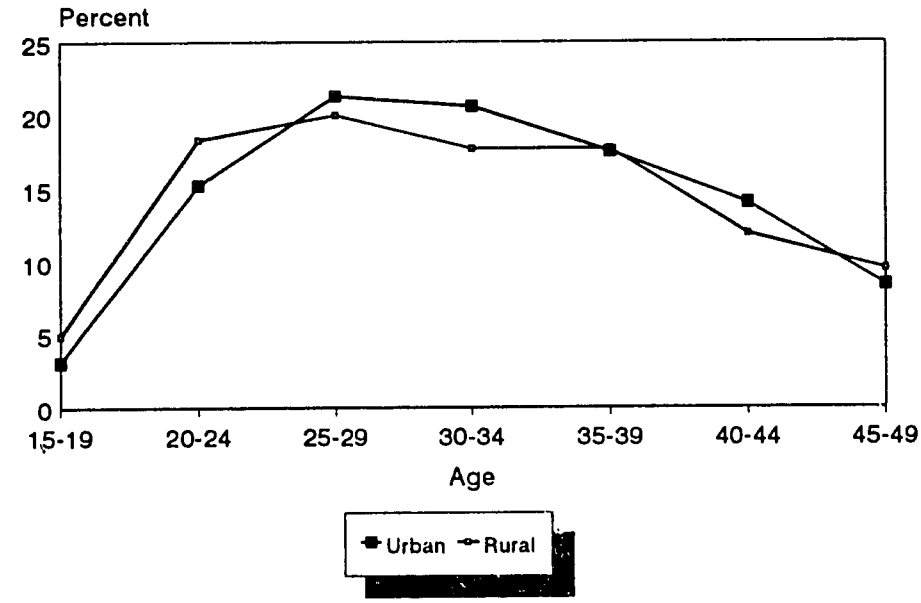
Table 3.10 Background characteristics of respondents

Percent distribution of ever-married women age 13-49, by selected background characteristics, according to residence, Punjab, 1993

Background characteristic	Residence			Number of women
	Urban	Rural	Total	
Age				
13-14	--	--	--	1
15-19	3.1	4.9	4.4	131
20-24	15.2	18.3	17.5	523
25-29	21.3	20.0	20.3	609
30-34	20.6	17.7	18.5	554
35-39	17.5	17.7	17.6	528
40-44	14.0	11.9	12.5	374
45-49	8.4	9.5	9.2	275
Marital status				
Currently married	95.7	96.2	96.1	2878
Widowed	3.6	3.1	3.2	97
Divorced	0.2	0.2	0.2	7
Separated	0.5	0.4	0.4	13
Education				
Illiterate	32.5	60.4	52.6	1575
Literate, < primary complete	1.8	2.5	2.3	70
Primary school complete	15.8	18.6	17.8	533
Middle school complete	12.4	7.7	9.0	270
High school complete	25.8	9.5	14.1	422
Above high school	11.6	1.3	4.2	125
Religion				
Hindu	59.2	29.8	38.0	1139
Muslim	0.4	1.5	1.2	36
Sikh	39.5	66.7	59.1	1769
Christian	0.6	1.9	1.5	46
Jain	0.4	--	0.1	3
Other	--	0.1	0.1	2
Caste				
Scheduled caste	26.8	25.8	26.0	780
Other	73.2	74.2	74.0	2215
Work status				
Not working	91.9	92.5	92.3	2764
Working in family farm/business	1.1	2.0	1.8	53
Employed by someone else	5.1	4.5	4.7	140
Self-employed	1.9	1.0	1.3	38
Husband's education				
Illiterate	18.1	42.2	35.5	1063
Literate, < primary complete	3.2	3.4	3.4	101
Primary school complete	12.9	15.2	14.6	436
Middle school complete	16.3	13.2	14.1	421
High school complete	34.1	22.1	25.4	762
Above high school	15.4	3.8	7.1	212
Total percent	100.0	100.0	100.0	NA
Number of women	836	2159	2995	2995

NA: Not applicable
-- Less than 0.05 percent

Figure 3.5
Age Distribution of Ever-Married Women by Residence



NFHS, Punjab, 1993

education, 85 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), a little less than one-quarter have illiterate wives, reflecting the general tendency of men to marry women with less education than they have.

Table 3.12 provides information on the exposure of respondents to mass media. One-third (35 percent) of women in Punjab are not regularly exposed to any kind of mass media (television, radio, or cinema). This is not surprising in light of the fact that only half of the households own a radio or a television (Table 3.9). Fifty-seven percent of women normally watch television at least once a week, 42 percent listen to radio at least once a week, and only 2 percent go to a cinema hall or theatre to see a movie at least once a month.

Exposure to mass media shows little variation by age group but varies substantially by women's other background characteristics. Exposure to all types of media is much greater in urban areas than in rural areas. There are large differences in media exposure by education, with exposure greater for those with more education. Hindus have the most exposure to media, Muslims the least. Women from scheduled castes are less likely than others to be exposed to mass media.

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, Punjab, 1993

Background characteristic	Respondent's level of education						Total percent	Number
	Illiterate	Literate, < primary complete	Primary school complete	Middle school complete	High school complete	Above high school		
URBAN								
Age								
15-19	(38.5)	(3.8)	(26.9)	(15.4)	(15.4)	(--)	100.0	26
20-24	26.8	0.8	17.3	23.6	20.5	11.0	100.0	127
25-29	25.8	2.2	15.7	8.4	34.8	12.9	100.0	178
30-34	33.7	--	14.0	9.9	30.2	12.2	100.0	172
35-39	28.1	2.7	17.1	12.3	25.3	14.4	100.0	146
40-44	46.2	2.6	12.8	6.0	21.4	11.1	100.0	117
45-49	41.4	2.9	15.7	18.6	14.3	7.1	100.0	70
Religion								
Hindu	30.5	1.8	12.9	13.1	27.7	13.9	100.0	495
Sikh	35.2	1.8	20.0	10.9	23.6	8.5	100.0	330
Caste								
Scheduled caste	57.1	2.2	19.6	8.0	11.6	1.3	100.0	224
Other	23.5	1.6	14.4	14.1	31.0	15.4	100.0	612
Husband's education								
Illiterate	81.5	2.0	7.3	6.6	2.6	--	100.0	151
Lit., <primary complete	(48.1)	(7.4)	(22.2)	(14.8)	(7.4)	(--)	100.0	27
Primary school complete	44.4	5.6	25.0	12.0	13.0	--	100.0	108
Middle school complete	34.6	--	25.7	27.9	11.8	--	100.0	136
High school complete	11.9	1.4	16.1	11.9	48.1	10.5	100.0	285
Above high school	5.4	--	5.4	3.9	33.3	51.9	100.0	129
Total	32.5	1.8	15.8	12.4	25.8	11.6	100.0	836
RURAL								
Age								
15-19	65.7	--	14.3	8.6	10.5	1.0	100.0	105
20-24	49.0	2.5	21.5	9.8	15.7	1.5	100.0	396
25-29	55.9	2.3	20.4	7.2	13.0	1.2	100.0	431
30-34	57.3	2.6	22.0	7.6	8.9	1.6	100.0	382
35-39	61.0	1.8	18.8	9.9	6.8	1.6	100.0	382
40-44	73.5	3.5	13.6	4.3	3.5	1.6	100.0	257
45-49	77.1	4.4	10.7	3.9	3.9	--	100.0	205
Religion								
Hindu	60.9	1.6	16.6	10.2	9.6	1.1	100.0	644
Muslim	(84.8)	(--)	(15.2)	(--)	(--)	(--)	100.0	33
Sikh	58.7	3.1	19.9	6.9	9.9	1.5	100.0	1439
Christian	(87.8)	(--)	(7.3)	(2.4)	(2.4)	(--)	100.0	41
Caste								
Scheduled caste	74.3	2.0	12.1	4.9	6.1	0.7	100.0	556
Other	55.5	2.7	20.8	8.7	10.7	1.5	100.0	1603
Husband's education								
Illiterate	86.1	2.4	9.0	1.2	1.3	--	100.0	912
Lit., <primary complete	74.3	4.1	13.5	5.4	2.7	--	100.0	74
Primary school complete	60.4	1.8	29.0	4.3	4.6	--	100.0	328
Middle school complete	44.2	4.2	28.1	14.4	8.4	0.7	100.0	285
High school complete	28.1	2.3	24.9	17.8	26.0	0.8	100.0	477
Above high school	6.0	1.2	18.1	13.3	34.9	26.5	100.0	83
Total	60.4	2.5	18.6	7.7	9.5	1.3	100.0	2159

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, Punjab, 1993

Background characteristic	Respondent's level of education						Total percent	Number
	Illiterate	Literate, < primary complete	Primary school complete	Middle school complete	High school complete	Above high school		
				TOTAL				
Age								
15-19	60.3	0.8	16.8	9.9	11.5	0.8	100.0	131
20-24	43.6	2.1	20.5	13.2	16.8	3.8	100.0	523
25-29	47.1	2.3	19.0	7.6	19.4	4.6	100.0	609
30-34	50.0	1.8	19.5	8.3	15.5	4.9	100.0	554
35-39	51.9	2.1	18.4	10.6	11.9	5.1	100.0	528
40-44	65.0	3.2	13.4	4.8	9.1	4.5	100.0	374
45-49	68.0	4.0	12.0	7.6	6.5	1.8	100.0	275
Religion								
Hindu	47.7	1.7	15.0	11.5	17.5	6.7	100.0	1139
Muslim	(86.1)	(--)	(13.9)	(--)	(--)	(--)	100.0	36
Sikh	54.3	2.9	19.9	7.6	12.5	2.8	100.0	1769
Christian	(82.6)	(--)	(8.7)	(4.3)	(4.3)	(--)	100.0	46
Caste								
Scheduled caste	69.4	2.1	14.2	5.8	7.7	0.9	100.0	780
Other	46.7	2.4	19.0	10.2	16.3	5.3	100.0	2215
Husband's education								
Illiterate	85.4	2.4	8.7	2.0	1.5	--	100.0	1063
Lit., <primary complete	67.3	5.0	15.8	7.9	4.0	--	100.0	101
Primary school complete	56.4	2.8	28.0	6.2	6.7	--	100.0	436
Middle school complete	41.1	2.9	27.3	18.8	9.5	0.5	100.0	421
High school complete	22.0	2.0	21.7	15.6	34.3	4.5	100.0	762
Above high school	5.7	0.5	10.4	7.5	34.0	42.[illegible]	100.0	212
Total	52.6	2.3	17.8	9.0	14.1	4.2	100.0	2995

Note: Total includes 1 woman age 13-14 and 5 women belonging to other religions, who are not shown separately.
() Based on 25-49 cases
-- Less than 0.05 percent

3.7 Background Characteristics of Households with Migrants

Punjab, along with Kerala, has attracted considerable attention as a major labour-exporting area. To gauge the extent of international migration from Punjab, the NFHS asked an additional set of questions on the topic in the Household Questionnaire. Information was collected on the characteristics of the members of the household who were currently *working* abroad or who had *worked* abroad in the past 10 years. These characteristics included the migrant's age, sex, marital status, educational qualification, relationship to the head of the household, type of job and duration of stay, and whether the household has received any remittances from those migrants.

Table 3.13 presents the background characteristics of the heads of households whose members include migrants living abroad or return migrants. Of the total 3,213 households interviewed in Punjab, 106, or 3 percent, have current migrants. Return migrants are negligible in Punjab. Households in rural areas are slightly more likely to have migrants than

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, Punjab, 1993

Background characteristic	Exposure 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 a month	Not regularly exposed to any media	
Age					
15-19	55.0	36.6	2.3	39.7	131
20-24	60.2	46.5	2.9	30.2	523
25-29	55.7	41.2	3.3	36.5	609
30-34	56.0	40.6	1.8	35.7	554
35-39	61.2	43.2	1.9	31.3	528
40-44	55.9	42.2	2.1	34.2	374
45-49	53.5	37.8	1.1	40.0	275
Residence					
Urban	81.2	55.0	4.8	15.6	836
Rural	48.0	37.0	1.3	41.8	2159
Education					
Illiterate	37.1	25.5	0.3	53.7	1575
Lit., < middle complete	66.7	47.4	1.7	22.1	603
Middle school complete	84.1	57.4	3.0	11.1	270
High school and above	91.6	75.9	8.4	4.6	547
Religion					
Hindu	64.9	47.0	3.9	27.1	1139
Muslim	(33.3)	(25.0)	(--)	(63.9)	36
Sikh	53.5	39.3	1.4	38.0	1769
Christian	(30.4)	(32.6)	(2.2)	(56.5)	46
Caste					
Scheduled caste	46.6	36.3	0.9	43.2	780
Other	61.1	44.0	2.8	31.4	2215
Total	57.3	42.0	2.3	34.5	2995

Note: Total includes 1 woman age 13-14 and 5 women belonging to other religions, who are not shown separately.
() Based on 25-49 cases
-- Less than 0.05 percent

households in urban areas. Households headed by females are four times as likely to have a current migrant (11 percent) as households headed by males (3 percent). The households headed by persons 45 or older or widowed persons have a higher proportion of households with a migrant than households headed by younger persons or those currently married. No sharp difference is observed in the percentage of Hindu and Sikh households with migrants. However, Hindu migrants are more likely to be from urban areas than rural areas whereas the migration pattern is reverse for Sikhs migrants (Table 3.14). A higher proportion of nonscheduled caste households and households headed by persons with higher levels of education (especially those households which are headed by a high school graduate or someone with higher education) have migrants than do scheduled caste households and households headed by persons with lower educational levels. Ownership of agricultural land by the head of the household is positively related to having migrants. Because of small number of households with migrants, however, these differences are not large.

Table 3.13 Households with migrants by background characteristics of household head

Percentage of households with someone currently working outside India or someone who previously worked outside India by residence according to background characteristics of the household head, Punjab, 1993

Characteristic	Percentage of households having at least one migrant					
	Current migrant			Return migrant		
	Urban	Rural	Total	Urban	Rural	Total
Age of the household head						
< 30	3.1	2.2	2.4	--	--	--
30-44	1.8	1.8	1.8	--	--	--
45-59	2.8	4.7	4.1	0.4	0.3	0.3
60 and above	5.3	4.7	4.9	--	0.4	0.3
Sex of the household head						
Male	2.2	2.9	2.7	0.1	0.2	0.2
Female	10.7	10.4	10.5	--	--	--
Marital status of the household head						
Currently married	2.9	3.3	3.2	0.1	0.2	0.2
Widowed	4.5	4.5	4.5	--	--	--
Divorced	*	*	*	--	--	--
Never married	*	(4.2)	3.6	--	--	--
Religion of the household head						
Hindu	3.4	2.9	3.1	0.2	0.1	0.2
Sikh	2.5	3.9	3.6	--	0.2	0.2
Caste of the household head						
Scheduled caste	4.1	2.2	2.8	0.4	--	0.1
Other	2.5	3.9	3.5	--	0.2	0.2
Education of the household head						
Illiterate	1.5	2.6	2.4	--	0.2	0.1
Literate, < middle school complete	3.6	4.0	3.9	--	0.2	0.1
Middle school complete	3.6	3.3	3.4	--	0.4	0.2
High school and above	3.6	10.8	6.3	0.6	--	0.4
Type of house						
Pucca	3.3	6.8	5.1	0.1	0.1	0.1
Semi-pucca	1.5	1.4	1.4	--	0.2	0.2
Agricultural land						
No land	3.0	1.6	2.2	0.1	--	0.1
< 1 acre	*	2.5	2.3	--	--	--
1-5 acres	5.9	4.1	4.2	--	0.5	0.5
6 acres and above	(--)	7.1	6.6	--	0.2	0.2
Total Percent	3.0	3.4	3.3	--	--	--
Total households interviewed	937	2276	3213	937	2276	3213

Note: Percentages are based on the total number of households in the specific category. Total includes 11 households belonging to other religions, who are not shown separately.
() Based on 25-49 households
* Percentage not shown; based on fewer than 25 households
-- Less than 0.05 percent

Table 3.14 presents the distribution of current migrants according to their background characteristics and type of work they do abroad. Migrants are overwhelmingly males (84 percent) in both urban and rural areas. They are relatively young, with a majority (55 percent)

Table 3.14 Current migrants by background characteristics

Percent distribution of current migrants outside by residence according to background characteristics, Punjab, 1993

Characteristic	Percent distribution of current migrants		
	Urban	Rural	Total
Age			
< 30	(56.1)	54.5	54.9
30-44	(26.8)	33.9	32.0
45-59	(14.6)	9.8	11.1
60+	(2.4)	1.8	2.0
Sex			
Male	(85.4)	83.9	84.3
Female	(14.6)	16.1	15.7
Relationship to household head			
Immediate kin	(29.3)	15.2	19.0
Extended kin	(68.3)	76.8	74.5
Other	(2.4)	8.0	6.5
Religion			
Hindu	(58.5)	22.3	32.0
Sikh	(41.5)	77.7	68.0
Marital status			
Currently married	(61.0)	67.0	65.4
Separated	(--)	--	--
Widowed	(--)	--	--
Never married	(36.6)	31.3	32.7
Education			
Illiterate	(4.9)	8.9	7.8
Literate,< middle school complete	(36.6)	21.4	32.0
Middle school complete	(29.3)	39.3	36.6
High school and above	(29.3)	8.9	10.5
Caste			
Scheduled caste	(41.5)	14.3	19.0
Other	(31.7)	85.7	81.1
Type of work			
Production and other related workers, transport equipment operators and labourers	(56.1)	60.7	59.5
Sale workers	(9.8)	5.4	6.5
Clerical workers	(2.4)	3.6	3.3
Professional, technical and related workers-higher level	(--)	1.8	1.3
Professional, technical and related workers-lower level	(2.4)	0.9	1.3
Service workers	(2.4)	5.4	4.6
Farming, fishing, hunting and logging	(--)	2.7	2.0
Administration, executives, managers	(2.4)	1.8	2.0
Other	(24.4)	17.9	19.6

Table 3.14 Current migrants by background characteristics (Contd.)

Percent distribution of current migrants by residence according to background characteristics, Punjab, 1993

Characteristic	Percent distribution of current migrants		
	Urban	Rural	Total
District of origin			
Gurudaspur	(--)	0.9	0.6
Amritsar	(4.9)	2.7	3.3
Ludhiana	(4.9)	9.8	8.5
Jalandhar	(46.3)	54.5	52.3
Kapurthala	(--)	11.6	8.5
Hoshiarpur	(31.7)	9.8	15.7
Patiala	(7.3)	1.8	3.7
Sangrur	(2.4)	4.5	3.9
Faridkot	(2.4)	4.5	3.9
Country			
United States of America	(14.6)	8.9	10.5
Canada	(2.4)	25.9	19.6
Dubai	(9.8)	26.8	22.2
England	(24.4)	11.6	15.0
Other Gulf countries	(19.5)	8.0	11.1
Other countries	(29.3)	18.6	21.6
Duration of stay			
< 5 years	(63.4)	53.6	56.2
5-9 years	(24.4)	17.9	19.6
10 or more years	(12.2)	28.6	24.2
Remittance received by households			
Yes	(46.4)	53.8	51.9
No	(53.6)	46.2	49.1
Total percent	100.0	100.0	100.0
Total migrants	41	112	153

Note: Total includes 5 households belonging to other religions, which are not shown separately.
() Based on 25-49 cases
-- Less than 0.05 percent

below age 30. Nineteen percent of current migrants are immediate kin (spouse, child or parent) of the household head and three-fourths are extended kin (son/daughter-in-law, parent-in-law, brother/sister). A little more than two-thirds of current migrants are Sikhs and 32 percent are Hindus. Two-thirds of migrants are currently married and one-third have never married. Less than 10 percent of migrants are illiterate, one-third have completed middle school and more than 1 in 10 has completed at least high school. Migrants' principal destinations are Dubai, Canada, and England. One in 10 current migrants is reported to be in the United States of America, and the same proportion are in other Gulf countries. Sixty percent of current migrants are reported to be engaged in production and related work or working as transport equipment operators and labourers. Ten percent are sales or clerical workers and 5 percent are service workers. Only 3 percent of migrants are employed in high-level or low-level professional and technical jobs. Remittances are received from households from more than half of the migrants. Most migrants are from northeastern or central Punjab, in particular from the districts of Jalandhar (52 percent), Hoshiarpur (16 percent), and Ludhiana (9 percent).

CHAPTER 4

NUPTIALITY

This chapter presents findings on marriage patterns from the National Family Health Survey. Marriage is important not only in its own right, but also because it influences fertility and population growth, affects family relationships, and is inextricably linked to the status of women.

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 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 because of differential nonresponses among eligible women.

Table 4.1 suggests that marriage is virtually universal and marriage is not common at young ages in Punjab. Above age 30, less than 1 percent of the women have never married. Although only 14 percent of women overall are currently married at age 15-19, the proportion is much higher in rural areas (16 percent) than in urban areas (10 percent). The proportion ever married exceeds 60 percent among women age 20-24, and the urban (63 percent) and rural areas (69 percent) do not differ much in this regard. Divorce and separation are rare, which together accounts for fewer than 1 percent of all women in the sample, although, of course, some divorced or widowed women may have remarried and are thus reported as being currently married.

4.2 Age at First Marriage

The description of marriage patterns can be sharpened by examining values of the Singulate Mean Age at Marriage (SMAM), which is an estimate of the mean number of years lived by a cohort of men or women before their first marriage. The SMAM is calculated from the age-specific proportions never married for age groups 15-19 through 45-49 (Hajnal, 1953; Shryock and Siegel, 1980).

Table 4.2, which presents the SMAMs for Punjab computed from various sources, indicates that the age at marriage is quite high. The SMAM for females estimated from the NFHS is 21.7 years in urban areas, 20.9 in rural areas, and 21.1 overall. On average, males marry almost four years later than females. Marriage ages differ by almost one year between urban and rural areas; with both men and women marrying later in urban than in rural areas. The census SMAMs in Table 4.2 also suggest that marriage ages have been rising over time. The SMAM for females has risen by three and a half years during the two decades (from 17.5 years in 1961 to 21.1 years in 1981). The SMAM for males has risen by only two and half years during the same period, making the difference in age at marriage for females closer to age at marriage for males. The age at marriage has remained unchanged between 1981 and 1993.

Table 4.1 Current marital status

Percent distribution of women age 15-49 by current marital status, according to age and residence, Punjab, 1993

Age	Marital status					Total percent
	Never922XCurrently married	married	Widowed	Divorced	Separated	
			URBAN			
15-19	89.9	10.1	--	--	--	100.0
20-24	36.6	62.9	--	0.5	--	100.0
25-29	6.2	92.8	0.5	--	0.5	100.0
30-34	--	97.1	1.7	--	1.2	100.0
35-39	2.6	91.4	5.3	--	0.7	100.0
40-44	--	94.0	5.1	0.9	--	100.0
45-49	1.4	81.7	16.9	--	--	100.0
Total	27.7	69.1	2.6	0.2	0.3	100.0
			RURAL			
15-19	83.9	16.1	--	--	--	100.0
20-24	31.1	68.1	0.2	0.3	0.3	100.0
25-29	5.2	93.7	1.1	--	--	100.0
30-34	0.7	95.4	2.9	0.3	0.8	100.0
35-39	--	96.3	2.9	0.3	0.5	100.0
40-44	--	91.4	7.8	0.4	0.4	100.0
45-49	0.5	89.8	9.2	--	0.5	100.0
Total	25.9	71.3	2.3	0.2	0.3	100.0
			TOTAL			
15-19	85.6	14.4	--	--	--	100.0
20-24	32.4	66.9	0.1	0.4	0.3	100.0
25-29	5.6	93.3	0.9	--	0.2	100.0
30-34	0.4	96.0	2.5	0.2	0.9	100.0
35-39	0.8	94.9	3.6	0.2	0.6	100.0
40-44	--	92.2	7.0	0.5	0.3	100.0
45-49	0.6	87.8	11.2	--	0.4	100.0
Total	26.3	70.8	2.4	0.2	0.3	100.0

-- Less than 0.05 percent

More detailed information on the age at first marriage is presented in Table 4.3, which shows the percentage of all women who have married by specified exact ages and the median age at first marriage[1] by current age and residence. The median age at first marriage is used instead of the mean age at marriage (where both are calculated directly from reported ages at marriage) because the median, unlike the mean, is not biased by age truncation. (The survey

[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 can not be made in these cohorts 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 age 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 age 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, Punjab, 1961-93

Source	Singulate mean age at marriage		
	Male	Female	Difference
1961 Census	22.6	17.5	5.1
1971 Census	24.1	20.1	4.0
1981 Census	25.0	21.1	3.9
1993 NFHS			
Urban	25.5	21.7	3.8
Rural	24.6	20.9	3.7
Total	24.8	21.1	3.7

interview marks the 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 first marriage by age cohort, from oldest to youngest, reflects a trend over time that is not biased by age truncation.

Table 4.3 shows that age at marriage has been moderately high in Punjab, even among older age cohorts. Relatively small proportions of women have married before age 15, and marriages below age 15 have been virtually eliminated in the state. For instance, only 4 percent of women in the 45-49 age cohort married before age 13, and essentially this proportion declines to zero in the 15-19 age cohort. Only 6 percent of the women in the 45-49 age cohort married by age 15, and the prevalence of marriages by that age has declined to 2 percent and 1 percent in the 20-24 and 15-19 age cohorts, respectively. The median age at first marriage rises from 18.7-18.8 years in the 35-39, 40-45, and 45-49 age cohorts to 19.8 years in the 25-29 age cohort, an increase of one year. It will be higher for the women in the 20-24 age cohort, because one-third of them have never married; and even among those who are married (68 percent), about two in five women have married after age 20. Differences between urban and rural areas in median age at marriage are decreasing. The median age at marriage has been rising in both urban and rural areas, but evidence of an increase is apparent only recently in rural areas. For example, whereas the median age at marriage for women age 25-49 in urban areas is seven months higher than in rural areas, the difference in age at marriage has almost completely disappeared between urban and rural women age 25-29 (19.9 years compared with 19.7 years).

It may be noted that the NFHS-based SMAM for females shown in Table 4.2 is higher than the median age at marriage shown in Table 4.3. That is because the mean and median values are different for an age distribution that is skewed, and the difference between them will change if the skewness changes in the distribution of age at first marriage. Moreover, singulate means are indirect estimates involving the assumption that proportions ever marrying have

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, Punjab, 1993

Current age[1]	Percentage ever married before age: 13	15	18	20	22	25	Percent never married	Median age at first marriage
URBAN								
15-19	--	0.8	NA	NA	NA	NA	89.9	NC
20-24	--	3.0	12.5	37.4	NA	NA	36.6	NC
25-29	1.1	3.7	21.1	51.1	74.3	90.1	6.2	19.9
30-34	0.6	2.9	22.7	55.2	79.7	93.0	--	19.5
35-39	2.0	3.3	21.4	51.4	76.7	91.4	2.6	19.8
40-44	2.6	6.0	23.9	59.0	82.1	96.6	--	19.1
45-49	7.0	11.3	36.6	63.4	78.9	91.6	1.4	18.7
20-49	1.6	4.2	21.1	50.9	72.9	85.9	10.0	19.9
25-49	2.0	4.6	23.6	54.7	77.9	92.3	2.4	19.5
RURAL								
15-19	--	0.9	NA	NA	NA	NA	83.9	NC
20-24	0.3	1.9	15.7	42.6	NA	NA	31.1	NC
25-29	1.8	4.6	27.3	52.6	79.2	92.0	5.2	19.7
30-34	2.1	5.2	32.0	58.0	77.7	95.1	0.7	18.9
35-39	2.1	5.5	39.0	64.9	85.6	95.8	--	18.6
40-44	2.3	6.2	40.9	66.1	87.5	97.7	--	18.6
45-49	2.9	3.9	36.4	63.1	87.4	95.6	0.5	18.7
20-49	1.7	4.3	29.5	55.6	77.3	88.3	9.1	19.3
25-49	2.1	5.1	34.2	60.0	82.6	94.9	1.6	18.9
TOTAL								
15-19	--	0.9	NA	NA	NA	NA	85.6	NC
20-24	0.3	2.2	14.9	41.4	NA	NA	32.4	NC
25-29	1.6	4.3	25.4	52.1	77.7	91.3	5.6	19.8
30-34	1.6	4.5	29.1	57.2	78.4	94.5	0.4	19.1
35-39	2.1	4.9	34.0	61.1	83.0	94.5	0.8	18.8
40-44	2.4	6.1	35.6	63.9	85.8	97.3	--	18.8
45-49	4.0	5.8	36.5	63.2	85.3	94.7	0.6	18.7
20-49	1.6	4.3	27.1	54.2	76.1	87.6	9.4	19.5
25-49	2.1	4.9	31.1	58.4	81.2	94.1	1.9	19.0

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

remained unchanged over time.

Table 4.4 shows median ages at first marriage for all women age 20-49 by age group and selected background characteristics. Among women age 25-49 years, median age at first marriage does not vary much by residence and religion. The difference by caste is minor. The scheduled caste women marry one year earlier than other women. Age at marriage does vary noticeably with education, however, ranging from 18.3 years for illiterate women to 21.5 years for women who have completed high school, a difference of just over three years. In fact,

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, Punjab, 1993

Background characteristic	Current age						
	20-24	25-29	30-34	35-39	40-49	20-49	25-49
Residence							
Urban	NC	19.9	19.5	19.8	19.0	19.9	19.5
Rural	*	19.7	18.9	18.6	18.6	19.3	18.9
Education							
Illiterate	19.2	18.6	18.4	18.2	18.2	18.5	18.3
Lit., < middle complete	*	19.8	19.4	19.3	19.3	19.6	19.5
Middle school complete	*	(19.7)	(19.4)	19.1	(19.1)	19.9	19.4
High school and above	*	21.2	21.7	21.6	21.8	NC	21.5
Religion							
Hindu	*	19.2	19.0	18.8	18.6	19.3	18.9
Muslim	*	*	*	*	*	(18.7)	(18.7)
Sikh	*	20.0	19.2	18.8	18.8	19.7	19.2
Christian	*	*	*	*	*	(18.7)	(18.4)
Caste							
Scheduled caste	*	18.7	18.7	18.3	18.3	18.7	18.5
Other	NC	20.1	19.4	19.1	19.0	19.9	19.4
Total	NC	19.8	19.1	18.8	18.7	19.5	19.0

Note: Total medians are based on all women including women belonging to other religions, the medians for whom are not shown separately.
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
* Median not shown; based on fewer than 25 cases

within each age group, the median age at first marriage is a little over three years higher among women who have completed high school than among illiterate women, thus indicating that the educational differences in age at marriage have remained the same over time. In fact, in every population subgroup shown in Table 4.4, there has been no substantial change in the median age at marriage over the last two decades or so.

The Child Marriage Restraint Act of 1978 set the minimum legal age at marriage in India at 18 years for women and 21 years for men. NFHS respondents were asked about the legal minimum age at marriage for females and males in India. Table 4.5 presents the percentage of women, according to selected background characteristics, who correctly reported the minimum legal age at marriage. Interestingly, only 41 percent of respondents could correctly identify 18 years as the legal minimum age at marriage for females, and only 33 percent could correctly identify 21 years as the legal minimum age at marriage for males. Thus the fact that most women in Punjab marry after attaining the legal minimum age at marriage apparently is due more to the social norms and economic conditions prevailing in the state rather than to a general knowledge of the legal minimum age at marriage.

Knowledge of the legal minimum age at marriage is almost double in urban areas as it is in rural areas. The proportion knowing about correct legal age at marriage is closely

Table 4.5 Knowledge of minimum legal age at marriage

Percentage of ever-married women age 13-49 who correctly know the minimum legal age at marriage for males and females, by selected background characteristics, Punjab, 1993

Background characteristic	Percentage who correctly know legal minimum age at marriage: For males	For females	Number of women
Age			
13-19	37.1	42.4	132
20-29	35.1	42.2	1132
30-39	33.1	41.7	1082
40-49	28.4	37.8	649
Residence			
Urban	50.8	59.8	836
Rural	26.1	33.8	2159
Education			
Illiterate	13.4	18.6	1575
Lit., < middle complete	36.3	48.8	603
Middle school complete	59.6	70.7	270
High school and above	72.6	82.6	547
Religion			
Hindu	37.1	47.1	1139
Muslim	(11.1)	(30.6)	36
Sikh	31.1	37.9	1769
Christian	(19.6)	(19.6)	46
Caste			
Scheduled caste	23.5	31.7	780
Other	36.3	44.4	2215
Total	33.0	41.1	2995

Note: Total includes 5 women belonging to other religions, who are not shown separately.
( ) Based on 25-49 cases

associated with literacy and educational attainment. More than four in five women with a high school or higher education know the legal minimum age for females, compared with only about one in five of illiterate women. The provisions of the law relating to female age at marriage are better known among Hindus than among Sikhs. The knowledge of minimum legal age at marriage is lowest among other religious groups, Muslims and Christians (Muslims 31 percent and Christians 20 percent). The legal minimum age at marriage is less well known among scheduled caste women than among other women. 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 which respondents started living with their husbands. The age at marriage (Table 4.3) and the age at first cohabitation with the husband differ in some states of India because cohabitation, which generally does not occur until after the *gauna* ceremony, does not always immediately follow the formal marriage. In Punjab, however,

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, Punjab, 1993

Current age[1]	Percentage who started living with husband before age: 13	15	18	20	22	25	Percent never cohabited	Median age at first cohabitation with husband
				URBAN				
15-19	--	0.8	NA	NA	NA	NA	89.9	NC
20-24	--	3.0	12.5	37.4	NA	NA	36.6	NC
25-29	0.5	3.2	21.1	51.1	74.3	90.1	6.2	19.9
30-34	0.6	2.9	22.7	55.2	79.7	93.0	--	19.5
35-39	0.7	2.7	21.4	51.4	76.7	91.4	2.6	19.8
40-44	--	2.6	22.2	59.0	82.1	96.6	--	19.1
45-49	--	4.2	33.8	62.0	78.9	91.6	1.4	18.8
20-49	0.3	3.0	20.7	50.8	72.9	85.9	10.0	19.9
25-49	0.4	3.0	23.0	54.6	77.9	92.3	2.4	19.5
				RURAL				
15-19	--	0.9	NA	NA	NA	NA	84.9	NC
20-24	--	1.2	15.1	42.6	NA	NA	31.1	NC
25-29	0.4	3.1	26.8	52.6	79.2	92.0	5.2	19.7
30-34	0.3	3.4	31.2	57.7	77.5	95.1	0.7	19.0
35-39	0.5	3.7	36.4	63.6	85.3	95.8	--	18.7
40-44	--	2.7	37.4	65.0	87.5	97.7	--	18.8
45-49	--	0.5	33.5	62.1	86.4	95.6	0.5	18.8
20-49	0.2	2.5	28.0	55.1	77.1	88.3	9.1	19.4
25-49	0.3	2.9	32.4	59.3	82.4	94.9	1.6	18.9
				TOTAL				
15-19	--	0.9	NA	NA	NA	NA	85.6	NC
20-24	--	1.7	14.5	41.3	NA	NA	32.4	NC
25-29	0.5	3.1	25.1	52.1	77.7	91.3	5.6	19.8
30-34	0.4	3.2	28.6	57.0	78.2	94.5	0.4	19.1
35-39	0.6	3.4	32.1	60.1	82.8	94.5	0.8	18.9
40-44	--	2.7	32.6	63.1	85.8	97.3	--	18.9
45-49	--	1.4	33.6	62.1	84.5	94.7	0.6	18.8
20-49	0.3	2.6	25.9	53.9	75.9	87.6	9.3	19.6
25-49	0.3	2.9	29.7	57.9	81.0	94.1	1.9	19.1

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.

most marriages occur after the woman reaches puberty and cohabitation begins immediately after the marriage. The percentage of women cohabiting before age 18 is slightly lower than the corresponding percentage of women marrying before the same age. Because marriage at young ages is not common, the median age at first cohabitation (19.1 years) is virtually identical to the age at first marriage (19.0 years) for women age 25-49.

4.4 Marriage Between Relatives

Table 4.7 provides information on marriage between relatives. For both social and biological reasons, such marriages have implications for mortality and morbidity as well as for fertility. For example, Bittles et al. (1992) found a positive association between consanguinity and fertility in 19 out of 22 populations, and that mortality was significantly higher among children of marriages between blood relatives. In analyzing the relationship between inbreeding and mortality, it is important to control for socioeconomic variables because there is a tendency for marriage between relatives to be more common among lower socioeconomic groups, whose mortality is higher primarily for socioeconomic reasons.

Table 4.7 Marriage between relatives

Percent distribution of ever-married women by relationship to current (last) husband, according to selected background characteristics, Punjab, 1993

Background characteristic	First cousin		Second cousin	Uncle	Other blood relation	Brother-in-law	Other non-blood relation	Not related	Total per-cent	Number
	Father's side	Mother's side								
Age										
15-19	0.8	--	--	--	--	0.8	5.3	93.1	100.0	131
20-24	0.2	1.0	--	0.2	1.1	1.3	2.7	93.5	100.0	523
25-29	0.8	0.3	--	--	0.8	1.0	2.5	94.6	100.0	609
30-34	0.2	0.2	0.2	--	0.5	0.4	2.7	95.8	100.0	554
35-39	0.2	0.9	--	--	0.8	1.7	2.7	93.8	100.0	528
40-44	0.3	0.3	--	--	--	0.8	1.1	97.6	100.0	374
45-49	0.7	0.4	--	--	0.7	--	1.5	96.7	100.0	275
Residence										
Urban	0.1	0.4	--	--	0.8	0.4	2.6	95.7	100.0	836
Rural	0.5	0.6	--	--	0.6	1.2	2.4	94.7	100.0	2159
Education										
Illiterate	0.5	0.5	0.1	0.1	0.6	1.1	2.6	94.5	100.0	1575
Lit.,< middle complete	0.5	0.7	--	--	1.0	0.5	2.5	94.9	100.0	603
Middle school complete	--	0.4	--	--	0.4	1.9	2.6	94.8	100.0	270
High school and above	0.2	0.4	--	--	0.5	0.4	1.8	96.7	100.0	547
Religion										
Hindu	0.4	0.7	--	--	0.9	0.5	2.5	95.0	100.0	1139
Muslim	(--)	(2.8)	(--)	(--)	(--)	(5.6)	(2.8)	(88.9)	100.0	36
Sikh	0.3	0.3	0.1	0.1	0.6	1.1	2.5	95.1	100.0	1769
Christian	(2.0)	(--)	(--)	(--)	(--)	(--)	(--)	(97.8)	100.0	46
Caste										
Scheduled caste	0.3	0.1	--	--	0.8	0.8	2.1	96.0	100.0	780
Other	0.5	0.6	--	--	0.6	1.0	2.6	94.6	100.0	2215
Total	0.4	0.5	--	--	0.7	0.9	2.4	95.0	100.0	2995

Note: Total includes 1 woman age 13-14 and 5 women belonging to other religions, who are not shown separately
() Based on 25-49 cases
-- Less than 0.05 percent

Table 4.7 indicates that consanguineous marriages are rare in Punjab. Only 5 percent of the ever-married women have married a relative, and less than 2 percent have married a blood relative. About 1 percent have married a first cousin (on either the father's or the mother's side), and another 1 percent have married a blood relative other than a second cousin or an uncle. These findings on consanguineous marriages in Punjab are consistent with previous findings of considerably lower levels of consanguinity in North India than in South India (Kapadia, 1958; Sanghvi, 1966, Roychoudhury, 1976; Bittles et al., 1991). The percentages marrying a relative do not vary much by age, indicating that the propensity to marry a relative has not changed over time. Similarly, the prevalence of consanguineous marriages does not vary much according to residence, education, religion, or caste.

CHAPTER 5

FERTILITY

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

Most of the fertility measures presented in this chapter are based on the complete birth histories of ever-married women age 13-49. 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. First, women were asked about the number of sons and daughters who were living at home, those living elsewhere, and those who had died. Second, for each live birth reported, 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 recall the details of all births. In addition, interviewers were instructed to check any documents (such as horoscopes, school certificates, or vaccination cards) that might provide information on a child's date of birth. Finally, to help in identifying any births that might have been omitted, especially births of children who died soon after birth, interviewers were required to record the reason for any birth interval of four or more years. This additional probing also helped them to obtain more accurate information on stillbirths and abortions.

Despite all the measures taken to improve data quality, the NFHS is subject, to some degree, to the same kinds of errors that are inherent in all retrospective sample surveys -- namely, the omission of some births (especially births of children who died at a very young age) and the difficulty of determining the dates of birth accurately. These problems may be less common in states such as Punjab, where the female literacy level is higher than the national average.

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. The other measures are calculated for the three-year period preceding the survey. Because the NFHS fieldwork in Punjab was conducted from July to September, 1993, the three years prior to the survey correspond roughly to the years 1990-92. A three-year period was chosen for the NFHS rates as a compromise of three objectives: to obtain the most current information, to reduce the effects of sampling variation, and to minimize problems with the displacement of births from recent years to earlier years.

The NFHS fertility estimates can be compared with estimates from the Sample Registration System (SRS) maintained by the Office of the Registrar General. The most recent report with estimates for Punjab is for 1991 (Office of the Registrar General, 1993). 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

The two sets of crude birth rates shown in Table 5.1 are calculated alternatively from the household birth record (i.e., from births recorded in the Household Questionnaire) and from births recorded in the woman's birth history in the Woman's Questionnaire. The CBR estimated from the household birth record is calculated as the annual number of births in the two-year period before the date of interview per 1,000 usual residents at the time of the survey. The denominator of this CBR estimate is adjusted by projecting the population backward to the mid-point of the time period using the intercensal population growth rate in the state. This is done separately for urban and rural areas. The CBR estimated from the birth histories refers to a three-year period before the interview. This CBR estimate is calculated as a sum of products, where each product is an age-specific birth rate multiplied by the proportion of women in the specified age group, out of the total *de facto* population, both male and female.

Table 5.1 Current fertility

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

	NFHS (1990-92)[1]			SRS (1991)		
Age	Urban	Rural	Total	Urban	Rural	Total
15-19	0.041	0.074	0.065	0.018	0.025	0.023
20-24	0.224	0.242	0.238	0.228	0.250	0.244
25-29	0.147	0.194	0.180	0.196	0.217	0.211
30-34	0.059	0.078	0.072	0.083	0.109	0.101
35-39	0.021	0.021	0.021	0.032	0.036	0.035
40-44	0.003	0.005	0.005	0.008	0.007	0.008
45-49	*	0.003	0.002	0.002	0.002	0.002
TFR 15-44	2.48	3.08	2.91	2.83	3.22	3.11
TFR 15-49	2.48	3.09	2.92	2.84	3.23	3.12
GFR 15-49	85	111	104	102	115	111
NFHS CBR based on						
Household birth record	22.1	25.4	24.5	NA	NA	NA
Woman's birth history	21.0	26.5	25.0	NA	NA	NA
SRS CBR	NA	NA	NA	25.6	28.5	27.7

Note: Rates from the NFHS are for the period 1-36 months before the interview except for the CBR from the household birth record, which is based on the period 1-24 months before the interview.
TFR: Total Fertility Rate for ages 15-44 and 15-49, expressed per woman.
GFR: General Fertility Rate (births to women age 13-49 divided by woman-years lived between age 15 and 49) expressed per 1,000 women
CBR: Crude Birth Rate, expressed per 1,000 population
NA: Not applicable
* Rate not shown; based on fewer than 125 woman-years of exposure, however, the calculated value is used to estimate TFR
[1]Three years preceding the survey
Source of SRS data: Office of the Registrar General (1993)

Although the NFHS estimates of the CBR are based on information from two different parts of the interview (often with different respondents), the two estimates for the state as a whole agree quite closely. The three-year CBR of 25.0 births per 1,000 population is slightly higher than the two-year rate (24.5 births per 1,000), as would be expected when fertility is declining. The NFHS crude birth rate for 1990-92 (25.0) is lower than the SRS crude birth rate for 1991 (27.7). Although the CBR estimated from the NFHS is lower than the SRS estimate for both urban and rural areas, the difference between the two estimates is larger in the case of urban estimates. The three-year NFHS crude birth rates by residence indicate that fertility is 26 percent higher in rural areas than in urban areas.

General Fertility Rate

The general fertility rate 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 the ages of 15 and 49 during the period, and multiplying the result by 1,000. The GFR so estimated for 1990-92 is 104 births per 1,000 women for Punjab as a whole, which is lower than the GFR estimated by the SRS (111 per 1,000 women) for the year 1991 (Table 5.1). The estimated GFR from the NFHS is considerably higher in rural areas (111) than in urban areas (85), although both estimates are lower than the corresponding estimates from the SRS, the urban estimate is much lower than the SRS estimate (17 percent).

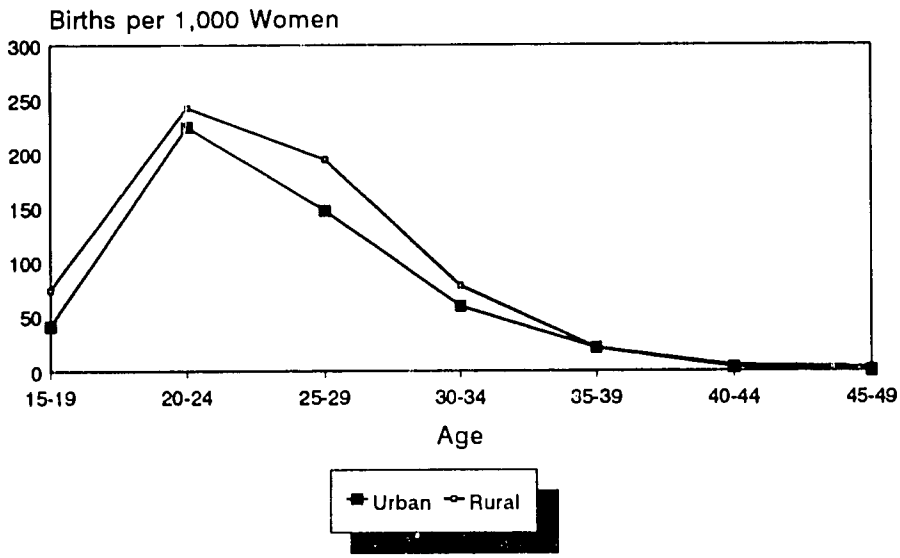
Age-Specific and Total Fertility Rates

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

The TFR from the NFHS for women in the age groups 15-44 and 15-49 for the state as a whole for 1990-92 is 2.9 children per woman (Table 5.1). As expected, the urban TFR (2.5 children per woman) is lower than the rural TFR (3.1 children per woman). Given the present fertility schedule, a rural woman, on average, bears just over half a child more (that is, 25 percent more children) than her urban counterpart during her childbearing years.

The age-specific fertility rates follow the expected bell-shaped pattern. Fertility peaks in the 20-24 age group, reflecting a pattern of early childbearing. The same pattern is observed in both urban and rural areas (Figure 5.1), although rural ASFRs are consistently higher than the urban rates. Fertility rates decline sharply after age 20-24, more so in the urban areas than in the rural areas of Punjab. Fertility is highly concentrated in the 20-29 age group.

Figure 5.1
Age-Specific Fertility Rates
by Residence



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

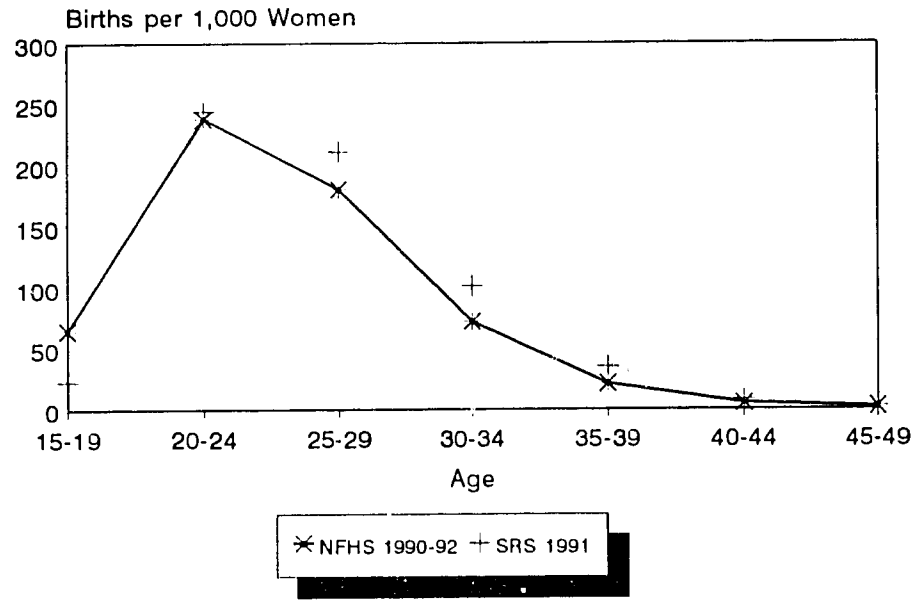
NFHS, Punjab, 1993

Three-fourths of urban fertility and 71 percent of rural fertility is concentrated in this age group. Births in the 15-19 age group account for only 11 percent of total fertility, or 8 and 12 percent in urban and rural areas, respectively. The contribution of women in the 40-49 age group to total fertility is negligible in urban as well as in rural areas.

The NFHS estimate of the TFR of 2.9 for the period 1990-92 is slightly lower than the SRS estimate of 3.1 for the year 1991. The differences in the NFHS and SRS estimates for urban and rural areas show the same pattern as the differences in GFR. The TFR estimated from NFHS data for urban areas is much lower (13 percent) than the SRS estimate.

It is instructive to extend the comparison of the NFHS and SRS results from total fertility rates to the corresponding age-specific fertility rates, as shown in Table 5.1 and Figure 5.2. The NFHS enumerated proportionately more births to women age 15-19 than the SRS and fewer births to older women. This difference for the 15-19 age group may be due to the fact that the SRS rates are *de jure* whereas the NFHS rates are *de facto*. In calculating fertility estimates, the SRS excludes births occurring to visitors within the sample unit but includes births to usual residents outside the sample unit. Because young Indian women typically return to their parental household to have their first baby, it is not surprising that the NFHS fertility estimate for the 15-19 age group is higher than the SRS estimate. The differences in the other age groups are more difficult to explain. Very low fertility rates for women in the higher age groups in Punjab reported in the NFHS may be due to several factors. Many women in these age groups may be sterilized or menopausal. Moreover, terminal abstinence from sexual intercourse is

Figure 5.2
Age-Specific Fertility Rates
NFHS and SRS



NFHS, Punjab, 1993

commonly practised by couples once their daughter attains menarche or once any of their children marries or has a child. These factors, however, are not likely to explain the full difference between the NFHS and SRS fertility rates at the older ages. A complete explanation of the differences in fertility in the two data sets must await further analysis.

Fertility Differentials and Trends

Table 5.2 and Figure 5.3 show NFHS estimates of current and cohort fertility for Punjab by selected background characteristics. Current fertility is measured by the TFR 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 calculated from the birth history information in the Woman's Questionnaire.

Current fertility and cohort fertility in Punjab varies by place of residence, education, and caste. The largest differential is found by education. Women with at least a high school education have a TFR of 2.2, nearly replacement-level fertility, whereas illiterate women have a TFR of 3.7, which is 65 percent higher. Current fertility is also higher among scheduled castes than among others. Scheduled caste women have on average 0.6 children more than other women. Meaningful comparisons of TFR by religion can be made only between Hindus and Sikhs because the values for Muslims and others are based on small numbers. Hindus and Sikhs in Punjab do not differ in their current fertility.

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 years, by selected background characteristics, Punjab, 1993

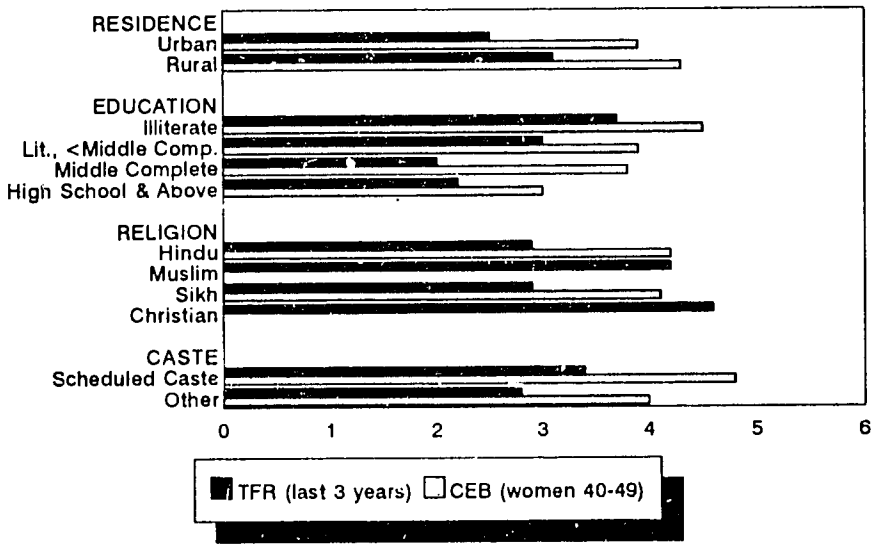
Background characteristic	Total fertility rate[1]	Mean number of children ever born to women age 40-49 years
Residence		
Urban	2.48	3.92
Rural	3.09	4.29
Education		
Illiterate	3.69	4.50
Lit., < middle complete	3.02	3.90
Middle school complete	1.95	(3.79)
High school and above	2.23	2.96
Religion		
Hindu	2.91	4.20
Muslim	(4.16)	*
Sikh	2.86	4.11
Christian	4.55	*
Caste		
Scheduled caste	3.39	4.82
Other	2.76	3.95
Total	2.92	4.18

Note: Total rate and mean are based on all women including women belonging to other religions, the rate and mean for whom are not shown separately.
() Rate based on 125-249 women-years of exposure and mean based on 25-49 cases
* Mean not shown; based on fewer than 25 cases
[1]Rate for women age 15-49 years.

If there had been no change in fertility for three or more decades prior to the survey, the current and cohort fertility indicators would be nearly identical, differences being due solely to the incomplete fertility of some women age 40-49. If fertility had declined, current fertility would 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 (CEB) of 4.2, shown in Table 5.2, indicates that a substantial fertility decline has taken place in Punjab. Moreover, in any given socioeconomic category the TFR is much lower than the mean number of children ever born to women age 40-49 in that same category, indicating that fertility has declined in every socioeconomic group. Differentials in current fertility and CEB is highest for urban women, indicating that fertility has been declining most among urban women.

The most direct way of observing fertility trends is to examine changes in age-specific fertility rates over time. Table 5.3 presents the age-specific fertility rates for the four five-year periods preceding the survey calculated from the respondents' birth histories. Because the birth histories were obtained only for women below age 50 at the time of the survey, some rates for prior time periods are subject to a degree of truncation (i.e., censoring), and others cannot be

Figure 5.3
Total Fe.'ility Rate (TFR) and Mean Number of Children Ever Born (CEB)



Note: Means (CEB) for the categories Muslim and Christian are not shown; based on fewer than 25 cases

NFHS, Punjab, 1993

calculated at all. The data confirm that fertility has declined steadily in almost every age group from the period 10-14 years before the survey to the period 0-4 years before the survey.

Fertility has declined most rapidly among women age 15-19 and those above age 29. Fertility has also declined faster in urban areas than in rural areas. The major fertility decline in both urban and rural areas took place during the most recent period. In Punjab as a whole, cumulative fertility at age 40 (calculated like the TFR but truncated at age 40) was 2.8 children per woman for the five-year period preceding the survey (roughly 1988-92). Corresponding values for the periods 5-9 and 10-14 years before the survey are 3.8 and 4.5, respectively. In other words, fertility declined by about one child every five years during the last 15 years.

Marital duration-specific fertility rates[1] for the 20-year period before the survey, shown in Table 5.4, also confirm that fertility in Punjab has declined substantially during the past two decades. This measure controls to some extent for changing age at marriage and may help to elucidate the trends shown in Table 5.3. Childbearing in Punjab occurs mostly during the first

[1] Because information was collected only on a woman's age at effective marriage, not the year and month of her effective marriage (which would be difficult to determine accurately in most cases), duration since first effective marriage is calculated as the woman's age during the specific 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, Punjab, 1993

Maternal age at birth	Years preceding the survey			
	0-4	5-9	10-14	15-19
		URBAN		
15-19	0.043	0.090	0.088	0.075
20-24	0.223	0.290	0.295	0.271
25-29	0.142	0.192	0.250	0.257
30-34	0.047	0.099	0.147	[0.111]
35-39	0.021	0.038	[0.037]	U
40-44	0.002	[0.015]	U	U
45-49	[0.000]	U	U	U
		RURAL		
15-19	0.070	0.087	0.108	0.125
20-24	0.257	0.307	0.320	0.303
25-29	0.188	0.235	0.264	0.291
30-34	0.070	0.115	0.153	[0.186]
35-39	0.020	0.043	[0.079]	U
40-44	0.007	[0.009]	U	U
45-49	[0.002]	U	U	U
		TOTAL		
15-19	0.063	0.088	0.102	0.110
20-24	0.249	0.301	0.312	0.293
25-29	0.174	0.222	0.260	0.282
30-34	0.063	0.110	0.151	[0.169]
35-39	0.020	0.042	[0.069]	U
40-44	0.005	[0.010]	U	U
45-49	[0.002]	U	U	U

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

10 years of marriage. During the five-year period before the survey, 85 percent of total fertility in Punjab occurred within the first 10 years of effective marriage. In most marital duration groups, fertility has fallen steadily over time. The decline in the 0-4 year marriage duration period has been very small and hence with declining total fertility the proportion of fertility accounted for during the early period of marriage has increased. The rapidity of the fertility decline increases with marital duration, being most pronounced for women married 10 or more years, corresponding to a curtailment of higher-order births. The percentage decline between the periods 10-14 and 0-4 years prior to the survey is 3 percent for all women effectively married for 0-4 years, 35 percent for women married 5-9 years, 59 percent for women married 10-14 years, and 80 percent for women married 15-19 years -- an extraordinarily strong and consistent pattern. Consistent with the trend in ASFRs shown in Table 5.3, the rates in Table 5.4 indicate that the fertility decline has accelerated in the most recent period. Marital fertility is lower in urban areas than in rural areas at most durations and time periods.

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, Punjab, 1993

Duration of effective marriage	Years preceding the survey			
	0-4	5-9	10-14	15-19
		URBAN		
0 - 4	0.347	0.385	0.389	0.342
5 - 9	0.135	0.204	0.245	0.254
10-14	0.052	0.113	0.154	(0.175)
15-19	0.012	0.051	(0.087)	*
20-24	0.009	(0.029)	*	U
25-29	(0.005)	*	U	U
		RURAL		
0 - 4	0.372	0.390	0.372	0.352
5 - 9	0.217	0.248	0.318	0.328
10-14	0.077	0.136	0.173	0.215
15-19	0.022	0.058	0.095	*
20-24	0.011	0.022	*	U
25-29	0.002	*	U	U
		TOTAL		
0 - 4	0.365	0.388	0.377	0.349
5 - 9	0.192	0.234	0.297	0.309
10-14	0.069	0.129	0.168	0.205
15-19	0.019	0.056	0.093	*
20-24	0.010	0.024	*	U
25-29	0.002	*	U	U

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

5.2 Outcome of Pregnancies

In any survey, it is more difficult to collect retrospective information on pregnancies than on live births, particularly on pregnancies spontaneously aborted within the first few months after conception. Although the NFHS did not collect pregnancy histories, it did collect information on total numbers of stillbirths and spontaneous and induced abortions for ever-married women. The percentage 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.

The number of total pregnancies and the percentage of all pregnancies that end in spontaneous abortions are almost certainly underestimated and should not be subject to rigorous interpretation. Stillbirths are probably much more accurately reported than abortions. Reports of induced abortions may be suppressed by respondents, or induced abortions may be reported as spontaneous abortions, so that the actual incidence of induced abortions may be much higher than is reported.

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, Punjab, 1993

Current age	Outcome of pregnancy: Spontaneous abortion	Induced abortion	Still-birth	Live birth	Total percent	Number of pregnancies
			URBAN			
20-24	3.5	2.3	4.7	89.5	100.0	171
25-29	3.4	3.2	2.3	91.1	100.0	473
30-34	2.6	2.4	2.4	92.5	100.0	536
35-39	2.8	4.5	2.5	90.2	100.0	528
40-44	3.2	3.6	3.6	89.7	100.0	506
45-49	2.9	2.9	2.0	92.2	100.0	306
Total	3.0	3.3	2.7	91.0	100.0	2528
			RURAL			
15-19	9.9	--	5.6	84.5	100.0	71
20-24	5.1	2.0	3.9	88.9	100.0	586
25-29	3.5	1.4	3.8	91.3	100.0	1259
30-34	3.2	0.9	3.9	91.9	100.0	1422
35-39	3.4	1.4	3.1	92.1	100.0	1653
40-44	2.3	0.5	2.9	94.3	100.0	1121
45-49	1.2	0.5	2.9	95.4	100.0	975
Total	3.1	1.1	3.4	92.4	100.0	7087
			TOTAL			
15-19	8.9	--	5.1	86.1	100.0	79
20-24	4.8	2.1	4.1	89.0	100.0	757
25-29	3.5	1.9	3.4	91.2	100.0	1732
30-34	3.1	1.3	3.5	92.1	100.0	1958
35-39	3.3	2.2	3.0	91.6	100.0	2181
40-44	2.6	1.5	3.1	92.9	100.0	1627
45-49	1.6	1.1	2.7	94.6	100.0	1281
Total	3.1	1.7	3.2	92.0	100.0	9615

Note: Total includes 8 pregnancies to urban women age 15-19, which are not shown separately. There are no reported pregnancies to a woman age 13-14.
-- Less than 0.05 percent

Among all pregnancies reported by women in Punjab, 92 percent resulted in live births, 3 percent in stillbirths, 3 percent in spontaneous abortions, and 2 percent in induced abortions. Three-quarters of all pregnancies occurred in rural areas. The pattern of pregnancy outcome is similar in urban and rural areas, except that urban women report a higher proportion of pregnancies ending in induced abortions (3 percent compared with 1 percent in rural areas). The proportion of pregnancies ending in live births increases with women's age. The data also suggest that younger women (age 20-24) in rural areas and women age 35-39 in urban areas have higher rates of induced abortion than other women in those areas.

In view of the likely underreporting of early spontaneous abortions, it is useful to consider induced abortions and stillbirths in relation to live births rather than to total pregnancies. By this measure, there are 3.4 stillbirths and 1.8 induced abortions for every 100 live births in the state as a whole.

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 past fertility, 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 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. Women of childbearing age in Punjab, both ever married and never married, have borne an average of 2.2 children and have 2.0 children currently living. Currently married women have borne an average of 2.9 children and have an average of 2.7 children currently living. The mean number of children ever born increases steadily with age for all women as well as for currently married women, reaching a high of 4.4 children per woman at age 45-49. Only 6 percent of all women in the 15-19 age group have ever had a child. However, 43 percent of currently married women age 15-19 have had at least one child. One-third of currently married women age 15-49 have given birth to 4 or more children.

It is not uncommon in sample surveys to find mean numbers of children ever born declining for older women. This may indicate deteriorating completeness of reporting of children ever born as women reach the end of their reproductive age span. Although the steady increase with age in the NFHS mean number of children ever born does not provide conclusive

Table 5.6 Children ever born and living

Percent distribution of all women and currently married age 15-49 women by number of children ever born and mean number of children ever born (CEB) and living, according to age, Punjab, 1993

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															
15-19	93.8	5.0	1.1	0.1	--	--	--	--	--	--	--	100.0	907	0.07	0.07
20-24	50.7	21.2	20.2	6.3	1.2	0.4	--	--	--	--	--	100.0	773	0.87	0.82
25-29	11.0	10.5	29.9	29.6	11.2	5.9	1.4	0.5	--	--	--	100.0	645	2.45	2.29
30-34	2.4	3.8	24.1	32.0	22.5	9.0	4.0	1.8	0.2	0.2	0.2	100.0	556	3.24	2.95
35-39	3.3	3.2	15.0	27.6	20.3	14.3	8.8	4.1	1.7	1.1	--	100.0	532	3.75	3.41
40-44	1.6	1.6	11.8	24.9	25.4	17.9	9.9	2.9	2.9	1.1	--	100.0	374	4.04	3.72
45-49	1.7	1.8	8.3	22.8	22.8	14.8	14.8	7.9	4.3	0.4	0.4	100.0	277	4.38	3.94
Total	33.4	8.0	15.8	17.8	11.6	6.8	3.8	1.7	0.8	0.3	--	100.0	4064	2.18	2.00
CURRENTLY MARRIED WOMEN															
15-19	57.3	34.4	7.6	0.8	--	--	--	--	--	--	--	100.0	131	0.52	0.47
20-24	27.1	30.9	30.2	9.5	1.7	0.6	--	--	--	--	--	100.0	517	1.30	1.22
25-29	5.6	11.1	31.7	31.6	11.8	6.1	1.5	0.5	--	--	--	100.0	602	2.60	2.43
30-34	1.7	3.6	24.7	32.2	22.5	9.2	3.9	1.7	0.2	0.2	0.2	100.0	534	3.26	2.98
35-39	2.0	2.6	15.8	28.1	20.6	15.0	8.9	4.2	1.8	1.0	--	100.0	505	3.82	3.47
40-44	1.7	1.7	10.7	25.8	25.2	18.0	9.3	3.2	3.2	1.2	--	100.0	345	4.05	3.72
45-49	1.2	1.6	9.1	21.8	22.6	15.6	14.4	8.2	4.5	0.4	0.4	100.0	243	4.42	3.98
Total	9.6	10.9	21.8	24.2	15.5	9.2	4.9	2.2	1.1	0.4	0.1	100.0	2877	2.93	2.69

-- Less than 0.05 percent

evidence that births have been completely reported by older women, there is no indication of underreporting, either in the pattern or in the level of fertility.

The distribution of women age 45-49 by number of children ever born is of particular interest since these women have nearly completed their childbearing. Therefore, the distribution of children ever born approximates their completed parity distribution. Completed parity distributions are generally unimodal, with the modal number of children born near the mean number of children ever born. The distribution of women age 45-49 in Table 5.6 conforms to this pattern. Forty-six percent of all women age 45-49 have 3 or 4 children (the percentage being equal at parity 3 and 4). Twelve percent have fewer than 3 children, and 43 percent of all women have 5 or more children. Of course this parity distribution corresponds to the higher fertility levels of several decades prior to the survey, when the total fertility rate was around four children per woman.

The parity distribution for older currently married women provides a measure of primary sterility, which is the proportion of couples who are unable to have children. In Punjab, the proportion of currently married women age 40-49 with no children ever born is around 2 percent. On average, the number of dead children per woman is 0.2 children among currently married women age 15-49, representing 8 percent of children ever born.

Differentials in the number of children ever born and children still living by background characteristics, shown in Table 5.7, provide further information on fertility patterns in Punjab. To avoid the confounding influence of age distributions of women in different age groups, the mean values in the table have been age-standardized according to the age distribution of all currently married women. The average number of males ever born is slightly higher than the average number of females ever born, a biological pattern that is observed in most human populations. The number of children ever born is almost the same in urban and rural areas. The CEB has a negative relationship with education, the mean being 3.4 children for illiterate women and 2.1 children for women with at least a high school education. Hindus and Sikhs do not differ in the mean number of children ever born. Scheduled caste women have, on average half a child more than other women.

5.4 Birth Order

Table 5.8 shows the distribution of births during the three years before the survey by birth order. As one would expect, the number of births at each order is greater than the number at the next higher order. Overall, 29 percent of all births are first order births, 28 percent are second births, and 20 percent are of order three. Higher order births are less numerous. Only 11 percent of all births are of order five and above and only 5 percent of births are of order six and above. One would also expect the younger women to have more lower order births and older women to have more higher order births. It can be seen in Table 5.8 that first births, as a percentage of all births, decline with increasing maternal age and third and higher order births increase with increasing maternal age. As expected, the birth-order distribution is more skewed towards lower order births in urban areas, but even in rural areas three-fourths of all births are of a third or lower order.

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, Punjab, 1993

Background characteristic	Children ever born			Children living		
	Male	Female	Total	Male	Female	Total
Age						
15-19	0.3	0.2	0.5	0.3	0.2	0.5
20-24	0.7	0.6	1.3	0.6	0.6	1.2
25-29	1.4	1.2	2.6	1.3	1.2	2.4
30-34	1.8	1.5	3.3	1.6	1.4	3.0
35-39	2.0	1.8	3.8	1.8	1.6	3.5
40-44	2.1	2.0	4.1	1.9	1.8	3.7
45-49	2.3	2.1	4.4	2.1	1.9	4.0
Residence						
Urban	1.5	1.3	2.7	1.4	1.2	2.5
Rural	1.6	1.4	3.0	1.4	1.3	2.8
Education						
Illiterate	1.8	1.6	3.4	1.6	1.5	3.1
Literate, < middle complete	1.5	1.3	2.8	1.4	1.2	2.6
Middle school complete	1.3	1.0	2.4	1.3	0.9	2.2
High school and above	1.1	1.0	2.1	1.0	0.9	2.0
Religion						
Hindu	1.6	1.4	3.0	1.4	1.3	2.7
Muslim	(1.6)	(1.9)	(3.5)	(1.5)	(1.8)	(3.3)
Sikh	1.5	1.4	2.9	1.4	1.2	2.7
Christian	(1.7)	(1.9)	(3.5)	(1.6)	(1.6)	(3.2)
Caste						
Scheduled caste	1.7	1.6	3.3	1.6	1.4	3.0
Other	1.5	1.3	2.8	1.4	1.2	2.6
Total	1.5	1.4	2.9	1.4	1.3	2.7

Note: The means by residence, education, religion and caste are standardized on the age distribution of all currently married women. Total means are based on all women including 5 women belonging to other religions, and 1 woman age 13-14, the means for whom are not shown separately.
() Based on 25-49 cases

5.5 Birth Intervals

Birth intervals indicate the pace of childbearing. In addition, various studies have shown that children born too soon after a previous birth are at increased risk of dying, especially if the interval between births is less than 24 months (Hobcraft et al., 1983; Govindasamy et al., 1993).

Table 5.9 presents the percentage distribution of second and higher order births in the five years preceding the survey by interval since previous birth. Intervals between marriage and first birth, which do not include an interval of postpartum amenorrhoea, are excluded to make comparison of the intervals over different characteristics of the women more meaningful.

Overall, one in every six births in Punjab occurs within 18 months of the previous birth and one-third of all births occur within 24 months. The proportion of births preceded by

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, Punjab, 1993

Maternal age at birth	Order of birth						Total percent	Number of births
	1	2	3	4	5	6+		
URBAN								
15-19	(83.3)	(16.7)	(--)	(--)	(--)	(--)	100.0	30
20-24	36.6	45.5	12.2	4.1	0.8	0.8	100.0	123
25-29	11.2	36.2	30.0	13.7	8.8	--	100.0	80
30-34	(3.2)	(16.1)	(32.3)	(25.8)	(6.5)	(16.1)	100.0	31
Total	29.2	34.7	19.3	9.5	4.4	2.9	100.0	274
RURAL								
15-19	77.7	20.1	2.2	--	--	--	100.0	139
20-24	31.5	36.9	22.6	6.9	2.1	--	100.0	390
25-29	10.4	21.5	27.9	21.9	13.1	5.2	100.0	251
30-34	3.4	9.0	19.1	23.6	15.7	29.2	100.0	89
35-49	(--)	(--)	(18.5)	(11.1)	(18.5)	(51.9)	100.0	27
Total	29.1	26.1	20.4	11.8	6.7	5.9	100.0	899
TOTAL								
15-19	78.7	19.5	1.8	--	--	--	100.0	169
20-24	32.7	39.0	20.1	6.2	1.8	0.2	100.0	513
25-29	10.6	25.1	28.4	19.9	12.1	3.9	100.0	331
30-34	3.3	10.8	22.5	24.2	13.3	25.8	100.0	120
35-49	(--)	(--)	(24.3)	(13.5)	(18.9)	(43.2)	100.0	37
Total	29.2	28.1	20.1	11.3	6.1	5.2	100.0	1173

Note: Total includes 3 births to rural women age 13-14, and 10 births to urban women age 35-49, which are not shown separately
() Based on 25-49 cases
-- Less than 0.05 percent

intervals of less than 12 months is three times as high when the preceding child is deceased, as when it is still living. In large part, this reflects the shortening of postpartum amenorrhoea that occurs when the preceding child dies in infancy and breastfeeding stops prematurely.

The median birth interval in Punjab is just over 29 months, or about 2.4 years. The median interval by age ranges from 28 months for women age 20-29 to 43 months for women age 40 and over. The median birth interval is five months longer in urban areas than in rural areas. The interval increases steadily with an increase in the order of the prior birth. There is little variation in median intervals by sex of prior birth, religion, or caste; but the interval is longer for births to mothers with a high school education (33 months) than for births to mothers who are illiterate or have lower levels of education (between 28 and 29 months).

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, Punjab, 1993

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									
20-29	2.4	16.3	19.6	34.5	17.1	10.0	100.0	27.5	869
30-39	2.1	8.6	11.7	29.1	21.0	27.5	100.0	35.5	385
40-49	(3.7)	(3.7)	(3.7)	(29.6)	(14.8)	(44.4)	100.0	(42.5)	27
Order of prior birth									
1	1.5	17.1	19.0	32.7	16.7	12.9	100.0	27.9	526
2-3	2.9	11.6	16.4	33.7	18.9	16.4	100.0	29.9	578
4-5	3.4	11.5	15.5	29.7	20.3	19.6	100.0	31.6	148
6+	(2.5)	(7.5)	(7.5)	(32.5)	(17.5)	(32.5)	100.0	(36.0)	40
Sex of prior birth									
Male	1.8	13.7	17.6	32.0	18.1	16.8	100.0	29.4	619
Female	3.0	13.7	16.6	33.6	18.1	15.0	100.0	29.3	673
Survival of prior birth									
Still living	2.0	12.5	17.5	33.1	18.6	16.2	100.0	29.7	1181
Deceased	6.3	26.1	12.6	29.7	12.6	12.6	100.0	24.8	111
Residence									
Urban	2.0	11.1	13.9	29.1	19.6	24.3	100.0	33.6	296
Rural	2.5	14.5	18.1	33.9	17.7	13.4	100.0	28.5	996
Education of the mother									
Illiterate	3.0	12.4	17.4	34.2	17.9	15.2	100.0	28.9	711
Lit., < middle complete	2.1	16.9	17.3	32.0	18.0	13.7	100.0	28.7	284
Middle school complete	2.4	17.6	18.8	31.8	16.5	12.9	100.0	27.5	85
High school and above	0.9	12.3	15.1	29.7	19.8	22.2	100.0	32.7	212
Religion									
Hindu	3.2	12.5	16.3	31.7	18.1	18.3	100.0	29.9	504
Muslim	(--)	(22.6)	(6.5)	(38.7)	(19.4)	(12.9)	100.0	(29.7)	31
Sikh	2.1	14.0	18.0	32.6	18.5	14.7	100.0	28.9	726
Christian	(--)	(16.7)	(20.0)	(46.7)	(10.0)	(6.7)	100.0	(26.5)	30
Caste									
Scheduled caste	4.2	11.4	18.0	32.0	16.7	17.7	100.0	29.1	378
Other	1.6	14.7	16.7	33.2	18.7	15.1	100.0	29.5	914
Total	2.4	13.7	17.1	32.8	18.1	15.9	100.0	29.3	1292

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. Total includes 11 births to women age 15-19 and 1 birth to women belonging to other religion, which are not shown separately.
() Based on 25-49 cases
-- Less than 0.05 percent

5.6 Age at First and Last Birth

The ages at onset and cessation of childbearing are important demographic determinants of fertility. Higher age at first birth and lower age at last birth are indicators of lower fertility. Table 5.10 shows the distribution of women by age at first birth, and median age at first birth according to current age of women and their place of residence.

The median values require comment. The median age at first birth for any group of women is the age by which half of them have had their first birth. For women in younger age groups, however, the number who will eventually become mothers is not known because some first births to the cohort will occur only in the future. The medians shown in Table 5.10, therefore, are calculated as the ages by which one-half of all women in the cohort have had a first birth, rather than the age by which half of all mothers in the cohort have had a first birth. This statistic can be computed without knowing how many women in the cohort will eventually

Table 5.10 Age at first birth

Percent distribution of women by age at first birth, according to current age and residence, Punjab, 1993

Current age[1]	No birth[2]	Age at first birth						Total percent	Median age at first birth
		<15	15-17	18-19	20-21	22-24	25+		
URBAN									
15-19	97.3	--	2.3	0.4	NA	NA	NA	100.0	NC
20-24	56.1	--	6.5	17.5	15.5	4.5	NA	100.0	NC
25-29	10.4	1.1	9.0	24.8	25.3	22.7	6.9	100.0	21.2
30-34	1.7	--	7.6	26.2	28.5	23.3	12.8	100.0	21.1
35-39	5.9	--	7.3	22.7	26.0	24.0	14.0	100.0	21.5
40-44	1.7	0.9	8.5	18.8	26.5	24.8	18.8	100.0	21.4
45-49	2.8	--	11.3	12.7	32.4	24.0	16.9	100.0	21.7
RURAL									
15-19	92.3	0.3	4.4	2.8	NA	NA	NA	100.0	NC
20-24	49.0	0.5	7.5	19.7	16.7	6.6	NA	100.0	NC
25-29	11.1	1.1	11.2	23.3	26.8	20.7	5.7	100.0	20.9
30-34	2.8	1.3	13.0	25.5	19.8	26.3	11.4	100.0	20.9
35-39	2.1	0.8	15.2	27.5	23.0	22.8	8.6	100.0	20.5
40-44	1.6	0.8	11.7	22.2	24.5	26.5	12.8	100.0	21.1
45-49	1.4	--	10.2	21.8	26.2	24.8	15.5	100.0	21.4
TOTAL									
15-19	93.8	0.2	3.9	2.1	NA	NA	NA	100.0	NC
20-24	50.7	0.4	7.2	19.1	16.4	6.1	NA	100.0	NC
25-29	11.0	1.1	10.5	23.7	26.4	21.2	6.0	100.0	21.0
30-34	2.4	0.9	11.3	25.7	22.5	25.3	11.9	100.0	21.0
35-39	3.3	0.6	13.0	26.1	23.9	23.1	10.1	100.0	20.8
40-44	1.6	0.8	10.7	21.1	25.1	25.9	14.7	100.0	21.2
45-49	1.7	--	10.5	19.5	27.8	24.6	15.9	100.0	21.5

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
-- Less than 0.05 percent
[1]The current age groups include both never-married and ever-married women.
[2]Never-married women are included in this category.

have a first birth. The medians are, of course, undefined for cohorts in which fewer than half of the women have had a first birth. This is the reason why no medians are given for ages 15-19, and 20-24.

Among women age 25-29, which is the youngest age group for which a median can be calculated, the median age at first birth is 21 years. Median age at first birth does not vary much among different age cohorts, indicating that there has been little change in the onset of childbearing in Punjab during recent decades. In every age cohort, the median ages at first birth do not differ between urban and rural areas. Very early childbearing (below age 15) is extremely rare in all the age groups.

Table 5.11 shows the median age at first birth by selected background characteristics. The median age at first birth for any group shown in the table does not vary substantially according to the current age of the woman within the group, indicating once again that age at onset of childbearing in Punjab has not changed much in any of its population subgroups. However, substantial differences exist in the median age at first birth according to women's education. Median age at first birth ranges from 20 years for illiterate women to 23 years for women who have completed high school. Differences are very small in the median age at first birth among different religious groups. The scheduled caste women start childbearing almost a year earlier than the other women.

Table 5.11 Age at first birth by background characteristics

Median age at first birth among women age 25-49 years, by current age and selected background characteristics, Punjab, 1993

Background characteristic	Current age					
	25-29	30-34	35-39	40-44	45-49	25-49
Residence						
Urban	21.2	21.1	21.5	21.4	21.7	21.3
Rural	20.9	20.9	20.5	21.1	21.4	20.9
Education						
Illiterate	20.2	20.2	20.0	20.8	21.1	20.4
Lit., < middle complete	20.8	21.0	21.1	21.3	(22.2)	21.1
Middle school complete	(21.0)	(21.0)	21.2	*	*	21.0
High school and above	22.6	23.1	23.6	23.9	*	23.2
Religion						
Hindu	20.7	21.0	20.8	21.7	21.2	21.0
Muslim	*	*	*	*	*	(20.2)
Sikh	21.2	21.0	20.8	21.1	21.7	21.1
Christian	*	*	*	*	*	(19.5)
Caste						
Scheduled caste	20.2	20.6	20.0	20.6	20.9	20.4
Other	21.2	21.1	21.2	21.6	21.8	21.3
Total	21.0	21.0	20.8	21.2	21.5	21.0

Note: Total medians are based on all women including 5 women belonging to other religions; the medians for whom are not shown separately.
() Based on 25-49 cases
* Median not shown; based on fewer than 25 cases

Table 5.12 presents the distribution of ever-married women age 40-49 by age at the birth of their last child. Although a few of these women may have another birth later on, the very low fertility rates for women in their forties seen earlier suggest that childbearing is virtually complete for this cohort. Slightly fewer than half (48 percent) of these women had their last birth by age 30, and four-fifths (83 percent) of women had their last birth before age 35. The median ages at last birth are not shown in the table but may be computed by interpolating the frequency distributions. The median age at last birth for the 45-49 age group is more than 30 years and for the 40-44 age group it is slightly lower than 30. The difference between the median age at first birth for the 45-49 cohort (21.5 years, from Table 5.11) and the median age at last birth for the same age cohort gives an estimated reproductive life of only 9 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, Punjab, 1993

Current age	No birth	Age at last birth							Total percent	Number of women
		<20	20-24	25-29	30-34	35-39	40-44	45-49		
40-44	1.6	0.8	12.0	37.4	35.8	11.0	1.3	NA	100.0	374
45-49	1.1	--	12.4	33.1	33.5	17.1	2.5	0.4	100.0	275
40-49	1.4	0.5	12.2	35.6	34.8	13.6	1.8	0.2	100.0	649

NA: Not applicable
-- Less than 0.05 percent

5.7 Childbearing at Young Ages

Fertility among teenagers (those under age 20) is drawing increasing attention from policymakers. Table 5.13 shows the percentages of ever-married women age 13-19 who are either mothers or are pregnant with their first child. The sum of these two percentages

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, Punjab, 1993

Background characteristic	Percentage who are:		Percent who have begun childbearing	Number of women
	Mothers	Pregnant with first child		
Age				
13-17	(41.9)	(19.4)	(61.3)	31
18-19	42.6	22.8	65.3	101
Literacy				
Illiterate	54.4	15.2	69.6	79
Literate	24.5	32.1	56.6	53
Total	42.4	22.0	64.4	132

() Based on 25-49 cases

represents the proportions of young ever-married women who have begun childbearing. Among women who marry as teenagers, childbearing starts early. Forty-two percent of ever-married women age 13-19 have already become mothers and another 22 percent are pregnant with their first child. Thus, on the whole, 64 percent of ever-married teenage women in Punjab have begun childbearing. 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 much less common than in the past. The percentage of women who have begun childbearing does not differ much between the ever-married women age 13-17 and those age 18-19. However, levels of teenage childbearing are higher among illiterate (70 percent) than among literate teenagers (57 percent).

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 the resumption of ovulation. Conception can also be delayed by prolonged postpartum abstinence. The total period of protection from amenorrhoea, abstinence, or both is defined as the nonsusceptible duration. Table 5.14 presents the percentage of births during the last three years to mothers who are currently postpartum amenorrhoeic, abstaining, and nonsusceptible, by duration since last birth. The mean and median durations and the prevalence/incidence mean duration are also shown in the table. Estimates of means and medians are based on a smoothed distribution of the current status proportion in each months-since-birth group. The prevalence/incidence mean is obtained by dividing the number of mothers who are nonsusceptible by the average number of births per month over a 36-month period.

Ninety-one percent of all women who had a birth in the two months prior to the survey are currently amenorrhoeic, whereas 69 percent of women whose last birth occurred 2-3 months prior to the survey are amenorrhoeic. The proportion amenorrhoeic drops to 37 percent for women who had a birth 4-5 months before the survey, and it gradually decreases as the number of months since birth increases. The proportions of women who are amenorrhoeic and abstaining is same for those who gave birth 2 months prior to the survey. The proportions of mothers abstaining from sexual intercourse are much lower than the proportions amenorrhoeic for all other groups of women. One-third of women are abstaining from sexual intercourse 2-3 months after a birth, and the proportion abstaining drops off rapidly thereafter. Overall, 60 percent of women become susceptible to pregnancy within 4-5 months of giving birth, and four-fifths become susceptible within 10-11 months after a birth.

The mean and median durations of nonsusceptibility are 7.4 and 4.4 months, respectively. The median duration of amenorrhoea (4.1 months) is about twice as high as the median duration of abstinence (2.4 months). The prevalence-incidence mean suggests that, on average, women in Punjab remain nonsusceptible to conception for just seven months after a birth, primarily as a result of postpartum amenorrhoea.

Table 5.15 shows median durations of postpartum amenorrhoea, postpartum abstinence, and postpartum nonsusceptibility by selected background characteristics (age of the woman, place

Table 5.14 Postpartum amenorrhoea, abstinence and nonsusceptibility

Percentage of births during the three years preceding the survey whose mothers are postpartum amenorrhoeic, postpartum abstaining and postpartum nonsuceptible, by number of months since birth, and median and mean duration, Punjab, 1993.

Months since birth	Percent of births whose mothers are:			Number of births
	Postpartum amenorrhoeic	Postpartum abstaining	Postpartum nonsusceptible	
< 2	91.0	89.6	98.5	67
2 - 3	69.4	33.9	77.4	62
4 - 5	36.8	10.5	40.4	57
6 - 7	30.6	4.2	30.6	72
8 - 9	29.0	4.3	31.9	69
10-11	19.1	1.5	19.1	68
12-13	13.3	4.4	15.6	90
14-15	10.0	2.0	12.0	50
16-17	4.2	2.1	4.2	48
18-19	1.5	--	1.5	65
20-21	5.5	1.8	7.3	55
22-23	1.5	1.5	3.1	65
24-25	--	--	--	92
26-27	1.9	--	1.9	53
28-29	--	--	--	55
30-31	--	--	--	61
32-33	--	8.2	8.2	61
34-35	--	3.2	3.2	62
Median	4.1	2.4	4.4	NA
Mean	6.6	3.6	7.4	NA
Prevalence/incidence mean	6.3	3.4	7.1	NA

Note: Medians and means are based on current status. Nonsusceptible is defined as amenorrhoeic or abstaining or both.
NA: Not applicable
-- Less than 0.05 percent

of residence, education, religion, and caste). Differences between subgroups are minor. The median period of nonsusceptibility ranges narrowly between 3.9 months for women with a high school education and 4.5 months for illiterate mothers. Sikhs have the shortest period of nonsusceptibility (4.1 months) and Christians the longest (6.5 months), but the median period for the latter group is based on a small sample. On average, the postpartum nonsusceptibility of scheduled caste women is one month longer (5.1 months) than it is for other women.

5.9 Menopause

Another factor impinging on fertility is the onset of menopause. Typically beginning around age 30, the risk of pregnancy begins to decline with age. 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 report that they are menopausal are also included in this category. In Punjab, menopause is uncommon for women in their thirties and early forties, but its incidence increases sharply after age 44 (Table 5.16). By age 44-45, slightly more than one-fourth of women are menopausal. The proportion increases to 53 percent for women age 46-47 and to 74 percent for women age 48-49. The urban and rural areas do not differ much in the timing of the onset of

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 the three years preceding the survey, Punjab, 1993

Background characteristic	Postpartum amenorrhoea	Postpartum abstinence	Postpartum nonsusceptibility	Number of births
Age				
13-29	4.1	2.4	4.4	918
30-49	3.7	2.5	4.1	234
Residence				
Urban	3.8	2.5	4.1	272
Rural	4.1	2.3	4.5	880
Education				
Illiterate	4.0	2.3	4.5	600
Lit., < middle complete	4.7	2.2	4.7	242
Middle school complete	3.9	3.3	4.5	87
High school and above	3.8	2.4	3.9	223
Religion				
Hindu	4.2	2.3	4.7	438
Sikh	3.8	2.5	4.1	665
Christian	(6.5)	(0.4)	(6.5)	27
Caste				
Scheduled caste	4.6	2.3	5.1	333
Other	3.7	2.4	4.1	819
Total	4.1	2.4	4.4	1152

Note: Medians are based on current status. Total medians are based on all births including 22 births to Muslim women and 1 birth to a woman belonging to other religion, the medians for which are not shown separately.
() Based on 25-49 cases

menopause up to age 44-45. Because of the small number of cases of older women in urban areas, no comparison with rural women can be made for those over age 45.

Table 5.16 Menopause

Percentage of currently married women age 30-49 years who are in menopause, by age and residence, Punjab, 1993

	Urban		Rural		Total	
Age	Percent	Number	Percent	Number	Percent	Number
30-34	0.6	159	0.6	333	0.6	492
35-39	3.0	134	3.1	360	3.0	494
40-41	11.8	51	16.0	100	14.6	151
42-43	(17.1)	41	18.4	87	18.0	128
44-45	(31.7)	41	24.7	89	26.9	130
46-47	*	21	54.8	84	53.3	105
48-49	*	14	75.0	56	74.3	70
Total	11.1	461	14.0	1109	13.1	1570

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
* Percentage not shown; based on fewer than 25 cases

CHAPTER 6

FAMILY PLANNING

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

6.1 Knowledge of Family Planning Methods and Sources

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

Table 6.1 presents the extent of knowledge of ever-married women and currently married women as obtained by spontaneous responses and probed responses. Knowledge of family planning is universal in Punjab, with virtually all ever-married respondents in urban and rural areas reporting knowledge of at least one method (Figure 6.1). Among ever-married women in urban areas, 94 percent spontaneously mentioned at least one modern method, compared with 87 percent in rural areas, thus indicating lower knowledge of family planning methods in rural areas. Ever-married and currently married women hardly differ in their knowledge of family planning methods.

As far as individual methods are concerned, knowledge about terminal methods, both female and male sterilization, is also universal in Punjab. In contrast, modern spacing methods namely IUDs, pills, and condoms -- are slightly less familiar to respondents. The most well known among the spacing methods is the IUD, 87 percent of the ever-married women report knowledge of the method, followed by pills and condoms (83 and 82 percent, respectively). Injection is the least known method, with only 47 percent reporting knowledge of it. Actual

knowledge of injections may be even lower than reported because the Hindi term *sui* (used in the Woman's Questionnaire to mean injections) is often interpreted by respondents to mean IUD insertions. Traditional methods of contraception are less well known than modern methods; 64 percent of women report knowledge of these methods, periodic abstinence being better known (56 percent) than the withdrawal method (41 percent). Table 6.1 reveals that probing is often needed to elicit knowledge of contraceptive methods, particularly traditional methods.

The Third All India Survey on Family Planning Practices in India, conducted in 1988-89 (Operations Research Group, 1990), which studied currently married women age 15-44, reached broadly similar conclusions about women's awareness of specific methods in Punjab except for the knowledge of condoms. In that survey, 90-100 percent of currently married women in Punjab knew about male and female sterilization, 94 percent knew about condoms, and 85 and

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, Punjab, 1993

	Ever-married women				Currently married women			
	Knowing method				Knowing method			
Method	Without probe	With probe	Total	Knowing source[1]	Without probe	With probe	Total	Knowing source[1]
				URBAN				
Any method	94.6	5.1	99.8	99.8	94.6	5.1	99.7	99.7
Any modern method	94.4	5.4	99.8	99.8	94.4	5.4	99.7	99.7
Pill	73.2	20.2	93.4	93.2	73.2	20.5	93.8	93.5
Copper T/IUD	67.5	25.2	92.7	92.5	67.9	25.0	92.9	92.6
Injection	24.9	29.4	54.3	53.9	25.0	29.1	54.1	53.7
Condom	70.7	18.7	89.4	88.9	71.5	18.4	89.9	89.5
Female sterilization	88.6	11.0	99.6	99.5	88.4	11.2	99.6	99.5
Male sterilization	71.8	27.5	99.3	99.2	71.4	28.1	99.5	99.5
Any traditional method	24.9	38.0	62.9	NA	25.1	38.4	63.5	NA
Rhythm/periodic abstinence	20.9	36.5	57.4	46.1	21.1	36.7	57.9	46.2
Withdrawal	11.7	28.5	40.2	NA	12.1	28.4	40.5	NA
Other methods	2.4	NA	2.4	NA	2.4	NA	2.4	NA
Number of women	836	836	836	836	800	800	800	800
				RURAL				
Any method	87.8	11.9	99.7	99.4	88.1	11.7	99.8	99.4
Any modern method	87.4	12.3	99.7	99.3	87.7	12.1	99.8	99.3
Pill	51.3	28.2	79.5	78.1	51.9	28.2	80.1	78.7
Copper T/IUD	48.0	37.0	85.0	83.8	48.6	36.8	85.4	84.2
Injection	12.6	31.8	44.3	42.2	12.7	31.9	44.6	42.4
Condom	43.4	35.0	78.4	76.6	43.8	35.2	79.1	77.2
Female sterilization	78.5	21.1	99.6	98.7	78.7	21.0	99.7	98.8
Male sterilization	59.5	39.4	98.8	97.4	59.7	39.2	98.9	97.4
Any traditional method	12.7	51.2	63.9	NA	13.0	51.3	64.3	NA
Rhythm/periodic abstinence	10.6	44.3	54.9	41.8	10.8	44.5	55.3	42.1
Withdrawal	5.7	35.9	41.6	NA	5.8	36.0	41.8	NA
Other methods	1.2	NA	1.2	NA	1.1	NA	1.1	NA
Number of women	2159	2159	2159	2159	2078	2078	2078	2078

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, Punjab, 1993

Method	Ever-married women				Currently married women			
	Knowing method			Knowing source[1]	Knowing method			Knowing source[1]
	Without probe	With probe	Total		Without probe	With probe	Total	
	TOTAL							
Any method	89.7	10.1	99.7	99.5	89.9	9.9	99.8	99.5
Any modern method	89.3	10.4	99.7	99.4	89.5	10.2	99.8	99.4
Pill	57.4	26.0	83.4	82.3	57.9	26.1	83.9	82.8
Copper T/IUD	53.5	33.7	87.1	86.2	54.0	33.5	87.5	86.5
Injection	16.0	31.1	47.1	45.5	16.1	31.1	47.2	45.6
Condom	51.0	30.5	81.5	80.0	51.6	30.5	82.1	80.6
Female sterilization	81.3	18.3	99.6	99.0	81.4	18.3	99.7	99.0
Male sterilization	62.9	36.1	99.0	97.9	62.9	36.1	99.1	98.0
Any traditional method	16.1	47.5	63.6	NA	16.4	47.7	64.1	NA
Rhythm/periodic abstinence	13.5	42.1	55.6	43.0	13.7	42.4	56.0	43.2
Withdrawal	7.3	33.9	41.2	NA	7.6	33.9	41.5	NA
Other methods	1.5	NA	1.5	NA	1.5	NA	1.5	NA
Number of women	2995	2995	2995	2995	2878	2878	2878	2878

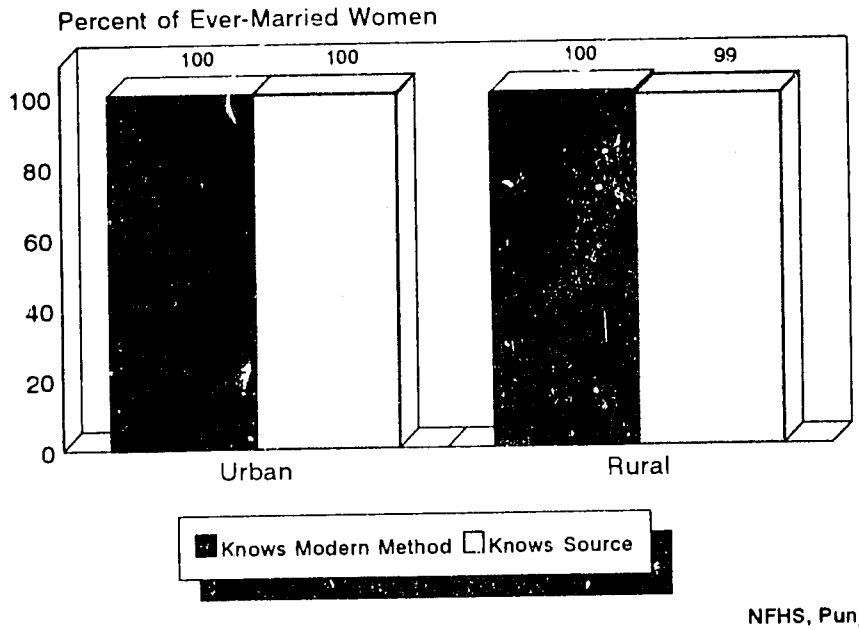
NA: Not applicable
[1]For modern methods, the source refers to a place that a person could go to get the method. For rhythm/periodic abstinence, the source refers to a source of advice on how to use periodic abstinence.

89 percent were aware of pills and IUDs, respectively. The survey also observed that the proportion of currently married women in Punjab who had correct knowledge of how to use specific family planning methods was generally high (90 percent for condoms, 83 percent for female sterilization, 79 percent for IUDs, 78 percent for pills, and 69 percent for male sterilization).

Table 6.1 also provides information about knowledge of sources of contraceptive methods. The question about the source of a method was asked only of women who knew about the method but percentages are based on all women interviewed. Knowledge about the sources of contraceptives is extremely high, with 99 percent of the respondents knowing where to obtain at least one modern method of family planning. Nearly all women who know a method know about a source for the specific modern method in both urban and rural areas.

Table 6.2 shows differentials in knowledge of modern contraceptive methods and sources of methods among currently married women by background characteristics (age, residence, education, religion, and caste). There are virtually no differences in the knowledge of modern methods or their sources or knowledge of traditional methods of contraception by background characteristics because knowledge about contraception is almost universal in Punjab.

Figure 6.1
Knowledge of Modern Contraceptive Methods and Sources by Residence



6.2 Contraceptive Use

Ever Use of Family Planning Methods

All respondents who knew at least one method of family planning were asked whether they had ever used each of the methods they knew. The use of contraception was further probed by asking whether they "ever used anything or tried in any way to delay or avoid getting pregnant". Table 6.3 presents the pattern of ever use by age and residence separately for ever-married and currently married women.

As seen from the figures for Punjab, family planning practice does not match family planning knowledge. Although all currently married women have knowledge of at least one method of family planning, only 67 percent have ever used a method and only 59 percent have ever used a modern method. (Eighteen percent have used a traditional method.) By far, the most commonly accepted method is the female sterilization, which 32 percent of currently married women have accepted. Eighteen and 14 percent of currently married women, respectively, have used condoms and IUDs. Six percent have used pills but an insignificant proportion of women have used injections, which are not widely available.

The difference between currently married urban and rural women in their acceptance of modern contraceptive methods is only 4 percentage points (Table 6.3 and Figure 6.2). Next to female sterilization, condoms and IUDs are the most popular modern methods in both rural

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, Punjab, 1993

Background characteristic	Knows any method	Knows any modern method[1]	Knows source for any modern method	Number of women
Age				
15-19	99.2	98.5	96.9	131
20-24	99.8	99.8	99.2	517
25-29	100.0	100.0	99.7	602
30-34	100.0	100.0	99.8	534
35-39	99.8	99.8	99.8	505
40-44	99.4	99.4	99.4	345
45-49	99.6	99.6	99.2	243
Residence				
Urban	99.7	99.7	99.7	800
Rural	99.8	99.8	99.3	2078
Education				
Illiterate	99.7	99.7	99.1	1505
Lit., < middle complete	99.7	99.7	99.5	579
Middle school complete	100.0	100.0	100.0	262
High school and above	100.0	100.0	100.0	532
Religion				
Hindu	99.7	99.6	99.2	1096
Muslim	(100.0)	(100.0)	(100.0)	32
Sikh	99.8	99.8	99.6	1699
Christian	(100.0)	(100.0)	(100.0)	46
Caste				
Scheduled caste	99.6	99.5	98.7	747
Other	99.9	99.9	99.7	2131
Total	99.8	99.8	99.4	2878

Note: Total includes 1 woman age 13-14, and 5 women belonging to other religions, who are not shown separately.
( ) Based on 25-49 cases
[1]Includes pill, copper T/IUD, injections, condoms, female sterilization, and male sterilization

and urban areas, whereas male sterilization seems to be the least popular method of limiting family size, with husbands of only 2-3 percent of women opting for it.

A low use rate is observed among younger women, who need contraception most to avoid having high-risk pregnancies. Among the youngest group, age 15-19, only 15 percent have ever used any method and only 10 percent have used a modern method. More than 30 percent of ever-married and currently married women age 20-24 have ever used a modern method. The turning point in the acceptance of family planning is reached in the age group 25-29, among whom the user rate for modern methods nearly doubles (59 percent). As seen in Chapter 5, the median age at first birth in Punjab varies between 21 and 22 years and the age-specific fertility rate is highest (0.238) in the age group 20-24. Hence the need for concentrating the effort of the family planning programme on the 20-24 age group seems to be crucial. Among modern methods, the condom is the most used method until age 25, after which use of condoms increases a little or remains the same and female sterilization becomes the most used method.

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, Punjab, 1993

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	(7.7)	(7.7)	(3.8)	(--)	(--)	(3.8)	(--)	(--)	(--)	(--)	(--)	(--)	26
20-24	39.4	32.3	5.5	10.2	--	18.9	3.1	--	13.4	6.3	7.1	0.8	127
25-29	70.2	63.5	5.1	20.8	1.1	32.0	21.3	0.6	14.6	6.2	9.0	1.1	178
30-34	83.7	76.2	4.7	24.4	--	26.2	34.9	1.7	23.3	12.8	8.1	3.5	172
35-39	78.8	69.2	4.8	14.4	--	23.3	37.0	6.2	18.5	12.3	4.8	2.7	146
40-44	79.5	69.2	5.1	8.5	--	23.1	41.0	3.4	17.9	12.8	6.0	1.7	117
45-49	72.9	61.4	1.4	5.7	--	20.0	24.3	11.4	32.9	20.0	12.9	1.4	70
Total	69.4	61.4	4.7	15.2	0.2	24.2	26.4	3.0	18.4	10.5	7.4	1.9	836
Currently married women													
15-19	(7.7)	(7.7)	(3.8)	(--)	(--)	(3.8)	(--)	(--)	(--)	(--)	(--)	(--)	26
20-24	39.7	32.5	5.6	10.3	--	19.0	3.2	--	13.5	6.3	7.1	0.8	126
25-29	71.0	64.2	5.1	21.0	1.1	32.4	21.6	0.6	14.8	6.3	9.1	1.1	176
30-34	85.0	77.2	3.6	24.6	--	26.3	35.9	1.8	24.0	13.2	8.4	3.6	167
35-39	82.5	73.0	5.1	14.6	--	24.8	39.4	5.8	19.0	13.1	5.1	2.2	137
40-44	79.1	68.2	4.5	9.1	--	21.8	43.6	3.6	19.1	13.6	6.4	1.8	110
45-49	74.1	62.1	--	6.9	--	20.7	29.3	10.3	32.8	20.7	12.1	1.7	58
Total	70.2	62.0	4.4	15.6	0.3	24.5	27.6	2.7	18.6	10.7	7.5	1.9	800
RURAL													
Ever-married women													
15-19	17.1	10.5	3.8	1.9	--	6.7	--	--	8.6	6.7	2.9	--	105
20-24	36.1	30.3	6.8	9.6	--	13.9	5.3	0.3	13.1	9.1	6.3	0.5	396
25-29	63.3	56.6	11.1	20.9	--	14.8	24.8	0.5	16.0	10.4	9.5	0.2	431
30-34	78.5	73.0	10.2	18.3	0.5	20.4	39.0	1.8	20.4	13.4	9.7	0.8	382
35-39	84.8	75.7	4.7	13.1	0.8	17.0	53.7	3.4	20.2	15.4	9.2	0.8	382
40-44	77.8	70.8	2.7	8.2	0.4	12.1	49.4	5.4	17.1	13.2	7.8	--	257
45-49	71.7	61.0	2.0	6.8	--	11.7	37.6	7.8	20.5	16.1	9.8	1.0	205
Total	65.1	57.9	6.8	13.2	0.3	15.0	31.8	2.5	17.2	12.3	8.4	0.5	2159
Currently married women													
15-19	17.1	10.5	3.8	1.9	--	6.7	--	--	8.6	6.7	2.9	--	105
20-24	36.3	30.4	6.9	9.7	--	13.8	5.4	0.3	13.3	9.2	6.4	0.5	391
25-29	63.8	57.0	11.0	21.1	--	15.0	25.1	0.5	16.2	10.6	9.6	0.2	426
30-34	79.6	73.8	10.1	18.8	0.5	21.0	40.6	1.9	21.0	13.6	9.8	0.8	367
35-39	87.0	77.4	4.9	13.6	0.8	17.7	55.7	3.5	20.9	16.0	9.5	0.8	308
40-44	80.0	72.3	2.6	8.5	0.4	12.8	54.0	5.1	18.7	14.5	8.5	--	235
45-49	72.4	60.0	1.6	6.5	--	12.4	41.6	8.1	21.1	16.8	10.3	1.1	185
Total	65.7	58.2	6.8	13.5	0.3	15.4	33.0	2.4	17.7	12.6	8.6	0.5	2078

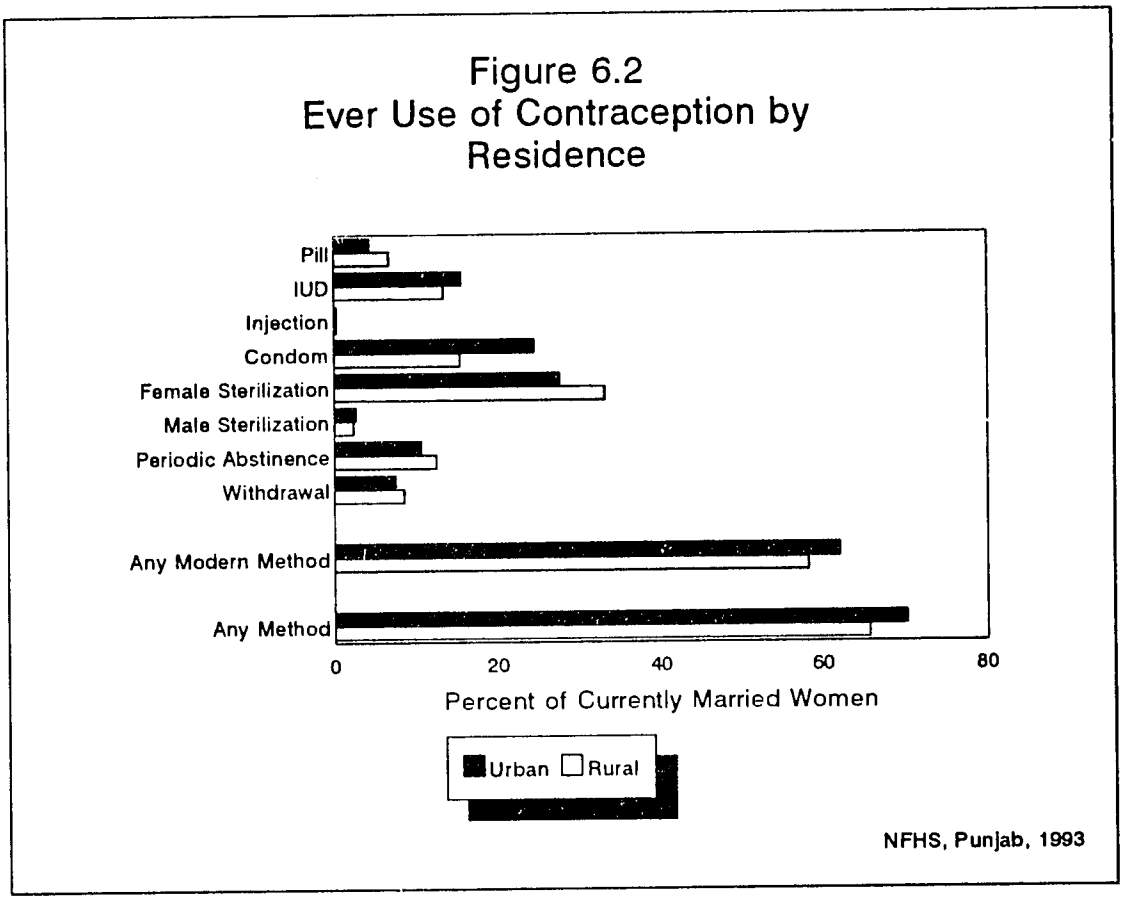
Table 6.3 Ever use of contraception (Contd.)

Percentage of ever-married and currently married women who have ever used any contraceptive method, by specific method and age, according to residence, Punjab, 1993

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							
15-19	15.3	9.9	3.8	1.5	--	6.1	--	--	6.9	5.3	2.3	--	131
20-24	36.9	30.8	6.5	9.8	--	15.1	4.8	0.2	13.2	8.4	6.5	0.6	523
25-29	65.4	58.6	9.4	20.9	0.3	19.9	23.8	0.5	15.6	9.2	9.4	0.5	609
30-34	80.1	74.0	8.5	20.2	0.4	22.2	37.7	1.8	21.3	13.2	9.2	1.6	554
35-39	83.1	74.1	4.7	13.4	0.6	18.8	49.1	4.2	19.7	14.6	8.0	1.3	528
40-44	78.3	70.3	3.5	8.3	0.3	15.5	46.8	4.8	17.4	13.1	7.2	0.5	374
45-49	72.0	61.1	1.8	6.5	--	13.8	34.2	8.7	23.6	17.1	10.5	1.1	275
Total	66.3	58.9	6.2	13.8	0.3	17.6	30.3	2.6	17.5	11.8	8.1	0.9	2995
						Currently married women							
15-19	15.3	9.9	3.8	1.5	--	6.1	--	--	6.9	5.3	2.3	--	131
20-24	37.1	30.9	6.6	9.9	--	15.1	4.8	0.2	13.3	8.5	6.6	0.6	517
25-29	65.9	59.1	9.3	21.1	0.3	20.1	24.1	0.5	15.8	9.3	9.5	0.5	602
30-34	81.3	74.9	8.1	20.6	0.4	22.7	39.1	1.9	21.9	13.5	9.4	1.7	534
35-39	85.7	76.2	5.0	13.9	0.6	19.6	51.3	4.2	20.4	15.2	8.3	1.2	505
40-44	79.7	71.0	3.2	8.7	0.3	15.7	50.7	4.6	18.8	14.2	7.8	0.6	345
45-49	72.8	60.9	1.2	6.6	--	14.4	38.7	8.6	23.9	17.7	10.7	1.2	243
Total	67.0	59.3	6.2	14.1	0.3	17.9	31.5	2.5	17.9	12.1	8.3	0.9	2878

Note: Total includes 1 woman age 13-14, who is not shown separately.
-- Less than 0.05 percent
() Based on 25-49 cases

The age pattern of ever use of family planning differs between urban and rural areas of the state. In urban areas, use peaks in the 30-34 age group, with 77 percent of currently married women having ever used a modern method, whereas in the rural areas the use rate is highest (77 percent) in the next age group, 35-39. In urban areas, the condom is the most popular method until age 29, and female sterilization is the most popular from age 30 onwards. In rural areas, female sterilization replaces condoms as the most popular method at an earlier age of 25-29.



Current Use of Family Planning Methods

Current use of contraception in Punjab is fairly high (Table 6.4). Nearly three-fifths of currently married women practise family planning; 51 percent use modern methods, and 7 percent use traditional methods[1]. Most of the currently married women who ever used contraception are current users (59 out of 67 percent). The Third All India Survey (Operations Research Group, 1990) reported a higher overall contraceptive prevalence rate of 69 percent for women age 15-44 in Punjab, with 66 percent using modern methods and 3 percent using traditional methods. Part of the difference between the two surveys in the contraceptive prevalence rate for modern methods is due to a difference in the reported use of condoms (22 percent in the Third All India Survey as opposed to 9 percent in the NFHS), and part is due to a difference in the reported use of sterilization (male and female sterilization combined) -- 36 percent in the Third All India Survey and 33 percent in the NFHS. The Third All India Survey estimates are higher than the NFHS estimates for all modern methods except for the pill, even though the All India Survey was conducted only four years earlier than the NFHS.

Female sterilization is the most widely used contraceptive method in Punjab, as in most of the states in India (Table 6.4). One-third of currently married women are using this method

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

Table 6.4 Current use of contraception

Percent distribution of currently married women by contraceptive method currently used, according to age and residence, Punjab, 1993

Age	Any method	Any modern method	Pill	IUD	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	(3.8)	(3.8)	(--)	(--)	(3.8)	(--)	(--)	(--)	(--)	(--)	(--)	(96.2)	100.0	26
20-24	33.3	23.8	1.6	6.3	12.7	3.2	--	9.5	4.8	4.8	--	66.7	100.0	126
25-29	61.9	55.1	2.3	11.9	18.8	21.6	0.6	6.8	1.1	5.7	--	38.1	100.0	176
30-34	78.4	67.1	1.8	13.8	13.8	35.9	1.8	11.4	6.0	5.4	--	21.6	100.0	167
35-39	79.6	67.9	2.2	4.4	16.1	39.4	5.8	11.7	7.3	3.6	0.7	20.4	100.0	137
40-44	71.8	64.5	1.8	1.8	13.6	43.6	3.6	7.3	4.5	1.8	0.9	28.2	100.0	110
45-49	53.4	51.7	--	3.4	8.6	29.3	10.3	1.7	1.7	--	--	46.6	100.0	58
15-44	63.5	54.4	1.9	8.1	14.8	27.5	2.2	9.0	4.4	4.3	0.3	36.5	100.0	742
15-49	62.7	54.2	1.7	7.7	14.4	27.6	2.7	8.5	4.2	4.0	0.3	37.2	100.0	800
13-49	62.7	54.2	1.7	7.7	14.4	27.6	2.7	8.5	4.2	4.0	0.3	37.2	100.0	800
RURAL														
15-19	12.4	8.6	1.9	1.0	5.7	--	--	3.8	2.9	1.0	--	87.6	100.0	105
20-24	26.3	21.7	3.3	5.1	7.9	5.4	--	4.6	3.6	1.0	--	73.7	100.0	391
25-29	52.6	46.2	4.5	8.7	7.5	25.1	0.5	6.3	3.1	3.3	--	47.4	100.0	426
30-34	71.4	63.5	2.7	9.5	8.7	40.6	1.9	7.9	5.2	2.5	0.3	28.6	100.0	367
35-39	82.1	71.2	0.5	5.2	6.3	55.7	3.5	10.9	6.8	4.1	--	17.9	100.0	368
40-44	74.5	66.4	0.4	1.7	5.1	54.0	5.1	8.1	5.5	2.6	--	25.5	100.0	235
45-49	58.9	54.6	0.5	1.6	2.7	41.6	8.1	4.3	3.2	1.1	--	41.1	100.0	185
15-44	57.0	49.8	2.5	6.1	7.2	32.2	1.8	7.2	4.6	2.6	0.1	43.0	100.0	1892
15-49	57.2	50.2	2.3	5.7	6.8	33.0	2.4	7.0	4.5	2.5	--	42.8	100.0	2077
13-49	57.2	50.2	2.3	5.7	6.8	33.0	2.4	7.0	4.5	2.5	--	42.8	100.0	2078
TOTAL														
15-19	10.7	7.6	1.5	0.8	5.3	--	--	3.1	2.3	0.8	--	89.3	100.0	131
20-24	28.0	22.2	2.9	5.4	9.1	4.8	--	5.8	3.9	1.9	--	72.0	100.0	517
25-29	55.3	48.8	3.8	9.6	10.8	24.1	0.5	6.5	2.5	4.0	--	44.7	100.0	602
30-34	73.6	64.6	2.4	10.9	10.3	39.1	1.9	9.0	5.4	3.4	0.2	26.4	100.0	534
35-39	81.4	70.3	1.0	5.0	8.9	51.3	4.2	11.1	6.9	4.0	0.2	18.6	100.0	505
40-44	73.6	65.8	0.9	1.7	7.8	50.7	4.6	7.8	5.2	2.3	0.3	26.4	100.0	345
45-49	57.6	53.9	0.4	2.1	4.1	38.7	8.6	3.7	2.9	0.8	--	42.4	100.0	243
15-44	58.8	51.1	2.3	6.7	9.3	30.9	1.9	7.7	4.6	3.1	0.1	41.2	100.0	2634
15-49	58.7	51.3	2.2	6.3	8.9	31.5	2.5	7.4	4.4	2.9	0.1	41.3	100.0	2877
13-49	58.7	51.3	2.2	6.3	8.9	31.5	2.5	7.4	4.4	2.9	0.1	41.3	100.0	2878

Note: Total includes 1 woman age 13-14, who is not shown separately.
-- Less than 0.05 percent
() Based on 25-49 cases

which accounts for 54 percent of contraceptive prevalence. Female sterilization is the method of choice of the majority of users reflecting the emphasis put by health and family welfare workers on terminal methods. Three percent of currently married women report that their husbands are sterilized, and 9 percent report the use of condoms. Six percent of currently married women use the IUD and only 2 percent use the pill.

Current use of contraception and of specific methods varies with residence. Although use is slightly lower in rural areas (57 percent) than in urban areas (63 percent), the female sterilization in rural areas is 5 percentage points higher. Female sterilization accounts for 58 percent of total contraceptive use among women in rural areas, compared with 44 percent in urban areas. Use of the pill is also higher in rural areas, although even there it accounts for only 4 percent of current use. Condoms are twice as likely to be used in urban areas as in rural areas.

The level of contraceptive use varies with women's age, increasing from 11 percent for currently married women age 15-19 to its highest level of 81 percent for women age 35-39, thereafter gradually decreasing. In the two highest fertility age groups (20-24 and 25-29), the contraceptive prevalence rates are 28 and 55 percent, respectively. Among modern methods, female sterilization is the most used method beginning with age 25-29, its use peaking in the age groups 35-39 and 40-44 at 51 percent. The use rate of most of the modern methods, especially female sterilization, shows an expected curvilinear relationship with age. The urban-rural differences in the age pattern of current use of contraception are similar to those discussed earlier in the case of ever use.

Socioeconomic Differentials in Current Use of Family Planning

Table 6.5 shows differentials in current contraceptive use by women's background characteristics. As already noted, urban women have somewhat higher current use than rural women. Education has a generally positive relationship to current use, although differences among educational groups are minor. Whereas 57 percent of illiterate women are users, among women who have completed high school the prevalence is 62 percent (Figure 6.3). The acceptance of female sterilization decreases sharply, however, as educational level rises, and that of pills, IUDs, condoms, and traditional methods increases. Religious differentials in current contraceptive use are minor between Punjab's two major religious groups, namely Hindus (60 percent) and Sikhs (59 percent). The prevalence among Muslims and Christians is lower (41 percent and 35 percent, respectively), but these estimates are based on a small number of cases. The religious differentials exist in the use of modern as opposed to traditional methods, Hindus having a slightly stronger preference for modern methods than Sikhs, and Sikhs a slightly stronger preference for traditional methods than Hindus. Current use is marginally lower among women from scheduled castes than among other women. However. the use of sterilization, both female and male, is substantially higher among the scheduled caste population than among others.

Table 6.5 also shows differences in current use by the number and sex of living children. A positive association exists between the number of living children a woman has and her current use of contraception. Contraceptive use increases steadily from only 2 percent for women who

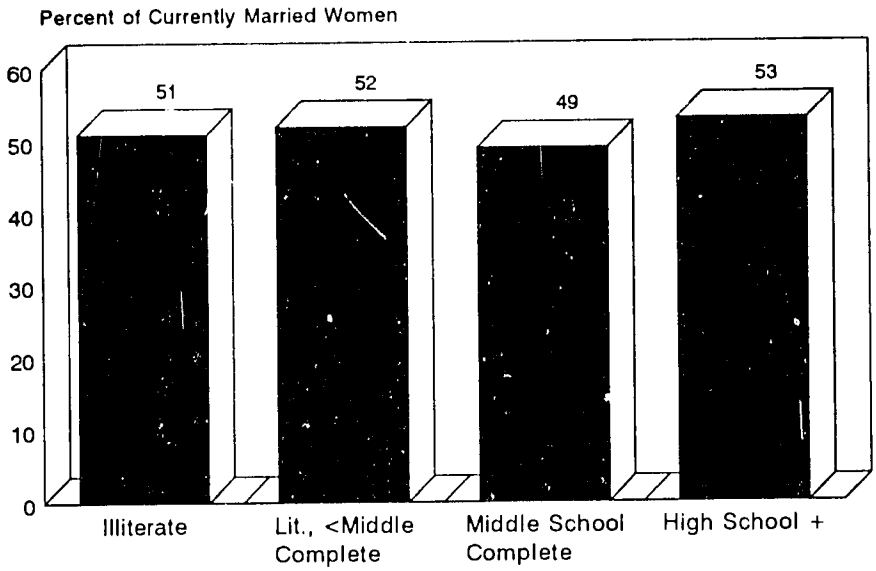
Table 6.5 Current use by background characteristics

Percent distribution of currently married women by contraceptive method currently used, according to selected background characteristics, Punjab, 1993

Background characteristic	Any method	Any modern method	Pill	IUD	Condom	Female sterilization	Male sterilization	Any trad. method	Periodic abstinence	Withdrawal	Other methods	Not using any method	Total percent	Number of women
Residence														
Urban	62.7	54.2	1.7	7.7	14.4	27.6	2.7	8.5	4.2	4.0	0.3	37.2	100.0	800
Rural	57.2	50.2	2.3	5.7	6.8	33.0	2.4	7.0	4.5	2.5	--	42.8	100.0	2078
Education														
Illiterate	56.7	50.8	1.3	3.5	3.5	39.4	3.1	5.8	4.0	1.7	0.1	43.3	100.0	1505
Literate, < middle	61.0	52.2	2.6	7.1	10.5	29.4	2.6	8.8	5.2	3.6	--	39.0	100.0	579
Middle school complete	58.0	48.5	2.7	8.4	9.2	26.0	2.3	9.5	5.3	4.2	--	42.0	100.0	262
High school and above	62.4	53.2	3.8	12.2	22.2	14.3	0.8	9.2	4.3	4.7	0.2	37.6	100.0	532
Religion														
Hindu	59.9	53.7	1.9	5.7	10.8	32.4	2.9	6.2	3.6	2.4	0.2	40.1	100.0	1096
Muslim	(40.6)	(28.1)	(--)	(3.1)	(9.4)	(15.6)	(--)	(12.5)	(9.4)	(3.1)	(--)	(59.4)	100.0	32
Sikh	59.0	50.8	2.4	6.8	7.8	31.5	2.2	8.2	4.9	3.2	0.1	41.0	100.0	1699
Christian	(34.8)	(32.6)	(--)	(2.2)	(2.2)	(23.9)	(4.3)	(2.2)	(--)	(65.2)	--	66.7	100.0	46
Caste														
Scheduled caste	57.2	51.4	1.7	2.4	7.1	36.5	3.6	5.8	3.6	2.0	0.1	42.8	100.0	747
Other	59.3	51.3	2.3	7.6	9.5	29.8	2.1	8.0	4.7	3.2	0.1	40.7	100.0	2131
Number and sex of living children														
None	2.3	1.7	0.3	--	1.3	--	--	0.7	0.7	--	--	97.7	100.0	299
1 child	28.9	22.8	2.9	6.1	11.7	2.0	--	6.1	4.1	2.0	--	71.1	100.0	342
1 son	31.2	24.7	2.7	8.6	11.3	2.2	--	6.5	3.8	2.7	--	68.8	100.0	186
No sons	26.3	20.5	3.2	3.2	12.2	1.9	--	5.8	4.5	1.3	--	73.7	100.0	156
2 children	61.1	50.9	3.1	12.1	14.4	20.2	1.2	10.2	5.1	4.9	0.1	38.9	100.0	687
2 sons	70.2	61.9	3.2	10.3	13.9	33.3	1.2	8.3	4.0	4.4	--	29.8	100.0	252
1 son	61.5	50.4	3.8	14.6	15.7	14.9	1.5	11.1	5.5	5.2	0.3	38.5	100.0	343
No sons	34.8	22.8	--	7.6	10.9	4.3	--	12.0	6.5	5.4	--	65.2	100.0	92
3 children	74.1	66.4	3.1	6.7	8.6	44.5	3.4	7.7	5.1	2.5	0.1	25.9	100.0	764
3 sons	85.7	78.6	2.4	2.4	4.8	60.7	8.3	7.1	2.4	4.8	--	14.3	100.0	84
2 sons	82.3	76.3	3.6	3.6	6.0	59.4	3.6	6.0	4.2	1.8	--	17.7	100.0	384
1 son	65.9	56.2	3.2	13.3	14.1	23.7	2.0	9.6	6.8	2.4	0.4	34.1	100.0	249
No sons	(29.8)	(17.0)	(--)	(4.3)	(8.5)	(4.3)	(--)	(12.8)	(8.5)	(4.3)	(--)	(70.2)	100.0	47
4+ children	76.1	68.3	0.8	3.3	6.0	53.6	4.7	7.8	4.7	2.9	0.1	23.9	100.0	786
2+ sons	80.9	74.6	0.6	2.6	4.9	61.9	4.5	6.3	3.6	2.8	--	19.1	100.0	617
1 son	61.8	48.7	1.3	5.9	10.5	25.7	5.3	13.2	9.2	3.3	0.7	38.2	100.0	152
Total	58.7	51.3	2.2	6.3	8.9	31.5	2.5	7.4	4.4	2.9	0.1	41.3	100.0	2878

Note: Total includes 5 women belonging to other religions and 17 women with four or more children but no sons, who are not shown separately.
() Based on 25-49 cases
-- Less than 0.05 percent

Figure 6.3
Current Use of Modern Contraceptive Methods by Education



have no living children to 76 percent for women with 4 or more living children. A similar trend is also evident for male and female sterilization. The prevalence rates by the sex composition of living children indicate the existence of son preference. At each parity, the current use of family planning is lowest for women having no sons and highest for women having only sons and no daughters. As expected, sterilization is a particularly unpopular method for women with no living sons. Among women with two or more living children, current use is highe ' among those who have two or more sons.

Number of Children at First Use of Contraception

To examine the timing of family planning initiation, 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 at first contraceptive use is shown in Table 6.6. Overall, only 2 percent of contraceptors (1 percent of all ever-married women) initiated the use of contraception before having any children, and another 23 percent of contraceptors started after the first child. Nearly one-half (49 percent) of those who have ever used family planning initiated use when they had fewer than three living children. As noted earlier, the mainstay of the family planning programme is sterilization, and women tend to accept that method only after having a completed family size that is large and preferably consists of two or more sons. The pattern of first acceptance at relatively high parities indicates that family planning has a smaller demographic impact than it would if contraceptive use were initiated at lower parity. Table 6.6, however, does show a gradual shift towards initiating use

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, Punjab, 1993

Current age	Never used	Number of living children at the time of first use					Total percent	Number of women
		0	1	2	3	4+		
URBAN								
15-19	(92.3)	(3.8)	(3.8)	(--)	(--)	(--)	100.0	26
20-24	60.6	3.1	23.6	9.4	3.1	--	100.0	127
25-29	29.8	1.7	27.0	21.9	12.4	7.3	100.0	178
30-34	16.3	2.3	16.3	34.9	20.9	9.3	100.0	172
35-39	21.2	0.7	13.7	19.9	27.4	17.1	100.0	146
40-44	20.5	--	13.7	15.4	17.1	33.3	100.0	117
45-49	27.1	1.4	8.6	15.7	17.1	30.0	100.0	70
Total	30.6	1.7	17.8	20.2	16.0	13.6	100.0	836
RURAL								
15-19	82.9	4.8	12.4	--	--	--	100.0	105
20-24	63.9	3.8	20.7	7.6	3.0	1.0	100.0	396
25-29	36.7	0.5	20.2	18.8	17.2	6.7	100.0	431
30-34	21.5	0.8	14.9	20.9	24.6	17.3	100.0	382
35-39	15.2	0.3	11.5	17.0	21.2	34.8	100.0	382
40-44	22.2	--	7.8	9.7	19.1	41.2	100.0	257
45-49	28.3	--	6.3	11.2	14.1	40.0	100.0	205
Total	34.9	1.2	14.6	14.1	15.7	19.5	100.0	2159
TOTAL								
15-19	84.7	4.6	10.7	--	--	--	100.0	131
20-24	63.1	3.6	21.4	8.0	3.1	0.8	100.0	523
25-29	34.6	0.8	22.2	19.7	15.8	6.9	100.0	609
30-34	19.9	1.3	15.3	25.3	23.5	14.8	100.0	554
35-39	16.9	0.4	12.1	17.8	22.9	29.9	100.0	528
40-44	21.7	--	9.6	11.5	18.4	38.8	100.0	374
45-49	28.0	0.4	6.9	12.4	14.9	37.5	100.0	275
Total	33.7	1.3	15.5	15.8	15.8	17.8	100.0	2995

Note: Total includes 1 woman age 13-14, who is not shown separately.
() Based on 25-49 cases
-- Less than 0.05 percent

at lower parities over time. Younger women have begun using family planning at lower parities than older women. In the older cohorts, the percentages of women accepting family planning when they do not have any children or after one child are generally lower than among younger women. For example, only 12 percent of ever users in the age group 40-44 accepted a method for the first time when they had fewer than two children, compared with 21 percent of ever users in the 30-34 age group. Urban women start using contraception at lower parities than rural women.

Problems in the Current Use of Family Planning

Table 6.7 indicates the problems associated with specific methods as described by women using the pill, IUD, and sterilization. More than 80 percent of the IUD users and women who had been sterilized, and almost 90 percent of the pill users and respondents' spouses who had

Table 6.7 Problems with current method

Percentage of current users of the pill, copper T/IUD and female/male sterilization who have had problems in using the method, Punjab, 1993

Problem	Method	
	Pill	
No problems	88.7	
Weight gain	3.2	
Dizziness	1.6	
Body ache	6.5	
Breast tenderness	1.6	
Other	3.2	
Number of pill users	62	
	Copper T/IUD	
No problems	80.7	
Cramps	1.7	
Backache	9.4	
Irregular periods	1.1	
Excessive bleeding	7.7	
Weakness/inability to work	1.7	
Other	1.1	
Number of IUD users	181	
	Female sterilization	**Male sterilization**
No problems	80.6	87.3
Fever	1.4	--
Pain/backache	15.0	9.9
Sepsis	1.0	1.4
Weakness/inability to work	5.8	5.6
Failure/woman got pregnant	0.1	--
Other	2.3	--
Number sterilized	907	71

Note: All complications were recorded if there was more than one complication. Cases with missing information on complications are not included.
-- Less than 0.05 percent

been sterilized have no difficulty in using these methods. For those who face difficulties, however, the specific problems vary from method to method. In the case of the pill users who had the least problems, body ache is the most common complaint (mentioned by 7 percent of users), followed by weight gain (3 percent). In the case of the IUD, backache (9 percent) and excessive bleeding (8 percent) are the most common problems. Among acceptors of female sterilization, the most commonly used method, the major causes of discomfort are pain/backache (15 percent) and weakness/inability to work (6 percent). The same problems are most common in the case of male sterilization.

Age at Sterilization

Table 6.8 shows the age and time, relative to the interview, at which couples adopted sterilization. Of the 978 sterilization operations reported, one-third had been performed during each of the following time periods: 0-5 years, 6-9 years, and 10 years or more before the survey. Two-thirds of the couples underwent the procedure before the wife reached age

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, Punjab, 1993

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			
STERILIZED WOMEN								
< 2	20.7	52.3	18.9	6.3	1.8	100.0	111	27.2
2-3	30.0	36.2	22.5	8.8	2.5	100.0	80	27.0
4-5	22.6	40.6	24.1	12.0	0.8	100.0	133	28.1
6-7	25.9	35.6	31.9	5.9	0.7	100.0	135	28.3
8-9	21.4	40.9	23.9	13.2	0.6	100.0	159	28.5
10+	22.8	47.8	23.5	5.9	U	100.0	289	NC
Total	23.4	43.2	24.3	8.4	0.8	100.0	907	27.8
WIVES OF STERILIZED MEN								
< 10	(11.4)	(37.1)	(34.3)	(11.4)	(5.7)	100.0	35	29.7
10+	(8.3)	(55.6)	(33.3)	(2.8)	U	100.0	36	NC
Total	9.9	46.5	33.8	7.0	2.8	100.0	71	28.7
STERILIZED COUPLES								
< 2	20.4	51.3	20.4	6.2	1.8	100.0	113	27.4
2-3	28.7	36.8	24.1	8.0	2.3	100.0	87	27.1
4-5	21.9	39.4	25.5	12.4	0.7	100.0	137	28.4
6-7	25.2	34.7	31.3	6.8	2.0	100.0	147	28.4
8-9	20.7	42.6	23.1	13.0	0.6	100.0	169	28.5
10+	21.2	48.6	24.6	5.5	U	100.0	325	NC
Total	22.4	43.5	24.9	8.3	0.9	100.0	978	27.9

Note: There were no sterilizations done when the woman was age 45-49.
U: Not available
NC: Not calculated due to censoring
() Based on 25-49 cases
*Median ages are calculated only for persons sterilized at less than 40 years of age to avoid problems of censoring.

30. In only 1 percent of the cases sterilization was performed when the woman was in her forties. The median age of women at the time of female sterilization is 27.8 years, and the median age is a year higher for husbands' sterilizations. As mentioned earlier, the prevalence of male sterilization is negligible in Punjab, and Table 6.8 reveals that almost half of the male sterilizations were performed more than 10 years ago.

6.3 Source of Supply of Contraception

In Punjab, family planning methods and services are provided in urban areas through a wide network of government hospitals and urban family welfare centres and in rural areas through Community Health Centres, Primary Health Centres, and sub-centres. Besides these government outlets, a number of private hospitals and clinics as well as nongovernmental organizations provide family planning services. Sterilizations 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 IUDs,

pills, and condoms, are available through both the government and the private sector.

To assess the relative importance of various sources of contraceptive methods, the NFHS included a question about where current users of contraception obtained their methods. Overall, the public sector, consisting of government/municipal hospitals, Primary Health Centres, and periodic camps, provides services to slightly more than three-fourths of the current users of all modern methods, whereas the private medical sector, including private hospitals and clinics, private doctors, and pharmacies/drugstores, supplies modern methods to 11 percent of current users (Table 6.9 and Figure 6.4). Twelve percent of users obtain their methods from other sources, such as shops, friends and relatives.

The mix of public and private-sector sources varies according to the method used. For clinical methods (IUDs and sterilizations), the government is by far the major supplier; more than 95 percent of male and female sterilizations and 75 percent of IUD insertions are done at government sources.

Most of the condom users (65 percent) obtain their supplies from nonmedical sources. The private medical sector plays an important role in supplying pills, providing them to nearly half (45 percent) of pill users. With regard to specific sources of contraceptive services, government/municipal hospitals and Primary Health Centres (the main institutions that provide such services) are the most important sources; 13 percent of pill users, 61 percent of IUD users, and 82 percent of female sterilization acceptors are served by these institutions. Private shops

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, Punjab, 1993

Source of supply	Pill	Copper T/ IUD	Con-dom	Female steril-ization	Male steril-ization	All modern methods
		URBAN				
Public sector	*	69.4	9.6	89.1	*	62.7
Government/municipal hospital	*	54.8	6.1	62.4	*	44.9
Primary Health Centre	*	8.1	3.5	12.7	*	9.4
Sub-centre	*	3.2	--	--	*	0.5
Family planning clinic	*	3.2	--	--	*	0.5
Public mobile clinic	*	--	--	--	*	--
Camp	*	--	--	14.0	*	7.4
Government paramedic	*	--	--	--	*	--
Private medical sector	*	30.6	24.3	10.0	*	18.7
Private hospital or clinic	*	16.1	1.7	7.2	*	6.7
Pharmacy/drugstore	*	--	14.8	--	*	6.2
Private doctor	*	14.5	7.8	2.7	*	5.8
Private mobile clinic	*	--	--	--	*	--
Other source	*	--	66.1	0.9	*	18.7
Shop	*	--	16.5	--	*	4.8
Husband	*	--	48.7	--	*	12.9
Friend/relative	*	--	0.9	--	*	0.2
Other	*	--	--	0.9	*	0.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	14	62	115	221	22	434

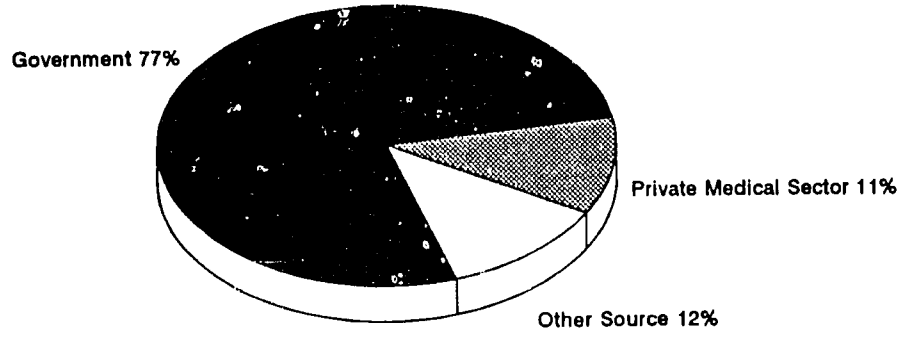
Table 6.9 Source of supply of modern contraceptive methods (Contd.)

Percent distribution of current users of modern contraceptive methods by most recent source of supply, according to specific method and residence, Punjab, 1993

Source of supply	Pill	Copper T/ IUD	Con-dom	Female steril-ization	Male steril-ization	All modern methods
			RURAL			
Public sector	(39.6)	78.2	19.9	98.8	(100.0)	83.1
Government/municipal hospital	(4.2)	22.7	3.5	51.0	(57.1)	39.5
Primary Health Centre	(12.5)	37.0	5.7	32.8	(32.7)	28.7
Sub-centre	(20.8)	15.1	10.6	--	(--)	4.1
Family planning clinic	(--)	0.8	--	--	(2.0)	0.2
Public mobile clinic	(--)	--	--	--	(--)	--
Camp	(--)	--	--	15.0	(8.2)	10.3
Government paramedic	(2.1)	2.5	--	--	(--)	0.4
Private medical sector	(35.4)	21.8	16.3	1.2	(--)	7.1
Private hospital or clinic	(--)	9.2	--	0.9	(--)	1.6
Pharmacy/drugstore	(22.9)	--	9.2	--	(--)	2.3
Private doctor	(12.5)	11.8	6.4	0.3	(--)	3.0
Private mobile clinic	(--)	0.8	--	--	(--)	0.1
Other source	(25.0)	--	63.8	--	(--)	9.8
Shop	(20.8)	--	17.7	--	(--)	3.4
Husband	(--)	--	44.7	--	(--)	6.0
Friend/relative	(4.2)	--	--	--	(--)	0.2
Other	(--)	--	1.4	--	(--)	0.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	48	119	141	686	49	1043
			TOTAL			
Public sector	30.6	75.1	15.2	96.5	98.6	77.1
Government/municipal hospital	3.2	33.7	4.7	53.8	62.0	41.1
Primary Health Centre	9.7	27.1	4.7	27.9	28.2	23.0
Sub-centre	16.1	11.0	5.9	--	--	3.0
Family planning clinic	--	1.7	--	--	1.4	0.3
Public mobile clinic	--	--	--	--	--	--
Camp	--	--	--	14.8	7.0	9.4
Government paramedic	1.6	1.7	--	--	--	0.3
Private medical sector	45.2	24.9	19.9	3.3	1.4	10.5
Private hospital or clinic	--	11.6	0.8	2.4	1.4	3.1
Pharmacy/drugstore	33.9	--	11.7	--	--	3.5
Private doctor	11.3	12.7	7.0	0.9	--	3.8
Private mobile clinic	--	0.6	--	--	--	0.1
Other source	24.2	--	64.8	0.2	--	12.4
Shop	19.4	--	17.2	--	--	3.8
Husband	--	--	46.5	--	--	8.1
Friend/relative	3.2	--	0.4	--	--	0.2
Other	1.6	--	0.8	0.2	--	0.3
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	62	181	256	907	71	1477

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

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



NFHS, Punjab, 1993

are important sources for pills and condoms (19 percent of pill users and 17 percent of condom users). Thirteen percent of IUD insertions are done by private doctors. Fifteen and 7 percent, respectively, of female and male sterilizations are done in sterilization camps.

The sources of methods differ between urban and rural areas of Punjab. In rural areas, the public sector is the source of supply for the overwhelming majority of users (83 percent); but in urban areas, the public sector supplies 63 percent of users. The predominance of the public sector in rural areas is particularly evident in the case of female and male sterilizations, nearly all of which are performed by public agencies. In urban areas, by contrast, the private medical sector is the source of supply for 10 percent of female sterilizations. Nonmedical sources are the prime suppliers of condoms in both urban (66 percent) and rural areas (64 percent). As for IUDs, the public sector is the main source of supply in both rural (78 percent) and urban areas (69 percent). In rural areas, Primary Health Centres provide services to 33 percent of female sterilization acceptors and 37 percent of IUD acceptors. Sub-centres, which provide pills and condoms and insert IUDs, are used by only 4 percent of rural women for their contraceptive needs.

Despite the state's economic prosperity, high purchasing power, and preference of the people for the services of the private sector, the private sector has yet to assume a leading role in providing contraceptive services. The scope for this sector is unlimited in programme intervention, and its resources must be effectively tapped if Punjab is to achieve success in curbing population growth.

6.4 Reasons for Discontinuation

All currently married women who had ever used contraception but who were not using any method at the time of the survey and were not pregnant were asked why they had discontinued their use of contraception. Their responses to this question are presented in Table 6.10. Among the reasons most often mentioned are wanting to have a child (27 percent) and health and other method-related problems. A sizeable proportion of women (15 percent) discontinued use because the method created health problems for them. With improvement in the quality of service and adequate follow-up, these women may be successfully brought back into the programme. Nearly half the respondents gave reasons classified as 'other'.

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, Punjab, 1993

Reason for stopping use	Urban	Rural	Total
Method failed/got pregnant	(2.1)	2.1	2.1
Lack of sexual satisfaction	(2.1)	2.8	2.6
Created menstrual problem	(2.1)	2.1	2.1
Created health problem	(10.4)	16.0	14.6
Hard to get method	(--)	0.7	0.5
Did not like the method	(--)	2.1	1.6
Wanted to have a child	(22.9)	27.8	26.6
Wanted to replace a dead child	(--)	1.4	1.0
Other	(60.4)	45.1	49.0
Total percent	100.0	100.0	100.0
Number	48	144	192

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

6.5 Intention to Use Family Planning in the Future

All currently married women who were not using contraception at the time of the interview, including those who were currently pregnant, were asked about their future intentions regarding the use of family planning and their method preference if they intended to use contraception. If they did not intend to use family planning at any time in the future, they were asked why they did not intend to use it. This type of information can assist family planning programme administrators in identifying potential groups of users and in providing the types of contraception that are likely to be in demand. Information on the reasons for nonuse is crucial for designing successful information programmes and understanding the obstacles to further advances in contraceptive prevalence.

Of the currently married women in Punjab not currently using contraception 36 percent report that they do not intend to use it in the future, 47 percent say that they will use it in the

Table 6.11 Future use

Percent distribution of currently married women who are not currently using any contraceptive method by intention to use in the future, according to number of living children, residence, and whether ever used contraception, Punjab, 1993

Past use/ intention to use in future	Number of living children[1]					Total
	0	1	2	3	4+	
URBAN						
Never used contraception						
Intends to use in next 12 months	1.9	16.9	15.4	13.7	(23.9)	14.4
Intends to use later	15.4	21.1	10.3	7.8	(2.2)	12.1
Intends to use, unsure when	1.9	4.2	2.6	--	(2.2)	2.3
Unsure as to intention	36.5	22.5	16.7	13.7	(15.2)	20.8
Does not intend to use	42.3	28.2	26.9	25.5	(30.4)	30.2
Previously used contraception						
Intends to use in next 12 months	--	--	14.1	9.8	(8.7)	6.7
Intends to use later	--	1.4	2.6	7.8	(--)	2.3
Intends to use, unsure when	--	--	--	2.0	(--)	0.3
Unsure as to intention	--	2.8	6.4	3.9	(--)	3.0
Does not intend to use	1.9	2.8	5.1	15.7	(17.4)	7.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
All currently married nonusers						
Intends to use in next 12	1.9	16.9	29.5	23.5	(32.6)	21.1
Intends to use later	15.4	22.5	12.8	15.7	(2.2)	14.4
Intends to use, unsure when	1.9	4.2	2.6	2.0	(2.2)	2.7
Unsure as to intention	36.5	25.4	23.1	17.6	(15.2)	23.8
Does not intend to use	44.2	31.0	32.1	41.2	(47.8)	37.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	52	71	78	51	46	298
RURAL						
Never used contraception						
Intends to use in next 12 months	--	20.9	17.3	21.8	22.6	17.3
Intends to use later	19.3	23.3	22.3	7.3	6.1	16.3
Intends to use, unsure when	3.0	5.3	5.0	5.5	0.6	4.0
Unsure as to intention	29.6	20.4	5.9	8.5	6.7	13.5
Does not intend to use	45.2	21.8	24.5	29.1	29.9	28.9
Previously used contraception						
Intends to use in next 12 months	--	0.5	9.1	11.5	12.8	6.9
Intends to use later	3.0	5.3	5.9	3.6	0.6	3.9
Intends to use, unsure when	--	0.5	1.8	1.8	1.8	1.2
Unsure as to intention	--	1.0	1.8	0.6	1.8	1.1
Does not intend to use	--	1.0	6.4	10.3	17.1	6.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
All currently married nonuse						
Intends to use in next 12 months	--	21.4	26.4	33.3	35.4	24.2
Intends to use later	22.2	28.6	28.2	10.9	6.7	20.2
Intends to use, unsure when	3.0	5.8	6.8	7.3	2.4	5.3
Unsure as to intention	29.6	21.4	7.7	9.1	8.5	14.6
Does not intend to use	45.2	22.8	30.9	39.4	47.0	35.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	135	206	220	165	164	890

Table 6.11 Future use (Contd.)

Percent distribution of currently married women who are not currently using any contraceptive method by intention to use in the future, according to number of living children, residence and whether ever used contraception, Punjab, 1993

Past use/ intention to use in future	Number of living children[1]					Total
	0	1	2	3	4+	
TOTAL						
Never used contraception						
Intends to use in next 12 months	0.5	19.9	16.8	19.9	22.9	16.6
Intends to use later	18.2	22.7	19.1	7.4	5.2	15.2
Intends to use, unsure when	2.7	5.1	4.4	4.2	1.0	3.6
Unsure as to intention	31.6	20.9	8.7	9.7	8.6	15.3
Does not intend to use	44.4	23.5	25.2	28.2	30.0	29.2
Previously used contraception						
Intends to use in next 12 months	--	0.4	10.4	11.1	11.9	6.8
Intends to use later	2.1	4.3	5.0	4.6	0.5	3.5
Intends to use, unsure when	--	0.4	1.3	1.9	1.4	1.0
Unsure as to intention	--	1.4	3.0	1.4	1.4	1.6
Does not intend to use	0.5	1.4	6.0	11.6	17.1	7.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
All currently married nonusers						
Intends to use in next 12 months	0.5	20.2	27.2	31.0	34.8	23.4
Intends to use later	20.3	27.1	24.2	12.0	5.7	18.8
Intends to use, unsure when	2.7	5.4	5.7	6.0	2.4	4.6
Unsure as to intention	31.6	22.4	11.7	11.1	10.0	16.9
Does not intend to use	44.9	24.9	31.2	39.8	47.1	36.3
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	187	277	298	216	210	1188

( ) Based on 25-49 cases
-- Less than 0.05 percent
[1]Includes current pregnancy, if any

future, and the remaining women are not sure about their intentions (Table 6.11). The substantial proportion of nonusers who do not intend to become users suggests the need for a strong Information, Education, and Communication (IEC) component in the family planning programme. Among current nonusers intending to use contraception in the future, exactly half say they will use it within the next 12 months, two-fifths say they will use it at a later stage, and one-tenth are not sure when they will start using it. Among currently married women in Punjab who have never used contraception, a substantial fraction (37 percent) report that they do not intend to use it in the future and 19 percent are not sure of their intentions. Interestingly, almost the same proportion of those who have used contraception in the past but are not current users intend not to use it again in the future, but in contrast only 8 percent are not sure of their future intentions.

The proportion of women who intend to use family planning in the future increases from 24 percent for those with no living children to 57 percent for those with two living children, then declines slightly as the number of living children continues to increase, levelling off at 43 percent for those with four or more living children. The same curvilinear relationship between intention to use contraception and number of living children is found in both the urban and the rural subgroups, but proportionately more rural than urban women intend to use contraception

in the future at each parity level because of the higher proportion of women in urban areas who were not sure of their future intentions.

6.6 Reasons for Nonuse of Contraception

Currently married women who were not using any contraceptive method and who said that they did not intend to use contraception at any time in the future were asked the main reason for their intended nonuse. Their reasons for not intending to use any method are indicated in Table 6.12. The largest proportion of women (39 percent) do not intend to use contraception either because they want more children in general or they want a child of a particular sex. The other most frequently mentioned reasons are menopause or hysterectomy (mentioned by 26 percent), difficulty in getting pregnant (12 percent), health concerns (6 percent), and fear of sterilization (3 percent). Two percent cite opposition to the use of family planning, either their own or their husbands'; or consider family planning to be against their religion.

Not surprisingly, younger women are more likely to cite a desire for children as their main reason for not intending to use contraception in the future; 88 percent of those under age 30 give this reason, compared with 14 percent of those age 30 and older. In contrast, older women are more likely to cite actual or perceived sterility (57 percent of those age 30 and

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, Punjab, 1993

	Urban			Rural			Total		
Reason	Age <30	Age 30+	Total	Age <30	Age 30+	Total	Age <30	Age 30+	Total
Wants children	(53.3)	7.2	19.5	54.7	7.5	24.8	54.4	7.4	23.4
Wants a son	(16.7)	2.4	6.2	32.5	8.5	17.3	29.3	6.7	14.4
Wants a daughter	(13.3)	--	3.5	1.7	--	0.6	4.1	--	1.4
Worry about side effects	(--)	1.2	0.9	0.9	0.5	0.6	0.7	0.7	0.7
Can't work after sterilization	(--)	--	--	--	0.5	0.3	--	0.4	0.2
Lack of knowledge	(--)	--	--	--	2.0	1.3	--	1.4	0.9
Afraid of sterilization	(6.7)	4.8	5.3	1.7	3.0	2.5	2.7	3.5	3.2
Hard to get methods	(--)	--	--	--	0.5	0.3	--	0.4	0.2
Against religion	(--)	--	--	--	1.5	0.9	--	1.1	0.7
Opposed to family planning	(--)	--	--	--	0.5	0.3	--	0.4	0.2
Husband opposed	(--)	1.2	0.9	--	1.0	0.6	--	1.1	0.7
Other people opposed	(--)	--	--	--	0.5	0.3	--	0.4	0.2
Difficult to get pregnant	(--)	31.3	23.0	1.7	11.9	8.2	1.4	17.6	12.1
Menopausal/had hysterectomy	(--)	39.8	29.2	--	39.8	25.2	--	39.8	26.2
Health does not permit	(6.7)	3.6	4.4	2.6	9.0	6.6	3.4	7.4	6.0
Doesn't like existing methods	(--)	2.4	1.8	1.7	5.5	4.1	1.4	4.6	3.5
Other	(3.3)	6.0	5.3	2.6	8.0	6.0	2.7	7.4	5.8
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	30	83	113	117	201	318	147	284	431

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

older, compared with 1 percent of younger women). More older women than younger women (7 percent compared with 3 percent) do not intend to use family planning because of perceived health problems.

6.7 Preferred Future Method of Family Planning

Women currently not using contraception who said they intended to use a method in the future were asked to specify the method of family planning that they would like to use. From Table 6.13 it can be seen that 57 percent of the women who reported their intention to use contraception in the future prefer terminal methods (nearly all of them citing female sterilization) and 27 percent prefer modern spacing methods. Among the spacing methods, the IUD is the first choice (cited by 12 percent of intended contraceptors), followed by pills (7 percent) and condoms (6 percent). Fourteen percent of the women intending to use in the future are unsure of which method they prefer. The patterns of preferred methods are generally similar in urban and rural areas.

The choice of preferred methods is somewhat different for those who intend to use contraception within 12 months and for those who intend to use it later. Although majorities of both groups prefer sterilization, a larger proportion of those planning to contracept later prefer sterilization (62 percent compared with 56 percent of those planning to use contraception within 12 months). In contrast, a larger proportion of those planning to contracept within 12 months prefer spacing methods (34 percent compared with 19 percent of those planning to contracept later). Variations are also observed with respect to specific method preferences. Whereas female sterilization and IUDs are the first and second choices, respectively, among women in both categories, IUDs are favoured twice as often by the early intenders (17 percent) as by those intending to practice contraception later (8 percent). Condoms are also preferred by a higher proportion of women intending to practice early than by those intending to practice later (8 percent and 5 percent, respectively).

The contraceptive method mix that intended future users say they would prefer is slightly different from the methods selected by current users. Modern spacing methods are being used by only 17 percent of current users (Table 6.4), but 27 percent of intended future users say they would like to use such methods. These results suggest that the potential demand for modern spacing methods is quite strong and that the family welfare programme should pay increasing attention to effective spacing methods as part of a balanced programme to satisfy the contraceptive needs of women in Punjab.

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. To explore the spread of family planning messages through various mass media, respondents were asked whether they had heard such messages on radio or television in the past month. Table 6.14 shows the differences in the respondents' exposure to family planning messages according to various background characteristics. The effort to disseminate family planning information through the electronic mass media has succeeded in reaching three-fifths of ever-married women in Punjab. That the effort has not been even more successful is not surprising because only one-half of households in the state own a television set

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, Punjab, 1993

Preferred method	Timing of intended use: Next 12 months	Later	Unsure when	All women
URBAN				
Pill	6.3	(4.7)	*	5.3
Copper T/IUD	19.0	(11.6)	*	15.8
Injection	--	(--)	*	--
Condom	14.3	(2.3)	*	9.6
Female sterilization	41.3	(51.2)	*	43.0
Male sterilization	1.6	(2.3)	*	1.8
Periodic abstinence	4.8	(--)	*	2.6
Withdrawal	--	(--)	*	--
Other	1.6	(2.3)	*	1.8
Unsure	11.1	(25.6)	*	20.2
Total percent	100.0	100.0	100.0	100.0
Number	63	43	8	114
RURAL				
Pill	9.3	7.2	(2.1)	7.7
Copper T/IUD	15.8	6.7	(10.6)	11.5
Injection	0.9	0.6	(4.3)	1.1
Condom	6.5	5.0	(2.1)	5.4
Female sterilization	59.5	62.2	(40.4)	58.6
Male sterilization	--	2.2	(2.1)	1.1
Periodic abstinence	0.5	2.2	(2.1)	1.4
Withdrawal	0.5	0.6	(2.1)	0.7
Other	--	0.6	(--)	0.2
Unsure	7.0	12.8	(34.0)	12.2
Total percent	100.0	100.0	100.0	100.0
Number	215	180	47	442
TOTAL				
Pill	8.6	6.7	1.8	7.2
Copper T/IUD	16.5	7.6	10.9	12.4
Injection	0.7	0.4	3.6	0.9
Condom	8.3	4.5	3.6	6.3
Female sterilization	55.4	60.1	36.4	55.4
Male sterilization	0.4	2.2	1.8	1.3
Periodic abstinence	1.4	1.8	1.8	1.6
Withdrawal	0.4	0.4	1.8	0.5
Other	0.4	0.9	--	0.5
Unsure	7.9	15.2	38.2	13.8
Total percent	100.0	100.0	100.0	100.0
Number	278	223	55	556

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

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, Punjab, 1993

Background characteristic	Heard family planning message on radio or television				Total percent	Number
	Neither	Radio only	Television only	Both		
Age						
13-19	53.0	--	29.5	17.4	100.0	132
20-29	39.0	5.8	26.2	29.0	100.0	1132
30-39	38.8	5.4	27.4	28.5	100.0	1082
40-49	41.8	5.5	27.0	25.7	100.0	649
Residence						
Urban	17.5	2.8	37.0	42.8	100.0	836
Rural	48.9	6.3	23.1	21.7	100.0	2159
Education						
Illiterate	60.1	6.2	20.7	13.0	100.0	1575
Lit., < middle complete	29.4	7.3	33.2	30.2	100.0	603
Middle school complete	15.6	2.6	40.7	41.1	100.0	270
High school and above	6.8	2.0	31.3	60.0	100.0	547
Religion						
Hindu	31.7	5.5	31.8	31.0	100.0	1139
Muslim	(66.7)	(--)	(13.9)	(19.4)	100.0	36
Sikh	44.3	5.2	24.5	25.9	100.0	1769
Christian	(67.4)	(10.9)	(10.9)	(10.9)	100.0	46
Caste						
Scheduled caste	48.7	6.7	22.1	22.6	100.0	780
Other	37.1	4.9	28.7	29.3	100.0	2215
Use of contraception						
Ever used	35.3	5.5	29.5	29.8	100.0	1985
Never used	49.7	5.0	22.0	23.3	100.0	1010
Total	40.1	5.3	26.9	27.6	100.0	2995

Note: Total includes 5 women belonging to other religions, who are not shown separately.
-- Less than 0.05 percent
() Based on 25-49 cases

or radio (Table 3.9). One-third of women heard a family planning message on radio, more than half (55 percent) heard a family planning message on television, and more than one-quarter (28 percent) heard a message on both radio and television during the month preceding the interview. These findings indicate that electronic media, particularly radio, have not played a major role in reaching potential users of family planning.

Urban-rural differentials in media coverage are substantial. The percentage of women exposed to family planning messages on radio and/or television is 82 in urban areas and 51 in rural areas. Television is more important than radio in disseminating family planning messages in both urban areas and rural areas.

Women's exposure to family planning messages on radio and television is positively related with their educational attainment. Forty percent of illiterate respondents reported hearing

a family planning message on the radio or television, compared with 93 percent of women with at least a high school education.

Exposure to family planning messages also differs by religion, Hindu women having greater exposure to electronic mass media (68 percent) than Sikh women (56 percent). As expected, relatively fewer scheduled caste women (51 percent) than those in the nonscheduled caste category (63 percent) recall hearing a radio or television message about family planning during the previous month.

6.9 Acceptability of Family Planning Messages on Radio and Television

Whether or not women had heard a family planning message on the radio or television, they were asked whether they considered it acceptable for family planning information to be provided on radio or television. Four-fifths of the women (82 percent) say family planning messages on radio and television are acceptable; only 3 percent do not find such messages acceptable, and the rest (15 percent) are not sure (Table 6.15). Older women (those at least 35 years of age), rural residents, illiterate women, and women belonging to scheduled castes are less likely than other women to accept family planning messages on radio or television. Sizeable proportions of women -- particularly older women, illiterate women, and schedule caste women -- are unable to state categorically whether they have a favourable or unfavourable opinion of such messages. However, the proportion who do not consider family planning messages on radio or television unacceptable is 5 percent or less in each group.

6.10 Discussion of Family Planning Among Couples

Among nonsterilized couples, all currently married women who knew of a contraceptive method were asked how often they had talked with their husbands about family planning during the past year. Overall, 49 percent report discussing family planning once or twice, another 21 percent say they discussed it more often, and 31 percent say they did not discuss this topic with their husbands at all in the previous year (Table 6.16). More than three-fourths of women age 25-34, who are in the middle of their reproductive age span, report having discussed family planning with their husbands at least once or twice. Women in the early and late reproductive years are less likely to have communicated with their husbands on family planning.

Substantial differences are also observed according to respondents' residence, level of education, husbands' education, and whether the couples have ever used family planning Urban women are more likely than rural women to have discussed family planning with their husbands (75 percent and 67 percent, respectively). As expected, the extent of husband-wife communication about family planning is positively related to educational attainment. Eighty-two percent of women with an educational level of high school or higher have discussed family planning with their husbands, compared with 61 percent of illiterate women. Similarly, inter-spousal communication is more common among women whose husbands have studied beyond high school (87 percent) than among those whose husbands are illiterate (59 percent). Not only the inter-spousal communication on family planning topic, but also its frequency increases with the level of education of either the wife or husband.

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, Punjab, 1993

Background characteristic	Acceptability of media messages			Total percent	Number of women
	Acceptable	Not acceptable	Unsure		
Age					
15-19	85.5	1.5	13.0	100.0	131
20-24	83.9	2.7	13.4	100.0	523
25-29	83.1	3.4	13.5	100.0	609
30-34	83.4	2.5	14.1	100.0	554
35-39	79.7	4.7	15.5	100.0	528
40-44	78.9	3.5	17.6	100.0	374
45-49	77.5	4.0	18.5	100.0	275
Residence					
Urban	87.4	4.2	8.4	100.0	836
Rural	79.6	3.0	17.4	100.0	2159
Education					
Illiterate	71.2	3.8	25.0	100.0	1575
Lit., < middle complete	91.0	1.5	7.5	100.0	603
Middle school complete	96.7	1.1	2.2	100.0	270
High school and above	94.5	5.1	0.4	100.0	547
Religion					
Hindu	84.2	3.7	12.1	100.0	1139
Muslim	(61.1)	(2.8)	(36.1)	100.0	36
Sikh	81.1	3.1	15.8	100.0	1769
Christian	(65.2)	(4.3)	(30.4)	100.0	46
Caste					
Scheduled caste	78.2	3.1	18.7	100.0	780
Other	83.0	3.4	13.5	100.0	2215
Total	81.8	3.3	14.9	100.0	2995

Note: Total includes 1 woman age 13-14 and 5 women belonging to other religions, who are not shown separately.
() Based on 25-49 cases

The likelihood of discussion on family planning is also related to couples' prior use of contraception. Eighty-three percent of women who have ever used a family planning method discussed the topic with their husbands, 54 percent discussing it once or twice and 29 percent discussing it more often. Even among those who have never used family planning, however, more than half (56 percent) discussed family planning with their husbands in the past year.

6.11 Attitudes of Couples Toward Family Planning

The NFHS elicited information on attitudes toward family planning by asking women whether they and their husbands approve or disapprove of couples using a method to delay or avoid pregnancy. Table 6.17 shows the degree of reported consensus between women's attitudes and those of their husbands. Of course, women may not accurately report their husbands' actual attitudes toward contraception. However, a wife's perception of her husband's attitude is important because it may affect her own decisions.

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, Punjab, 1993

Background characteristic	Number of times family planning discussed			Total percent	Number of women
	Never	Once or twice	More often		
Age					
15-19	41.5	46.2	12.3	100.0	130
20-24	29.9	49.9	20.2	100.0	491
25-29	21.4	52.6	26.0	100.0	454
30-34	23.8	52.7	23.5	100.0	315
35-39	29.0	48.2	22.8	100.0	224
40-44	42.8	41.4	15.8	100.0	152
45-49	57.5	29.9	12.6	100.0	127
Residence					
Urban	24.7	48.6	26.7	100.0	555
Rural	32.9	48.5	18.7	100.0	1339
Respondent's education					
Illiterate	39.0	46.2	14.8	100.0	862
Lit., < middle complete	27.6	53.3	19.1	100.0	392
Middle school complete	28.7	45.7	25.5	100.0	188
High school and above	17.5	50.0	32.5	100.0	452
Religion					
Hindu	28.5	46.5	25.1	100.0	706
Muslim	(18.5)	(63.0)	(18.5)	100.0	27
Sikh	31.3	50.0	18.7	100.0	1123
Christian	(54.5)	(33.3)	(12.1)	100.0	33
Caste					
Scheduled caste	35.8	43.2	20.9	100.0	444
Other	28.8	50.1	21.1	100.0	1450
Use of contraception					
Ever used	16.7	53.9	29.4	100.0	950
Never used	44.3	43.1	12.6	100.0	944
Husband's education					
Illiterate	40.8	46.2	13.0	100.0	578
Lit.,< primary complete	42.1	35.1	22.8	100.0	57
Primary school complete	32.0	45.7	22.3	100.0	269
Middle school complete	28.7	47.7	23.6	100.0	258
High school complete	24.2	53.5	22.3	100.0	557
Above high school	12.6	50.3	37.1	100.0	175
Total	30.5	48.5	21.0	100.0	1894

Note: Table excludes women who are sterilized or whose husbands are sterilized. Total includes 1 woman age 13-14 and 5 women belonging to other religions, who are not shown separately.
() Based on 25-49 cases

Table 6.17 shows that nearly all (96 percent) of currently married, nonsterilized women in Punjab who know of a contraceptive method approve of family planning, and a large majority (87 percent) also perceive their husbands as having a favourable attitude towards family planning. Only 10 percent of women say they do not know their husband's attitude, and even a much smaller percentage (4) believe that their husbands disapprove of family planning. Thus the findings on husband-wife consent establish a substantial amount of consensus between individual husbands and wives in favour of family planning. Only 2 percent of respondents say both they and their husbands disapprove.

Approval of family planning is higher among younger women than among older women. Urban women and their husbands are more likely to approve of family planning than their rural counterparts; the proportions of both spouses approving are 90 percent and 84 percent, respectively, in urban and rural areas. Rural women are somewhat less likely to know their husband's attitude than are urban women, a finding that is consistent with the lower level of inter spousal communication about family planning in rural areas.

The educational levels of women and their husbands do not seem to be a vital determinant of their family planning approval, but differences are in the expected direction. Overall, 98 percent of women who have completed high school approve of family planning, compared with 94 percent of illiterate women, and approval by both husband and wife is lowest (78 percent) among illiterate women. A similar relationship is also observed with the level of husband's education. As education of the husband increases, the proportion of women who report that both they and their husbands approve of family planning rises from 79 percent in the case of illiteracy to 97 percent for education above the high school level.

The approval of family planning does not vary much between Hindu and Sikh couples, numerically the two dominant religions in Punjab. Approval is slightly lower among women and their husbands who belong to scheduled castes than among the nonscheduled caste population. Ninety-seven percent of the women who have ever used family planning report that both they and their husbands approve; this percentage declines to 75 among the never users. Among never users who approve of family planning, only 2 percent report their husband's disapproval, but 18 percent of never users are unsure of their husbands' attitude.

Table 6.17 also reveals that, as expected, the approval of family planning by both the husband and wife is positively related to the number of times the couple discussed the subject of family planning during the past year. Among those who discussed the topic at least once or twice, 96 percent of both husbands and wives approve of family planning, whereas among those who did not discuss the topic only 62 percent of both wives and husbands approve. Not surprisingly, the percentage of women who are not aware of their husband's attitude is highest (28 percent) among those who did not discuss family planning with their husbands in the past year.

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, Punjab, 1993

Background characteristic	Respondent approves			Respondent disapproves			Total percent	Number of women
	Husband approves	Husband disap-proves	Husband's attitude unknown[1]	Husband approves	Husband disap-proves	Husband's attitude unknown[1]		
Respondent's age								
15-19	73.1	2.3	23.8	--	0.8	--	100.0	130
20-24	87.0	1.4	10.2	0.6	0.2	0.6	100.0	491
25-29	90.7	1.8	4.6	0.7	1.5	0.7	100.0	454
30-34	91.4	0.6	3.2	1.6	2.5	0.6	100.0	315
35-39	88.4	2.2	4.5	0.9	4.0	--	100.0	224
40-44	77.0	2.0	13.2	0.7	3.3	3.9	100.0	152
45-49	72.4	3.9	15.0	2.4	2.4	3.9	100.0	127
Residence								
Urban	90.1	1.4	5.9	0.7	1.1	0.7	100.0	555
Rural	84.3	1.9	9.6	1.0	2.1	1.1	100.0	1339
Respondent's education								
Illiterate	78.3	2.2	13.2	1.4	3.2	1.6	100.0	862
Lit., < primary complete	89.8	2.3	6.1	0.8	0.8	0.3	100.0	392
Middle school complete	92.6	0.5	6.4	--	--	0.5	100.0	188
High school and above	94.7	0.9	2.7	0.4	0.7	0.7	100.0	452
Religion								
Hindu	87.4	1.7	7.5	0.7	1.8	0.8	100.0	706
Muslim	(66.7)	(7.4)	(7.4)	(3.7)	(11.1)	(3.7)	100.0	27
Sikh	86.0	1.7	8.8	1.0	1.6	0.9	100.0	1123
Christian	(72.7)	(--)	(24.2)	(--)	(--)	(3.0)	100.0	33
Caste								
Scheduled caste	81.8	2.0	12.2	1.1	2.0	0.9	100.0	444
Other	87.3	1.7	7.4	0.8	1.7	1.0	100.0	1450
Use of contraception								
Ever used	97.2	1.1	0.9	0.4	0.4	--	100.0	950
Never used	74.8	2.4	16.2	1.4	3.2	2.0	100.0	944
Family planning was discussed with husband in last year								
Never	62.2	3.3	24.3	1.9	5.0	3.3	100.0	577
Once or twice	96.4	1.0	1.8	0.4	0.3	--	100.0	919
More often	96.5	1.3	1.3	0.5	0.5	--	100.0	398
Husband's education								
Illiterate	79.1	2.4	13.1	0.5	3.1	1.7	100.0	578
Lit., < primary complete	82.5	3.5	10.5	--	3.5	--	100.0	57
Primary school complete	85.1	1.1	10.8	1.1	0.7	1.1	100.0	269
Middle school complete	85.7	3.1	8.9	1.2	1.2	--	100.0	258
High school complete	90.7	0.9	5.0	1.1	1.4	0.9	100.0	557
Above high school	97.1	0.6	--	1.1	0.6	0.6	100.0	175
Total	86.0	1.7	8.6	0.9	1.8	1.0	100.0	1894

Note: Table excludes women who are sterilized or whose husbands are sterilized. Total includes 1 woman age 13-14 and 5 women belonging to other religions, who are not shown separately.
() Based on 25-49 cases
-- Less than 0.05 percent
[1]Respondent does not know her husband's attitude.

CHAPTER 7

FERTILITY PREFERENCES

In the NFHS, women were asked several questions about their desire for children in the future. The 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. All of these questions are analyzed 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 be implemented only 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

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. If a woman was pregnant, she was asked whether or not she wanted another child after the one she was expecting. Women who wanted another child were then asked about the preferred timing and sex of their next child.

Table 7.1 and Figure 7.1 provide information about the fertility preferences of currently married women. Overall, only one-quarter of women say they want another child at some time in the future, and slightly more than half of these women say they would like to wait at least two years before having their next birth. Only 11 percent of women say they would like another child within two years. A negligible proportion (0.4 percent) express the attitude that this matter is "up to God". Almost two-fifths (38 percent) of women say they do not want any more children, and another third of women (or their husbands) are sterilized so that they cannot have any more children. These two groups together constitute 72 percent of all currently married women in Punjab.

In this chapter, it is assumed that women who are sterilized (or whose husbands are sterilized) do not want any more children. Of course, some women may regret the sterilization and may prefer to have another child. This issue was explored by asking women who were sterilized or whose husbands were sterilized whether they regretted being sterilized. Only 2 percent, or 17 women, among sterilized couples have such a regret (data not shown). However, women who regret the sterilization do not necessarily want to have more children; they may regret the sterilization for some other reason, such as medical complications or side effects of the operation. Women who regret the sterilization were further asked the reason for their regret.

Only 5 of these women say they regret the sterilization because they, or their husbands, want to have another child. Therefore, the assumption made in this chapter, that women who are sterilized (or whose husbands are sterilized) do not want any more children, only slightly underestimates preferences to have another child and overestimates desires to stop childbearing.

Overall, 85 percent of women either want to space their next birth (that is, they want to delay their next birth for two or more years or they want another child but are undecided when) or they want to stop having children altogether (that is, they want no more children or they

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, Punjab, 1993

Desire for children	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
URBAN								
Desire for additional child								
Have another soon[2]	72.2	13.7	5.5	1.3	--	--	*	8.6
Have another later[3]	14.8	61.8	9.3	3.1	1.9	1.8	*	12.9
Have another, undecided when	--	--	--	--	--	--	*	--
Undecided	--	2.9	2.5	0.9	0.9	--	*	1.5
Up to God	--	1.0	--	--	--	--	*	0.1
Want no more	1.9	15.7	62.7	48.0	46.7	43.6	*	44.5
Sterilized	--	--	19.1	45.7	50.5	52.7	*	30.4
Declared infecund	11.1	4.9	0.8	0.9	--	1.8	*	2.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	54	102	236	223	107	55	23	800
Preferred sex of additional child								
Boy	(25.5)	45.5	(77.1)	*	*	*	NC	50.6
Girl	(2.1)	10.4	(20.0)	*	*	*	NC	9.3
Doesn't matter	(48.9)	28.6	(--)	*	*	*	NC	26.2
Up to God	(23.4)	15.6	(2.9)	*	*	*	NC	14.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	NC	100.0
Number wanting more	47	77	35	10	2	1	0	172
RURAL								
Desire for additional child								
Have another soon[2]	78.6	24.5	9.1	4.5	2.2	1.8	1.5	12.4
Have another later[3]	15.0	59.9	14.7	3.9	0.6	--	--	13.5
Have another, undecided when	1.4	0.7	0.2	0.2	--	--	--	0.3
Undecided	--	1.1	2.3	2.0	0.3	--	--	1.3
Up to God	0.7	1.5	0.4	0.5	0.3	--	--	0.5
Want no more	0.7	7.7	51.0	40.1	38.6	37.4	39.0	35.2
Sterilized	--	2.6	21.2	47.2	56.5	60.7	58.8	35.4
Declared infecund	3.6	2.2	1.0	1.6	1.5	--	0.7	1.5
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	140	274	482	559	324	163	136	2078
Preferred sex of additional child								
Boy	42.9	52.8	81.9	(95.8)	*	*	*	61.6
Girl	--	4.7	10.3	(2.1)	*	*	*	4.4
Doesn't matter	45.9	22.3	5.2	(2.1)	*	*	*	22.1
Up to God	11.3	20.2	2.6	(--)	*	*	*	11.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number wanting more	133	233	116	48	9	3	2	544

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, Punjab, 1993

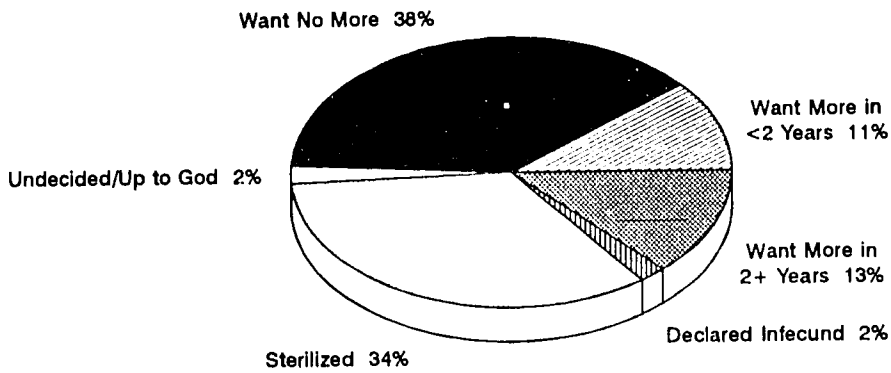
Desire for children	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
	TOTAL							
Desire for additional child								
Have another soon[2]	76.8	21.5	7.9	3.6	1.6	1.4	1.3	11.4
Have another later[3]	14.9	60.4	13.0	3.7	0.9	0.5	--	13.3
Have another, undecided when	1.0	0.5	0.1	0.1	--	--	--	0.2
Undecided	--	1.6	2.4	1.7	0.5	--	--	1.3
Up to God	0.5	1.3	0.3	0.4	0.2	--	--	0.4
Want no more	1.0	9.8	54.9	42.3	40.6	39.0	39.6	37.8
Sterilized	--	1.9	20.5	46.8	55.0	58.7	58.5	34.0
Declared infecund	5.7	2.9	1.0	1.4	1.2	0.5	0.6	1.6
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	194	376	718	782	431	218	159	2878
Preferred sex of additional child								
Boy	38.3	51.0	80.8	96.6	*	*	*	58.9
Girl	0.6	6.1	12.6	1.7	*	*	*	5.6
Doesn't matter	46.7	23.9	4.0	1.7	*	*	*	23.0
Up to God	14.4	19.0	2.6	--	*	*	*	12.4
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number wanting more	180	310	151	58	11	4	2	716

NC: Not calculated 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

are sterilized). This percentage is only slightly higher in urban areas than in rural areas (88 percent and 84 percent, respectively). Among women who want another child, there is a very strong preference for having a son as the next child. Fifty-nine percent of women say they want a son, only 6 percent express a desire for a daughter, and the rest say that the sex of the next child does not matter (23 percent) or that it is up to God (12 percent). The desire for a son is particularly strong in rural areas and among women having two or three children. Women who do not have any children are extremely unlikely to prefer a daughter for their first child. Only less than 1 percent express such a preference, whereas 38 percent say they want a son; but nearly half (47 percent) say the sex of the first child does not matter.

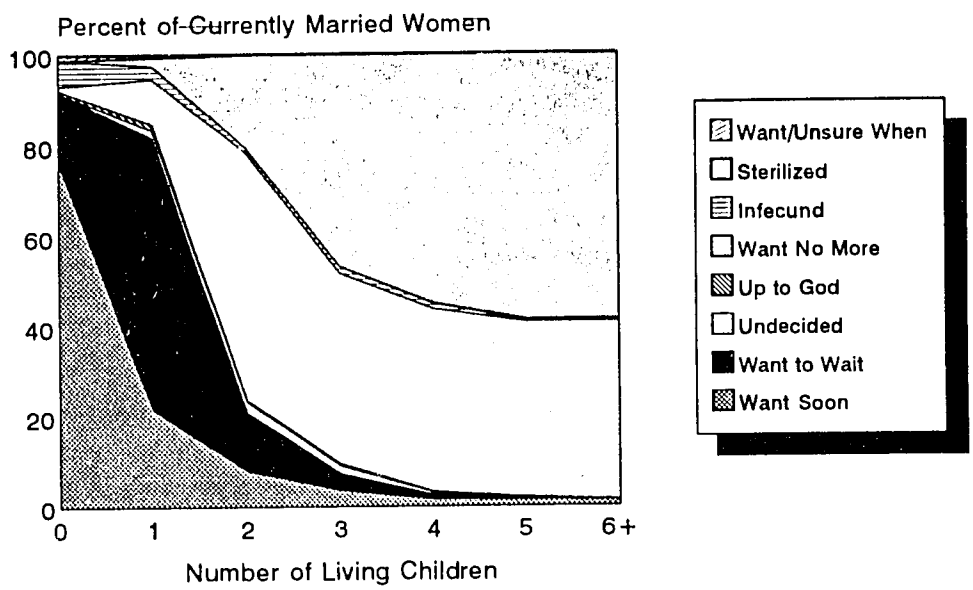
Table 7.1 and Figure 7.2 also show that as the number of living children increases, the desire to limit childbearing also increases but the desire to delay the next birth decreases. Among women with no children, more than 90 percent say they want a child and only 1 percent say they do not want any children. The proportion who want another child drops dramatically, to 21 percent, for women who have two living children and to only 7 percent for those with three living children. The desire to have a child within two years declines even more rapidly, from 77 percent for women without any living children to 8 percent for women with two living children, and to 4 percent for women with three living children. Interestingly, a substantial

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



NFHS, Punjab, 1993

Figure 7.2
Fertility Preferences by Number of Living Children



NFHS, Punjab, 1993

majority (60 percent) of women with only one living child want to postpone having another; and even among women with no children, 15 percent want to wait at least two years before starting a family. Thirteen percent of women with two children would like to wait at least two years before having their next child. Since 45 percent of all women have fewer than two living children, the desire for spacing children expressed by these women cannot be ignored. The strong focus of the family planning programme on permanent methods of contraception is evidently not satisfying the needs of a large segment of women in Punjab who wish to space. Encouraging the use of spacing methods for women who want more children would be likely to lower overall fertility and population growth, as well as to provide health benefits to mothers and their children.

Table 7.2, presenting the age pattern of fertility preferences, shows that half of the women age 15-19 want to delay having their next child by two or more years. This proportion declines with age, whereas the proportion wanting to limit their childbearing increases. At age 30-34, only 4 percent of women want to have another child within two years, while 47 percent want no more children. Even among women age 20-24, 25 percent want to stop childbearing altogether. Among those age 25-29, 44 percent express that preference.

Table 7.3 provides information about subgroup variations in the potential demand for family planning. As before, women who are sterilized (or whose husbands are sterilized) are added to those who say they want no more children to derive this measure. Age differences have already been discussed above. There is almost no difference in the desire to limit

Table 7.2 Fertility preference by age

Percent distribution of currently married women by desire for children and preferred sex of additional child, according to age and residence, Punjab, 1993

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]	(34.6)	24.6	9.7	3.6	2.2	0.9	3.4	8.6
Have another later[2]	(50.0)	42.9	15.9	4.8	--	--	--	12.9
Have another, undecided when	(--)	--	--	--	--	--	--	--
Undecided	(3.8)	2.4	3.4	0.6	0.7	--	--	1.5
Up to God	(--)	--	--	--	0.7	--	--	0.1
Want no more	(7.7)	27.0	48.9	52.1	46.7	48.2	51.7	44.5
Sterilized	(--)	3.2	22.2	37.7	45.3	47.3	39.7	30.4
Declared infecund	(3.8)	--	--	1.2	4.4	3.6	5.2	2.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	26	126	176	167	137	110	58	800
Preferred sex of additional child								
Boy	*	48.2	(60.0)	*	*	*	*	50.6
Girl	*	10.6	(11.1)	*	*	*	*	9.3
Doesn't matter	*	29.4	(17.8)	*	*	*	*	26.2
Up to God	*	11.8	(11.1)	*	*	*	*	14.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number wanting more	22	85	45	14	3	1	2	172

Table 7.2 Fertility preference by age (Contd.)

Percent distribution of currently married women by desire for children and preferred sex of additional child, according to age and residence, Punjab, 1993

Desire for children	Current age							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
RURAL								
Desire for additional child								
Have another soon[1]	38.1	26.6	14.6	8.4	3.8	3.0	--	12.4
Have another later[2]	49.5	39.6	14.6	3.0	--	--	--	13.5
Have another, undecided when	1.9	0.5	0.5	--	--	--	--	0.3
Undecided	2.9	2.3	2.3	0.8	--	0.4	--	1.3
Up to God	1.0	0.8	0.2	--	0.5	0.9	0.5	0.5
Want no more	6.7	24.8	42.0	44.7	34.8	32.8	42.7	35.2
Sterilized	--	5.4	25.6	42.5	59.2	59.1	49.7	35.4
Declared infecund	--	--	0.2	0.5	1.6	3.8	7.0	1.5
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	105	391	426	367	368	235	185	2078
Preferred sex of additional child								
Boy	57.4	57.9	69.0	(66.7)	*	*	NC	61.6
Girl	--	6.9	2.4	(7.1)	*	*	NC	4.4
Doesn't matter	24.5	21.8	21.4	(16.7)	*	*	NC	22.1
Up to God	18.1	13.4	7.1	(9.5)	*	*	NC	11.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	NC	100.0
Number wanting more	94	261	126	42	14	7	0	544
TOTAL								
Desire for additional child								
Have another soon[1]	37.4	26.1	13.1	6.9	3.4	2.3	0.8	11.4
Have another later[2]	49.6	40.4	15.0	3.6	--	--	--	13.3
Have another, undecided when	1.5	0.4	0.3	--	--	--	--	0.2
Undecided	3.1	2.3	2.7	0.7	0.2	0.3	--	1.3
Up to God	0.8	0.6	0.2	--	0.6	0.6	0.4	0.4
Want no more	6.9	25.3	44.0	47.0	38.0	37.7	44.9	37.8
Sterilized	--	4.8	24.6	41.0	55.4	55.4	47.3	34.0
Declared infecund	0.8	--	0.2	0.7	2.4	3.8	6.6	1.6
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	131	517	602	534	505	345	243	2878
Preferred sex of additional child								
Boy	51.7	55.5	66.7	67.9	*	*	*	58.9
Girl	--	7.8	4.7	7.1	*	*	*	5.6
Doesn't matter	26.7	23.7	20.5	16.1	*	*	*	23.0
Up to God	21.6	13.0	8.2	8.9	*	*	*	12.4
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number wanting more	116	346	171	56	17	8	2	716

Note: Total includes 1 woman age 13-14, who is not shown separately.
NC: Not calculated 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

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, Punjab, 1993

Background characteristic	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
Age								
13-19	(--)	2.9	*	*	NC	NC	NC	6.8
20-29	--	7.8	64.3	78.9	90.8	(92.3)	*	50.8
30-39	*	(39.5)	88.5	94.9	98.1	97.9	95.4	90.7
40-49	*	*	92.4	93.1	94.4	99.0	100.0	92.7
Residence								
Urban	1.9	15.7	81.8	93.7	97.2	96.4	*	74.9
Rural	0.7	10.2	72.2	87.3	95.1	98.2	97.8	70.5
Education								
Illiterate	1.1	11.0	64.8	85.6	94.8	97.0	97.8	73.6
Literate,< middle complete	(--)	9.9	74.0	91.0	97.7	(100.0)	*	71.7
Middle school complete	*	9.8	83.8	97.2	(100.0)	*	*	69.1
High school and above	(2.1)	15.3	86.4	93.1	(92.3)	*	*	68.0
Religion								
Hindu	1.4	14.7	72.8	89.0	96.7	96.3	96.4	72.4
Muslim	*	*	*	*	*	*	*	(68.8)
Sikh	0.9	10.3	77.6	89.3	95.8	98.4	100.0	71.8
Christian	*	*	*	*	*	*	*	(58.7)
Caste								
Scheduled caste	1.9	7.5	59.8	86.3	95.2	95.7	97.0	69.5
Other	0.7	13.1	78.7	90.0	95.8	98.6	98.9	72.5
Number of living son[2]								
None	1.0	8.9	22.0	(22.0)	*	*	*	9.6
1	NA	19.0	80.9	86.1	94.4	(95.2)	*	74.2
2	NA	NA	88.6	97.1	98.5	98.8	(100.0)	95.5
3+	NA	NA	NA	96.3	100.0	100.0	98.8	98.9
Number of living daughters[2]								
None	1.0	19.0	88.6	96.3	(100.0)	*	*	51.6
1	NA	8.9	80.9	97.1	100.0	*	*	80.3
2	NA	NA	22.0	86.1	98.5	100.0	*	83.0
3+	NA	NA	NA	(22.0)	86.7	96.1	98.4	86.7
Total	1.0	11.7	75.3	89.1	95.6	97.7	98.1	71.8

Note: Women who have been sterilized, or whose husbands have been sterilized, are considered to want no more children. Total percentages are based on all women including 5 women belonging to other religions, the percentage for whom are not shown separately.
NC: Not computed because there are no cases on which to base a percentage
NA: Not applicable
() Based on 25-49 cases
* Percent not shown; based on fewer than 25 cases
-- Less than 0.05 percent
[1]Includes current pregnancy, if any
[2]Excludes pregnant women

childbearing between urban and rural women (75 percent in urban areas and 71 percent in rural areas). Educational attainment is not strongly related to fertility desires except for women with two living children, among whom an unequivocally positive relationship exists between educational level and the proportion of women wanting no more children. This suggests that the two-child family is more acceptable to educated women than to those with less education. Yet even among illiterate women with two living children, a substantial majority (65 percent) do not want more children. Caste differences are small. Hindus and Sikhs are the most likely to want no more children, and Christians the least likely. Differentials by number of living sons are striking; the percentage of women wanting to stop childbearing increases dramatically as the number of living sons increases. Whereas only 10 percent of women with no son want to cease childbearing, 74 percent of women with one son and more than 95 percent of women with two or more sons do not want more children. Differences in the desire to have no more children by number of living daughters reveal that more than half of the women with no living daughter do not want additional children, thus indicating that a majority of women in Punjab do not consider having a daughter to be important. It is particularly noteworthy that among women with two living children, only 22 percent who have no son do not desire additional children; the percentage wanting no more children increases four times (to 81 percent) for those who have one living son. Thus for a large majority of women in Punjab, the decision to terminate childbearing is dependent on the number of living sons they have.

7.2 Need for Family Planning Services

Currently married women who say they do not want any more children or who want to wait two or more years before having another child but are not using contraception, are defined as having an *unmet need* for family planning. Current users of family planning methods are said to have a *met need* for family planning. The total demand for family planning is the sum of the met need and the unmet need for family planning. Table 7.4 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 notes give complete definitions of these concepts.

Overall, only 13 percent of women in Punjab have an unmet need for family planning, according to these definitions. The unmet need for spacing births is exactly the same as that for limiting births. Together with the 59 percent of currently married women who are using contraception, a total of 72 percent of currently married women have a demand for family planning. If all of the women who say they want to space or limit their births were to use family planning, the contraceptive prevalence rate could increase from 59 percent to 72 percent of married women. This means that 82 percent of the demand for family planning is being met by current programmes, as seen in the last column of Table 7.4.

The unmet need for limiting childbearing increases steadily until age 30-34 and decreases thereafter. The unmet need for spacing, on the other hand, is particularly strong for women under age 25. This is the segment of the population whose family planning needs are least likely to be met by current programmes, primarily because the needs for spacing are not being satisfied. Only 31 percent of the total demand for family planning services is being met for married women age 15-19; this figure rises to 55 percent for women age 20-24 and to 77 percent for women age 25-29.

Table 7.4 Need for family planning services

Percent of currently married women with unmet need, met need, and total demand for family planning (FP) services by selected background characteristics, Punjab, 1993

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										
15-19	22.1	1.5	23.7	9.9	0.8	10.7	32.1	2.3	34.4	31.1
20-24	19.9	3.3	23.2	13.5	14.5	28.0	33.5	17.8	51.3	54.7
25-29	7.5	9.5	16.9	8.5	46.8	55.3	15.9	56.3	72.3	76.6
30-34	1.5	11.2	12.7	3.0	70.6	73.6	4.5	81.8	86.3	85.2
35-39	--	5.7	5.7	0.8	80.6	81.4	0.8	86.3	87.1	93.4
40-44	0.6	4.9	5.5	--	73.6	73.6	0.6	78.6	79.1	93.0
45-49	--	2.1	2.1	--	57.6	57.6	--	59.7	59.7	96.6
Residence										
Urban	4.5	6.7	11.2	6.1	56.6	62.7	10.6	63.4	74.0	84.8
Rural	7.3	6.4	13.7	5.1	52.1	57.2	12.3	58.5	70.8	80.7
Education										
Illiterate	5.4	7.0	12.5	3.3	53.4	56.7	8.7	60.5	69.2	81.9
Lit.,< middle complete	7.4	6.0	13.5	5.2	55.8	61.0	12.6	61.8	74.4	81.9
Middle school complete	8.0	7.6	15.6	6.9	51.1	58.0	14.9	58.8	73.7	78.8
High school and above	7.7	4.9	12.6	10.7	51.7	62.4	18.4	56.6	75.0	83.2
Religion										
Hindu	5.5	6.5	12.0	5.7	54.3	59.9	11.1	60.8	71.9	83.4
Muslim	(12.5)	(18.8)	(31.3)	(3.1)	(37.5)	(40.6)	(15.6)	(56.3)	(71.9)	(56.5)
Sikh	7.2	6.2	13.4	5.2	53.8	59.0	12.4	60.0	72.5	81.5
Christian	(2.2)	(6.5)	(8.7)	(4.3)	(30.4)	(34.8)	(6.5)	(37.0)	(43.5)	(80.0)
Caste										
Scheduled caste	6.4	5.9	12.3	3.6	53.5	57.2	10.0	59.4	69.5	82.3
Other	6.5	6.7	13.2	6.0	53.3	59.3	12.5	60.0	72.5	81.7
Number of living children										
None	12.4	0.7	13.0	2.3	--	2.3	14.7	0.7	15.4	15.2
1	21.9	2.6	24.6	23.7	5.3	28.9	45.6	7.9	53.5	54.1
2	7.4	7.9	15.3	6.6	54.6	61.1	14.0	62.4	76.4	80.0
3	2.7	6.5	9.3	2.2	71.9	74.1	5.0	78.4	83.4	89.9
4	0.5	8.3	8.8	0.5	76.6	77.1	1.0	84.9	85.9	88.8
5	--	9.1	9.1	0.5	76.3	76.7	0.5	85.4	85.8	89.4
6+	0.6	11.5	12.2	0.6	71.8	72.4	1.3	83.3	84.6	85.6
Total	6.5	6.5	13.0	5.4	53.4	58.7	11.8	59.9	71.7	81.9

Note: Total percentages are based on all women including 1 woman age 13-14 and 5 women belonging to other religions, the percentages for whom are not shown separately.

( ) 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 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.

Although the unmet need for family planning is slightly higher in rural areas than in urban areas, the percentage of need for family planning satisfied is fairly high both in rural areas (81 percent) and urban areas (85 percent). Interestingly, the total demand for family planning varies little by educational attainment. The percentage of total demand satisfied is constant and fairly high among all the educational groups. Variations across religious groups reveal that Muslim women not only have the highest level of unmet need but also their total demand for family planning is least likely to be satisfied. Unmet demand, total demand, and the percent of total demand satisfied varies little by caste. The final panel in Table 7.4 reveals that unmet need, particularly for spacing, is high among women with fewer than two children. The percentage of need satisfied is the lowest for women who have no children but increases dramatically after women have had one child and then remains fairly high and constant.

7.3 Ideal Number of Children

The analysis above has focused on the respondent's reproductive desires for the future, implicitly taking into account the number of sons and daughters that she already has. To determine the *ideal* number of children, on the other hand, the NFHS asked the respondent to perform the more difficult, abstract task of stating the number of children she would like to have if she could start over again. Women who had no children were asked, "If you could choose exactly the number of children to have in your whole life, how many would that be?" Women who already had children were asked, "If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?" Some women had difficulty answering these hypothetical questions, and the questions sometimes had to be repeated to ensure that the respondent understood them. Nevertheless, 98 percent of urban and rural women were able to give a numerical response when asked for their ideal number of children (Table 7.5).

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, Punjab, 1993

Ideal number of children	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
URBAN								
1	8.9	13.0	1.2	0.4	--	--	(--)	2.8
2	75.0	75.9	83.5	39.0	36.5	17.9	(14.8)	56.6
3	10.7	9.3	14.4	56.3	44.3	57.1	(37.0)	32.8
4	1.8	0.9	0.8	2.2	16.5	12.5	(33.3)	5.3
5	1.8	--	--	--	--	5.4	(3.7)	0.6
6+	--	--	--	--	--	1.8	(7.4)	0.4
Non-numeric responses	1.8	0.9	--	2.2	2.6	5.4	(3.7)	1.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	56	108	243	231	115	56	27	836
Mean ideal number[2]								
Ever-married women	2.1	2.0	2.1	2.6	2.8	3.1	(3.5)	2.4
Currently married women	2.1	2.0	2.1	2.6	2.8	3.1	(3.7)	2.4

Table 7.5 Ideal and actual number of children (Contd.)

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, Punjab, 1993

Ideal number of children	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
RURAL								
1	5.5	5.7	1.4	0.7	--	--	--	1.6
2	69.9	67.3	72.8	29.6	33.5	20.4	10.3	45.8
3	21.2	25.3	23.2	64.2	39.9	50.3	46.2	40.7
4	3.4	1.4	1.4	3.8	22.2	18.0	33.8	8.9
5	--	--	0.2	--	0.6	4.2	2.1	0.6
6+	--	--	--	--	0.3	0.6	3.4	0.3
Non-numeric responses	--	0.4	1.0	1.7	3.5	6.6	4.1	2.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	146	281	496	581	343	167	145	2159
Mean ideal number[2]								
Ever-married women	2.2	2.2	2.3	2.7	2.9	3.1	3.4	2.6
Currently married women	2.2	2.2	2.3	2.7	2.9	3.1	3.4	2.6
TOTAL								
1	6.4	7.7	1.4	0.6	--	--	--	1.9
2	71.3	69.7	76.3	32.3	34.3	19.7	11.0	48.8
3	18.3	20.8	20.3	61.9	41.0	52.0	44.8	38.5
4	3.0	1.3	1.2	3.3	20.7	16.6	33.7	7.9
5	0.5	--	0.1	--	0.4	4.5	2.3	0.6
6+	--	--	--	--	0.2	0.9	4.1	0.3
Non-numeric responses	0.5	0.5	0.7	1.8	3.3	6.3	4.1	2.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	202	389	739	812	458	223	172	2995
Mean ideal number[2]								
Ever-married women	2.2	2.2	2.2	2.7	2.9	3.1	3.4	2.6
Currently married women	2.2	2.2	2.2	2.7	2.9	3.1	3.4	2.6

() Based on 25-49 cases
-- Less than 0.05 percent
[1]Includes current pregnancy, if any
[2]Means are calculated excluding the women giving non-numeric responses.

Table 7.5 shows that the ideal number of children falls within the narrow range of 2-3 children for a large majority of women. Very few women report fewer than two children as ideal, and only 9 percent think that four or more children are an ideal number. For those giving numeric responses, the average number of children considered ideal is 2.6. The mean ideal number of children is 2.2 for women with fewer than three children and then increases steadily to 3.4 for those who already have six or more children. Despite the likelihood that some women, rationalizing their actual family size, adjust their ideal family size upwards over time as their number of children increases, it is evident that large proportions of women idealize family sizes lower than their actual number of living children. At parities four and higher, the proportions of women stating an ideal family size smaller than their actual family size are sizeable. For example, among women with five living children, 88 percent say that if they were to start again their ideal family size would consist of fewer than five children. Even among women with only three living children, one-third think that 2 children are an ideal number.

Thus family-size norms are fairly small, and it is evident that a substantial proportion of women already have more children than they consider ideal. This finding may be taken as another indicator of surplus or unwanted fertility.

Table 7.6 shows the mean ideal number of children for ever-married women by age and selected background characteristics. The mean increases from 2.3-2.4 children for women under age 30 to 2.9 children for women age 40-44 and then marginally drops to 2.8 for women age 45-49. There are only small differences in the ideal number of children among women in the rural and urban areas. Hindus and Sikhs have similar family-size ideals, but Christians have

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, Punjab, 1993

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

Note: Means are calculated excluding women who gave non-numeric responses. Total means are based on all women including 1 woman age 13-14 and 5 women belonging to other religions, the means for the last two groups are not shown separately.
NC: Not calculated because there are no cases on which to base a mean.
() Based on 25-49 cases
* Mean not shown; based on fewer than 25 cases

higher ideal family sizes. Caste differentials in stated ideal family size are small. The most pronounced differentials are by educational attainment of the wife and the husband, better-educated women and spouses of better-educated men being more likely than the less educated to have lower fertility goals. The average ideal family size is slightly more than half a child higher for illiterate women and for women whose husband is illiterate than for those who have completed high school or above or whose husband is at least a high school graduate. There is little difference in the ideal number of children by the work status of the respondent.

Women who gave a numerical response to the question about their ideal number of children were further asked how many of these children they would like to be boys and how many they would like to be girls. The responses are shown in Table 7.7. The persistence of a strong preference for sons over daughters can be seen in this table. Overall, the ideal family consists of 1.5 sons, 0.9 daughter, and 0.2 children whose gender does not matter. Son preference is equally strong in both urban and rural areas. Regardless of the current sex composition of living children, son preference persists in all the groups.

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, Punjab, 1993

Sex composition of living children	Urban			Rural			Total		
	Sons	Daughters	Gender doesn't matter	Sons	Daughters	Gender doesn't matter	Sons	Daughters	Gender doesn't matter
None	0.9	0.7	0.5	1.1	0.7	0.4	1.1	0.7	0.4
1 child	1.1	0.7	0.2	1.3	0.8	0.2	1.2	0.8	0.2
1 son	1.1	0.6	0.2	1.2	0.7	0.3	1.2	0.7	0.2
No sons	(1.0)	(0.9)	(0.2)	1.3	1.0	0.1	1.2	0.9	0.1
2 children	1.0	0.8	0.4	1.2	0.8	0.2	1.2	0.8	0.3
2 sons	1.0	0.6	0.6	1.2	0.6	0.5	1.1	0.6	0.5
1 son	1.1	0.9	0.2	1.2	0.9	0.1	1.2	0.9	0.2
No sons	(1.1)	(0.9)	(0.3)	1.4	1.0	0.1	1.3	1.0	0.1
3 children	1.6	0.9	0.2	1.7	1.0	0.1	1.6	0.9	0.1
3 sons	*	*	*	1.8	0.9	0.1	1.7	0.8	0.1
2 sons	1.6	0.9	0.2	1.8	1.0	0.1	1.7	0.9	0.1
1 son	1.5	0.9	0.1	1.6	1.0	0.1	1.5	(0.9)	0.1
No sons	*	*	*	(1.4)	(0.9)	(0.1)	(1.4)	1.0	(0.1)
4+ children	1.8	1.1	0.1	1.9	1.1	0.0	1.9	1.1	(--)
2 or more sons	1.8	1.1	0.1	1.9	1.2	0.0	1.9	1.1	0.1
1 son	(1.3)	(1.0)	(--)	1.7	1.1	0.1	1.6	1.1	(--)
Total	1.3	0.9	0.2	1.5	0.9	0.1	1.5	0.9	0.2

Note: Table excludes women who gave non-numeric responses to the questions on the ideal number of sons and daughters. Total means are based on all women including women with 4+ children and no sons, the means for whom are not shown separately.
() Based on 25-49 cases
* Mean not shown; based on fewer than 25 cases
-- Less than 0.05 children

7.4 Fertility Planning

Another way to gauge the extent of unwanted fertility is to focus on recent births. For each child born in the four years before the survey as well as for each current pregnancy, women were asked whether the pregnancy had been wanted at that time (planned), wanted at a later time (mistimed), or not wanted at all (unwanted). Information from these questions may result in underestimation of unplanned childbearing due to rationalization. A woman may retrospectively declare a pregnancy of an unplanned birth as one that was wanted at the time. Nevertheless, answers to these questions provide another useful indicator of the degree to which couples successfully control their childbearing.

Table 7.8 shows that 16 percent of all pregnancies that resulted in live births in the four years before the survey and the pregnancies at the time of the survey were not wanted at the time when the woman became pregnant. Six percent of the births were unwanted and 10 percent were mistimed. Differentials in fertility planning by residence are not substantial, except that rural women are more likely to have mistimed births. Mistimed births are more common among literate than illiterate women, but women with a high school or higher education are least likely to have unwanted births. In general, differentials in fertility planning by religion are not marked, except that one-quarter of all births to the small number of Muslim women were not wanted at the time when the women became pregnant. There is no difference in fertility planning by caste. Substantial differences, however, are apparent by birth order and the mother's age at the time of the birth. First births are relatively well planned, second and third births are more likely than first and later births to be mistimed, and fourth and higher order births are particularly likely to be unwanted (21 percent). The percentage of births that were planned decreases steadily with mothers' increasing age to a level of 73 percent for women age 35-39. One-sixth of all births to women age 30-34 and one-quarter of all births to women age 35-39 are reported as unwanted.

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 elimination of all unwanted births.

Overall, the wanted TFR of 2.2 children per woman on average is lower by 0.8 child (or 26 percent) than the actual TFR of 2.9 (Table 7.9). The table also shows that regardless of residence, level of education, religion, or caste, the wanted number of births is lower than actual number of births. Interestingly, scheduled caste women have 1.2 children more than their desired fertility, whereas among the "other" caste group the difference is just half as much, indicating that nonscheduled caste women are more successful in achieving their fertility goals. Women with above middle-level education seem to be most successful in achieving their fertility goals, with less than half a child gap between desired and actual fertility. On the other hand,

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, Punjab, 1993

Background characteristic	Planning status of pregnancy[1]			Total percent	Number of births[1]
	Wanted then	Wanted later	Wanted no more		
Residence					
Urban	86.0	7.5	6.5	100.0	400
Rural	83.7	10.4	5.9	100.0	1316
Education					
Illiterate	86.2	7.4	6.4	100.0	879
Lit., < middle complete	79.6	13.3	7.2	100.0	362
Middle school complete	79.3	12.7	8.0	100.0	150
High school and above	86.2	10.8	3.1	100.0	325
Religion					
Hindu	82.7	9.4	8.0	100.0	663
Muslim	(75.0)	(14.3)	(10.7)	100.0	28
Sikh	85.1	10.1	4.8	100.0	982
Christian	(92.9)	(4.8)	(2.4)	100.0	42
Caste					
Scheduled caste	83.9	8.9	7.2	100.0	484
Other	84.3	10.1	5.6	100.0	1232
Birth order[1]					
1	93.4	6.6	--	100.0	528
2	84.5	14.9	0.6	100.0	498
3	82.1	9.6	8.4	100.0	335
4+	72.1	7.3	20.6	100.0	355
Mother's age at birth[2]					
15-19	89.2	10.8	--	100.0	223
20-24	86.6	10.2	3.2	100.0	805
25-29	81.4	10.9	7.7	100.0	478
30-34	80.1	3.2	16.7	100.0	156
35-39	(72.5)	(2.5)	(25.0)	100.0	40
Total	84.2	9.7	6.1	100.0	1716

Note: Total includes 1 birth to a woman belonging to other religion, 3 births to women whose age at birth is 13-14 and 11 births to women whose age at birth is 40-49, who are not shown separately.
() Based on 25-49 cases
-- Less than 0.05 percent
[1]Includes current pregnancy
[2]For current pregnancy, estimated maternal age at birth

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, Punjab, 1993

Background characteristic	Total wanted fertility rate	Total fertility rate
Residence		
Urban	1.95	2.48
Rural	2.23	3.09
Education		
Illiterate	2.69	3.69
Literate, < middle complete	2.27	3.02
Middle school complete	1.54	1.95
High school and above	1.82	2.23
Religion		
Hindu	2.10	2.91
Muslim	(3.12)	(4.16)
Sikh	2.15	2.86
Christian	(2.76)	(4.55)
Caste		
Scheduled caste	2.23	3.39
Other	2.13	2.76
Total	2.15	2.92

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.
() Based on 125-249 woman-years of exposure

illiterate women have an average gap of one child between wanted and actual fertility.

7.5 Awareness and Approval of Sex Preselection

The introduction of technologies to determine sex of the unborn foetuses, combined with the acceptance of abortion, has led a number of societies that prefer sons to selectively abort females. Punjab has attracted attention in recent years because of the large number of tests conducted on pregnant women there to determine the sex of the foetus. In order to measure awareness of the possibility of determining the sex of the foetus and the attitude towards sex preselection, the NFHS questionnaire for Punjab included three questions. The questions were worded as follows: (1) "Do you know whether it is possible to predetermine the sex of the foetus before birth?" (2) "Some women go for abortion when they come to know that they are carrying a female foetus which they do not want. Do you approve or disapprove of this practice?" (3) "Why do you approve/disapprove of this practice?" The patterns of response to the first two questions by selected background characteristics of ever-married respondents are presented in Table 7.10.

Almost three-fourths of ever-married women in Punjab are aware that technologies are available to determine the sex of the foetus. The knowledge of sex determination procedures

Table 7.10 Awareness and approval of sex preselection

Percentage of ever-married women who are aware of sex preselection and among those who are aware of preselection the percentage who approve of the practice of sex preselection by selected background characteristics, Punjab, 1993

Background characteristic	Percentage aware of preselection		Percentage approving preselection[1]	
	Yes	Number of women	Yes	Number of women
Age				
15-19	64.9	131	23.5	85
20-24	72.5	523	25.6	379
25-29	75.0	609	24.7	457
30-34	76.4	554	22.2	423
35-39	75.4	528	22.4	398
40-44	73.8	374	20.3	276
45-49	75.3	275	17.4	207
Residence				
Urban	79.1	836	18.6	661
Rural	72.5	2159	24.4	1565
Education				
Illiterate	62.9	1575	22.7	990
Lit., < middle complete	81.8	603	24.3	493
Middle school complete	89.6	270	21.1	242
High school and above	100.0	547	21.8	501
Religion				
Hindu	75.4	1139	20.7	859
Muslim	(47.2)	36	*	17
Sikh	74.5	1769	24.3	1318
Christian	(60.9)	46	(25.0)	28
Husband's education				
Illiterate	62.5	1050	21.8	656
Lit., < primary complete	73.0	330	25.3	241
Primary complete	68.4	218	18.1	149
Middle school complete	81.2	314	22.0	255
High school complete	83.1	733	24.1	609
High school and above	90.3	350	22.5	316
Exposure to mass media				
Exposure to any media	82.0	1962	22.2	1609
Watches television weekly	82.6	1715	22.1	1416
Listens to radio weekly	85.6	1258	24.0	1077
Visits cinema/theatre monthly	92.8	69	23.4	64
Not exposed to any media	59.7	1033	24.0	617
Total	74.3	2995	22.7	2226

Note: Total includes 1 woman age 13-14, and 5 women belonging to other religions, who are not shown separately.
() Based on 25-49 cases
* Percentage not shown; based on fewer than 25 cases
[1]Among those who are aware

is widespread in all subgroups shown in the table. Younger women, below age 20, are less likely to be aware of sex determination than older women. Less than two-thirds of teenage women compared with over 72 percent of women age 20-49 are aware of ways to determine the sex of the foetus. In rural areas, 72 percent of women are aware of the procedures compared with 79 percent of urban women, a difference of less than 10 percentage points. Educational levels of both women and their husbands are positively related to awareness of sex preselection, but knowledge of the procedure is more strongly related to woman's education than husband's education. Sikh and Hindu women are equally likely to be aware of sex preselection, but Muslims are least likely to be aware of the procedures. Awareness is lower among scheduled caste women than among nonscheduled caste women. Differentials in reported awareness of sex preselection procedures by exposure to mass media are substantial. Four-fifths of women who are exposed to any media say they know that the sex of the foetus can be found out whereas only three-fifths of those who have not been exposed to any media are aware. The awareness is highest among those who go to the cinema at least once a month (93 percent).

Among those who are aware of sex preselection procedures, 23 percent approve of the practice of aborting unwanted female foetuses. Approval of abortion of female foetuses decreases slightly with age. Among women age 15-29, 24-25 percent approve of the abortion of female foetuses, among those age 30-39, 22 percent approve, and among those age 40 or above, 20 percent or less approve. Approval of abortion of female foetuses is higher among Sikhs than among Hindus. Surprisingly the differences by education are not substantial, and no clear pattern emerges in differentials by woman's or husband's education. Although awareness of sex preselection procedures is much higher among women exposed to media than among those who are not, approval of the practice of aborting unwanted female foetuses is lower among those exposed to media (22 percent) than among those who are not (24 percent).

Three main reasons are given by women who approve of the practice of seeking abortion of female foetuses (data not shown). Forty-one percent approve because daughters are not desirable, 34 percent think that parents have the right to choose the sex of their child and 18 percent note that the family name must be carried on. Among those who do not approve of abortion because of sex preselection, the major reason for their opposition is that abortion in such circumstances amounts to infanticide (77 percent). One in five disapprove because they consider sons and daughters equal (13 percent) and daughters as God's gift (6 percent).

CHAPTER 8

MORBIDITY AND MORTALITY

This chapter presents NFHS results on the prevalence in Punjab of certain physical disabilities and diseases, and on mortality, especially that of infants and young children. Information on levels, trends, and causes of morbidity and mortality is critical for the demographic assessment of the general population, for identifying sectors of the population at high risk, and for framing public health policies and prioritising intervention programmes. Mortality estimates are also useful for projecting the future size of the population.

The NFHS collected information on mortality and morbidity. The Household Questionnaire contains questions on individuals in the household suffering from blindness, tuberculosis, leprosy, physical impairment of the limbs, and malaria; it also contains questions about deaths that occurred in the household during the past two years. The Woman's Questionnaire collected information on the survival status of all births, the age at death if a child died, and the prevalence of common childhood diseases for children under 4 years of age. The prevalence and treatment of childhood diseases are discussed in Chapter 9.

8.1 Morbidity

Because demographic sample surveys generally do not include questions on the prevalence of diseases, there is little experience on which to predict the validity and reliability of such questions. The patterns shown by the morbidity data analyzed in this section are generally plausible, suggesting that the questions have provided useful information. At the same time, there is little to indicate whether the overall prevalence levels are correct. It is certainly possible that the results of the survey substantially understate the prevalence of certain conditions because some survey respondents fail to report them.

The NFHS collected information from the household head or an adult member of the household, thus relying mostly on respondents' ability to recall events rather than on clinical investigation, therefore, the morbidity estimates presented here should be viewed with caution. In addition, age-old social stigmas and fears of isolation associated with degenerative communicable diseases such as tuberculosis and leprosy may have caused respondents to underreport them. Another problem is the misclassification of diseases. For instance, a fever due to malaria may be diagnosed as ordinary fever, causing the incidence of malaria to be underreported. The reporting of sickness is likely to be more accurate and complete in health-conscious communities than elsewhere. One should bear all these caveats in mind while considering the illness statistics presented in Table 8.1. The specific health problems are discussed in the order of their prevalence in Punjab, from highest to lowest prevalence.

Malaria

For the state as a whole, the prevalence of malaria (that is, the total number of cases in the three months prior to the survey) is 26 per 1,000 population. The prevalence rate is more than twice as high in rural areas (30 per 1,000) as in cities and towns (14 per 1,000). The higher susceptibility to malaria in rural areas can be attributed both to the widespread

accumulation of irrigation water in agricultural fields, which acts as a breeding ground for mosquitoes, and to poor drainage and sewage facilities in rural areas. The sex composition of malaria cases reveals a negligible difference between male and female prevalence rates (27 and 24 per 1,000, respectively). The reported prevalence of malaria is somewhat higher among those age 0-14 and 15-59 (26 per 1,000) than among the population 60 and older (20 per 1,000). The incidence of malaria varies considerably from season to season, being highest during the rainy season. Because the fieldwork for the NFHS in Punjab was carried out in the rainy season, these estimates probably represent a worst-case scenario.

Table 8.1 Morbidity

Number of persons per 1,000 usual household residents suffering from blindness, tuberculosis, leprosy, physical impairment of the limbs, and malaria according to age, sex and residence, Punjab, 1993

Demographic characteristic	Number of persons per 1,000 suffering from:						Number of usual residents
	Blindness		Tuberculosis	Leprosy	Physical impairment of limbs	Malaria during the last three months	
	Partial	Complete					
URBAN							
Age							
0 -14	0.6	2.9	0.6	--	6.9	16.0	1751
15-59	4.5	0.3	3.8	--	4.8	13.5	2893
60+	34.4	4.3	6.5	--	10.8	8.6	465
Sex							
Male	5.7	0.4	3.0	--	6.4	14.0	2651
Female	6.1	2.8	2.8	--	5.7	13.8	2458
Total	5.9	1.6	2.9	--	6.1	13.9	5109
RURAL							
Age							
0 -14	--	3.5	0.2	0.4	8.7	29.8	4602
15-59	3.7	0.6	2.8	0.3	7.9	31.3	7098
60+	50.9	6.4	5.6	0.8	19.9	23.8	1258
Sex							
Male	6.3	1.6	2.6	0.1	13.2	31.5	6799
Female	7.6	2.8	1.6	0.6	5.0	28.4	6159
Total	6.9	2.2	2.2	0.4	9.3	30.0	12958
TOTAL							
Age							
0 -14	0.2	3.3	0.3	0.3	8.2	26.0	6353
15-59	3.9	0.5	3.1	0.2	7.0	26.1	9991
60+	46.4	5.8	5.8	0.6	17.4	19.7	1723
Sex							
Male	6.1	1.3	2.8	0.1	11.3	26.6	9450
Female	7.2	2.8	2.0	0.5	5.2	24.3	8617
Total	6.6	2.0	2.4	0.3	8.4	25.5	18067

-- Less than 0.05 per 1,000

Physical Impairment of the Limbs

The physical impairment of limbs seems to be high in Punjab, the prevalence rate being 8 per 1,000. Impairment is more common in rural areas (9 cases per 1,000 population) than in urban areas (6 per 1,000) and substantially more common among males than females (11 and 5 per 1,000, respectively). The higher impairment rate among the rural and male population can be attributed largely to accidents associated with the mechanisation of agriculture and the greater workforce participation of males in it. Although the 60 and older age group has a higher prevalence of physical disabilities (17 per 1,000) than the younger age groups, it is noteworthy that the youngest age group appears to have a slightly higher rate than the 15-49 age group.

Partial and Complete Blindness

The overall prevalence of partial blindness is 7 per 1,000. Urban respondents report a slightly lower prevalence (6 per 1,000) than do those in rural areas (7 per 1,000). Partial blindness is mostly a function of age, and therefore its occurrence among those age 60 and above is much higher (46 per 1,000) than in younger age groups. Females have slightly higher prevalence than males.

The prevalence of total blindness in the state is 2 per 1,000, with the figure for rural areas being marginally higher than that for urban areas. Complete blindness is also reported to be higher among females (3 per 1,000) than among males (1 per 1,000), indicating the relative female disadvantage. By age group, complete blindness exhibits a U-shaped pattern, with those in the 0-14 and 60 and older age groups having higher prevalence rates (3 and 6 per 1,000, respectively) than those in the 15-59 age group. The overall level of complete blindness, as reported in the 1981 Census, is 0.5 per 1,000 population (Office of the Registrar General and Census Commissioner, 1983). The higher estimate provided by the NFHS is probably not due to a substantial rise in complete blindness in the recent past but rather to a greater underenumeration of complete blindness in the census.

Tuberculosis

The tuberculosis prevalence rate works out to be slightly over 2 per 1,000 for the state, with minor variations recorded by urban/rural residence, sex, and age group. Rural areas and females seem to have a marginal advantage as far as the prevalence of this disease is concerned. The rate of tuberculosis increases with age. In comparison with the results from the 28th round of the NSS (National Sample Survey Organization, 1980), the NFHS estimates suggest that tuberculosis prevalence in Punjab has more than doubled in in the last two decades. In the urban areas, chronic tuberculosis has increased from 0.9 to 2.9 cases per 1,000 persons and in rural areas, the increase has been from 1.2 to 2.2 per 1,000 persons.

Leprosy

Punjab has an extremely low prevalence of leprosy (0.3 per 1,000). Differences by sex, age, and urban/rural residence are too small to merit interpretation. The 28th round of the NSS also recorded few cases of chronic leprosy in the urban areas of the state (0.6 per 1,000 population) and no cases in rural areas.

8.2 Crude Death Rates and Age-Specific Death Rates

Table 8.2 shows the crude death rates (CDR) from the NFHS and the Sample Registration System (SRS). The CDR from the NFHS is based on deaths occurring to usual residents of the household during the two years preceding the survey as reported in response to the Household Questionnaire, whereas the SRS estimates are based on deaths during a one-year period. The NFHS rate 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 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 groups and both sexes.

Demographic surveys in many developing countries contain questions on the number of deaths occurring to usual residents in each household during a particular time period, and the results confirm a substantial understatement of deaths. Hence, before analysing the mortality figures from the NFHS, it is prudent to consider the completeness of reporting of deaths. The SRS provides the most useful comparison in this regard.

Death rates derived from the SRS are generally slightly higher than those based on the NFHS. The total CDRs are 7.8 and 7.1 deaths per 1,000 population, respectively. The NFHS estimate of the CDR can be subtracted from the estimate of the crude birth rate presented in Table 5.1 to calculate the rate of natural increase for the population of Punjab. The rate of natural increase so calculated is 17 per 1,000 population per year for the two-year period before the survey.

Both the NFHS and the SRS estimates show somewhat higher total CDRs for males than for females (7.7 for males and 6.4 for females in the case of the NFHS, and 8.6 and 6.8, respectively, for the SRS estimates). However, the age-specific death rates in both cases show higher female than male mortality at younger ages, especially in the 0-4 age group. This pattern

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

Crude death rates (CDR) and age-sex specific death rates, Punjab, 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	12.8	17.6	14.9	1039	871	1910	15.1	19.0	17.0
5 -14	0.8	1.5	1.1	2404	2039	4443	1.4	1.5	1.4
15-49	2.9	2.0	2.4	4548	4430	8978	3.6	2.2	2.9
50+	29.7	21.9	26.1	1459	1277	2736	34.7	22.3	28.7
CDR	7.7	6.4	7.1	9450	8617	18067	8.6	6.8	7.8

Note: Crude death rates and age-sex specific death rates from the NFHS are based on the annual number of deaths reported for the *de jure* population during the two years prior to the survey. The SRS rates are also *de jure*, based on deaths during 1991.
Source for SRS data: Office of the Registrar General (1993)

is typical of South Asia (Preston, 1990; Ghosh, 1987) but inconsistent with the mortality pattern of most countries, in which male death rates exceed female death rates at nearly all ages.

8.3 Infant and Child Mortality

Definitions of Infant and Child Mortality

All NFHS respondents were asked to give a complete birth history, 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, the age at death was recorded in days for children dying in the first month of life, in months for children dying before their second birthday, and in years for children dying at later ages. This information was used to calculate the following direct estimates of infant and child mortality[1]:

Neonatal mortality:	the probability of dying in the first month of life,
Postneonatal mortality:	the difference between infant and neonatal mortality,
Infant mortality ($_1q_0$):	the probability of dying before the first birthday,
Child mortality ($_4q_1$):	the probability of dying between the first and fifth birthdays,
Under-five mortality($_5q_0$):	the probability of dying before the fifth birthday.

Assessment of Data Quality

The reliability of mortality estimates calculated from retrospective birth histories depends upon the completeness with which deaths of children are reported and the extent to which birth dates and ages at deaths are accurately reported and recorded. Estimated rates of infant and child mortality are subject to both sampling and nonsampling errors. The sampling errors for various mortality estimates are provided in Appendix A. This section describes the results of various checks for nonsampling errors -- in particular, underreporting of deaths in early childhood (which would result in an underestimate of mortality) and misreporting 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.

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[1]A detailed description of the method for calculating the probabilities presented here is given in Rutstein (1984). The mortality estimates are not rates, but are 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. Finally, probabilities of mortality for larger age segments are produced by multiplying the relevant age interval survival probabilities together and subtracting the product from 1.0:

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

Underreporting of infant deaths, in particular, is usually most severe for deaths that occur very early in infancy. If deaths in the early neonatal period are selectively underreported, then there will be an abnormally low ratio of deaths under seven days to all neonatal deaths and an abnormally low ratio of neonatal to infant mortality. Changes in these ratios over time can be examined to test the hypothesis that underreporting of early infant deaths is more common for births that occurred longer before the survey. Results from Table B.5 (see Appendix B) suggest that early infant deaths have *not* been severely underreported in the Punjab NFHS, 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 declines from 72 to 57 between 10-14 years and 0-4 years prior to the survey, indicating the decline in the level of early neonatal mortality in the state. Similarly, the ratios of infant deaths that occurred during the neonatal period (see Appendix Table B.6), although they seem to be high, also reflect the onset of a gradual reduction in neonatal infant mortality rates during the 14 years prior to survey.

One problem that is inherent in most retrospective surveys is a preference for certain digits for example, 6, 12, and 18 months and an avoidance of others in reporting the age at death. The 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 the 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 1 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 the child mortality rate ($_4q_1$) upward.

The NFHS in Punjab recorded some misreporting of age at death due to a preference for reporting age at death at 3, 8, 10, 13, 15, and 22 days (see Appendix Table B.5). Examination of the distribution of deaths under age 2 years during the 15 years prior to the survey by month of death (Appendix Table B.6) indicates that the calculated infant mortality rates for the population of Punjab as a whole are not likely to be understated by more than 1-2 percent on this account.

This brief check on internal consistency of the Punjab NFHS childhood mortality data suggests that there is no serious underreporting of deaths during the time periods for which the mortality rates are estimated. 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 because these women were over age 50 at the time of the survey and not eligible to be interviewed. Since these excluded births to older women were likely to be at a somewhat greater risk of dying than births to younger women, the mortality levels for the period may be slightly underestimated. However, the estimates for later periods are less affected by the truncation bias because fewer older women are excluded. The extent of this bias depends on the proportion of births omitted, however. Among children born in the five years prior to the survey, only 3 percent were born to women over age 34 (Table 8.6). Given this small proportion of births excluded, selection bias for infant and child mortality statistics as far back as 15 years before the survey should be 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 group. Infant mortality rates declined substantially in Punjab during the 15 years prior to the NFHS. For instance, the infant mortality rate for the total population declined from 61 per 1,000 live births during 1978-82 (10-14 years prior to the survey) to 52 per 1,000 during 1983-87 (5-9 years prior to the survey), an average rate of decline of nearly two infant deaths per 1,000 live births per year. The rural areas benefitted less from this decline than did the urban areas. Infant mortality levels appear to have risen during 0-4 years before the survey in urban areas and consequently in the state as a whole. However, the differences in infant and child mortality rates over time are not statistically significant because the sampling errors are quite large (see Appendix A, Table A.2). Despite the decline in infant mortality (13 percent over a 10-year period), 1 in every 19 children born in the five years before the NFHS died within the first year of life and 1 in every 15

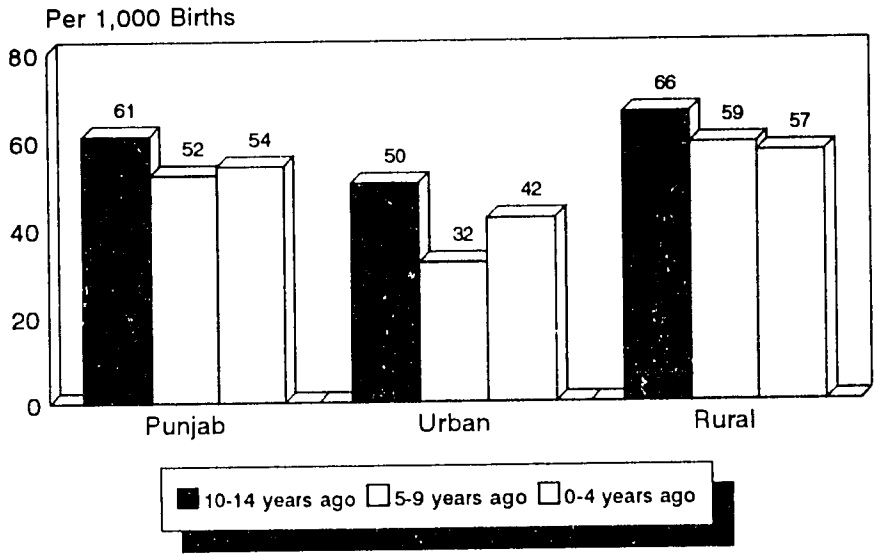
Table 8.3 Infant and child mortality

Neonatal, postneonatal, infant, child and under-five mortality for five-year periods preceding the survey, by residence, Punjab, 1993

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	20.6	21.7	42.3	13.8	55.5
5-9 years	16.9	15.1	31.9	9.4	41.1
10-14 years	28.7	21.5	50.2	27.6	76.4
			RURAL		
0-4 years	34.4	22.8	57.2	15.4	71.8
5-9 years	34.0	25.3	59.3	23.9	81.8
10-14 years	39.4	26.4	65.8	20.5	85.0
			TOTAL		
0-4 years	31.2	22.5	53.7	15.0	68.0
5-9 years	29.2	22.4	51.7	19.7	70.3
10-14 years	36.4	25.0	61.4	22.4	82.5

[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, Punjab, 1993

children died before reaching age 5. Therefore, infant and child survival programmes still need to be further strengthened, both in the urban and rural areas of the state.

For Punjab, the estimated infant mortality rate in the NFHS of 54 in 1988-92 is lower than the SRS value of 61 for the calendar year 1990, the mid-point of the NFHS estimation period (Office of the Registrar General, 1993). The rural and urban estimates of infant mortality from the NFHS are also lower than the SRS estimates. One plausible reason for this pattern is that the NFHS is a *de facto* sample whereas the SRS is a *de jure* sample. If infant mortality is higher among urban women who return to their village homes to have their babies than among urban women who have their babies in the city, then the NFHS infant mortality rate for urban areas will be lower than the corresponding SRS estimate for the same period. For earlier periods, the overall NFHS estimates of infant mortality do not correspond quite as well to the SRS estimates in the state.

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 place of residence seems to be a crucial determinant of the level of infant and child mortality. Neonatal, postneonatal, infant, and childhood mortality rates are invariably higher in rural areas. The infant mortality rate in rural areas is 1.6 times the rate in urban areas, with the rates being 58 and 36 per 1,000 live births, respectively. Similarly, children in rural areas experience 63 percent higher risk of

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, Punjab, 1993

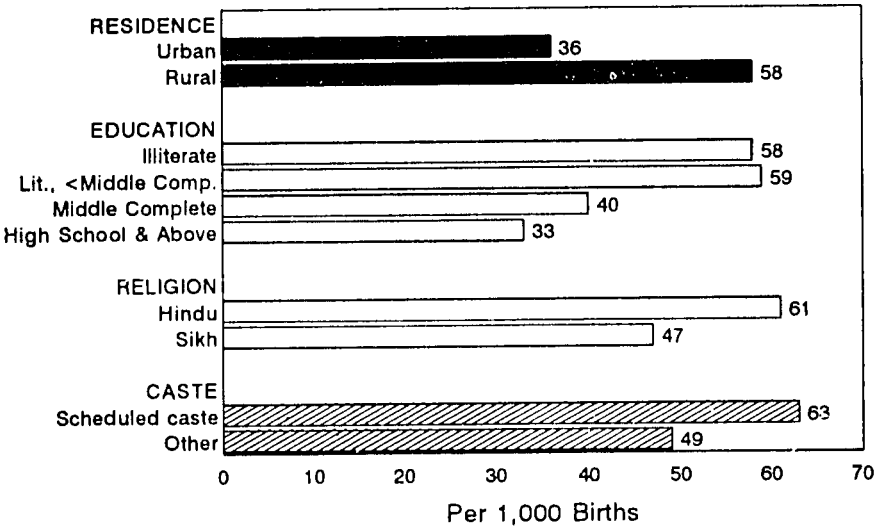
Background characteristic	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
Residence					
Urban	18.5	17.9	36.3	11.3	47.3
Rural	34.2	24.1	58.3	19.7	76.9
Mother's education					
Illiterate	34.1	23.9	58.0	24.3	80.8
Literate, < middle complete	35.6	23.2	58.7	12.0	70.0
Middle school complete	(14.0)	(26.3)	(40.3)	(7.3)	(47.3)
High school and above	17.5	15.5	33.0	4.8	37.6
Religion					
Hindu	33.5	27.5	61.0	14.1	74.2
Sikh	27.5	19.5	47.0	18.3	64.5
Caste					
Scheduled caste	35.1	27.4	62.5	16.2	77.6
Other	28.3	20.6	48.9	18.0	66.0
Medical maternity care[2]					
Either antenatal or delivery care	31.0	26.6	57.6	19.5	76.0
Both antenatal and delivery care	30.7	26.2	56.9	(14.0)	70.1
Total	30.2	22.5	52.6	17.5	69.2

Note: Total includes the mortality experience of Muslim, Christian and other religious groups, and those who did not receive antenatal care or delivery care, which is based on fewer than 250 births 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.

dying before their fifth birthday than their urban counterpart. As expected, infant mortality declines with increasing education of women, particularly with the completion of the middle level of education. For example, among women who have attained a high school or higher level of education, the probability of losing a child within the first four weeks of childbirth is one-half as much as among women who have not completed middle school.

Mortality differentials by religion and caste presumably reflect the influence of sociocultural factors. For example, Sikhs have lower infant mortality rates (47 per 1,000) than Hindus (61 per 1,000), the difference being spread over the neonatal and postneonatal period. Interestingly, however, the lower probability of death among children born to Sikh mothers disappears subsequently, and children of Hindu mothers gain a relative advantage between the first and fifth birthdays. As anticipated, socially backward communities, namely the scheduled castes, are at greater disadvantage in infant and under-5 mortality. Although medical attention during the antenatal period or delivery is known to reduce the risk of infant and child mortality, the inadequate number of cases receiving no antenatal and delivery care in the NFHS does

Figure 8.2
Infant Mortality Rates by Selected Background Characteristics



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

NFHS, Punjab, 1993

not permit meaningful inferences regarding the effect of medical maternity care in Punjab.

Demographic Differentials in Infant and Child Mortality

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

Northern India, particularly Punjab, is characterised by the comparatively low status of women (Dyson and Moore, 1983) which is often reflected in higher female than male mortality. For example, the probability of dying by age 5 in Table 8.5 shows that the risk of death is 5 percent higher for female children than for male children. If deaths occurring during the first five years of life are decomposed into deaths at specific intervals, the sex differential in mortality becomes more pronounced -- specifically after the first year of life. As an illustration of this, child mortality -- the probability of dying between the first and fifth birthdays -- is 81 percent higher for females than for males. The male advantage in mortality starts only after the first year of life; until the first birthday, male infants have a higher risk of death than female infants (56 and 49 per 1,000 live births, respectively). The more usual situation in South Asia is higher female infant mortality after the first month of life, which is attributed to sociocultural practices that discriminate against female babies. The NFHS postneonatal mortality rates for Punjab preclude such theorization. Rather, one finds biological disadvantages for males, emanating

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, Punjab, 1993

Demographic characteristic	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-5 mortality ($_5q_0$)
Sex of child					
Male	32.9	22.8	55.6	12.7	67.6
Female	27.0	22.1	49.1	23.0	71.0
Mother's age at birth					
< 20	47.5	19.1	66.6	11.5	77.3
20-29	27.7	23.3	51.0	19.1	69.2
30-39	26.1	22.1	48.2	15.6	63.1
Birth order					
1	39.8	16.7	56.5	12.6	68.3
2-3	25.8	25.0	50.8	14.9	64.9
4-6	28.2	25.9	54.1	26.1	78.8
Previous birth interval					
< 24 months	36.6	34.4	71.1	28.5	97.6
24-47 months	17.8	21.6	39.3	14.6	53.3
48+ months	(24.7)	(10.3)	(35.0)	(10.7)	(45.3)
Birth size[2]					
Average	21.7	19.8	41.4	18.9	59.6
Small	(70.2)	(47.6)	(117.8)	*	(124.4)

() Based on 250-499 children surviving to the beginning of the age interval
* Rate not shown; based on fewer than 250 children surviving to the beginning of the age interval
[1]Computed as the difference between the infant and neonatal mortality rates
[2]Birth size as reported by the mother; rates for the four-year period preceding the survey

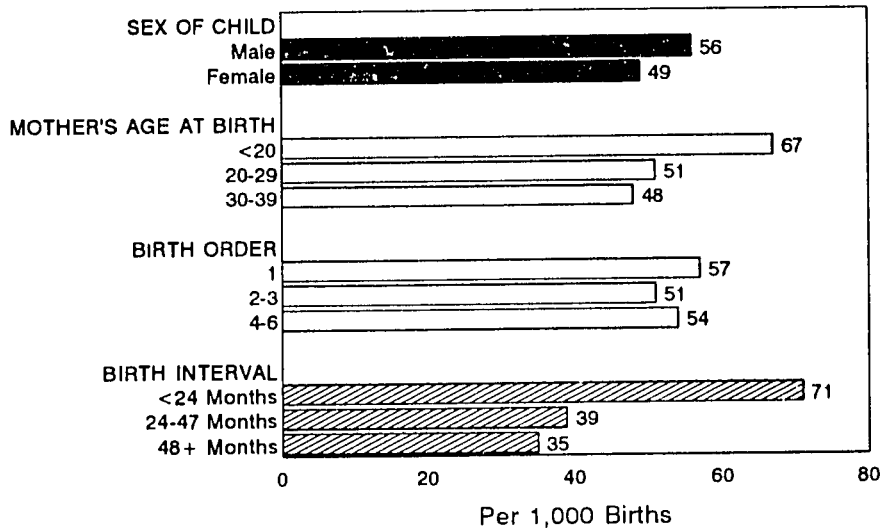
mostly from congenital conditions, in the first four weeks of life extending up to the end of the first year of life.

Child mortality usually exhibits a U-shaped pattern with respect to the mother's age at the time of the birth, with children of both very young and very old mothers more at risk of dying than children of mothers in the prime reproductive ages. In Punjab, infant mortality is highest for children of mothers under age 20 (67 per 1,000 live births) and lowest for age 30 and over (48 per 1,000 live births). The greater vulnerability of children born to young mothers is also reflected in 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 show the expected U-shaped pattern for neonatal mortality. But postneonatal and child mortality both increase steadily with rising birth order. There is, of course, a close relationship between the mother's age and birth order, with higher-order births occurring at older ages and hence exposed to greater risks of death.

Childspacing patterns have a powerful effect on the survival chances of children. A 1958 study in Punjab demonstrated that the risk of death in the first year for babies born less than

Figure 8.3
Infant Mortality Rates by Selected Demographic Characteristics



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

NFHS, Punjab, 1993

two years after their closest sibling was 50 percent higher than that of children born two to four years later, and almost twice that of children born after an interval of four or more years (Newland, 1981). Mortality risks for infants and children increase sharply as the length of the preceding birth interval decreases, as indicated in the Punjab NFHS by the length of the previous birth interval (Table 8.5). Neonatal mortality is over twice as high for children with a preceding interval of less than 24 months as for children with a preceding interval of 24-47 months (37 compared to 18 per 1,000). The effect of a preceding interval of more than 47 months is difficult to assess because of the inadequate sample size of this group. Although 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 Punjab, particularly those delivered in homes, 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. The mortality estimates for children reported to be 'large' are not shown separately in the table because of fewer than 250 births in this category, and 'small' births are based on a relatively small number

of cases. Infants perceived by their mothers to be smaller than average at birth experience substantially higher mortality, especially neonatal mortality, than average-size infants.

8.4 High-Risk Fertility Behaviour

Certain patterns of childbearing are associated with elevated levels of infant and child mortality. For example, Table 8.5 shows higher mortality risks for children of very young mothers and for births occurring within 24 months of a previous birth. Because couples can, in theory, control each of these risk factors if they have access to family planning services and supplies, it should be possible for them to reduce the risks of mortality to their children.

Table 8.6 shows the percentages of births in the five years preceding the interview that fall into various survival risk categories, the relative risks of children dying within each category, and the distribution of all currently married women across these 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 parent or from the point of view of the health and family planning policymaker. For the prospective parent, the critical issue is the magnitude of each relative risk, because presumably parents will want to avoid births under circumstances that are likely to result in their children's death. For example, it is important to avoid childbearing preceded by a birth interval of less than 24 months because the mortality risk for children born after such a short interval is 1.25 times as high as the risk for children not in any elevated risk category. Similarly, childbearing should also be avoided before age 18 because the mortality risk for children of young mothers is twice as high as for children of mothers not in any elevated risk category. For policymakers, not only is the magnitude of each risk important; so too is the percentage of women in each elevated risk category. The latter is important because it determines whether particular types of high-risk births are likely to occur frequently or only rarely; presumably policymakers will want to target their efforts towards types of high-risk births that occur most frequently.

Table 8.6 shows that the highest risk ratios are for births of order four and above, occurring within 24 months of the previous birth, and for births to young mothers. Because 6 percent of all births fall in the first category and 3 percent in the latter category, avoidance of such births will have the effect of reducing the overall level of infant mortality in Punjab. Discouraging childbearing among women with preceding birth intervals of less than 24 months or a birth order higher than three is likely to have an greater impact on overall mortality levels because large proportions of births either take place less than 24 months apart (17 percent) or occur to mothers who have already borne three children (13 percent).

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, Punjab, 1993

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	64.3	1.00	51.5[b]
Single high-risk category			
Age<18: Age under 18 years at birth	2.8	*	0.4
Age>34: Age over 34 years at birth	1.2	*	7.8
BI<24 : Birth interval under 24 months	15.5	(0.89)	9.8
BO>3 : Birth order higher than 3	10.8	*	8.8
Subtotal	30.3	0.76	26.6
Multiple high-risk category			
Age<18 & BI<24[c]	--	NC	0.3
Age>34 & BI<24	--	NC	--
Age>34 & BO>3	2.1	*	15.9
Age>34 & BI<24 & BO>3	0.2	*	1.0
BI<24 & BO>3	3.1	*	4.8
Subtotal	5.4	*	21.9
In any high-risk category	35.7	0.90	48.5
Total percent	100.0	NA	100.0
Number	426	NA	800
RURAL			
Not in any high-risk category	55.5	1.00	55.2[b]
Single high-risk category			
Age<18: Age under 18 years at birth	3.5	*	0.5
Age>34: Age over 34 years at birth	0.5	*	4.1
BI<24 : Birth interval under 24 months	17.2	(1.33)	9.5
BO>3 : Birth order higher than 3	13.5	(0.80)	8.8
Subtotal	34.7	1.25	22.9
Multiple high-risk category			
Age<18 & BI<24[c]	0.3	*	0.2
Age>34 & BI<24	0.1	*	--
Age>34 & BO>3	2.2	*	14.7
Age>34 & BI<24 & BO>3	0.1	*	0.7
BI<24 & BO>3	7.1	*	6.2
Subtotal	9.8	*	21.9
In any high-risk category	44.5	1.24	44.8
Total percent	100.0	NA	100.0
Number	394	NA	2078

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, Punjab, 1993

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	57.5	1.00	54.2[b]
Single high-risk category			
Age<18: Age under 18 years at birth	3.4	(2.00)	0.5
Age>34: Age over 34 years at birth	0.7	*	5.1
BI<24 : Birth interval under 24 months	16.8	1.25	9.6
BO>3 : Birth order higher than 3	12.9	0.82	8.8
Subtotal	33.7	1.17	23.9
Multiple high-risk category			
Age<18 & BI<24[c]	0.2	*	0.2
Age>34 & BI<24	0.1	*	--
Age>34 & BO>3	2.2	*	15.0
Age>34 & BI<24 & BO>3	0.2	*	0.8
BI<24 & BO>3	6.2	1.56	5.8
Subtotal	8.8	1.31	21.9
In any high-risk category	42.5	1.20	45.8
Total percent	100.0	NA	100.0
Number	1820	NA	2878

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
NC: Not calculated because there are no cases in this high-risk category
() Denominator of the upper proportion in the risk ratio is between 50 and 99 births
* Risk ratio not shown; denominator of the upper proportion in the risk ratio is 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

The last column of Table 8.6 shows the proportion of currently married women who would fall within each of the risk categories if they were to become pregnant at the present time. More than 45 percent of these women are in a high-risk category, implying that a pregnancy at the present time would subject their child to a higher than average risk of dying. However, this extrapolated percentage is based on a small number of cases.

Although 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. For

example, women who have many children at short birth intervals tend to live in rural areas, which will almost certainly raise the 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

The importance of safe motherhood practices and child survival cannot be exaggerated in a country that has experienced high infant and child mortality and maternal mortality. Realizing the importance of maternal and child health care services, the Ministry of Health, Government of India, took concrete steps to strengthen maternal and child health services in the First and Second Five Year Plans (1951-56 and 1956-61). The integration of family planning services with maternal and child health services and nutrition services was introduced as a part of the Minimum Needs Programme during the Fifth Five Year Plan (1974-79). The primary objective was to provide basic public health services to vulnerable groups of pregnant women, lactating mothers, and preschool children (Kanitkar, 1979). Since then, the promotion of health of mothers and children has been one of the most important aspects of the Family Welfare Programme in India, and 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 (MCH) Programme, including the programme of Oral Rehydration Therapy (ORT), the development of Regional Institutes of Maternal and Child Health in states where infant mortality rates are high, the Universal Immunization Programme, and the Maternal and Child Health Supplemental Programme within the Postpartum Programme (Ministry of Health and Family Welfare, 1992a).

In the rural areas of India, maternal and child health services are delivered mainly by government-run Primary Health Centres and sub-centres. Services for pregnant women and children can also be obtained from private and public maternity homes and hospitals, as well as from private practitioners. In urban areas, maternal and child health services are available mainly through government or municipal hospitals, urban health posts, hospitals and nursing homes operated by nongovernmental voluntary organizations, and various private nursing homes and maternity homes.

The Village Health Guide is a link between the community and MCH services in rural areas. The Female Health Worker, who is an Auxiliary Nurse Midwife (ANM), renders maternal and child health and family welfare services (Ministry of Health and Family Welfare, 1978). The Female Health Worker is supposed to assist the Medical Officer and Female Health Assistant in providing maternal and child health services. She is responsible for registering pregnant women and assessing their health throughout pregnancy in their homes or in the antenatal clinic. Another responsibility of the Female Health Worker is to refer pregnant women who have symptoms of abnormal pregnancy or labour, or who have gynaecological problems that are beyond her level of competence, to the Primary Health Centre. The basic maternal and child services offered at Primary Health Centres are antenatal and postnatal care of mothers as well as care of infants and children.

A major objective of the NFHS has been 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 1989. The information covered matters related to pregnancy and childbirth; infant and child feeding practices, including breastfeeding;

vaccinations episodes of illnesses such as acute respiratory infection, fever, and diarrhoea, and the treatment received; mothers' knowledge and use of Oral Rehydration Salts (ORS); and the level of child nutrition, assessed by measuring the weight and height of children.

This chapter analyzes the data collected on antenatal and delivery care, vaccination 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 1989, the analysis in this chapter is restricted to children born exactly four years before the date each woman was interviewed. Furthermore, if a woman had more than one live birth during the four-year period, information was collected for the three most recent live births; all of these births are included in the current 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 the correct diet and the provision of iron and folic acid tablets to pregnant women. Improved nutritional status, coupled with improved 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 by visiting a doctor or other health professional in a medical facility, or by receiving a home visit from a health worker, or both. In the NFHS, each woman who had a live birth during the four years prior to the survey was initially asked whether any health worker had visited her at home for an antenatal check-up when she was pregnant and, if so, in 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 outside the home for an antenatal check-up and whom she had seen for the check-up. If she saw more than one person, information was collected on all the persons seen. She was asked at which month of pregnancy she first went for an antenatal check-up and how many such visits she made.

Table 9.1 and Figure 9.1 show the 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. For a large majority (88 percent) of births in Punjab during the last four years, mothers received some form of antenatal care. Except for a very small proportion, all of these births (86 percent) received antenatal care from outside the home. In this tabulation, women who received antenatal care outside the home, whether or not they also received care at home from a health worker, are classified as "outside home". Allopathic doctors provided antenatal care for one-third of births; other health professionals (such as nurse/midwives, ayurvedic doctors, and homeopathic doctors) provided care for more than

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, Punjab, 1993

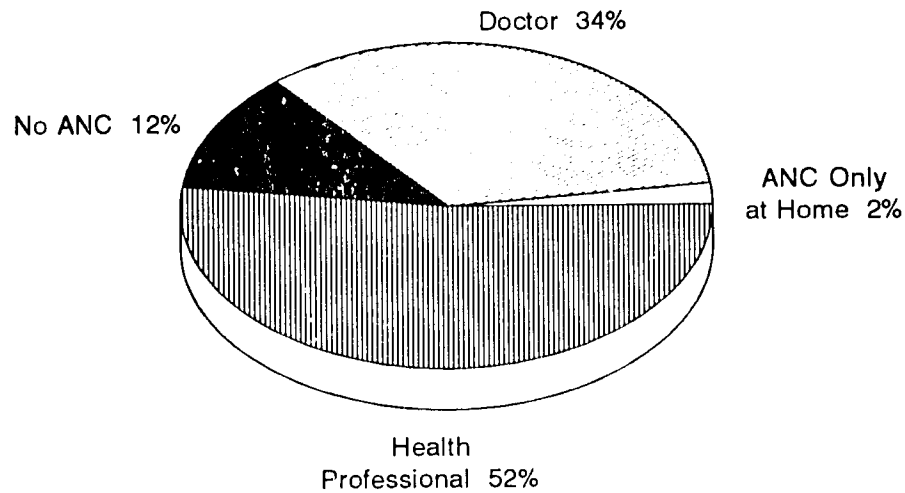
Background characteristic	ANC only at home from health worker	Antenatal care provider (outside home)[1]			No ANC	Total percent	Number of births
		Doctor	Other health professional	Traditional birth attendant			
Mother's age at birth							
< 20	1.0	25.9	56.0	0.5	16.6	100.0	193
20-34	2.0	35.6	51.4	0.2	10.8	100.0	1212
35+	(--)	(33.3)	(38.1)	(--)	(28.6)	100.0	42
Birth order							
1	0.7	37.4	53.2	0.7	8.0	100.0	425
2-3	2.1	37.2	51.3	0.1	9.2	100.0	709
4-5	2.9	24.2	53.7	--	19.3	100.0	244
6+	1.4	18.8	37.7	--	42.0	100.0	69
Residence							
Urban	1.5	50.3	40.4	0.6	7.2	100.0	334
Rural	1.9	29.4	55.0	0.2	13.6	100.0	1113
Education							
Illiterate	1.9	21.8	54.2	0.4	21.7	100.0	746
Literate, < middle complete	2.3	34.2	59.9	--	3.6	100.0	307
Middle school complete	1.8	50.9	45.6	0.9	0.9	100.0	114
High school and above	1.1	60.4	38.2	--	0.4	100.0	280
Religion							
Hindu	1.2	38.0	49.6	--	11.2	100.0	563
Muslim	(11.1)	(11.1)	(55.6)	(--)	(22.2)	100.0	27
Sikh	1.9	33.4	52.5	0.5	11.7	100.0	824
Christian	(--)	(9.4)	(59.4)	(--)	(31.3)	100.0	32
Caste							
Scheduled caste	2.0	26.4	58.9	--	12.8	100.0	406
Other	1.7	37.3	48.8	0.4	11.8	100.0	1041
Total[2]	1.8	34.2	51.6	0.3	12.1	100.0	1447

Note: ANC refers to pregnancy-related health care provided by a doctor or 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]Births in the period 1-47 months prior to the survey. Total includes 1 birth to a woman belonging to other religion, who is not shown separately.

one-half (52 percent) of births.

Table 9.1 shows that the utilization of antenatal care (ANC) services is marginally lower for births to mothers below age 20 and much lower for births to women age 35 and older than to mothers age 20-34. There is a negative relationship between birth order and utilization of antenatal care services. No ANC was received for almost 1 in 10 births of order 1-3, 2 in 10 births of order 4-5 and 4 in 10 higher order births. As expected, antenatal care is more widely obtained in urban areas than in rural areas, with doctors being the principal providers in urban

Figure 9.1
Sources of Antenatal Care (ANC)
During Pregnancy



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

NFHS, Punjab, 1993

areas and other health professionals the principal providers in rural areas. Literacy has a strong impact on the utilization of antenatal care services. The proportion of births to mothers who received antenatal care is 78 percent for illiterate mothers, and is almost universal for those who are literate. As expected, likelihood of receiving ANC from doctors increases with increasing education of the mother. The utilization of antenatal services does not differ much between Hindus and Sikhs, and comparisons with Muslims and other religious groups, although not as valid because of the small number of births in these categories, indicate much lower utilization of ANC for minority religious groups. Scheduled castes and others do not differ much in the overall utilization of antenatal care services, but the percentage of births for which mothers received antenatal care from a doctor is higher for nonscheduled castes than for scheduled castes.

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, working women from lower socioeconomic groups find it difficult to attend an antenatal clinic that often because they may face a loss of wages whenever they are absent from work. Under these circumstances, at least four antenatal visits are recommended, during the third, sixth, eighth, and ninth months of 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. The median frequency of antenatal care visits is 3.6 for any type of visit, 2.9 for home visits, and 3.5 for visits outside the home. It is clear 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, Punjab, 1993

ANC visits/ months pregnant	Home visits	Outside visits	Any type
	URBAN		
Number of ANC visits			
None	94.6	8.7	7.2
1 visit	1.2	1.2	1.5
2-3 visits	2.1	47.3	47.6
4 or more visits	2.1	42.5	43.4
Don't know/missing	--	0.3	0.3
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	*	3.9	3.9
Months pregnant at the time of the first ANC visit			
No antenatal care	94.6	8.7	7.2
First trimester	1.5	38.0	38.6
Second trimester	3.3	40.4	41.6
Third trimester	0.6	12.9	12.6
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	*	4.8	4.8
Number of live births[1]	334	334	334
	RURAL		
Number of ANC visits			
None	91.5	15.5	13.6
1 visit	2.2	2.7	2.6
2-3 visits	4.7	59.4	56.7
4 or more visits	1.6	22.5	27.1
Don't know/missing	--	--	--
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	2.7	3.4	3.5
Months pregnant at the time of the first ANC visit			
No antenatal care	91.5	15.5	13.6
First trimester	2.3	19.9	21.4
Second trimester	4.5	48.1	49.3
Third trimester	1.7	16.5	15.7
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	5.0	5.4	5.3
Number of live births[1]	1113	1113	1113

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, Punjab, 1993

ANC visits/ months pregnant	Home visits	Outside visits	Any type
	TOTAL		
Number of ANC visits			
None	92.2	13.9	12.1
1 visit	2.0	2.3	2.3
2-3 visits	4.1	56.6	54.6
4 or more visits	1.7	27.1	30.9
Don't know/missing	--	0.1	0.1
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	2.9	3.5	3.6
Months pregnant at the time of the first ANC visit			
No antenatal care	92.2	13.9	12.1
First trimester	2.1	24.1	25.4
Second trimester	4.2	46.3	47.5
Third trimester	1.5	15.7	15.0
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	5.0	5.3	5.2
Number of live births[1]	1447	1447	1447

-- Less than 0.05 percent
* Median not shown, based on fewer than 25 cases
[1]Births in the period 1-47 months prior to the survey

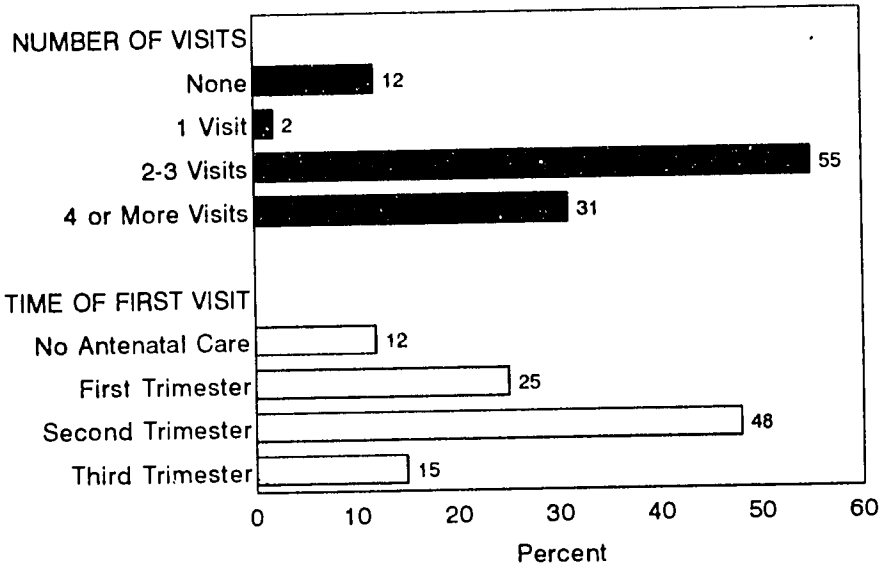
women in Punjab are far behind in following the standards set for antenatal visits. The urban and rural areas in Punjab do not differ much in the median number of antenatal visits. No home visits were made by health workers to the mothers of a large majority of births (92 percent); only 8 percent of births in rural areas and 5 percent of births in urban areas received antenatal care through home visits.

Obstetricians advise that antenatal care should begin, at the latest, six weeks after the last menstrual period. However, studies of the impact of the initial antenatal visit show that, even when antenatal care is initiated as late as the third trimester, there is a substantial reduction in perinatal mortality (Ramachandran, 1992). In Punjab, the median gestational age for the first antenatal visit of any type (home or outside) is 5.2 months, being 4.8 months for urban areas and 5.3 months for rural areas. The median months of gestation for home visits and outside visits hardly differ between urban and rural areas.

Tetanus Toxoid Vaccination

Tetanus is an important cause of death among neonates in India (Visaria, 1984; Simmons et al., 1978). Neonatal tetanus is caused by an infection to the newborn (usually at the umbilical

Figure 9.2
Number and Timing of Antenatal Visits



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

NFHS, Punjab, 1993

stump) with tetanus organisms. Neonatal tetanus is most common when the delivery takes place in an unhygienic environment and nonsterilized instruments are used for cutting the umbilical cord. Tetanus typically develops during the first or second week of life and is fatal in 70 to 90 percent of the cases (Foster, 1984). Tetanus cases are most prevalent in rural areas, where expert medical help is also rarely available, thereby leading to a fatality rate of nearly 100 percent. Neonatal tetanus is preventable, however. Two doses of tetanus toxoid vaccine given one month apart during early pregnancy are nearly 100 percent effective in preventing tetanus among newborns and their mothers. Immunity to tetanus is transferred to the baby through the placenta when the mother is immunized.

In India, the tetanus immunization programme for expectant mothers was started in 1975-76 and was integrated with the Extended Programme on Immunization (EPI) in 1978 (Ministry of Health and Family welfare, 1991). To hasten implementation of the immunization programme, in 1985-86 the Government of India started a special programme called the Universal Immunization Programme (UIP). In 1986, the UIP was recognised as one of the Seven Technology Missions. One important objective of 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 (Central Bureau of Health Intelligence, 1991). Reinoculation is recommended every three years. If the initial doses were received less than three years ago, a booster injection is recommended.

In the NFHS, every mother who had a live birth during the four years preceding the survey was asked whether she had been 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 the mother, according to selected background characteristics, is shown in Table 9.3. Eighty-three percent of births were to mothers who had received at least the prescribed two doses of tetanus toxoid injection. In addition, 4 percent of births were to women who had received one dose of tetanus toxoid. The coverage of immunization for tetanus is higher in urban areas (89 percent), but even in rural areas, 81 percent of births were to mothers who received two doses of tetanus toxoid.

Table 9.3 Tetanus toxoid vaccinations

Percent distribution of live births during the four years preceding the survey by number of tetanus toxoid injections and whether the respondent was given iron/folic tablets during pregnancy, according to selected background characteristics, Punjab, 1993

Background characteristic	Number of tetanus toxoid injections				Percent given iron/ folic tablets	Number of births
	None	One dose	Two doses or more	Total percent		
Mother's age at birth						
< 20	18.7	3.1	78.2	100.0	68.9	193
20-34	11.8	4.0	84.2	100.0	75.0	1212
35+	(31.0)	(9.5)	(59.5)	100.0	(54.8)	42
Birth order						
1	9.2	0.7	90.1	100.0	77.4	425
2	8.1	4.0	87.9	100.0	81.3	422
3	13.6	5.6	80.8	100.0	75.6	287
4	17.8	5.5	76.7	100.0	64.4	163
5	24.7	4.9	70.4	100.0	54.3	81
6+	44.9	13.0	42.0	100.0	39.1	69
Residence						
Urban	9.0	2.4	88.6	100.0	82.3	334
Rural	14.6	4.5	81.0	100.0	71.0	1113
Education						
Illiterate	23.5	5.5	71.0	100.0	62.5	746
Literate,< middle complete	3.9	2.9	93.2	100.0	79.5	307
Middle school complete	2.6	1.8	95.6	100.0	86.8	114
High school and above	0.7	2.1	97.1	100.0	91.4	280
Religion						
Hindu	13.3	3.2	83.5	100.0	74.2	563
Muslim	(22.2)	(11.1)	(66.7)	100.0	(66.7)	27
Sikh	12.1	3.6	84.2	100.0	74.3	824
Christian	(34.4)	(21.9)	(43.8)	100.0	(50.0)	32
Caste						
Scheduled caste	14.8	5.2	80.0	100.0	69.0	406
Other	12.7	3.6	83.8	100.0	75.4	1041
Total[1]	13.3	4.0	82.7	100.0	73.6	1447

() Based on 25-49 cases
[1]Births in the period 1-47 months prior to the survey. Total includes 1 birth to a woman belonging to other religion, who is not shown separately.

For births in the last four years, tetanus toxoid coverage is lower among mothers under age 20, mothers age 35 and older, and mothers pregnant with higher-order births. A marked positive relationship is observed between literacy of the mother and the coverage rate for tetanus toxoid vaccination. The proportion of births to mothers who received one or more doses of tetanus toxoid vaccine is lower for illiterate mothers (71 percent) than for literate mothers (93-97 percent). Differential in the coverage rate for immunization against tetanus by religion are similar to the differences noted above for ANC.

Iron and Folic Acid Tablets

Proper maternal nutritional care is important for the healthy intrauterine growth of a baby and may affect the baby's birth weight. Various studies in India have indicated that the percentage of low birth weight babies (weighing less than 2,500 grams) ranged from 15 in Tiruvananthapuram to 46 in Vadodara (Nutrition Foundation of India, 1993). Overall, around one-third of babies in India have low birth weights, suggesting nutritional deficiencies among many expectant mothers. However, improved nutrition, coupled with improved health care in pregnancy, can substantially increase birth weights (Ramachandran, 1992). The provision of iron and folic acid tablets as a prophylaxis against nutritional anaemia among pregnant women 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 pregnant woman take 100 tablets of iron and folic acid during her pregnancy, and health workers are instructed accordingly.

The NFHS collected information on whether the mother had received iron and folic acid tablets during each pregnancy resulting in a live birth during the last four years. The results are presented in Table 9.3. Almost three-fourths of births were to mothers who had received iron and folic acid tablets. As expected, the receipt of iron and folic acid tablets is higher in urban areas (82 percent) than in rural areas (71 percent). The pattern of differentials in the receipt of iron and folic acid tablets by background characteristics is similar to that for tetanus toxoid injections. With only a few exceptions, in every group the percentage of births to mothers who received iron and folic acid tablets is lower than the percentage of births to mothers who received two or more doses of tetanus toxoid vaccination.

Place of Delivery and Assistance During Delivery

From the standpoint of child survival and the health of the mother, it is advantageous for babies to be born under proper hygienic conditions with the assistance of a trained medical practitioner. To ascertain the situation in Punjab in this regard, women who had births during the last four years were asked, for each birth, where they had given birth and who had assisted at the delivery. Table 9.4 and Figure 9.3 present the percentage distribution of live births occurring during the four years preceding the survey according to the place of delivery and selected background characteristics. Only one-quarter of deliveries occurred in medical institutions, with 10 percent in public institutions and 15 percent in private medical institutions. The percentage of births that took place in medical institutions is higher in urban areas (36 percent) than in rural areas (21 percent).

Information on the percentage distribution of births by place of delivery and type of attendance at birth (for home deliveries) is also available from the Sample Registration System

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, Punjab, 1993

Background characteristic	Place of delivery					Total percent	Number of live births[1]
	Health facility/ institution		Home				
	Public	Private	Own home	Parents' home	Other		
Mother's age at birth							
< 20	10.9	12.4	58.0	18.7	--	100.0	193
20-34	9.8	15.8	62.3	11.6	0.5	100.0	1212
35+	(2.4)	(7.1)	(81.0)	(7.1)	(2.4)	100.0	42
Birth order							
1	14.1	20.7	45.9	19.1	0.2	100.0	425
2-3	9.2	15.2	63.6	11.7	0.3	100.0	709
4-5	4.9	7.8	81.1	4.9	1.2	100.0	244
6+	5.8	4.3	82.6	5.8	1.4	100.0	69
Residence							
Urban	8.1	28.1	56.0	7.2	0.6	100.0	334
Rural	10.2	11.1	64.2	14.0	0.4	100.0	1113
Education							
Illiterate	7.6	5.4	72.8	14.1	0.1	100.0	746
Lit., < middle complete	9.8	13.7	65.1	10.1	1.3	100.0	307
Middle school complete	15.8	14.9	55.3	13.2	0.9	100.0	114
High school and above	12.9	42.5	33.9	10.4	0.4	100.0	280
Religion							
Hindu	9.2	15.3	66.1	8.9	0.5	100.0	563
Muslim	(7.4)	(3.7)	(77.8)	(11.1)	(--)	100.0	27
Sikh	10.4	15.5	58.3	15.3	0.5	100.0	824
Christian	(3.1)	(9.4)	(84.4)	(3.1)	(--)	100.0	32
Caste							
Scheduled caste	8.9	10.1	70.0	10.8	0.2	100.0	406
Other	10.1	17.0	59.3	13.1	0.6	100.0	1041
Antenatal care visits							
None	4.0	3.4	79.4	12.6	0.6	100.0	175
1-3 visits	7.6	11.3	67.7	13.2	0.1	100.0	824
4+ visits	15.7	26.6	45.6	11.0	1.1	100.0	447
Total[1]	9.7	15.1	62.3	12.4	0.5	100.0	1447

() Based on 25-49 cases
-- Less than 0.05 percent
[1]Births in the period 1-47 months prior to the survey. Total includes 1 birth to a woman belonging to other religion and 1 birth with missing information on antenatal care visits, which are not shown separately.

(SRS) for all the major states of India. According to the latest available information from the SRS for the year 1992, the percentages of institutional births in Punjab is 7.5 overall, 14.2 in urban areas, and 5.1 in rural areas (Office of the Registrar General, 1994a).

Births to women age 20-34, to women having first order births, and to women with higher educational attainment are more likely than other births to occur in medical institutions. On the other hand, births to scheduled caste women are more likely to be domiciliary.

Delivery in medical institutions (25 percent) is much less common than antenatal care (88 percent) in Punjab. Only 27 percent of deliveries to women who received antenatal care are institutional, with the percentage of institutional deliveries being higher among those who had 4 or more antenatal visits (42 percent) than among those who had 1-3 antenatal visits (19 percent). It is generally observed that pregnant women receiving antenatal care outside the home are encouraged by the antenatal care provider to have medical assistance during delivery. Complications during pregnancy may also lead women to seek more antenatal care and to deliver the birth in a health facility.

A large majority (83 percent) of home deliveries take place at the mother's own residence, rather than her parents' home. Interestingly, this proportion is lower for first order births, suggesting that the practice of women going to their parents' home for the delivery of first child is prevalent in Punjab, although to a lesser extent than in some other states of India.

Table 9.5 and Figure 9.3 provide information on assistance during delivery according to selected background characteristics. As in the case of antenatal care, the interviewer was instructed to record all responses if more than one person was reported to have assisted during the delivery. However, in Table 9.5 and Figure 9.3, only the most highly qualified attendant is considered if there is more than one attendant. In all, almost one-quarter of births were attended by a doctor and one-quarter by a nurse or midwife. One-half of all births were attended by traditional birth attendants (TBA) and 2 percent by relatives and others.

Urban-rural differentials in the type of medical assistance at the time of delivery are large. One-third of deliveries in urban areas were attended by a doctor, 28 percent by a nurse/midwife, and 39 percent by a TBA. In rural areas, these percentages are 20, 24, and 53, respectively, for doctor, nurse/midwife, and TBA.

The pattern of assistance at delivery by medical personnel (doctors or nurse/midwives), according to other background characteristics, is somewhat similar to that observed for deliveries in institutions/health facilities. Higher percentages of deliveries to younger, lower-parity, more educated, and nonscheduled caste women are attended by medical personnel than are deliveries to other women. Religious differentials in this regard are not substantial for the two major religions in Punjab.

The place of delivery is strongly correlated with the type of person attending the delivery. Nearly all institutional deliveries are attended by either a doctor or a nurse/midwife. Between 58 and 68 percent of noninstitutional deliveries are attended by a traditional birth attendant. Women who have had four or more antenatal visits are more likely to be assisted by a doctor

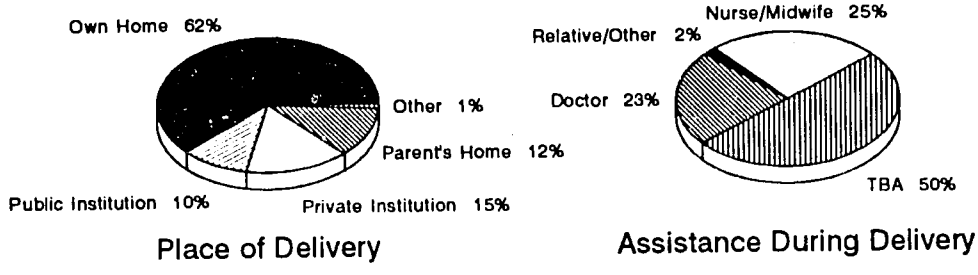
Table 9.5 Assistance during delivery

Percent distribution of live births during the four years preceding the survey by type of assistance during delivery, according to selected background characteristics, Punjab, 1993

Background characteristic	Attendant assisting during delivery[1]				Total percent	Number of live births[2]
	Doctor	Nurse/ midwife	Traditional birth attendant	Relative/ other		
Mother's age at birth						
< 20	21.8	25.4	52.8	--	100.0	193
20-34	23.7	25.2	48.7	2.4	100.0	1212
35+	(14.3)	(21.4)	(61.9)	(2.4)	100.0	42
Birth order						
1	31.5	25.6	41.4	1.4	100.0	425
2-3	22.7	27.2	47.7	2.4	100.0	709
4-5	11.9	20.5	64.8	2.9	100.0	244
6+	15.9	17.4	66.7	--	100.0	69
Residence						
Urban	32.6	27.5	38.6	1.2	100.0	334
Rural	20.3	24.4	52.9	2.3	100.0	1113
Mother's education						
Illiterate	11.8	23.7	62.3	2.1	100.0	746
Lit., < middle complete	20.8	32.2	44.0	2.9	100.0	307
Middle school complete	25.4	28.1	45.6	0.9	100.0	114
High school and above	55.0	20.0	23.6	1.4	100.0	280
Religion						
Hindu	24.5	25.2	48.8	1.4	100.0	563
Muslim	(3.7)	(11.1)	(77.8)	(7.4)	100.0	27
Sikh	23.2	25.5	48.9	2.4	100.0	824
Christian	(15.6)	(28.1)	(56.3)	--	100.0	32
Caste						
Scheduled caste	17.7	27.3	51.7	3.2	100.0	406
Other	25.3	24.3	48.8	1.6	100.0	1041
Antenatal care						
None	8.6	12.0	76.6	2.9	100.0	175
1-3 visits	16.1	26.5	55.3	2.1	100.0	824
4+ visits	41.6	28.0	28.6	1.8	100.0	447
Place of delivery						
Public health facility	73.8	26.2	--	--	100.0	141
Private health facility	79.4	19.7	0.9	--	100.0	218
Own home	5.1	24.8	67.3	2.9	100.0	901
Parents' home	6.7	33.3	57.8	2.2	100.0	180
Total[2]	23.2	25.2	49.6	2.1	100.0	1447

() 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.
[2]Births in the period 1-47 months prior to the survey. Total includes 1 birth to a woman belonging to other religion, 1 birth with missing information on antenatal care visits and 7 births with "Other" place of delivery, which are not shown separately.

Figure 9.3
Place of Delivery and Assistance During Delivery



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

NFHS, Punjab, 1993

at the time of delivery than are women who have had fewer visits or no antenatal care.

Delivery Characteristics

The percentage distribution of live births in the last four years according to complications during delivery, prematurity, birth weight, and the mother's estimate of the baby's size at birth are presented in Table 9.6. As reported by mothers, 89 percent of the deliveries had no complications, 6 percent were characterised by a long period of labour, and 4 percent were delivered by Caesarian section (C-section). Other types of complications at delivery, such as delayed delivery of the placenta, use of forceps, and excessive bleeding, are reported for less than 1 percent of births. The percentage of deliveries involving no complications is somewhat higher in rural areas than in urban areas. C-sections are slightly more common in urban areas (where institutional deliveries are also more common), as is the delayed delivery of the placenta, whereas prolonged labour is slightly more often reported in rural areas. Only 2 percent of live births are reported as premature (3 percent in urban areas and 1 percent in rural areas).

A large majority of babies were not weighed at birth (73 percent in urban areas and 89 percent in rural areas) because the majority of deliveries took place at home. Moreover, for 8 percent of births in urban areas and 4 percent of births in rural areas, information on the baby's birth weight is not available even though the baby is reported to have been weighed. Thus the resulting sample of birth weights is small and subject to substantial selection bias. Twenty-nine percent of babies whose birth weight is known are reported as having low birth weights (less

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, Punjab, 1993

Delivery characteristic	Urban	Rural	Total
Complications at delivery[1]			
No complications	85.9	89.2	88.5
Caesarian section	7.5	3.1	4.1
Use of forceps	0.9	0.6	0.7
Excessive bleeding	0.3	0.5	0.5
Long period of labour	4.2	6.1	5.7
Delayed delivery of placenta	1.2	0.6	0.8
Other	0.3	0.4	0.3
Premature			
Yes	2.7	1.4	1.7
No	97.3	98.6	98.3
Total percent	100.0	100.0	100.0
Birth			
Less than 2.5 kg	4.8	2.2	2.8
2.5 kg or more	14.1	4.9	7.0
Don't know/missing	8.4	4.2	5.2
Not weighed	72.8	88.8	85.1
Total percent	100.0	100.0	100.0
Size at birth			
Large	4.5	3.2	3.5
Average	79.6	78.3	78.6
Small	15.9	18.2	17.7
Don't know/missing	--	0.2	0.1
Total percent	100.0	100.0	100.0
Number of births[2]	334	1113	1447

-- Less than 0.05 percent
[1]All complications were recorded if there was more than one complication. Births with missing information on complications are not included.
[2]Births in the period 1-47 months prior to the survey

than 2.5 kg). This percentage is lower in urban areas (25 percent) than in rural areas (31 percent).

Because most deliveries in India take place at home, where it is difficult to weigh newborns, a simple question on the size of the baby at birth (small, average, or large) was asked in the NFHS. Experience has shown that mothers can give useful information about the size of their newborns. About one in six newborns is reported to be small, and many of these are undoubtedly of low birth weight. Four-fifths (79 percent) of all babies are reported to be of average size. Urban-rural differentials are minimal.

Table 9.7 presents the relationship between delivery characteristics and antenatal care, previous birth interval, and mother's age at childbirth. Complications are most common for

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, Punjab, 1993

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	95.4	90.8	81.4	92.3	89.8	91.0	83.0	87.6	88.3	(97.6)
Caesarian section	0.6	3.0	7.6	2.3	2.8	2.4	7.9	3.6	4.3	(2.4)
Use of forceps	--	0.6	1.1	0.6	0.2	0.6	1.4	2.1	0.5	(--)
Excessive bleeding	0.6	0.2	0.9	0.6	0.7	--	0.2	--	0.6	(--)
Long period of labour	2.3	5.2	7.8	4.2	6.1	3.6	7.0	6.2	5.8	(--)
Delayed delivery of placenta	0.6	0.4	1.6	0.3	0.7	2.4	0.5	1.0	0.7	(--)
Other	0.6	0.1	0.7	0.3	0.2	--	0.7	--	0.4	(--)
Premature birth										
Yes	2.9	1.3	2.0	1.6	0.9	2.4	2.6	4.1	1.4	(--)
No	97.1	98.7	98.0	98.4	99.1	97.6	97.4	95.9	98.6	(100.0)
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Birth weight										
Less than 2.5 kg	0.6	2.2	4.7	1.3	2.0	3.6	4.4	1.6	3.0	(2.4)
2.5 kg or more	1.1	4.4	14.1	5.8	5.0	9.6	9.3	5.2	7.3	(4.8)
Don't know/missing	1.1	4.2	8.3	3.9	4.6	5.4	6.8	5.7	5.2	(2.4)
Not weighed	97.1	89.2	72.9	89.0	88.4	81.4	79.5	87.6	84.5	(90.5)
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	3.4	2.8	4.7	2.6	3.7	3.0	4.2	3.1	3.5	(7.1)
Average	76.6	79.2	78.5	77.7	79.7	78.4	78.1	79.3	78.5	(78.6)
Small	20.0	17.7	16.8	19.7	16.3	18.6	17.7	17.6	17.8	(14.3)
Don't know/missing	--	0.2	--	--	0.4	--	--	--	0.2	(--)
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]	175	824	447	310	541	167	429	193	1212	42

Note: One birth with missing information on antenatal care is not shown.
() Based on 25-49 births
-- Less than 0.05 percent
[1]All complications were recorded if there was more than one complication. Births with missing information on complications are not included.
[2]Births in the period 1-47 months prior to the survey

births to mothers who have had four or more antenatal visits. This finding suggests that pregnant women who are having complications have a tendency to obtain antenatal care more often than other women. However, the percentage of premature births does not vary greatly by number of antenatal visits. The proportion of newborns who are weighed is 3 percent for mothers who do not receive antenatal care, 11 percent for those whose mothers have 1-3 antenatal check-ups, and 27 percent for those whose mothers have 4 or more antenatal visits.

There is no relationship between the previous birth interval and complications at delivery. However, first births have more complications than second and higher order births, both

C-sections and prolonged labour being reported more often for the first births. First births and births occurring after an interval of four or more years are more likely than others to be premature. First-borns are also more likely to be weighed at birth and are also more likely to be underweight, but the differences are small.

The mother's age at the time of delivery is negatively associated with delivery complications, but differences in delivery characteristics by mothers' ages are minor. Premature births are more common (4 percent) among women under age 20.

9.2 Child Care Indicators

Vaccination of Children

The immunization of children against six serious but preventable diseases (namely, tuberculosis, diphtheria, pertussis, tetanus, polio, and measles) has been an important 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). In 1978 the Government of India started the Expanded Programme on Immunization (EPI) with the objective of reducing morbidity, mortality, and disabilities due to these six diseases by making free vaccinations easily available to all eligible children. Vaccination against polio was introduced into the programme in 1979-80, and tetanus toxoid for school children was added in 1980-81. BCG was brought under the EPI in 1981-82. The latest addition to the programme was vaccination against measles, introduced in 1985-86 (Ministry of Health and Family Welfare, 1991).

The Government of India introduced the Universal Immunization Programme (UIP) in 1985-86 to accelerate implementation of the immunization scheme. The UIP was charged with two objectives: to vaccinate at least 85 percent of all infants by 1990 against the six vaccine-preventable diseases, and to achieve self-sufficiency in vaccine production and 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 each child.

In the NFHS, every mother was asked whether she had a vaccination card for each child born since 1 January 1989. If a card was available, the interviewer was required to record the dates on which the child received various vaccinations. If the mother could not produce a vaccination card, she was asked whether the child had received any vaccinations. If she responded in the affirmative, she was then specifically asked if 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 is chosen for analysis because international guidelines specify that children should be fully immunized by the time they complete their first year of life. The denominator for any given row in 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 in which 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

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, Punjab, 1993

Source of information	Percentage vaccinated among children age 12-23 months											Number of children
		Polio	DPT			Polio						
	BCG	0	1	2	3	1	2	3	Measles	All[1]	None	
URBAN												
Vaccinated at any time before interview												
Vaccination card	(97.0)	(--)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(90.9)	(90.9)	(--)	33
Mother's report	(79.6)	(4.1)	(83.7)	(77.6)	(77.6)	(83.7)	(75.5)	(75.5)	(73.5)	(65.3)	(16.3)	49
Either source	86.6	2.4	90.2	86.6	86.6	90.2	85.4	85.4	80.5	75.6	9.8	82
Vaccinated by 12 months of age[2]	86.6	2.4	90.2	86.6	86.6	90.2	85.4	85.4	77.6	72.0	9.8	82
RURAL												
Vaccinated at any time before interview												
Vaccination card	97.0	1.0	100.0	98.0	89.9	100.0	98.0	89.9	76.8	76.8	--	99
Mother's report	61.3	1.8	67.3	63.1	57.7	67.9	63.1	57.7	50.0	46.4	31.5	168
Either source	74.5	1.5	79.4	76.0	69.7	79.8	76.0	69.7	59.9	57.7	19.9	267
Vaccinated by 12 months of age[2]	73.7	1.5	79.4	76.0	69.7	79.8	76.0	69.7	51.2	50.2	19.9	267
TOTAL												
Vaccinated at any time before interview												
Vaccination card	97.0	0.8	100.0	98.5	92.4	100.0	98.5	92.4	80.3	80.3	--	132
Mother's report	65.4	2.3	71.0	66.4	62.2	71.4	65.9	61.8	55.3	50.7	28.1	217
Either source	77.4	1.7	81.9	78.5	73.6	82.2	78.2	73.4	64.8	61.9	17.5	349
Vaccinated by 12 months of age[2]	76.7	1.7	81.9	78.5	73.6	82.2	78.2	73.4	57.4	55.2	17.5	349

() Based on 25-49 cases
-- 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 is assumed to be the same as for children with a written record of vaccination.

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 mother was not asked the date of immunization if she could not show the card, the proportion of vaccinations given during the first year of life among children for whom 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 349 children in the age group 12-23 months, vaccination cards were seen by the interviewer for only 38 percent (40 percent in urban areas and 37 percent in rural areas). As expected, levels of vaccination 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.

According to information from either the vaccination card or as reported by the mother, 62 percent of all children age 12-23 months are fully vaccinated[1] whereas 18 percent have not received any vaccinations. Although Punjab is better off in this respect than many other states of India, it still has a long way to go to achieve the goal set under the UIP.

Analysis of vaccine-specific data shows that 77 percent of all children have received BCG, 82 percent have received the first dose of DPT and polio, and 73-74 percent have received the third dose of DPT and polio. 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 about 10 percent. Sixty-five percent of the children age 12-23 months have been vaccinated against measles.

The vaccination coverage is much better in urban areas than in rural areas. Seventy-six percent of the children age 12-23 months in urban areas have been fully vaccinated, compared with 58 percent in rural areas. For each individual vaccine, the coverage rate is higher in urban than in rural areas.

According to the immunization schedule, all primary vaccinations, including measles, should be completed by the time a child is 12 months old. The data presented in Table 9.8

[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.

indicate that most children receive their vaccinations within the first year of life. Although the percentages of children who receive BCG and the third dose of DPT and polio by 12 months of age are similar to the percentages who received these vaccines at any time before the survey, 11 percent of the children who were vaccinated against measles received the vaccination after their first birthday. This situation is more common in rural than in urban areas.

Table 9.9 and Figure 9.4 present vaccination coverage rates for children age 12-23 months by selected background characteristics. The proportion of children for whom the mother showed a vaccination card varies by background characteristics, as shown in the table. The vaccination cards were seen for a higher percentage of male children, lower-order births, children in urban areas, children of literate mothers, and nonscheduled caste children. The difference in proportions of children for whom cards were shown by religion are small, and in

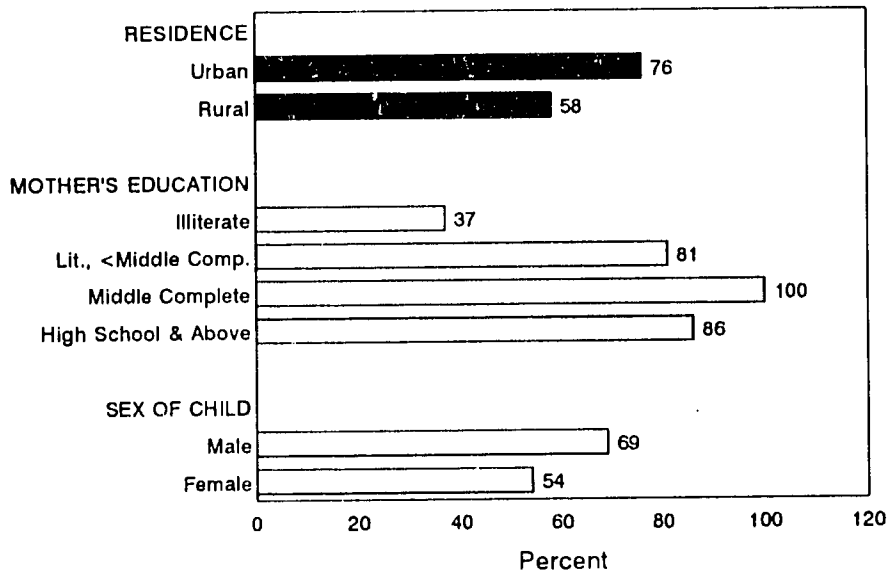
Table 9.9 Vaccinations by background characteristics

Among children age 12-23 months, the percentage who had received each vaccine by the time of the survey (according to the vaccination card or the mother) and the percentage with a vaccination card which was shown to the interviewer, by selected background characteristics, Punjab, 1993

Background characteristic	Percentage vaccinated											Percentage showing vaccination card	Number of children
		Polio	DPT			Polio							
	BCG	0	1	2	3	1	2	3	Measles	All[1]	None		
Sex													
Male	84.7	1.6	91.8	87.4	82.0	91.8	86.9	81.4	72.7	68.9	8.2	45.4	183
Female	69.3	1.8	71.1	68.7	64.5	71.7	68.7	64.5	56.0	54.2	27.7	29.5	166
Birth order													
1	83.8	2.0	88.9	85.9	80.8	87.9	84.8	80.8	71.7	69.7	11.1	40.4	99
2-3	83.5	0.6	85.8	83.5	79.0	86.9	84.1	79.0	69.3	67.0	13.1	41.5	176
4+	54.1	4.1	63.5	56.8	51.4	63.5	55.4	50.0	44.6	39.2	36.5	25.7	74
Residence													
Urban	86.6	2.4	90.2	86.6	86.6	90.2	85.4	85.4	80.5	75.6	9.8	40.2	82
Rural	74.5	1.5	79.4	76.0	69.7	79.8	76.0	69.7	59.9	57.7	19.9	37.1	267
Mother's education													
Illiterate	58.5	1.8	66.7	60.8	53.8	67.3	60.2	53.2	42.1	36.8	32.2	23.4	171
Lit., < middle complete	91.2	--	93.8	92.5	86.3	93.8	92.5	86.3	82.5	81.3	6.3	50.0	80
Middle school complete	(100.0)	(6.9)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(--)	(55.2)	29
High school and above	98.6	1.5	98.6	97.1	97.1	98.6	97.1	97.1	85.5	85.5	1.5	52.2	69
Religion													
Hindu	77.0	3.2	83.3	82.5	81.7	84.9	83.3	81.8	73.0	69.8	15.1	36.5	126
Sikh	79.2	1.0	82.6	78.7	71.5	82.1	77.8	71.0	62.8	60.4	17.4	41.5	207
Caste													
Scheduled caste	67.1	--	73.2	72.0	68.3	75.6	73.2	68.3	59.8	54.9	24.4	29.3	82
Other	80.5	2.2	84.6	80.5	75.3	84.3	79.8	74.9	66.3	64.0	15.4	40.4	267
Total	77.4	1.7	81.9	78.5	73.6	82.2	78.2	73.4	64.8	61.9	17.5	37.8	349

Note: Total includes 16 Muslim children, 20 Christian children and 1 child belonging to other religion, who are not shown separately
() Based on 25-49 cases
-- 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)

Figure 9.4
Percentage of Children 12-23 Months
Who Have Received All Vaccinations



NFHS, Punjab, 1993

favour of Sikh children. There are notable differences in vaccination coverage also by these characteristics. With the exception of polio at birth, coverage is higher among male children than female children for every type of vaccination. For example, 69 percent of male children are fully vaccinated compared to 54 percent of female children. The difference in coverage rates for male and female children varies from 15 percentage points for BCG to 21 percentage points for DPT1. Twenty-eight percent of female children are not given any of the vaccinations, compared with only 8 percent in the case of male children. This pattern clearly indicates that female children are discriminated against in the utilization of vaccination services. These differentials could be an important factor in the higher mortality among female children observed in Table 8.5.

Lower order births (the first three births) are relatively advantaged with respect to vaccination coverage. Except for polio vaccine given at birth, vaccination coverage is substantially lower for fourth and higher-order births. There is a considerable difference in the vaccination coverage between children of literate and illiterate mothers. The percentage of children who are fully vaccinated is 37 for illiterate mothers and more than 81 percent for literate mothers. The proportion fully vaccinated is also higher among Hindu children (70 percent) than Sikh children (60 percent). Scheduled caste children have a lower vaccination coverage than nonscheduled caste children.

Table 9.10 presents the percentage of children age 1-3 years whose vaccination cards were shown to the interviewer and the percentage receiving various vaccinations in the first year of life, according to the current age of the child and place of residence. The table illustrates

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, Punjab, 1993

Vaccination status	Current age of child in months			Total
	12-23	24-35	36-47	
URBAN				
Vaccination card shown to interviewer	40.2	25.0	18.2	28.5
Percent vaccinated at 0-11 months[1]				
BCG	86.6	90.0	75.6	84.6
Polio 0	2.4	2.5	1.5	2.2
DPT				
1	90.2	93.8	77.0	87.6
2	86.6	87.9	69.3	82.0
3	86.6	81.0	66.1	78.7
Polio				
1	90.2	93.8	75.6	87.2
2	85.4	87.9	75.6	83.4
3	85.4	80.5	72.7	80.0
Measles	77.6	74.9	62.8	72.4
All vaccinations[2]	72.0	77.6	53.0	68.5
No vaccinations	9.8	6.3	21.7	12.0
Number of children	82	80	66	228
RURAL				
Vaccination card shown to interviewer	37.1	29.0	19.8	29.1
Percent vaccinated at 0-11 months[1]				
BCG	73.7	70.9	75.3	73.1
Polio 0	1.5	4.2	3.1	2.9
DPT				
1	79.4	78.4	77.9	78.6
2	76.0	73.9	76.2	75.3
3	69.7	71.7	72.8	71.3
Polio				
1	79.8	78.7	77.9	78.8
2	76.0	75.0	75.8	75.6
3	69.7	72.0	72.9	71.5
Measles	51.2	51.0	47.4	50.1
All vaccinations[2]	50.2	43.8	46.4	46.8
No vaccinations	19.9	16.8	21.1	19.1
Number of children	267	286	227	780

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, Punjab, 1993

Vaccination status	Current age of child in months			Total
	12-23	24-35	36-47	
	TOTAL			
Vaccination card shown to interviewer	37.8	28.1	19.5	29.0
Percent vaccinated at 0-11 months[1]				
BCG	76.7	74.8	75.6	75.7
Polio 0	1.7	3.8	2.7	2.8
DPT				
1	81.9	81.4	77.9	80.6
2	78.5	76.8	75.1	76.9
3	73.6	73.7	71.8	73.1
Polio				
1	82.2	81.7	77.7	80.7
2	78.2	77.7	76.2	77.4
3	73.4	73.9	73.4	73.6
Measles	57.4	56.0	50.7	54.9
All vaccinations[2]	55.2	50.4	48.0	51.4
No vaccinations	17.5	14.6	20.9	17.4
Number of children	349	366	293	1008

[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)

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 have not received any vaccination by 12 months of age. In all cases, the percentage of children whose immunization status was determined by seeing a vaccination card declines with the age of the child. This may be a reflection of the increased use of vaccination cards in recent years, as well as the increased overall coverage of vaccinations. In addition, in many cases the vaccination cards of older children are discarded once they have completed their vaccinations or the cards are lost.

The highest level of coverage of all vaccinations (by one year of age) is observed for children age 12-23 months (55 percent); coverage then declines progressively with age up to 36-47 months, probably an indication of a small increase over the years. Although level of coverage for specific vaccination in rural areas for three age groups does not differ, the level of all vaccination coverage is the lowest for children age 24-35 months (44 percent). In contrast, in urban areas the coverage for children age 24-35 months is higher than that for children age 12-23 months (78 percent and 72 percent, respectively).

Child Morbidity and Treatment Patterns

The two major causes of death among infants and children in India are acute respiratory infection and diarrhoea (Central Bureau of Health Intelligence, 1991). 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 percentages of children with cough accompanied by rapid breathing (symptoms of acute ARI), 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 diagnosis 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.

Cough accompanied by fast breathing was the least common of the three conditions examined. Only 3 percent of the children suffered from symptoms of ARI during the two weeks before the survey. ARI was more prevalent among children age 6-11 months than among children of other ages. It was more common among male children, births of order 6 and higher, children of illiterate mothers, and scheduled caste children.

Fever was the most prevalent of the three conditions examined, with one in five children suffering from it during the two weeks prior to the survey. Fever was more prevalent among children age 6-23 months, births of order 4 and above, children of mothers who are either illiterate or have not studied beyond primary school and Muslims and Christians. The prevalence of fever does not vary much according to caste but the urban-rural differential is especially striking.

Table 9.11 provides two types of prevalence estimates for diarrhoea: (1) a period prevalence measure, namely the percentage of children under age 4 whose mothers report that the children 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 report that the children 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 4 years who had bloody diarrhoea (a symptom of dysentery) during the two weeks preceding the survey.

Table 9.11 Prevalence of acute respiratory infection, fever, and diarrhoea

Among all children under 4 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, Punjab, 1993

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	3.2	17.7	18.4	1.3	7.6	158
6 -11 months	6.5	23.9	12.9	1.0	4.5	201
12-23 months	3.4	23.2	11.2	1.4	4.9	349
24-35 months	2.7	19.1	10.7	0.8	4.6	366
36-47 months	0.7	15.4	5.8	1.0	1.7	293
Sex						
Male	4.1	20.9	11.7	1.4	5.3	729
Female	1.9	18.8	10.2	0.8	3.3	638
Birth order						
1	3.8	17.9	12.9	1.3	5.8	396
2-3	1.6	19.6	9.5	0.9	3.3	673
4-5	4.3	23.2	12.4	1.3	6.0	233
6+	9.2	23.1	9.2	1.5	1.5	65
Residence						
Urban	1.6	9.7	7.2	1.3	2.5	319
Rural	3.5	23.0	12.1	1.0	5.0	1048
Mother's education						
Illiterate	3.7	20.0	11.0	1.3	4.7	700
Lit.,< middle complete	3.1	25.4	12.5	1.4	4.9	287
Middle school complete	2.7	18.9	9.0	0.9	2.7	111
High school and above	1.5	14.1	10.0	0.4	3.7	269
Religion						
Hindu	3.0	17.5	11.4	1.1	4.4	527
Muslim	(16.0)	(44.0)	(16.0)	(--)	(8.0)	25
Sikh	2.8	20.4	10.6	1.1	4.3	785
Christian	(--)	(31.0)	(10.3)	(--)	(3.4)	29
Caste						
Scheduled caste	4.2	19.7	10.5	1.6	4.7	381
Other	2.6	20.0	11.1	0.9	4.3	986
Source of drinking water						
Piped water	U	U	9.0	1.1	3.6	366
Ground water	U	U	11.6	1.0	4.6	972
Well water	U	U	(12.0)	(--)	(8.0)	25
Total	3.1	19.9	11.0	1.1	4.4	1367

Note: Figures are for children born in the 1-47 months prior to the survey. Total includes 1 child belonging to other religion and 4 children from households with "Other" source of drinking water, who are not shown separately.
U: Not available
() Based on 25-49 cases
-- Less than 0.05 percent
[1]Includes diarrhoea in the past 24 hours
[2]Includes diarrhoea with blood

Four percent of children under age 4 are reported to have had diarrhoea during the 24 hours preceding the survey. During the two weeks before the survey, the corresponding proportion is 11 percent, including 1 percent for diarrhoea with blood. Infants under six months are most susceptible to diarrhoea (18 percent); among children age 6-35 months, prevalence is between 11 and 13 percent. 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. There are no substantial differentials by sex of the child, religion, or caste in either the period prevalence or the point prevalence of diarrhoea. The period prevalence of diarrhoea is higher among children in rural areas (12 percent compared with 7 percent in urban areas), and children of households who use either ground water or well water for drinking (12 percent, each). There is no consistent pattern with regard to the relationship between education of the mother and the prevalence of diarrhoea among children.

Treatment of Acute Respiratory Infection (ARI)

A total of only 42 children are reported to have suffered from symptoms of ARI, and of these, as many as 88 percent were taken to a health facility or provider for treatment (data not shown). In most cases, the sick children were treated with cough syrup or injection. Only 5 percent of children with ARI did not receive any treatment.

Treatment of Fever

Table 9.12 shows treatment patterns for children suffering from fever during the two weeks before the survey by selected background characteristics. Ninety-two percent of children who were sick with fever were taken to a health facility or to health provider for the treatment. Health providers mainly administered injections (28 percent) for the treatment of fever. Twelve percent of children with fever received antimalarial medication. Antibiotic pills or syrup or herbal medicine were given in relatively few cases. However, four-fifths of children were also given other forms of treatment (mostly indigenous remedies such as honey or ghee). The percentage of children suffering from fever who were taken to health facility or provider for treatment does not differ much by the age, sex of the child, or religion. However, this percentage is higher for children in urban areas, children of literate mothers, and nonscheduled caste children.

Treatment of Diarrhoea

Diarrhoea is a major killer of children, especially children under 5 years of age. Deaths from acute diarrhoea are most often due to dehydration that results from loss of water and electrolytes (Black, 1984). 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 how to use Oral Rehydration Salt (ORS) packets, which are made widely available. The programme also promotes the use of a home-made solution made from 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 the

Table 9.12 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, Punjab, 1993

Background characteristic	Among children with fever							
	Percentage taken to a health facility or provider[1]	Percentage treated with						Number of children
		Anti-malarial	Anti-biotic pill or syrup	Injection	Home remedy/ herbal medicine	Other	None	
Child's age								
< 6 months	(92.9)	(7.1)	(17.9)	(28.6)	(--)	(75.0)	(3.6)	28
6-11 months	(91.7)	(12.5)	(6.3)	(25.0)	(2.1)	(79.2)	(2.1)	48
12-23 months	91.4	13.6	3.7	27.2	1.2	80.2	4.9	81
24-35 months	88.6	11.4	4.3	28.6	1.4	81.4	4.3	70
36-47 months	(95.6)	(13.3)	(11.1)	(33.3)	(--)	(73.3)	(2.2)	45
Sex								
Male	93.4	11.8	6.6	27.0	1.3	80.9	2.6	152
Female	89.2	12.5	7.5	30.0	0.8	75.8	5.0	120
Birth order								
1	98.6	12.7	8.5	26.8	1.4	81.7	--	71
2-3	92.4	14.4	6.1	25.8	--	78.8	3.0	132
4+	82.6	7.2	7.2	34.8	2.9	75.4	8.7	69
Residence								
Urban	(100.0)	(9.7)	(12.9)	(19.4)	(--)	(87.1)	(--)	31
Rural	90.5	12.4	6.2	29.5	1.2	77.6	4.1	241
Mother's education								
Illiterate	85.7	12.9	8.6	31.4	2.1	72.9	5.7	140
Literate	97.7	11.4	5.3	25.0	--	84.8	1.5	132
Religion								
Hindu	89.1	12.0	9.8	22.8	--	78.3	4.3	92
Sikh	92.5	13.1	6.3	28.1	1.9	76.9	3.8	160
Caste								
Scheduled caste	86.7	9.3	6.7	29.3	1.3	78.7	6.7	75
Other	93.4	13.2	7.1	27.9	1.0	78.7	2.5	197
Total	91.5	12.1	7.0	28.3	1.1	78.7	3.7	272

Note: Total includes 11 Muslim children, 9 Christian children, and 4 and 3 children from households where source of drinking water is well water or "Other", respectively, 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

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.

To gauge the extent of knowledge and use of oral rehydration, the NFHS asked mothers of children born during the last four years a series of questions regarding knowledge and use of ORS and RHS. Table 9.13 shows that 52 percent of mothers who gave birth during the last four years are aware of ORS and 29 percent have ever used ORS packets. As expected, both knowledge and use of ORS are higher among urban mothers. Levels of knowledge and use of ORS are also positively related to the educational attainment of mothers. Scheduled caste

Table 9.13 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, Punjab, 1993

Background characteristic	Know about ORS packets	Have ever used ORS packets	Number of mothers
Mother's age			
15-19	32.1	16.1	56
20-24	46.8	26.2	363
25-29	58.9	31.0	416
30-34	52.1	30.0	190
35+	47.5	32.2	59
Residence			
Urban	66.7	33.3	264
Rural	46.8	27.0	820
Mother's education			
Illiterate	33.4	19.5	539
Literate, < middle school complete	57.0	34.8	230
Middle school complete	62.1	32.2	87
High school and above	85.5	42.1	228
Religion			
Hindu	52.4	29.3	416
Sikh	51.1	27.7	628
Caste			
Scheduled caste	44.9	24.0	296
Other	54.3	30.2	788
Mother's exposure to media			
Exposed to media	62.4	32.9	671
Watches television weekly	64.4	32.9	571
Listens to radio weekly	65.4	33.6	431
Visits cinema/theatre monthly	(88.5)	(30.8)	26
Not exposed to any of the media	34.1	21.3	413
Total	51.7	28.5	1084

Note: Total includes 19 Muslim women, 21 Christian women and 1 woman belonging to other religion, who are not shown separately
() Based on 25-49 cases

mothers have relatively lower knowledge of ORS. Both knowledge and use of ORS are much higher among mothers who are regularly exposed to the electronic media than those with no such exposure. The extent of knowledge and ever use of ORS is similar among Hindu and Sikh mothers.

Table 9.14 shows the type of treatment obtained for children who had diarrhoea during the two weeks before the survey. Eighty-six percent of all the children who suffered from diarrhoea during this period were taken to a health facility or provider for treatment. Only 22 percent of children were treated with ORS packets, and only 15 percent received a Recommended Home Solution. 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 20 percent of children received increased fluids such as water, lemon and sugar-water drink, milk, juice, soup, coconut water, tea, barley water, or breast milk.

Table 9.14 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, Punjab, 1993

Background characteristic	Percent taken to a health facility or provider[1]	Oral Rehydration					Anti-biotics	Injec-tion	Home remedy, other	None	Number of children with diarrhoea
		ORS packets	RHS at home	Either ORS or RHS	In-creased fluids	Not given ORS, RHS or in-creased fluids					
Child's age											
< 12 months	85.5	23.6	10.9	30.9	21.8	56.4	10.9	9.1	87.3	1.8	55
12-23 months	(92.3)	(25.6)	(28.2)	(46.2)	(20.5)	(43.6)	(17.9)	(23.1)	(79.5)	(--)	39
24+ months	82.1	17.9	10.7	25.0	17.9	62.5	12.5	7.1	73.2	7.1	56
Sex											
Male	85.9	24.7	20.0	36.5	22.4	51.8	9.4	14.1	82.4	3.5	85
Female	86.2	18.5	9.2	27.7	16.9	60.0	18.5	9.2	76.9	3.1	65
Birth order											
1	82.4	15.7	7.8	21.6	27.5	56.9	15.7	7.8	76.5	3.9	51
2-3	89.1	23.4	21.9	39.1	17.2	53.1	15.6	12.5	81.3	1.6	64
4 +	(85.7)	(28.6)	(14.3)	(37.1)	(14.3)	(57.1)	(5.7)	(17.1)	(82.9)	(5.7)	35
Mother's education											
Illiterate	84.4	15.6	9.1	23.4	18.2	62.3	10.4	15.6	81.8	5.2	77
Literate	87.7	28.8	21.9	42.5	21.9	47.9	16.4	8.2	78.1	1.4	73
Religion											
Hindu	78.3	35.0	16.7	41.7	23.3	45.0	13.3	21.7	75.0	3.3	60
Sikh	90.4	14.5	15.7	28.9	18.1	60.2	13.3	6.0	83.1	3.6	83
Caste											
Scheduled caste	(82.5)	(17.5)	(15.0)	(30.0)	(15.0)	(62.5)	(12.5)	(17.5)	(77.5)	(5.0)	40
Other	87.3	23.6	15.5	33.6	21.8	52.7	13.6	10.0	80.9	2.7	110
Total	86.0	22.0	15.3	32.7	20.0	55.3	13.3	12.0	80.0	3.3	150

Note: Figures are for children born in the period 1-47 months prior to the survey. Total includes 4 Muslim children and 3 Christian children, 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 be useful in reducing the duration and volume of diarrhoea. Overall, 13 percent of children with diarrhoea were treated with antibiotic pills or syrup, 12 percent received injections, and 80 percent were treated with a home remedy. Only 3 percent of children were given no treatment.

Because of the small numbers of cases in several of the sub-categories (children 12-23 months old, birth order 4 and above, and scheduled caste women), observations about differences in the treatment of diarrhoea based on the background characteristics of mothers and children must be made with caution. Smaller percentages of children age 2 years and over,

first-born children, children of illiterate mothers, and children of Hindu mothers were taken to a health facility or provider than were children of the comparison groups. Oral rehydration therapy (ORS and RHS) was not used extensively by any population subgroup; and such treatment was particularly uncommon for first-born children, female children, children of illiterate mothers and Sikh children.

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, the mothers of children who suffered from diarrhoea were asked about changes in the feeding practices of those children during the diarrhoea. Table 9.15 provides information on feeding practices during diarrhoea for children of different ages. For a large majority of children (80 percent), the frequency of breastfeeding remained the same and for 5 percent of children the breastfeeding frequency was increased during the diarrhoea, but for 16 percent it was reduced. Frequency of breastfeeding was reduced for a higher percentage of children age 1-3, compared with infants. The intake of fluids, although maintained as usual or increased in 77 percent of the cases, was actually reduced in 23 percent of the cases. Thus a substantial number of children with diarrhoea in Punjab are being treated contrary to medical recommendations with regard to fluid intake.

Table 9.15 Feeding practices during diarrhoea

Percent distribution of children under 4 years who had diarrhoea in the past two weeks, according to feeding practices during diarrhoea and age, Punjab, 1993

Feeding practices during diarrhoea	Age of the child		
	< 1 year[1]	1-3 years	Total[2]
Breastfeeding frequency[3]			
Same as usual	84.3	75.9	79.8
Increased	2.0	6.9	4.6
Reduced	13.7	17.2	15.6
Total percent	100.0	100.0	100.0
Number of children	51	58	109
Amount of fluids given			
Same as usual	56.4	60.0	58.7
More	20.0	16.8	18.0
Less	23.6	23.2	23.3
Total percent	100.0	100.0	100.0
Number of children with diarrhoea	55	95	150

[1]Children born in the period 1-11 months prior to the survey
[2]Children born in the period 1-47 months prior to the survey
[3]Applies only to children who are still breastfed

CHAPTER 10

INFANT FEEDING AND CHILD NUTRITION

Infant feeding practices and child nutrition have significant effects on child survival, maternal health, and fertility. Breastfeeding improves the nutritional status of young children and reduces the risk of morbidity and mortality by protecting them against certain infections. 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. This chapter discusses the information collected by the NFHS on infant feeding, including breastfeeding and supplementary feeding. It includes a brief discussion of the nutritional status of children under 4 years of age as measured by height and weight.

10.1 Breastfeeding and Supplementation

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 World Health Organization (WHO) Working Group on Infant Feeding (World Health Organization, 1991). These international recommendations state that infants should 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 to provide sufficient nutrients for optimal growth. It is recommended that breastfeeding continue, along with complementary foods, up through the second year of life or beyond. It is further recommended that a feeding bottle with a nipple not be used at any age, for reasons having to do mainly with sanitation and the prevention of infections. In addition, the Baby Friendly Hospitals Initiative, launched by WHO, recommends the initiation of breastfeeding immediately after childbirth.

WHO has suggested several indicators of breastfeeding practices to guide countries in gathering information for measuring and evaluating infant feeding practices. These indicators include the ever breastfed rate, the exclusive breastfeeding rate, the timely complementary feeding rate, the continued breastfeeding rate, and the bottle feeding rate. The *exclusive breastfeeding rate* is defined as the proportion of infants under 4 months of age 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. The *continued breastfeeding rate through 1 year of age* is the proportion of children 12-15 months of age who are still being breastfed. The *continued breastfeeding rate up through 2 years of age* is the proportion of infants in the 20-23 month age group who are still breastfed. The *bottle feeding rate* is the proportion of infants who are fed by means of a bottle with a nipple. These indicators are highlighted in the presentation of the data on breastfeeding and other feeding practices in Punjab.

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 1989. For

source of nutrition for infants and young children. Breastfeeding is nearly universal in Punjab, with 96 percent of all children having been breastfed. The practice of breastfeeding is high in all groups except one group, ranging from 93 to 98 percent. The percentage of children ever breastfed is lowest among those who received no assistance at delivery from health professionals or Traditional Birth Attendants (77 percent), but the number of cases in this group is small.

The early initiation of breastfeeding is important since it benefits both the mother and the infant. As soon as the infant starts suckling at the breast, the hormone oxytocin is released, resulting in uterine contractions that reduce the risk of postpartum haemorrhage and facilitate expulsion of the placenta. Colostrum and breast milk are sufficient for newborn infants and have the added benefit of carrying the mother's immunities to disease. Not only is supplemental feeding unnecessary in the first months of life, it is also dangerous because supplemental foods and liquids may introduce contaminants that cause infection, leading to diarrhoea.

It is also recommended that the first breast milk be given to the child rather than squeezed from the breast and discarded because it contains colostrum, which provides natural immunity to the child. For children who were ever breastfed, Table 10.1 also shows how soon after birth breastfeeding was initiated. This information was collected for the most recent birth of each woman who had a birth in the four years before the survey (a total of 1,093 births). Although almost all children in Punjab are breastfed, it is rare for breastfeeding to begin immediately after delivery. Only 1 in 20 infants begins breastfeeding within one hour of birth and three-fourths of infants do not begin breastfeeding even within the first 24 hours of life.

A larger proportion of boys than girls are given breast milk within the first 24 hours, although the difference is small. Urban women initiate breastfeeding earlier than any other group, 12 percent within the first hour after giving birth and 35 percent within 24 hours. The postponement of breastfeeding is most common among rural women, illiterate women, scheduled castes, women whose births are attended by traditional birth attendants, and women whose delivery takes place either at their own home or at their parents' home. The postponement of breastfeeding is least likely for children whose mothers have completed at least middle school, for children whose births are attended by health professionals, and for those whose births take place in health facilities. The best place for delivery, as indicated by the early initiation of breastfeeding, is a private health facility, followed by a public health facility, the mother's home, and the mother's parents' home. Although the timing at which breastfeeding begins varies by other characteristics of the mother and child, the postponement of breastfeeding in all groups shows that the prevailing feeding initiation practices for newborn infants in Punjab are not beneficial.

For children currently being breastfed, mothers were asked if the children had been given any other liquids or solid foods at any time during the previous day or night. The results are shown according to the child's age 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 given only breast milk and those who received breast milk and plain water only. In Punjab, exclusive breastfeeding is rare for very young children, and even at age 0-1 month 9 out of 10 babies are given water or other supplements. Almost no

Table 10.2 Breastfeeding status by child's age

Percent distribution of living children by breastfeeding status, according to child's age in months, Punjab, 1993

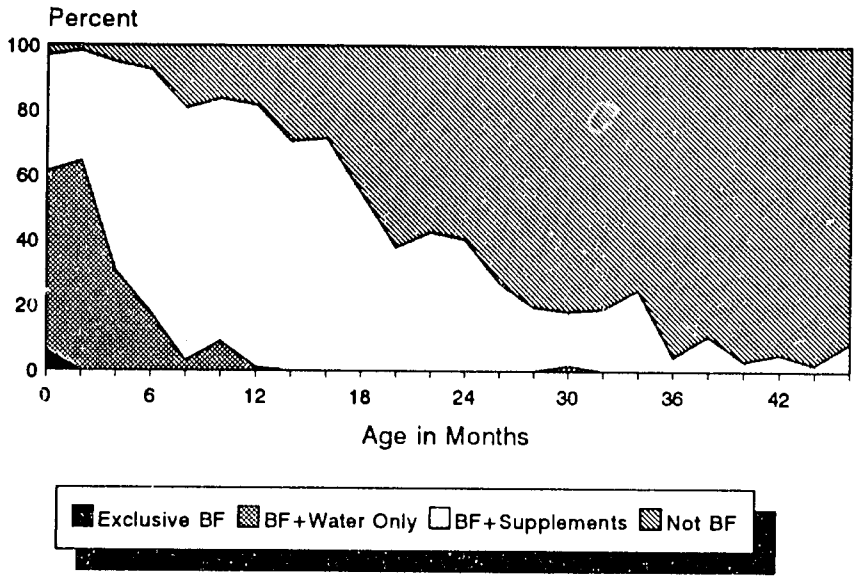
Age in months	Percentage among all living children						Number of living children
	Not breast-feeding	Exclusively breastfeeding	Breastfeeding and			Total percent	
			Plain water only	Supple-ments	DK Supple-ments		
0 - 1	3.1	6.3	54.7	35.9	--	100.0	64
2 - 3	1.7	--	64.4	33.9	--	100.0	59
4 - 5	5.4	--	30.4	64.3	--	100.0	56
6 - 7	7.5	--	17.9	74.6	--	100.0	67
8 - 9	19.4	--	3.0	77.6	--	100.0	67
10-11	16.4	--	9.0	74.6	--	100.0	67
12-13	18.4	--	1.1	80.5	--	100.0	87
14-15	(29.5)	(--)	(--)	(70.5)	(--)	100.0	44
16-17	(28.6)	(--)	(--)	(71.4)	(--)	100.0	42
18-19	45.2	--	--	54.8	--	100.0	62
20-21	62.3	--	--	37.7	--	100.0	53
22-23	57.4	--	--	42.6	--	100.0	61
24-25	59.6	--	--	40.4	--	100.0	89
26-27	(72.9)	(--)	(--)	(27.1)	(--)	100.0	48
28-29	80.4	--	--	19.6	--	100.0	51
30-31	81.7	--	1.7	16.7	--	100.0	60
32-33	81.0	--	--	19.0	--	100.0	58
34-35	75.0	--	--	21.7	3.3	100.0	60
36-37	95.7	--	--	4.3	--	100.0	70
38-39	(89.2)	(--)	(--)	(10.8)	(--)	100.0	37
40-41	(96.9)	(--)	(--)	(3.1)	(--)	100.0	32
42-43	94.8	--	--	5.2	--	100.0	58
44-45	98.0	--	--	2.0	--	100.0	50
46-47	(91.3)	(--)	(--)	(8.7)	(--)	100.0	46

Note: Breastfeeding status refers to last 24 hours. Children classified as "Breastfeeding and plain water only" receive no supplements.
DK: Don't know
() Based on 25-49 cases
-- Less than 0.05 percent

child is exclusively breastfed after 2 months of age. On average, 64 percent of infants age 2-3 months receive full breastfeeding. The percentage of babies being fully breastfed drops off rapidly after the first few months of life, to 3 percent at age 8-9 months. Supplements other than plain water are given in addition to breast milk to more than one-third (36 percent) of children age 0-1 month, and almost two-thirds (64 percent) of those 4-5 months, and three-fourths of those age 6-7 months. Even though supplements are given to 81 percent of children by age 12-13 months, breastfeeding typically continues for long durations. After two years of life (i.e., age 24-25 months), 40 percent of children are still being breastfed, and at 34-35 months 25 percent of children are being breastfed. After three years of life, breastfeeding declines sharply.

Table 10.3 and Figure 10.2 show in more detail the types of food supplementation received by currently breastfeeding last-born children under 4 years of age during the 24 hours before the interview. The use of infant formula is rare in Punjab, and there appears to be no significant trend by age in its use. Supplementation of breast milk by other milk doubles from 31 percent at age 2-3 months to 62 percent at age 4-5 months and thereafter remains fairly

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, Punjab, 1993

constant until age 12-13 months, after which its use increases further. Supplementation by other liquids, such as juice or tea, rises rapidly to over 90 percent of all breastfeeding children age 8-9 months and thereafter remains constant. The solid and mushy foods are introduced at a little higher (at age 8-9 months) than the recommended age of 4-6 months. Less than one in five children receive solid/mushy food along with breastmilk at age 6-7 months but 7 in 10 children receive both breast miik and solid/mushy foods at age 8-9 months. In other words, only a little over 40 percent of infants in the age group 6-9 months received both breast milk and solid foods as recommended. Although 87 percent of infants in this age group were breastfed, most did not receive the recommended complementary foods.

The use of a bottle with a nipple to feed children is of interest to both demographers and health personnel. Bottle feeding has a direct effect on the mother's exposure to the risk of pregnancy because the period of amenorrhoea is shortened when mothers feed their children from bottles. In addition, because 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 diseases. Among breastfeeding newborn in Punjab, 15 percent are using a bottle with a nipple. The percentage of infants who are given a bottle with a nipple rises by age 4-5 months to 30 percent, after which it gradually declines.

Table 10.4 shows several statistics describing the duration of breastfeeding for selected background variables. The median length of breastfeeding is a little over 18 months, or a year and a half. Supplementation begins very early, and the median length of exclusive

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, Punjab, 1993

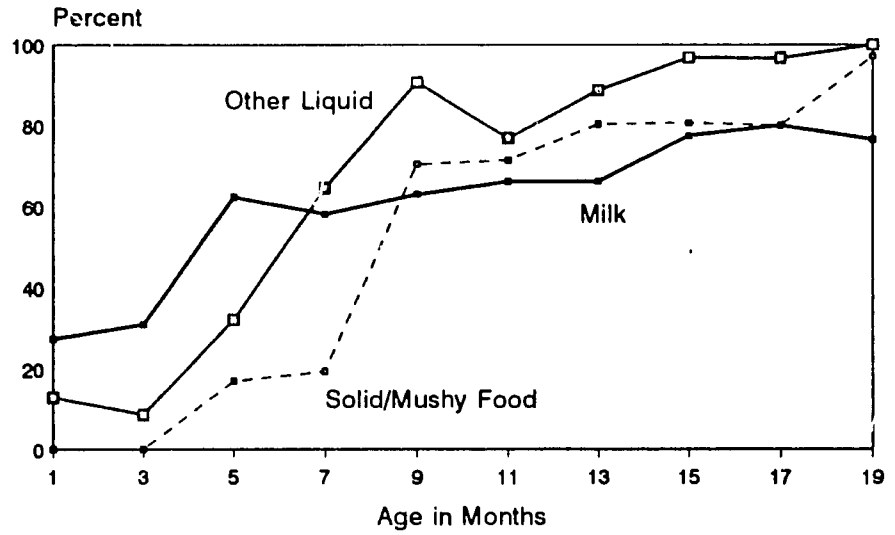
Age in months	Percentage of breastfeeding children who are: Receiving supplement: Infant formula	Other milk	Other liquid	Solid/ mushy food	Using bottle with a nipple	Number of breast-feeding children
0 - 1	--	27.4	12.9	--	14.5	62
2 - 3	--	31.0	8.6	--	12.1	58
4 - 5	3.8	62.3	32.1	17.0	30.2	53
6 - 7	8.1	58.1	64.5	19.4	25.8	62
8 - 9	9.3	63.0	90.7	70.4	24.1	54
10-11	1.8	66.1	76.8	71.4	19.6	56
12-13	2.8	66.2	88.7	80.3	19.7	71
14-15	(6.5)	(77.4)	(96.8)	(80.6)	(16.1)	31
16-17	(10.0)	(80.0)	(96.7)	(80.0)	(20.0)	30
18-19	(2.9)	(76.5)	(100.0)	(97.1)	(8.8)	34
20-23	(2.2)	(69.6)	(100.0)	(91.3)	(10.9)	46
24-25	(--)	(72.2)	(100.0)	(94.4)	(11.1)	36
26-47	2.7	83.8	95.9	90.6	6.7	74

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

breastfeeding is only 0.4 months and the median length of full breastfeeding is 2.6 months. The mean length of breastfeeding (20.9 months) is somewhat longer than the median length, reflecting the fact that some children are breastfed for very long periods of time. Estimates of both the means and the medians are based on the current proportions of children breastfeeding in each age group rather than on the mother's recall of past status because current status information is usually more accurate. An alternative measure of the duration of breastfeeding is the prevalence-incidence mean which is calculated as the "prevalence" of breastfeeding divided by its "incidence". In this case, prevalence is defined as the number of children whose mothers were breastfeeding at the time of the survey and incidence is defined as the average number of births per month (averaged over a 48-month period to overcome problems of the seasonality of births and possible reference period errors). For each measure of breastfeeding except exclusive breastfeeding, the prevalence-incidence mean is very close to the mean calculated in the conventional manner.

Male children are breastfed slightly longer than female children (19 months compared with 17 months). Children whose mothers have education above the middle level are breastfed longer than children of mothers with less education. Mothers assisted by traditional birth attendants at delivery also breastfeed longer than those attended by health professionals. Other groups with relatively long breastfeeding durations include rural women, Sikhs, scheduled castes, and mothers who are not exposed to any media; but in most cases the difference between these groups and the comparison groups is extremely small.

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, Punjab, 1993

The mothers of a vast majority of children (90 percent) were not working at the time of the survey. Mothers who work on the family farm or in the family business breastfeed one month longer than those who do not work. Women who are employed by someone else have extremely short durations of breastfeeding (0.4 months).

In addition to the length of breastfeeding, the frequency, or intensity, with which mothers breastfeed can affect the duration of postpartum amenorrhoea. Frequent breastfeeding can also improve the health and nutritional status of the child. Ninety-three percent of children under 6 months of age were breastfed six or more times on the day before the interview. Thus the intensity of breastfeeding is high in Punjab.

10.2 Nutritional Status of Children

One of the major contributions of the NFHS to the study of child health is the anthropometric data collected for children under four years of age. Both weight and height measurements were obtained for each child. The weight for each child was measured using a Salter scale, which is a hanging spring balance. Children under two years old were measured lying down on an adjustable measuring board, whereas those age two years and above were measured in a standing position. The guidelines given in the United Nations Manual, "How to Weigh and Measure children" (United Nations, 1986), were followed when training the field staff on measurement of height and weight of the children. Weight was measured to the nearest 100 grams. Height or length was measured to the nearest 0.1 centimetres. The data on weight

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, Punjab, 1993

Background characteristic	Median durations (months)[1]				Children under 6 months	
	Any breast-feeding	Exclusive breast-feeding	Full breast-feeding[2]	Number of children	Breastfed 6+ times in last 24 hours	Number of children
Sex of child						
Male	19.0	0.4	2.5	787	92.0	88
Female	17.3	0.4	2.6	683	93.4	91
Residence						
Urban	18.0	0.4	1.9	343	(91.3)	46
Rural	18.6	0.4	2.9	1127	93.2	133
Mother's education						
Illiterate	18.2	0.4	3.5	759	92.9	99
Literate., < middle complete	16.5	0.4	2.5	312	(91.7)	36
Middle school complete	21.0	0.4	0.8	114	*	9
High school and above	19.9	0.4	0.7	285	(94.3)	35
Religion						
Hindu	18.0	0.4	2.2	569	92.5	67
Muslim	(16.0)	(1.6)	(4.5)	27	*	5
Sikh	19.4	0.4	2.7	841	92.0	100
Christian	(16.5)	(0.4)	(0.4)	32	*	7
Caste						
Scheduled caste	19.2	0.4	3.2	416	91.2	57
Other	18.0	0.4	2.1	1054	93.4	122
Mother's work status						
Not working	18.4	0.4	2.7	1329	92.1	165
Working in family farm/business	(19.3)	(0.8)	(0.8)	49	*	7
Employed by someone else	0.4	0.4	0.4	73	*	5
Mother's exposure to media						
Exposed to media	18.3	0.4	2.0	889	92.5	106
Watches television weekly	18.7	0.4	1.8	754	94.4	90
Listens to radio weekly	18.7	0.4	2.3	557	88.9	63
Visits cinema/theatre monthly	(16.5)	(0.4)	(0.4)	32	*	1
Not exposed to any of the media	19.0	0.4	3.8	581	93.2	73
Assistance at delivery						
Health professional	17.3	0.4	0.7	708	93.3	89
Traditional birth attendant	20.9	0.4	3.6	731	91.8	85
Other or none	(19.0)	(0.4)	(4.5)	31	*	5
Total[1]	18.4	0.4	2.6	1470	92.7	179
Mean for all children[1]	20.9	0.9	4.0	NA	NA	NA
P/I for all children[3]	21.6	0.1	3.7	NA	NA	NA

Note: For children under 4 years, total includes 1 child belonging to other religion and 19 children whose mothers are self-employed; and for children under 6 months, total includes 2 children whose mothers are self-employed, 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 breast milk and plain water only
[3]Prevalence-incidence mean

and height were used to calculate three summary indices of nutritional status, which affects children's susceptibility to disease and their chances of survival. These indices are:

- o weight-for-age
- o height-for-age
- o weight-for-height

The nutritional status of children calculated according to these measures is compared with the nutritional status of an international reference population that has been recommended by the World Health Organization (Dibley et al., 1987a, 1987b). The use of this reference population is based on the empirical finding that well-nourished children in all population groups for which data exist follow very similar growth patterns (Martorell and Habicht, 1986). A recent scientific report from the Nutritional 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.* 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 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 index 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. The height-for-age index, 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 that takes into account both chronic and acute undernutrition. Children who are more than two standard deviations below the reference median on this index are considered *underweight.*

The validity of these indices is determined by many factors, including the coverage of the population of children and accurate anthropometric measurements. In Punjab, 14 percent of living children under age 4 were not weighed or measured (see Table B.3 in Appendix B), in most cases because the mother refused to allow the measurements to be taken. Also excluded from the analysis are children whose month and year of birth were not known, and those with

grossly improbable height and weight measurements. In addition, two of the three indices (height-for-age and weight-for-age) are sensitive to misreporting of children's ages, including heaping on preferred digits. The weight-for-height index is the only one that does not depend on accurate age reporting.

Table 10.5 presents the percentage of children classified as undernourished according to weight-for-age, height-for-age, and weight-for-height indices, by selected demographic characteristics. Both chronic and acute undernutrition are common in Punjab. Forty-six percent of all children are underweight and 40 percent are stunted. The proportion of children who are severely undernourished is also notable -- 14 percent in the case of weight-for-age and 16 percent in the case of height-for-age. Perhaps the most serious nutritional problem measured (wasting) is also quite evident in Punjab, affecting one in every five children.

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, Punjab, 1993

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	0.7	12.2	3.4	17.7	0.7	4.1	147
6-11 months	10.1	35.1	8.3	28.0	1.8	16.1	168
12-23 months	16.9	58.6	15.9	44.0	4.0	32.5	302
24-35 months	21.6	55.9	19.6	48.0	3.3	21.2	306
36-47 months	12.3	45.1	23.4	46.8	2.6	14.5	235
Sex							
Male	13.6	43.9	14.8	39.3	2.8	19.9	603
Female	14.8	47.9	16.8	40.7	2.7	19.8	555
Birth order							
1	10.2	42.2	14.2	39.4	1.5	13.8	325
2-3	13.0	45.2	15.4	37.8	2.9	20.4	584
4-5	22.3	50.3	18.3	45.2	4.1	25.9	197
6+	21.2	59.6	19.2	48.1	3.8	28.8	52
Previous birth interval[2]							
First birth	10.1	42.5	14.1	39.4	1.5	13.8	327
< 24 months	20.2	55.3	19.5	47.9	3.5	22.6	252
24-47 months	14.8	45.1	15.0	36.3	2.9	22.9	446
48+ months	10.2	38.3	14.8	38.3	3.9	19.5	128
Total	14.2	45.9	15.7	40.0	2.8	19.9	1158

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

[2]In the case of first-born twins, both twins are counted as first births because neither has a previous birth interval

All the measures of undernutrition vary substantially according to the child's age. There is a marked increase in the prevalence of undernutrition even in the first year of life. Undernutrition is the lowest in the first six months of life. The percentage of children who are underweight jumps from 12 percent at less than 6 months to 59 percent at age 12-23 months, then remains at nearly that level until age 36-47 months (Figure 10.3). Even at age 3, 45 percent of children are underweight.

The prevalence of stunting, on the other hand, continues to increase from 18 percent of children less than 6 months to 28 percent for children age 6-11 months, until age 24-35 months when almost half the children are stunted. The prevalence of wasting reaches its peak at age 12-23 months (33 percent) and then declines rapidly thereafter.

The NFHS data suggest that female children are nutritionally worse off than male children in Punjab, although the differences are quite small. Forty-eight percent of female children compared to 44 percent of male children are underweight, and these percentages in the case of height-for-age are 41 and 39 percent, respectively. The proportion wasted is the same among male and female children. The birth order of the child also makes some difference for nutritional status, with the first-born being at an advantage. Children of higher order births are much more likely to suffer from underweight and wasting and somewhat more likely to suffer from stunting. The results also reveal that children are nutritionally disadvantaged if they are born less than 24 months after the previous birth. In general, the longer the birth interval, the lower the percentage of children who are undernourished.

Table 10.6 shows nutritional status by selected background characteristics. Underweight is slightly more prevalent in rural areas than in urban areas (47 percent and 48 percent, respectively); the prevalence of stunting and wasting is also markedly greater in rural areas (Figure 10.4). Proportionately more Hindu children are underweight and stunted than Sikh children, whereas more Sikh children are wasted than Hindu children; but the differences are minor. Larger proportions of scheduled caste children are undernourished than other children, the difference between the two groups being greatest in the case of underweight.

The mother's education emerges as an important background variable affecting the nutritional status of her children. Overall, the prevalence of undernutrition declines with the increasing educational attainment of the mother. On all three indices, the decline is particularly pronounced for the highest educational group (high school and above). For example, 55, 48, and 22 percent of children of illiterate mothers are respectively underweight, stunted, and wasted, whereas the corresponding proportions are half as high or 27, 24, and 13 percent of children of mothers who have completed at least high school. Nevertheless, it is noteworthy that substantial proportions of children of mothers with a high school or higher level of education are undernourished.

Table 10.6 Nutritional status by background characteristics

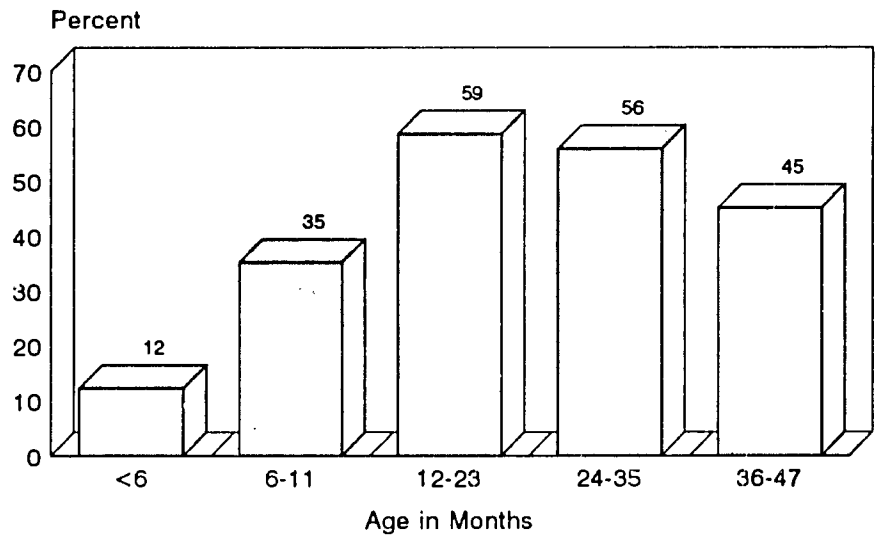
Among children under four years of age, the percentage classified as undernourished according to three anthropometric indices of nutritional status, by selected background characteristics, Punjab, 1993

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	13.9	40.0	17.1	38.4	1.2	14.3	245
Rural	14.2	47.4	15.3	40.4	3.2	21.4	913
Mother's education							
Illiterate	18.8	55.1	21.9	47.7	2.9	22.0	581
Lit., < middle complete	11.6	42.1	12.4	37.8	3.9	20.5	259
Middle school complete	14.9	44.7	12.8	36.2	3.2	22.3	94
High school and above	4.9	26.8	4.9	24.1	0.9	12.5	224
Religion							
Hindu	16.7	47.5	19.7	44.0	2.5	17.7	436
Sikh	12.3	44.1	12.4	36.5	3.0	21.6	676
Caste							
Scheduled caste	21.7	55.3	23.0	46.3	2.9	22.0	313
Other	11.4	42.4	13.0	37.6	2.7	19.1	845
Total	14.2	45.9	15.7	40.0	2.8	19.9	1158

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. Total includes 21 Muslim children, 24 Christian children and 1 child belonging to other religion, who are not shown separately.

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

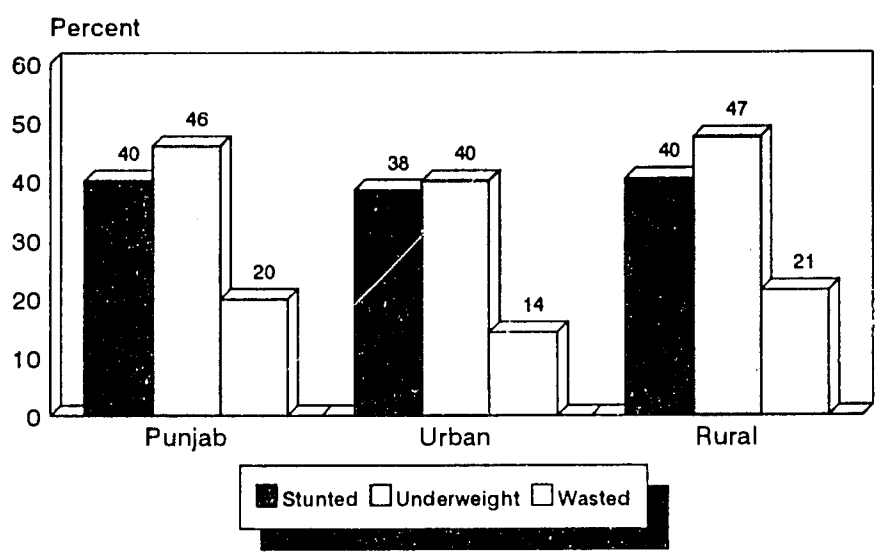
Figure 10.3
Percentage of Children Under Age Four Who Are Underweight by Age



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

NFHS, Punjab, 1993

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, Punjab, 1993

CHAPTER 11

VILLAGE PROFILE

The use of family planning methods, health services, and educational facilities often depends as much on the supply of such services and facilities as on the demand for them. The NFHS included a Village Questionnaire to assess the availability, or supply, of family planning and other health and educational services in rural areas.

Information was obtained on the quality of roads that connect the village to other places, and the distance to transportation depots such as train stations and bus stands, the nearest town, and block, and *tahsil* headquarters. A series of questions was included on the availability and distance to various types of educational institutions and programmes, as well as health personnel and facilities. The existence of important support services and facilities in the village (including banks, cooperative societies, post office, markets, and shops) was also determined because they contribute to the quality of life in the village and can serve as one indicator of the degree of isolation of the village.

The supervisor of each interviewing team was responsible for locating key informants in the village who were knowledgeable about village facilities and infrastructure. The village headman (*Sarpanch*) would usually be contacted by the supervisor to obtain an overview of the village and names of other persons who could provide more specific information. For example, a teacher or school principal might be asked about available schools and educational services, a doctor or health practitioner could be questioned about health facilities, the village land record keeper (*Patwari*) could provide information about heavy equipment and other capital goods used for farming, and the village extension worker (*Gram Sevak*) might be asked about the availability of electricity, irrigation, and other production infrastructure. On the basis of responses from these informants, the supervisor filled in the questionnaire during the fieldwork in each village. The information in this chapter is based on questionnaires completed for 67 villages (66 PSUs) in the NFHS sample for Punjab.

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 in this chapter 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 (see Chapter 2).

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, where A is the total number of villages selected in the state:

$$w_{hi} = w_{hi}' \times \frac{A}{\sum_{h,i} w_{hi}'}$$

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 29 percent of the villages are located within 5 km of the nearest town, 33 percent of villages are located between 5 and 9 km, and the remaining 38 percent are located 10 or more km from the nearest town. The median distance of a village from the nearest town is 9 km. Nearly half (45 percent) of the villages are located 10 or more km from the nearest railway station, 16 percent at a distance between 5 and 9 km, and the remaining 39 percent within 5 km; the median distance of a village from the nearest railway station is 8 km. Bus service is much more accessible to the villages in Punjab, with 96 percent of them being located within 5 km and only 4 percent located 5-9 km from the nearest bus stand. The median distance of a village from a bus stand is only 1 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, Punjab, 1993

Distance	Nearest town	Nearest railway station	Nearest bus stand
< 5 km	28.6	38.5	95.9
5-9 km	33.0	16.1	4.1
10+ km	38.4	45.4	--
Total percent	100.0	100.0	100.0
Median distance	8.7	7.8	1.0

-- Less than 0.05 percent

11.2 Availability of Educational Facilities

As indicated in the previous chapters of this report, the availability of education is very important for the improvement of health and family welfare. Women with a high school education have fewer and healthier children than illiterate women.

As Table 11.2 indicates, all the sampled villages of Punjab have a primary school. Eighty-nine percent of the villages have a middle school or are within 5 km of a middle school,

Table 11.2 Distance from nearest educational facility

Percent distribution of villages according to distance from nearest educational facility, Punjab, 1993

Distance	Educational facility				
	Primary school	Middle school	Secondary school	Higher secondary school	College
Within village	100.0	29.5	17.8	5.3	1.3
< 5 km	--	59.3	57.1	38.9	14.2
5-9 km	--	5.7	14.7	24.3	9.3
10+ km	--	2.3	7.3	28.4	75.2
Don't know/missing	--	3.2	3.2	3.2	--
Total percent	100.0	100.0	100.0	100.0	100.0
Median distance	0.0	1.8	3.3	5.8	14.0

-- Less than 0.05 percent

the median distance of a village from a middle school being 2 km. Three-fourths of the villages are within 5 km of a secondary school, and 44 percent are within 5 km of a higher secondary school, the median distance from village to school being 3 km and 6 km, respectively. Not surprisingly, colleges are located farther from the villages, at a median distance of 14 km. Three-fourths of all villages are located 10 or more km from the nearest college.

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 children. Table 11.3 shows the distance of villages from the nearest health facility and the percentage of ever-married women in rural areas by distance from the nearest health facility. Almost all villages have a health facility located within 5 km, and two-fifths of villages have a health facility within the village. One-quarter of villages have either a Primary Health Centre or a sub-centre but the most common type of facility found within the village is a dispensary/clinic (29 percent). The median distance of villages from a health facility in Punjab is less than 2 km, and from a Primary Health Centre 6 km, whereas the median distance from a sub-centre is 4 km. Even the median distance of villages from a hospital is only 13 km.

The percentage distribution of ever-married women according to the distance to the nearest health facility is better than the distribution of villages. Three-fifths (61 percent) of ever-married women have easy access to a health facility within their village. An additional one-third of women can find a health facility within 5 km from where they stay. Forty percent of women have access to a Primary Health Centre/sub-centre within the village and 44 percent have access to a dispensary/clinic within the village.

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, Punjab, 1993

Distance	Health facility					
	Primary Health Centre	Sub-centre	Either PHC/Sub-centre	Hospital	Dispensary/ clinic	Any health facility
			VILLAGES			
Within village	19.7	17.7	25.3	1.5	29.3	40.5
< 5 km	25.9	39.4	41.1	19.8	46.3	54.3
5-9 km	17.9	25.4	20.6	14.3	17.8	4.4
10+ km	36.4	17.5	13.0	63.2	6.6	0.8
Don't know/missing	--	--	--	1.3	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Median distance	6.4	4.4	3.4	13.4	2.7	1.5
			EVER-MARRIED WOMEN			
Within village	27.2	29.2	39.9	3.9	43.8	61.1
< 5 km	24.0	32.5	33.7	16.8	30.1	31.8
5-9 km	20.4	20.1	14.0	18.3	15.9	5.7
10+ km	28.4	18.2	12.3	59.7	10.3	1.4
Don't know/missing	--	--	--	1.3	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Median distance	4.8	3.8	1.6	12.8	1.4	0.0

-- Less than 0.05 percent

11.4 Availability of Other Facilities and Services

Health personnel are also very important for the provision of health services to mothers and their children. Table 11.4 indicates the availability of health personnel within the villages. Thirty-nine percent of the villages have a village health guide, and the same proportion of the villages have a Trained Birth Attendant. Less than 1 percent have been visited by a mobile health unit.

All villages sampled in Punjab are electrified. Forty percent of the villages have a post office and 14 percent have a bank. Among the government rural development programmes, the most widely available in rural Punjab is the Integrated Rural Development Programme (IRDP), which serves 69 percent of the villages. Less than two-fifths of villages (38 percent) have an *Anganwadi* centre (a pre-school child care centre, under the Integrated Child Development Scheme). One in 8 villages have a Youth club and more than one-quarter of villages have a *Mahila Mandal* (women's clubs). One in 5 villages have a cooperative society. Markets or shops (other than fair price shops) are available in 61 percent of villages. More than half of villages (51 percent) have a fair price shop.

Table 11.4 Availability of facilities and services

Percentage of villages having selected facilities and services, Punjab, 1993

Facility/services	Percentage
Anganwadi	38.0
Adult education classes	0.1
Village health guide	38.5
Trained birth attendant	39.3
Mobile health unit	0.7
Electricity	100.0
Bank	13.6
Cooperative society	19.5
Post office	40.4
Market/shop	60.9
Fair price shop	51.3
Mahila Mandal	27.8
Youth club	12.2
Integrated Rural Development Programme (IRDP)	69.2
National Rural Employment Programme (NREP)	6.8
Training the Youth for Self-employment (TRYSEM)	8.1

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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 this type of error, 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 between 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 in terms of the *standard error* for a particular statistic (for example, 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 of 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 to use straightforward formulas for calculating sampling errors. However, the NFHS sample is the result of a multi-stage stratified sample design, and consequently, it is 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 that are means, proportions or ratios. The JACKKNIFE repeated replication method is used for variance estimation of 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 total sample value for variable y, and x represents the total 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 the 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 errors, ISSAS computes the design effect (DEFT) for each estimate, which is defined as the ratio between the standard error using the given sample design and 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, for urban and rural areas. 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, Punjab, 1993

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 more	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 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, Punjab, 1993

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
SEX RATIO (Household *de facto* population)								
Urban	924	16.7	2631	18.880	0.886	0.018	890.9	957.8
Rural	909	14.0	6762	12.045	1.163	0.015	881.5	937.5
Total	914	11.1	9393	10.155	1.094	0.012	891.4	935.9
ILLITERATE (Household *de facto* population, age 6 and over)								
Urban	0.276	0.022	4489	0.009	2.389	0.079	0.232	0.319
Rural	0.461	0.014	11127	0.007	2.104	0.030	0.433	0.489
Total	0.408	0.012	15616	0.006	2.069	0.028	0.384	0.431
PIPED WATER AS SOURCE OF DRINKING WATER (Households)								
Urban	0.558	0.046	937	0.016	2.812	0.082	0.467	0.649
Rural	0.190	0.027	2276	0.008	3.292	0.142	0.136	0.244
Total	0.298	0.023	3213	0.008	2.888	0.078	0.251	0.344
PUMPED WATER AS SOURCE OF DRINKING WATER (Households)								
Urban	0.438	0.045	937	0.016	2.753	0.102	0.348	0.527
Rural	0.792	0.028	2276	0.009	3.269	0.035	0.736	0.847
Total	0.688	0.024	3213	0.008	2.889	0.034	0.641	0.736
WELL WATER AS SOURCE OF DRINKING WATER (Households)								
Urban	0.000	0.000	937	0.000	NC	NC	0.000	0.000
Rural	0.014	0.004	2276	0.003	1.514	0.262	0.007	0.022
Total	0.010	0.003	3213	0.002	1.505	0.261	0.005	0.016
SURFACE WATER AS SOURCE OF DRINKING WATER (Households)								
Urban	0.002	0.002	937	0.002	1.415	1.000	-0.002	0.006
Rural	0.001	0.001	2276	0.001	1.002	0.708	-0.000	0.002
Total	0.001	0.001	3213	0.001	1.226	0.613	-0.000	0.003
OTHER SOURCE OF DRINKING WATER (Households)								
Urban	0.002	0.002	937	0.002	1.409	0.996	-0.002	0.006
Rural	0.003	0.001	2276	0.001	1.004	0.409	0.000	0.005
Total	0.002	0.001	3213	0.001	1.119	0.395	0.001	0.004
ILLITERATE (Ever-married women age 13-49)								
Urban	0.325	0.037	836	0.016	2.306	0.115	0.251	0.400
Rural	0.604	0.021	2159	0.011	1.963	0.034	0.562	0.645
Total	0.526	0.018	2995	0.009	1.976	0.034	0.490	0.562
WITH SECONDARY EDUCATION OR MORE (Ever-married women age 13-49)								
Urban	0.374	0.040	836	0.017	2.401	0.107	0.294	0.455
Rural	0.108	0.011	2159	0.007	1.638	0.101	0.086	0.130
Total	0.183	0.014	2995	0.007	1.959	0.076	0.155	0.210
CURRENTLY MARRIED (Ever-married women age 13-49)								
Urban	0.957	0.006	836	0.007	0.855	0.006	0.945	0.969
Rural	0.962	0.004	2159	0.004	0.967	0.004	0.955	0.970
Total	0.961	0.003	2995	0.004	0.935	0.003	0.954	0.968

Table A.2 Sampling errors, Punjab, 1993 (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 EVER BORN (Ever-married women age 13-49)								
Urban	2.751	0.068	836	0.057	1.208	0.025	2.614	2.888
Rural	3.032	0.043	2159	0.041	1.070	0.014	2.945	3.119
Total	2.954	0.036	2995	0.033	1.090	0.012	2.881	3.026
MEAN NUMBER OF CHILDREN SURVIVING (Ever-married women age 13-49)								
Urban	2.560	0.052	836	0.051	1.002	0.020	2.457	2.663
Rural	2.766	0.040	2159	0.036	1.090	0.014	2.687	2.846
Total	2.709	0.032	2995	0.030	1.063	0.012	2.645	2.772
KNOW AT LEAST ONE CONTRACEPTIVE METHOD (Currently married women age 13-49)								
Urban	0.997	0.002	800	0.002	0.994	0.002	0.994	1.001
Rural	0.998	0.001	2078	0.001	1.013	0.001	0.996	1.000
Total	0.998	0.001	2878	0.001	1.008	0.001	0.996	1.000
KNOW SOURCE FOR ANY MODERN METHOD (Currently married women age 13-49)								
Urban	0.997	0.002	800	0.002	0.994	0.002	0.994	1.001
Rural	0.993	0.002	2078	0.002	1.026	0.002	0.990	0.997
Total	0.994	0.001	2878	0.001	1.017	0.001	0.992	0.997
HAVE EVER USED ANY METHOD (Currently married women age 13-49)								
Urban	0.702	0.019	800	0.016	1.172	0.027	0.665	0.740
Rural	0.657	0.011	2078	0.010	1.083	0.017	0.635	0.680
Total	0.670	0.010	2878	0.009	1.112	0.015	0.650	0.689
CURRENTLY USING ANY METHOD (Currently married women age 13-49)								
Urban	0.627	0.016	800	0.017	0.960	0.026	0.595	0.660
Rural	0.572	0.011	2078	0.011	1.015	0.019	0.550	0.594
Total	0.587	0.009	2878	0.009	1.000	0.016	0.569	0.606
CURRENTLY USING ANY MODERN METHOD (Currently married women age 13-49)								
Urban	0.542	0.017	800	0.018	0.947	0.031	0.509	0.576
Rural	0.502	0.012	2078	0.011	1.101	0.024	0.478	0.526
Total	0.513	0.010	2878	0.009	1.057	0.019	0.494	0.533
CURRENTLY USING PILLS (Currently married women age 13-49)								
Urban	0.017	0.005	800	0.005	1.007	0.267	0.008	0.027
Rural	0.023	0.003	2078	0.003	0.929	0.133	0.017	0.029
Total	0.022	0.003	2878	0.003	0.949	0.119	0.016	0.027
CURRENTLY USING COPPER T/IUD (Currently married women age 13-49)								
Urban	0.077	0.012	800	0.009	1.257	0.153	0.054	0.101
Rural	0.057	0.006	2078	0.005	1.138	0.101	0.046	0.069
Total	0.063	0.005	2878	0.005	1.181	0.085	0.052	0.074
CURRENTLY USING CONDOM (Currently married women age 13-49)								
Urban	0.144	0.015	800	0.012	1.220	0.105	0.113	0.174
Rural	0.068	0.006	2078	0.006	1.144	0.093	0.055	0.080
Total	0.089	0.006	2878	0.005	1.154	0.069	0.077	0.101

Table A.2 Sampling errors, Punjab, 1993 (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
CURRENTLY USING FEMALE STERILIZATION (Currently married women age 13-49)								
Urban	0.276	0.021	800	0.016	1.301	0.074	0.235	0.317
Rural	0.330	0.013	2078	0.010	1.268	0.040	0.304	0.356
Total	0.315	0.011	2878	0.009	1.275	0.035	0.293	0.337
CURRENTLY USING MALE STERILIZATION (Currently married women age 13-49)								
Urban	0.027	0.006	800	0.006	1.060	0.223	0.015	0.040
Rural	0.024	0.003	2078	0.003	0.954	0.135	0.017	0.030
Total	0.025	0.003	2878	0.003	0.988	0.116	0.019	0.030
CURRENTLY USING PERIODIC ABSTINENCE (Currently married women age 13-49)								
Urban	0.042	0.007	800	0.007	0.986	0.166	0.028	0.057
Rural	0.045	0.005	2078	0.005	1.177	0.119	0.034	0.055
Total	0.044	0.004	2878	0.004	1.128	0.098	0.035	0.053
USING PUBLIC SOURCE FOR CONTRACEPTIVE METHOD (Current users of modern methods)								
Urban	0.627	0.034	434	0.023	1.441	0.053	0.560	0.694
Rural	0.831	0.012	1043	0.012	1.074	0.015	0.806	0.856
Total	0.771	0.013	1477	0.011	1.209	0.017	0.745	0.798
DO NOT WANT ANY MORE CHILDREN (Currently married women age 13-49)								
Urban	0.445	0.029	800	0.018	1.642	0.065	0.387	0.503
Rural	0.352	0.015	2078	0.010	1.449	0.043	0.321	0.382
Total	0.378	0.014	2878	0.009	1.507	0.036	0.350	0.405
WANT TO DELAY AT LEAST TWO YEARS (Currently married women age 13-49)								
Urban	0.129	0.010	800	0.012	0.868	0.080	0.108	0.149
Rural	0.135	0.007	2078	0.007	0.983	0.055	0.120	0.149
Total	0.133	0.006	2878	0.006	0.955	0.045	0.121	0.145
IDEAL NUMBER OF CHILDREN (Ever-married women age 13-49)								
Urban	2.446	0.037	822	0.025	1.515	0.015	2.372	2.521
Rural	2.614	0.024	2114	0.016	1.531	0.009	2.565	2.663
Total	2.567	0.020	2936	0.013	1.510	0.008	2.526	2.608
IDEAL NUMBER OF SONS (Ever-married women age 13-49)								
Urban	1.343	0.040	822	0.025	1.577	0.030	1.263	1.423
Rural	1.537	0.024	2114	0.015	1.541	0.015	1.490	1.585
Total	1.483	0.020	2936	0.013	1.537	0.014	1.442	1.524
IDEAL NUMBER OF DAUGHTERS (Ever-married women age 13-49)								
Urban	0.872	0.022	822	0.016	1.397	0.025	0.828	0.917
Rural	0.930	0.013	2114	0.010	1.313	0.014	0.903	0.956
Total	0.913	0.011	2936	0.008	1.327	0.012	0.891	0.936
RECEIVED NO ANTENATAL CARE (Births in last 4 years)								
Urban	0.072	0.020	334	0.016	1.265	0.279	0.032	0.112
Rural	0.136	0.015	1113	0.012	1.238	0.113	0.105	0.166
Total	0.121	0.013	1447	0.010	1.236	0.105	0.096	0.146

Table A.2 Sampling errors, Punjab, 1993 (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
RECEIVED TETANUS TOXOID (2 Doses) (Births in last 4 years)								
Urban	0.886	0.029	334	0.019	1.497	0.033	0.828	0.945
Rural	0.810	0.018	1113	0.014	1.300	0.022	0.773	0.846
Total	0.827	0.015	1447	0.012	1.315	0.019	0.797	0.857
RECEIVED MEDICAL ASSISTANCE AT DELIVERY (Births in last 4 years)								
Urban	0.601	0.047	334	0.031	1.515	0.078	0.507	0.696
Rural	0.447	0.025	1113	0.017	1.507	0.057	0.397	0.498
Total	0.484	0.022	1447	0.015	1.499	0.046	0.438	0.528
HAD DIARRHOEA IN THE LAST 24 HOURS (Children under 4 years)								
Urban	0.025	0.010	319	0.009	1.158	0.404	0.005	0.[illegible]
Rural	0.050	0.006	1048	0.007	0.899	0.127	0.037	0.0[illegible]
Total	0.044	0.005	1367	0.006	0.951	0.125	0.033	0.055
HAD DIARRHOEA IN THE LAST 2 WEEKS (Children under 4 years)								
Urban	0.072	0.015	319	0.014	1.058	0.212	0.041	0.103
Rural	0.121	0.013	1048	0.011	1.175	0.103	0.096	0.146
Total	0.110	0.010	1367	0.009	1.159	0.094	0.089	0.130
TREATED WITH ORS (Children with diarrhoea in the last 2 weeks)								
Urban	0.261	0.091	23	0.092	0.992	0.348	0.079	0.443
Rural	0.213	0.040	127	0.039	1.044	0.189	0.132	0.293
Total	0.220	0.037	150	0.036	1.042	0.168	0.146	0.294
CONSULTED MEDICAL PERSONNEL FOR DIARRHOEA (Children with diarrhoea in the last 2 weeks)								
Urban	0.913	0.054	23	0.059	0.917	0.059	0.805	1.021
Rural	0.850	0.039	127	0.033	1.184	0.046	0.772	0.929
Total	0.860	0.034	150	0.029	1.157	0.040	0.792	0.928
HAVING VACCINATION CARD (Children age 12-23 months)								
Urban	0.402	0.046	82	0.054	0.856	0.115	0.310	0.495
Rural	0.371	0.036	267	0.030	1.202	0.097	0.299	0.443
Total	0.378	0.030	349	0.026	1.130	0.078	0.319	0.438
RECEIVED BCG VACCINATION (Children age 12-23 months)								
Urban	0.866	0.034	82	0.038	0.902	0.039	0.798	0.934
Rural	0.745	0.034	267	0.027	1.250	0.045	0.678	0.813
Total	0.774	0.027	349	0.023	1.186	0.035	0.720	0.827
RECEIVED DPT VACCINATION (3 DOSES) (Children age 12-23 months)								
Urban	0.866	0.039	82	0.038	1.045	0.045	0.787	0.945
Rural	0.697	0.032	267	0.029	1.133	0.047	0.632	0.762
Total	0.736	0.026	349	0.024	1.097	0.036	0.684	0.789
RECEIVED POLIO VACCINATION (3 DOSES) (Children age 12-23 months)								
Urban	0.854	0.039	82	0.039	1.005	0.046	0.775	0.932
Rural	0.697	0.032	267	0.029	1.133	0.047	0.632	0.762
Total	0.734	0.026	349	0.024	1.091	0.036	0.681	0.786

Table A.2 Sampling errors, Punjab, 1993 (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
RECEIVED MEASLES VACCINATION (Children age 12-23 months)								
Urban	0.805	0.047	82	0.044	1.084	0.059	0.710	0.900
Rural	0.599	0.034	267	0.030	1.123	0.057	0.531	0.668
Total	0.648	0.029	349	0.026	1.108	0.044	0.590	0.705
FULLY VACCINATED (Children age 12-23 months)								
Urban	0.756	0.050	82	0.047	1.048	0.066	0.657	0.856
Rural	0.577	0.037	267	0.031	1.209	0.064	0.503	0.651
Total	0.619	0.031	349	0.026	1.169	0.050	0.557	0.680

Table A.2 Sampling errors, Punjab, 1993 (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	2.477	0.159	0.064	2.159	2.795
Rural	3.093	0.120	0.039	2.853	3.334
Total	2.916	0.097	0.033	2.723	3.109
TOTAL FERTILITY RATE (Women age 15-44)					
Urban	2.477	0.159	0.064	2.159	2.795
Rural	3.081	0.116	0.038	2.849	3.312
Total	2.906	0.093	0.032	2.719	3.093
AGE-SPECIFIC FERTILITY RATE (Age group 15-19)					
Urban	0.041	0.010	0.250	0.021	0.062
Rural	0.074	0.008	0.108	0.058	0.090
Total	0.065	0.006	0.096	0.052	0.077
AGE-SPECIFIC FERTILITY RATE (Age group 20-24)					
Urban	0.224	0.020	0.089	0.184	0.264
Rural	0.242	0.010	0.042	0.222	0.263
Total	0.238	0.009	0.038	0.220	0.256
AGE-SPECIFIC FERTILITY RATE (Age group 25-29)					
Urban	0.147	0.013	0.090	0.120	0.173
Rural	0.194	0.012	0.061	0.171	0.218
Total	0.180	0.009	0.052	0.161	0.199
AGE-SPECIFIC FERTILITY RATE (Age group 30-34)					
Urban	0.059	0.011	0.178	0.038	0.080
Rural	0.078	0.009	0.119	0.060	0.097
Total	0.072	0.007	0.099	0.058	0.086
AGE-SPECIFIC FERTILITY RATE (Age group 35-39)					
Urban	0.021	0.007	0.355	0.006	0.036
Rural	0.021	0.006	0.260	0.010	0.033
Total	0.021	0.004	0.210	0.012	0.030
AGE-SPECIFIC FERTILITY RATE (Age group 40-44)					
Urban	0.003	0.003	1.010	0.003	0.010
Rural	0.005	0.003	0.495	0.000	0.011
Total	0.005	0.002	0.440	0.001	0.009
AGE-SPECIFIC FERTILITY RATE (Age group 45-49)					
Urban	NC	NC	NC	NC	NC
Rural	0.003	0.003	1.007	0.003	0.008
Total	0.002	0.002	1.003	0.002	0.006
NEONATAL MORTALITY RATE (5-year period preceding survey)					
Urban	20.642	7.692	0.373	5.259	36.026
Rural	34.399	5.481	0.159	23.437	45.361
Total	31.200	4.544	0.146	22.112	40.288

Table A.2 Sampling errors, Punjab, 1993 (Contd.)

Variable/residence	Value (R)	Standard error (SE)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
INFANT MORTALITY $_1q_0$ (5-year period preceding survey)					
Urban	42.301	11.560	0.273	19.182	65.420
Rural	57.196	6.237	0.109	44.722	69.670
Total	53.737	5.448	0.101	42.840	64.634
CHILD MORTALITY $_4q_1$ (5-year period preceding survey)					
Urban	13.754	5.468	0.398	2.818	24.690
Rural	15.439	3.280	0.212	8.880	21.999
Total	15.046	2.809	0.187	9.428	20.664
UNDER-FIVE MORTALITY $_5q_0$ (5-year period preceding survey)					
Urban	55.474	12.836	0.231	29.802	81.145
Rural	71.752	7.010	0.098	57.731	85.773
Total	67.974	6.107	0.090	55.760	80.188
CRUDE BIRTH RATE (Based on Household Questionnaire)					
Urban	22.085	1.237	0.056	19.611	24.559
Rural	25.375	1.090	0.043	23.195	27.555
Total	24.452	0.860	0.035	22.732	25.172
CRUDE DEATH RATE (Based on Household Questionnaire)					
Urban	7.227	0.945	0.131	5.337	9.117
Rural	6.981	0.541	0.077	5.899	8.063
Total	7.051	0.467	0.066	5.117	7.985
CRUDE RATE OF NATURAL INCREASE (Based on Household Questionnaire)					
Urban	14.858	1.631	0.110	11.596	18.120
Rural	18.394	1.178	0.064	15.038	20.750
Total	17.401	0.965	0.055	15.471	18.366
CRUDE BIRTH RATE (Based on birth history)					
Urban	20.973	1.686	0.080	17.597	24.349
Rural	26.519	1.023	0.039	24.473	28.565
Total	24.981	0.877	0.035	23.228	26.735

NC : Not calculated because denominator is 0.000
SRS: Simple random sample

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. While 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 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 number of persons whose age was recorded as not known or missing. It is noteworthy that in Punjab, age was not missing for even a single person out of a total of 17,975 persons listed in the household schedule.

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 Punjab.

Table B.1 Household age distribution

Single year age distribution of the *de facto* household population by sex, Punjab, 1993

	Male		Female			Male		Female	
Age	Number	Percent	Number	Percent	Age	Number	Percent	Number	Percent
< 1	214	2.3	194	2.3	37	51	0.5	109	1.3
1	198	2.1	183	2.1	38	108	1.1	106	1.2
2	227	2.4	161	1.9	39	19	0.2	98	1.1
3	178	1.9	154	1.8	40	349	3.7	134	1.6
4	197	2.1	170	2.0	41	10	0.1	64	0.7
5	274	2.9	209	2.4	42	74	0.8	79	0.9
6	264	2.8	226	2.6	43	30	0.3	70	0.8
7	195	2.1	209	2.4	44	17	0.2	70	0.8
8	285	3.0	227	2.6	45	292	3.1	91	1.1
9	202	2.2	155	1.8	46	35	0.4	72	0.8
10	283	3.0	214	2.5	47	32	0.3	56	0.7
11	198	2.1	167	1.9	48	57	0.6	53	0.6
12	275	2.9	248	2.9	49	17	0.2	31	0.4
13	221	2.4	180	2.1	50	233	2.5	43	0.5
14	196	2.1	209	2.4	51	17	0.2	39	0.5
15	219	2.3	190	2.2	52	32	0.3	62	0.7
16	203	2.2	228	2.7	53	16	0.2	42	0.5
17	165	1.8	176	2.1	54	14	0.1	21	0.2
18	290	3.1	234	2.7	55	125	1.3	151	1.8
19	117	1.2	117	1.4	56	20	0.2	43	0.5
20	239	2.5	229	2.7	57	13	0.1	19	0.2
21	111	1.2	153	1.8	58	39	0.4	73	0.9
22	251	2.7	186	2.2	59	4	--	13	0.2
23	113	1.2	122	1.4	60	243	2.6	279	3.3
24	97	1.0	158	1.8	61	4	--	3	--
25	252	2.7	175	2.0	62	32	0.3	32	0.4
26	119	1.3	149	1.7	63	5	0.1	9	0.1
27	97	1.0	126	1.5	64	6	0.1	1	--
28	172	1.8	129	1.5	65	188	2.0	149	1.7
29	46	0.5	130	1.5	66	5	0.1	6	0.1
30	322	3.4	146	1.7	67	4	--	3	--
31	19	0.2	116	1.4	68	15	0.2	11	0.1
32	135	1.4	124	1.4	69	3	--	2	--
33	48	0.5	112	1.3	70+	433	4.6	278	3.2
34	28	0.3	103	1.2					
35	344	3.7	147	1.7					
36	57	0.6	114	1.3	Total	9393	100.0	8582	100.0

Note: The *de facto* population includes residents and nonresidents who slept in the household the night before the interview.
-- Less than 0.05 percent

One traditional measure of the quality of data is the extent to which information is missing on key variables. Although completeness of responses does not necessarily indicate that the results are accurate, the existence of missing information for a large number of cases would suggest that the data collection was not carried out with sufficient care. For Punjab, 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 first marriage, woman's education and the child's size at birth. Data on height and weight are available for more than 86 percent of children, which is also acceptable since in any survey many children cannot be measured because they are not at home or they are ill at the time of the survey. In some cases when the child was at home, either the child refused to be measured or the mother refused to allow the child to be measured because of cultural beliefs, and no amount of persuasion could change their mind.

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, Punjab, 1993

Age	All women	Ever-married women	Interviewed women		Percent interviewed
			Number	Percent	
10 - 12	629	1	NA	NA	NA
13 - 14	389	1	1	--	100.0
15 - 19	945	137	131	4.4	95.6
20 - 24	848	569	523	17.5	91.9
25 - 29	709	669	609	20.3	91.0
30 - 34	601	598	554	18.5	92.6
25 - 39	574	570	528	17.6	92.6
40 - 44	417	417	374	12.5	89.7
45 - 49	303	301	275	9.2	91.4
50 - 54	207	204	NA	NA	NA
13 - 49	4786	3262	2995	100.0	91.8

Note: The *de facto* population includes all residents and nonresidents who slept in the household the night before the interview.
NA: Not applicable
-- Less than 0.05 percent

Table B.3 Completeness of reporting

Percentage of observations missing information for selected demographic and health questions, Punjab, 1993

Subject	Reference group	Percentage missing information	Number of cases
Birth date	Births in last 15 years		
Month only		0.26	6052
Month and year		0.00	6052
Age at death	Deaths to births in last 15 years	0.45	445
Age at 1st marriage	Ever-married women	0.00	2995
Woman's education	Ever-married women	0.00	2995
Child's size at birth	All births in last 0-47 months	0.00	1388
birth			
Anthropometry[1]	Living children age 0-47 months		
Height		13.83	1388
Weight		13.83	1388
Height or weight		13.98	1388
Diarrhoea in last	Living children age 0-47 months		
2 weeks		0.14	1388

[1]Child not measured

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, 100 percent of living children listed in the birth history had complete birth dates recorded as did 98 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

Table B.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, Punjab, 1993

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	242	13	255	100.0	*	100.0	1017	*	1008	NA	NA	NA
1992	371	25	396	100.0	(100.0)	100.0	984	*	1000	NA	NA	NA
1991	360	20	380	100.0	*	100.0	690	*	696	105	87	104
1990	315	21	336	100.0	*	100.0	821	*	816	106	108	106
1989	236	19	255	99.6	*	99.2	1052	*	992	59	68	60
1988	484	35	519	100.0	(100.0)	100.0	869	*	860	150	167	151
1987	410	23	433	99.8	*	99.3	814	*	835	93	71	91
1986	401	30	431	99.8	(100.0)	99.8	883	*	882	97	109	97
1985	421	32	453	100.0	(96.9)	99.8	823	*	834	107	100	106
1984	388	34	422	100.0	(97.1)	99.8	865	*	867	96	100	97
1983	384	36	420	99.5	(97.2)	99.3	762	*	780	100	91	99
1987-91	1766	120	1886	99.9	99.2	99.9	865	791	860	NA	NA	NA
1982-86	2004	155	2159	99.8	96.8	99.6	829	987	839	NA	NA	NA
1977-81	1797	173	1970	99.9	98.3	99.7	904	944	907	NA	NA	NA
1972-76	1348	160	1508	99.7	99.4	99.7	968	1133	984	NA	NA	NA
1971 or earlier	955	113	1068	99.9	92.9	99.2	925	983	931	NA	NA	NA
All	8112	734	8846	99.9	97.5	99.7	892	968	898	NA	NA	NA

NA: Not applicable
( ) Based on 25-49 cases
* Percent and ratio not shown; based on fewer than 25 cases
[1]Both year and month of birth given
[2]$(B_f/B_m)x1,000$, 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

to age displacement. In Punjab, the cutoff date for asking the health questions was 1 January 1989. 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 in 1989, although much of the decline in the number of deaths to children born after 1987 is undoubtedly real. The SRS shows a 10 percent decline in the infant mortality rate in Punjab between 1988 and 1992 and a 15 percent decline between 1984 and 1992. Moreover, the proportion of 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.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 Punjab, since the ratios of deaths under seven days to all neonatal deaths are quite high (a ratio of less than 25 percent is often used as a guideline to indicate underreporting of early neonatal deaths). The ratios are more or less the same for the 0-4 years (72 percent) and 5-9 years (75 percent) prior to the survey. However, the ratio for the period 10-14 years prior to the survey is much lower (58 percent). Moreover, there was no severe underreporting or misreporting in Punjab due to a preference for certain digits (see Table B.5).

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, Punjab, 1993

Age at death (days)	Years preceding survey			
	0-4	5-9	10-14	0-14
<1	20	17	18	55
1	4	10	8	22
2	5	6	2	13
3	1	10	5	16
4	6	2	2	10
5	2	1	4	7
6	3	1	3	7
7	2	2	1	5
8	1	1	5	7
9	0	0	2	2
10	1	0	4	5
11	1	1	3	5
12	1	1	2	4
13	0	3	3	6
14	0	1	1	2
15	2	3	1	6
16	0	0	1	1
17	0	0	2	2
18	1	1	0	2
20	1	2	0	3
21	2	0	1	3
22	3	1	3	7
25	1	0	2	3
0-29	57	63	73	193
Percent early neonatal[1]	72	75	58	67

[1]0-6 days/0-30 days

Table B.6 shows the ratios of infant deaths that occurred during the neonatal period. These ratios are also quite high, suggesting that there is no major omission of early deaths. One problem that is inherent in most retrospective surveys is heaping of the age at death on certain digits, for example, 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 prior to the survey by month of death (Table B.6) indicates that the calculated infant mortality rates for the population of Punjab as a whole are not likely to be understated by more than 1-2 percent due to age misreporting. There was surprisingly little heaping on particular months of death and due to the strong emphasis during training, there were few deaths reported at age "one year", making any adjustment of infant and child mortality rates unnecessary.

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, Punjab, 1993

Age at death (months)	Years preceding survey			
	0-4	5-9	10-14	0-14
<1	57	63	73	193
1	12	10	8	30
2	3	12	7	22
3	2	4	8	14
4	4	1	5	10
5	5	4	4	13
6	6	3	5	14
7	1	3	1	5
8	4	2	4	10
9	2	2	4	8
10	0	4	2	6
11	1	2	2	5
12	8	11	17	36
13	1	0	3	4
14	0	1	0	1
16	0	0	1	1
18	1	2	1	4
20	0	0	1	1
21	0	1	0	1
22	0	2	0	2
1 year	1	0	1	2
0-11	97	110	123	330
Percent neonatal[1]	59	57	59	59

[1]Under 1 month/under 1 year

This brief check on internal consistency of the Punjab 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 the age at death at certain ages, the bias in infant and child mortality rates arising from this heaping is negligible.

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 OLD			
							MARITAL STATUS**	EDUCATION		
										IF ATTEND
	Please give me the names of the persons who usually live in your household and guests of the household who stayed here last night, starting with the head of the household.	What is the relationship of (NAME) to the head of the household?	Does (NAME) usually live here?	Did (NAME) stay here last night?	Is (NAME) male or female?	How old is (NAME)?	What is the current marital status of (NAME)?	Can (NAME) read and write?	Has (NAME) ever been to school?	What is the highest grade (NAME) completed?***
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
			YES NO	YES NO	M F	IN YEARS	CM S W D NM	YES NO	YES NO	GRADE
01		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
02		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
03		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
04		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
05		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
06		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
07		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐
08		☐☐	1 2	1 2	1 2	☐☐	1 2 3 4 5	1 2	1 2	☐☐

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
	OCCUPATION	Does anyone listed suffer from:					
ED SCHOOL							
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 NO		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	
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	01
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	02
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	03
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	04
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	05
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	06
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	07
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	08

2

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-LAW
10= OTHER RELATIVE
11= ADOPTED/FOSTER CHILD
12= NOT RELATED
98= DK

(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
YES NO		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	
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	09
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	10
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	11
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	12
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	13
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	14
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	15
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	16
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	17
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	18

TOTAL NUMBER OF ELIGIBLE WOMEN ☐☐

YES ☐ → ENTER EACH IN TABLE NO ☐

YES ☐ → ENTER EACH IN TABLE NO ☐

YES ☐ → ENTER EACH IN TABLE NO ☐

** CODES FOR Q.9
MARITAL STATUS:
1= CURRENTLY MARRIED
2= SEPARATED
3= WIDOWED
4= DIVORCED
5= NEVER MARRIED

***CODES FOR Q.12
GRADE:
00=LESS THAN 1
YEAR COMPLETED
98=DK

3

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
22	What is the main source of water your household uses for bathing and washing?	PIPED WATER PIPED INTO RESIDENCE/YARD/PLOT.....11 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_____5 (SPECIFY)	
28	How many rooms are there in your household?	ROOMS..... ☐☐	
29	Do you have a separate room which is used as a kitchen?	YES.....1 NO.....2	
30	What type of fuel does your household mainly use for cooking?	WOOD.....01 COW DUNG CAKES.....02 COAL/COKE/LIGNITE.....03 CHARCOAL.....04 KEROSENE.....05 ELECTRICITY.....06 LIQUID PETROLEUM GAS.....07 BIO-GAS.....08 OTHER_____09 (SPECIFY)	
31	TYPE OF HOUSE. ROOF _____ WALLS_____ RECORD OBSERVATION. FLOOR_____	PUCCA.....1 KACHHA.....2 SEMI-PUCCA.....3	
32	What is the religion of the head of the household?	HINDU.....01 SIKH.....02 BUDDHIST/NEO BUDDHIST.....03 CHRISTIAN.....04 JAIN.....05 JEWISH.....06 MUSLIM.....07 ZOROASTRIAN.....08 NO RELIGION.....09 OTHER_____10 (SPECIFY)	
33	Does the head of the household belong to a scheduled tribe?	YES.....1 NO.....2	→35
34	What is the name of the tribe?	☐☐☐ TRIBE_____ (NAME)	→36
35	To which caste does the head of the household belong?	☐☐☐ CASTE_____ (NAME) NO CASTE.....996	

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? 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) 1991 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) 1991?	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

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RECORD NAMES OF BIRTHS SINCE JANUARY 1991 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

8

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) 1991 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) 1991?	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

9

RECORD NAMES OF DEATHS SINCE JANUARY 1991 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 ☐☐

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74	COMPARE SUM OF 59 AND 61 WITH NUMBER OF DEATHS IN 63 AND MARK:	
	NUMBERS ARE SAME ☐	NUMBERS ARE DIFFERENT ☐ → PROBE AND RECONCILE
75	RECORD THE TIME.	HOUR..... ☐☐ MINUTES..... ☐☐

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
75	Now I would like to ask you some questions about family members of the head of the household who are working outside India. Does any member of (his/her) family work outside India?	YES.....1 NO.....2	→87

76	77	78	79	80	81	82	83	84	85	86
Please give me the names of persons working outside India.	What is the relationship of (NAME) to the head of the household?*	Is (NAME) a male or a female?	How old was (NAME) at his/her last birthday?	What is the current marital status of (NAME)?**	Has (NAME) ever been to school?	What is the highest grade (NAME) completed?***	In which country is (NAME) working?	How long ago did (NAME) begin working there?	What kind of work does (NAME) do there?	Did (NAME) send remittances to this household anytime during the last 12 months?
01 _____ (NAME)	☐☐	M 1 F 2	IN YEARS ☐☐	CM 1 S 2 W 3 D 4 NM 5	YES 1 NO 2	GRADE ☐☐	COUNTRY _____	IN YEARS ☐☐	_____ ☐☐	YES 1 NO 2
02 _____ (NAME)	☐☐	1 2	☐☐	1 2 3 4 5	1 2	☐☐	_____	☐☐	_____ ☐☐	1 2
03 _____ (NAME)	☐☐	1 2	☐☐	1 2 3 4 5	1 2	☐☐	_____	☐☐	_____ ☐☐	1 2

* CODES FOR Q.77
RELATIONSHIP TO HEAD OF HOUSEHOLD:
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-LAW
10= OTHER RELATIVE
11= ADOPTED/FOSTER CHILD

** CODES FOR Q.80
MARITAL STATUS:
1= CURRENTLY MARRIED
2= SEPARATED
3= WIDOWED
4= DIVORCED
5= NEVER MARRIED

***CODES FOR Q.82
GRADE:
00=LESS THAN 1 YEAR COMPLETED
98=DK

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
87	Has any usual resident of the household worked outside India in the past ten years?	YES.....1 NO.....2	→94

88	89	90	91	92	93
Please give me the names of persons formerly working outside India.	RECORD LINE NO. IN HOUSEHOLD SCHEDULE	Just before returning to India, in which country was (NAME) working?	What kind of work did (NAME) do there?	In what calendar year did (NAME) begin working outside India?	In all, for how many years did (NAME) work outside India?
01 _____ (NAME)					
02 _____ (NAME)					

94	CHECK Q.86: REMITTANCES SENT TO THE HOUSEHOLD ☐ V NO REMITTANCES SENT TO THE HOUSEHOLD ☐		→97
95	Did your household acquire any assets or property from the remittances from abroad?	YES.....1 NO.....2	→97
96	What type of assets or property did your household acquire? RECORD ALL MENTIONED	LAND.....A HOUSE.....B SHOP/BUSINESS.....C CAR/VAN.....D TRUCK/BUS.....E GOLD/JEWELLERY.....F OTHER _____ (SPECIFY) G	
97	Do you think the economic status of your household has improved, remained the same or worsened as compared to 5 years ago?	IMPROVED.....1 SAME.....2 WORSENED.....3	
98	RECORD THE TIME.	HOUR..... ☐☐ MINUTES..... ☐☐	

12

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

2

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	How 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 <u>first</u> marriage?	AGE IN COMPLETED YEARS..... ☐☐	
113	How old were you when you started living with your <u>first</u> 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	

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
134	In which state do you usually live?	ANDHRA PRADESH.....01 ARUNACHAL PRADESH.....02 ASSAM.....03 BIHAR.....04 GOA.....05 GUJARAT.....06 HARYANA.....07 HIMACHAL PRADESH.....08 JAMMU & KASHMIR.....09 KARNATAKA.....10 KERALA.....11 MADHYA PRADESH.....12 MAHARASHTRA.....13 MANIPUR.....14 MEGHALAYA.....15 MIZORAM.....16 NAGALAND.....17 ORISSA.....18 PUNJAB.....19 RAJASHTAN.....20 SIKKIM.....21 TAMIL NADU.....22 TRIPURA.....23 UTTAR PRADESH.....24 WEST BENGAL.....25 ANDMAN & NICOBAR ISLANDS.....26 CHANDIGARH.....27 DADRA & NAGAR HAVELI.....28 DAMAN & DIU.....29 DELHI.....30 LAKSHADWEEP.....31 PONDICHERRY.....32 OUTSIDE INDIA.....33	
135	Now I would like to ask about the household in which you usually live. What is the main source of water your household uses for bathing and washing?	PIPED WATER PIPED INTO RESIDENCE/YARD/PLOT.....11 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)	137 137 137
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 NO.....2	139

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)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
144	What materials have been used for the construction of roof, walls and floor of the house where you usually live? ROOF_____ WALLS_____ FLOOR_____	PUCCA.....1 KACHHA.....2 SEMI-PUCCA.....3	
145	What is the religion of the head of the household?	HINDU.....01 SIKH.....02 BUDDHIST/NEO BUDDHIST.....03 CHRISTIAN.....04 JAIN.....05 JEWISH.....06 MUSLIM.....07 ZOROASTRIAN.....08 NO RELIGION.....09 OTHER_____10 (SPECIFY)	
146	Does the head of the household belong to a scheduled tribe?	YES.....1 NO.....2 → 148	
147	What is the name of the tribe?	TRIBE_____ → 149 (NAME)	
148	To which caste does the head of the household belong?	CASTE_____ (NAME) NO CASTE.....996	
149	Does your household own any agricultural land?	YES.....1 NO.....2 → 152	
150	What is the size of <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	

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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 bullock cart?	BULLOCK CART.....1 2	
	A tractor?	TRACTOR.....1 2	
	A thresher?	THRESHER.....1 2	
	A water pump?	WATER PUMP.....1 2	
156	How many people are there in your household?	NUMBER OF PERSONS..... ☐☐	

9

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

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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

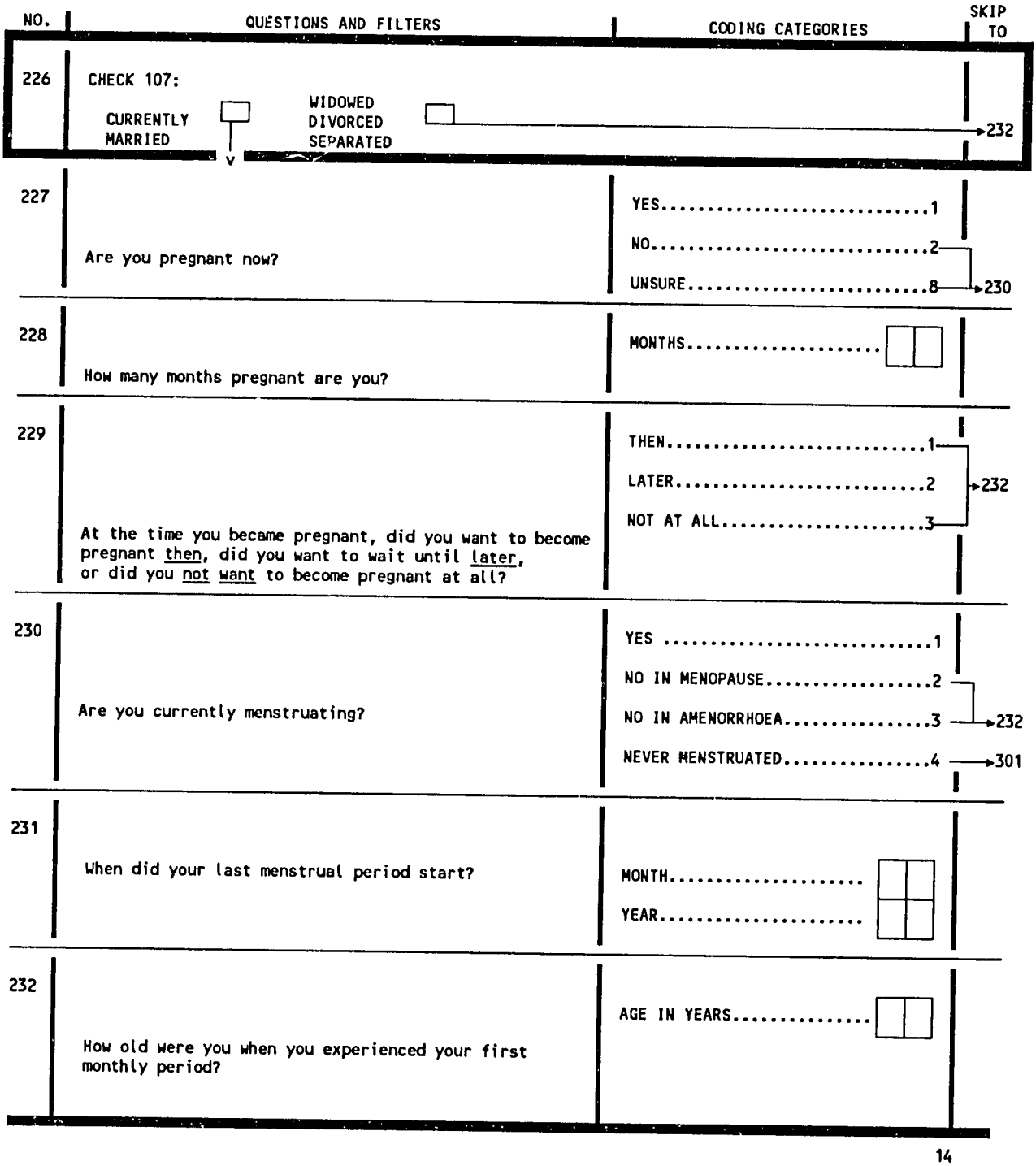
216 What name was given to your next baby?	217 RECORD SINGLE OR MULTIPLE BIRTH STATUS.	218 Is (NAME) a boy or a girl?	219 In what month and year was (NAME) born? PROBE: What is his/her birthday? OR: In what season was he/she born?	220 Is (NAME) still alive?	221 IF ALIVE: How old was (NAME) at his/her 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 1989.
IF NONE, RECORD '0'. ☐


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

15

	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 YES.....1 NO.....2 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)			

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

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/NIROOH.....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	

21

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	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

23

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	

401 CHECK 225:
ONE OR MORE BIRTHS SINCE JAN. 1989 ☐ → NO BIRTHS SINCE JAN. 1989 ☐ → (SKIP TO 501)

402 ENTER THE LINE NUMBER, NAME, AND SURVIVAL STATUS OF EACH BIRTH SINCE JANUARY 1989 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.)

		LAST BIRTH	NEXT-TO-LAST BIRTH	SECOND-FROM-LAST BIRTH
	LINE NUMBER FROM Q. 216	☐☐	☐☐	☐☐
	FROM Q. 216 AND Q. 220	NAME _____ ALIVE ☐ DEAD ☐	NAME _____ ALIVE ☐ DEAD ☐	NAME _____ ALIVE ☐ DEAD ☐
403	At the time you became pregnant with (NAME), did you want to become pregnant then, did you want to wait until later or did you want no (more) children at all?	THEN.....1 (SKIP TO 405) LATER.....2 NO MORE.....3 (SKIP TO 405)	THEN.....1 (SKIP TO 405) LATER.....2 NO MORE.....3 (SKIP TO 405)	THEN.....1 (SKIP TO 405) LATER.....2 NO MORE.....3 (SKIP TO 405)
404	How much longer would you like to have waited?	MONTHS.....1 ☐☐ YEARS.....2 DK.....998	MONTHS.....1 ☐☐ YEARS.....2 DK.....998	MONTHS.....1 ☐☐ YEARS.....2 DK.....998
405	When you were pregnant with (NAME), did any health worker visit you at home for an antenatal check-up?	YES.....1 NO.....2 (SKIP TO 408)	YES.....1 NO.....2 (SKIP TO 408)	YES.....1 NO.....2 (SKIP TO 408)
406	How many months pregnant were you when a health worker first visited you?	MONTHS..... ☐☐	MONTHS..... ☐☐	MONTHS..... ☐☐

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
407	How many times did she visit you?	NO. OF VISITS..... ☐☐	NO. OF VISITS..... ☐☐	NO. OF VISITS..... ☐☐
408	When you were pregnant with (NAME), did you go for an antenatal check-up?	YES.....1 NO.....2 → (SKIP TO 412)	YES.....1 NO.....2 → (SKIP TO 412)	YES.....1 NO.....2 → (SKIP TO 412)
409	Whom did you see? Anyone else? RECORD ALL PERSONS SEEN.	HEALTH PROFESSIONAL DOCTOR.....A AYURVEDIC DOCTOR/VAID...B HOMEOPATH.....C NURSE/MIDWIFE.....D OTHER HEALTH PROFSSNL....E OTHER PERSON TRAINED (TRADITIONAL) BIRTH ATTENDANT.....F TRADITIONAL BIRTH ATTENDANT.....G HAKIM.....H OTHER_____I (SPECIFY)	HEALTH PROFESSIONAL DOCTOR.....A AYURVEDIC DOCTOR/VAID...B HOMEOPATH.....C NURSE/MIDWIFE.....D OTHER HEALTH PROFSSNL...E OTHER PERSON TRAINED (TRADITIONAL) BIRTH ATTENDANT.....F TRADITIONAL BIRTH ATTENDANT.....G HAKIM.....H OTHER_____I (SPECIFY)	HEALTH PROFESSIONAL DOCTOR.....A AYURVEDIC DOCTOR/VAID...B HOMEOPATH.....C NURSE/MIDWIFE.....D OTHER HEALTH PROFSSNL...E OTHER PERSON TRAINED (TRADITIONAL) BIRTH ATTENDANT.....F TRADITIONAL BIRTH ATTENDANT.....G HAKIM.....H OTHER_____I (SPECIFY)
410	How many months pregnant were you when you first went for an antenatal check-up?	MONTHS..... ☐☐	MONTHS..... ☐☐	MONTHS..... ☐☐
411	How many times did you go for an antenatal check-up?	NO. OF TIMES..... ☐☐ → (SKIP TO 413)	NO. OF TIMES..... ☐☐ → (SKIP TO 413)	NO. OF TIMES..... ☐☐ → (SKIP TO 413)
412	What is the main reason you did not go for an antenatal check-up?	LACK OF KNOWLEDGE OF SERVICES.....01 NOT NECESSARY.....02 NOT CUSTOMARY.....03 FINANCIAL COST.....04 INCONVENIENT.....05 POOR QUALITY SERVICE....06 HEALTH STAFF VISIT AT HOME.....07 NO TIME TO GO.....08 NOT PERMITTED TO GO.....09 OTHER_____10 (SPECIFY)	LACK OF KNOWLEDGE OF SERVICES.....01 NOT NECESSARY.....02 NOT CUSTOMARY.....03 FINANCIAL COST.....04 INCONVENIENT.....05 POOR QUALITY SERVICE....06 HEALTH STAFF VISIT AT HOME.....07 NO TIME TO GO.....08 NOT PERMITTED TO GO.....09 OTHER_____10 (SPECIFY)	LACK OF KNOWLEDGE OF SERVICES.....01 NOT NECESSARY.....02 NOT CUSTOMARY.....03 FINANCIAL COST.....04 INCONVENIENT.....05 POOR QUALITY SERVICE....06 HEALTH STAFF VISIT AT HOME.....07 NO TIME TO GO.....08 NOT PERMITTED TO GO.....09 OTHER_____10 (SPECIFY)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
413	Were you given any iron folic tablets during this pregnancy?	YES.....1 NO.....2	YES.....1 NO.....2	YES.....1 NO.....2
414	When you were pregnant with (NAME), were you given an injection in the arm to prevent you and the baby from getting tetanus, that is, convulsions?	YES.....1 NO.....2 (SKIP TO 416) DK.....8	YES.....1 NO.....2 (SKIP TO 416) DK.....8	YES.....1 NO.....2 (SKIP TO 416) DK.....8
415	During this pregnancy how many times did you get this injection?	TIMES..... ☐ DK.....8	TIMES..... ☐ DK.....8	TIMES..... ☐ DK.....8
416	Where did you give birth to (NAME)?	HOME YOUR HOME.....11 PARENTS' HOME.....12 OTHER HOME.....13 PUBLIC SECTOR GVT./MUNICIPL HOSPITL..21 PRIMARY HEALTH CENTRE..22 SUB-CENTRE.....23 PRIVATE SECTOR PRIVATE HOSPITAL/ CLINIC/MATERNITY HOME..31 OTHER_____41 (SPECIFY)	HOME YOUR HOME.....11 PARENTS' HOME.....12 OTHER HOME.....13 PUBLIC SECTOR GVT./MUNICIPL HOSPITL..21 PRIMARY HEALTH CENTRE..22 SUB-CENTRE.....23 PRIVATE SECTOR PRIVATE HOSPITAL/ CLINIC/MATERNITY HOME..31 OTHER_____41 (SPECIFY)	HOME YOUR HOME.....11 PARENTS' HOME.....12 OTHER HOME.....13 PUBLIC SECTOR GVT./MUNICIPL HOSPITL..21 PRIMARY HEALTH CENTRE..22 SUB-CENTRE.....23 PRIVATE SECTOR PRIVATE HOSPITAL/ CLINIC/MATERNITY HOME..31 OTHER_____41 (SPECIFY)

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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_____ (SPECIFY) H 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_____ (SPECIFY) H 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_____ (SPECIFY) H 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_____ (SPECIFY) F	CAESARIAN SECTION.....A USE OF FORCEPS.....B EXCESSIVE BLEEDING.....C LONG PERIOD OF LABOR.....D DELAYED DELIVERY OF PLACENTA.....E OTHER_____ (SPECIFY) F	CAESARIAN SECTION.....A USE OF FORCEPS.....B EXCESSIVE BLEEDING.....C LONG PERIOD OF LABOR.....D DELAYED DELIVERY OF PLACENTA.....E OTHER_____ (SPECIFY) F
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)

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		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
423	How much did (NAME) weigh?	GRAMS.....1 ☐☐☐☐ POUNDS OUNCES POUNDS....2 ☐☐ ☐☐ DK.....99998	GRAMS.....1 ☐☐☐☐ POUNDS OUNCES POUNDS....2 ☐☐ ☐☐ DK.....99998	GRAMS.....1 ☐☐☐☐ POUNDS OUNCES POUNDS....2 ☐☐ ☐☐ DK.....99998
424	Has your period returned since the birth of (NAME)?	YES .....1 (SKIP TO 426) NO.....2 (SKIP TO 427)		
425	Did your period return between the birth of (NAME) and your next pregnancy?		YES .....1 NO.....2 (SKIP TO 429)	YES .....1 NO.....2 (SKIP TO 429)
426	For how many months after the birth of (NAME) did you not have a period?	MONTHS..... ☐☐ DK.....98	MONTHS..... ☐☐ DK.....98	MONTHS..... ☐☐ DK.....98
427	CHECK 227: RESPONDENT PREGNANT?	NOT PREGNANT ☐ PREGNANT OR UNSURE ☐ (SKIP TO 429)		
428	Have you resumed sexual relations since the birth of (NAME)?	YES.....1 NO.....2 (SKIP TO 430)		
429	For how many months after the birth of (NAME) did you not have sexual relations?	MONTHS..... ☐☐ DK.....98	MONTHS..... ☐☐ DK.....98	MONTHS..... ☐☐ DK.....98

		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_____11 (SPECIFY)	MOTHER ILL/WEAK.....01 CHILD ILL/WEAK.....02 CHILD DIED.....03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.....05 MOTHER WORKING.....06 CHILD REFUSED.....07 WEANING AGE.....08 BECAME PREGNANT.....09 STARTED USING CONTRACEPTION.....10 OTHER_____11 (SPECIFY)	MOTHER ILL/WEAK.....01 CHILD ILL/WEAK.....02 CHILD DIED.....03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.....05 MOTHER WORKING.....06 CHILD REFUSED.....07 WEANING AGE.....08 BECAME PREGNANT.....09 STARTED USING CONTRACEPTION.....10 OTHER_____11 (SPECIFY)
442	CHECK 220: CHILD ALIVE?	ALIVE → (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 _____
443	Was (NAME) ever given water or anything else to drink or eat (other than breastmilk)?	YES.....1 NO.....2 (SKIP TO 447)	YES.....1 NO.....2 (SKIP TO 447)	YES.....1 NO.....2 (SKIP TO 447)
444	How many months old was (NAME) when you started giving the following on a regular basis?			
	Plain water?	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)
445	CHECK 220: CHILD ALIVE?	ALIVE ☐ DEAD ☐ (SKIP TO 447)		
446	Did (NAME) drink anything from a bottle with a nipple yesterday or last night?	YES.....1 NO.....2 DK.....8		
447	→	GO BACK TO 403 FOR NEXT BIRTH; OR, IF NO MORE BIRTHS, GO TO FIRST COLUMN OF 448.		

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448 ENTER THE LINE NUMBER AND NAME OF EACH BIRTH SINCE JANUARY 1989 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

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		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
452	Has (NAME) received any vaccinations that are not recorded on this card? RECORD 'YES' ONLY IF RESPONDENT MENTIONS BCG, DPT 1-3, POLIO 0-3 AND/OR MEASLES VACCINE(S).	YES.....1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 451) (SKIP TO 455) NO.....2 DK.....8 (SKIP TO 455)	YES.....1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 451) (SKIP TO 455) NO.....2 DK.....8 (SKIP TO 455)	YES.....1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 451) (SKIP TO 455) NO.....2 DK.....8 (SKIP TO 455)
453	Did (NAME) ever receive any vaccinations to prevent him/her from getting diseases?	YES.....1 NO.....2 (SKIP TO 455) DK.....8	YES.....1 NO.....2 (SKIP TO 455) DK.....8	YES.....1 NO.....2 (SKIP TO 455) DK.....8
454	Please tell me if (NAME) (has) received any of the following vaccinations:			
	A BCG vaccination against tuberculosis, that is, an injection in the left shoulder that caused a scar?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
	A vaccination against diphtheria, whooping cough and tetanus given as an injection? IF YES: How many times?	YES.....1 NO.....2 DK.....8 NUMBER OF TIMES.....	YES.....1 NO.....2 DK.....8 NUMBER OF TIMES.....	YES.....1 NO.....2 DK.....8 NUMBER OF TIMES.....
	Polio vaccine, that is, drops in the mouth? IF YES: How many times? IF YES: When was the first polio vaccine given -- just after birth or later?	YES.....1 NO.....2 DK.....8 NUMBER OF TIMES..... JUST AFTER BIRTH.....1 LATER.....2 DK.....8	YES.....1 NO.....2 DK.....8 NUMBER OF TIMES..... JUST AFTER BIRTH.....1 LATER.....2 DK.....8	YES.....1 NO.....2 DK.....8 NUMBER OF TIMES..... JUST AFTER BIRTH.....1 LATER.....2 DK.....8
	An injection against measles?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
455	Was a dose of vitamin A liquid ever given to (NAME) to protect him/her from night blindness?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
456	Did (NAME) ever have:	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
457	CHECK 220: CHILD ALIVE?	ALIVE ☐ DEAD ☐ (SKIP TO 459)	ALIVE ☐ DEAD ☐ (SKIP TO 459)	ALIVE ☐ DEAD ☐ (SKIP TO 459)
458	→	GO BACK TO 449 FOR NEXT BIRTH; OR, IF NO MORE BIRTHS, SKIP TO 489.		
459	Has (NAME) been ill with a fever at any time in the last 2 weeks?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
460	Has (NAME) been ill with a cough at any time in the last 2 weeks?	YES.....1 NO.....2 (SKIP TO 464) DK.....8	YES.....1 NO.....2 (SKIP TO 464) DK.....8	YES.....1 NO.....2 (SKIP TO 464) DK.....8
461	Has (NAME) been ill with a cough in the last 24 hours?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
462	For how many days (has the cough lasted/did the cough last)? IF LESS THAN 1 DAY, RECORD '00'	DAYS..... ☐☐	DAYS..... ☐☐	DAYS..... ☐☐
463	When (NAME) was ill with a cough, did he/she breathe faster than usual with short, rapid breaths?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
464	CHECK 459 AND 460: FEVER OR COUGH?	"YES" IN EITHER 459 OR 460 ☐ → ; ☐ OTHER → (SKIP TO 469)	"YES" IN EITHER 459 OR 460 ☐ → ; ☐ OTHER → (SKIP TO 469)	"YES" IN EITHER 459 OR 460 ☐ → ; ☐ OTHER → (SKIP TO 469)
465	Did you seek advice or treatment for the fever/cough?	YES.....1 NO.....2 (SKIP TO 467)	YES.....1 NO.....2 (SKIP TO 467)	YES.....1 NO.....2 (SKIP TO 467)
466	Where did you seek advice or treatment? Anywhere else? RECORD ALL MENTIONED.	PUBLIC SECTOR GVT/MUNICIPAL HOSPITAL..A PRIMARY HEALTH CENTRE...B SUB-CENTRE.....C MOBILE CLINIC.....D VILLAGE HEALTH GUIDE....E GOVERNMENT PARAMEDIC....F PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC....G PHARMACY/DRUGSTORE.....H PRIVATE DOCTOR.....I MOBILE CLINIC.....J COMMUNITY HEALTH WORKER.K OTHER PRIVATE SECTOR SHOP.....L TRADITIONAL PRACTITIONER.....M OTHER _____ N (SPECIFY)	PUBLIC SECTOR GVT/MUNICIPAL HOSPITAL..A PRIMARY HEALTH CENTRE...B SUB-CENTRE.....C MOBILE CLINIC.....D VILLAGE HEALTH GUIDE....E GOVERNMENT PARAMEDIC....F PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC....G PHARMACY/DRUGSTORE.....H PRIVATE DOCTOR.....I MOBILE CLINIC.....J COMMUNITY HEALTH WORKER.K OTHER PRIVATE SECTOR SHOP.....L TRADITIONAL PRACTITIONER.....M OTHER _____ N (SPECIFY)	PUBLIC SECTOR GVT/MUNICIPAL HOSPITAL..A PRIMARY HEALTH CENTRE...B SUB-CENTRE.....C MOBILE CLINIC.....D VILLAGE HEALTH GUIDE....E GOVERNMENT PARAMEDIC....F PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC....G PHARMACY/DRUGSTORE.....H PRIVATE DOCTOR.....I MOBILE CLINIC.....J COMMUNITY HEALTH WORKER.K OTHER PRIVATE SECTOR SHOP.....L TRADITIONAL PRACTITIONER.....M OTHER _____ N (SPECIFY)
467	Was anything given to treat the fever/cough?	YES.....1 NO.....2 (SKIP TO 469) DK.....8	YES.....1 NO.....2 (SKIP TO 469) DK.....8	YES.....1 NO.....2 (SKIP TO 469) DK.....8

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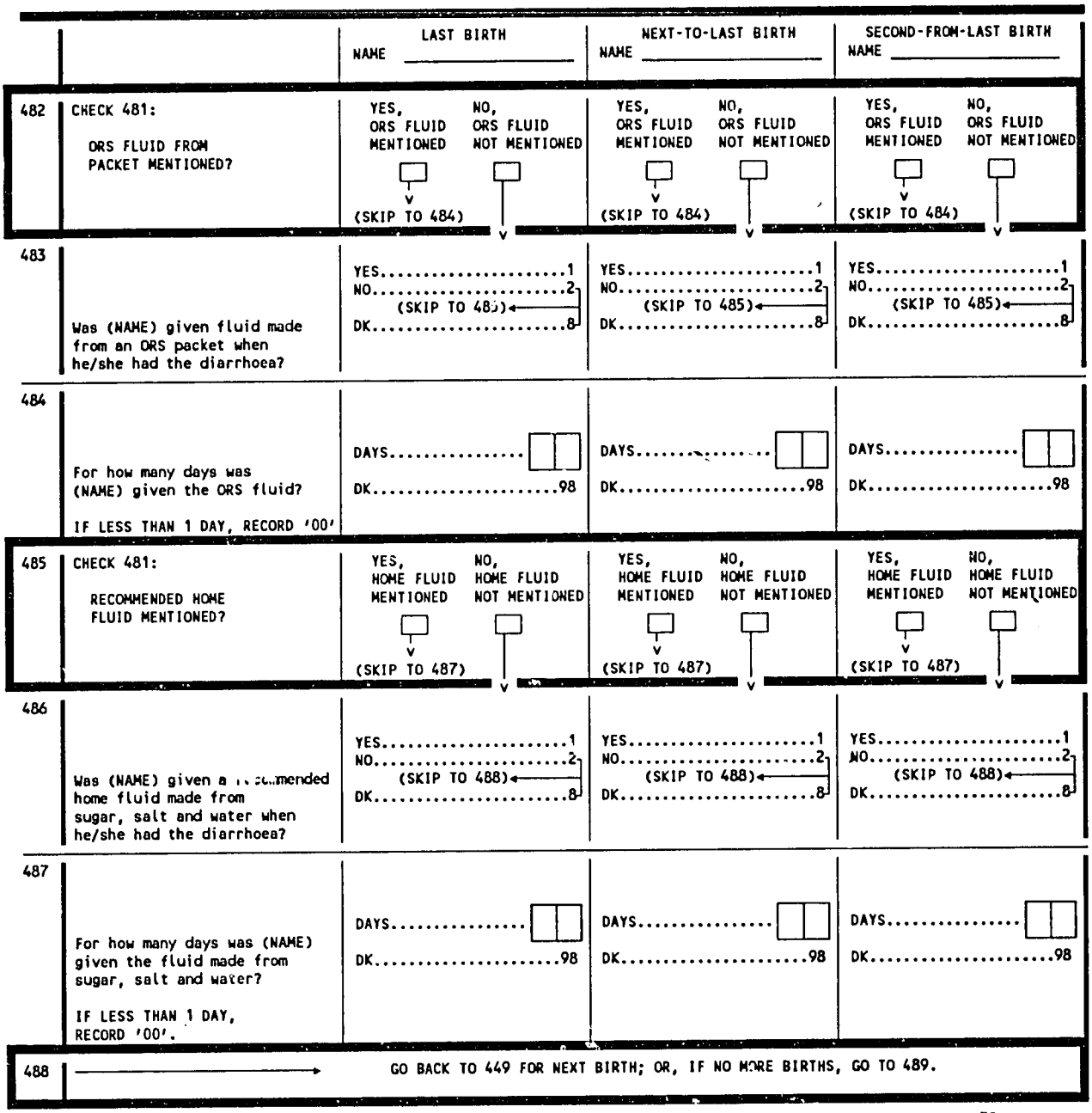
		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
468	What was given to treat the fever/cough? Anything else? RECORD ALL MENTIONED.	INJECTION.....A ANTIBIOTIC (PILL OR SYRUP).....B ANTIMALARIAL (PILL OR SYRUP).....C COUGH SYRUP.....D OTHER PILL OR SYRUP.....E UNKNOWN PILL OR SYRUP....F HOME REMEDY/ HERBAL MEDICINE.....G OTHER_____H (SPECIFY)	INJECTION.....A ANTIBIOTIC (PILL OR SYRUP).....B ANTIMALARIAL (PILL OR SYRUP).....C COUGH SYRUP.....D OTHER PILL OR SYRUP.....E UNKNOWN PILL OR SYRUP....F HOME REMEDY/ HERBAL MEDICINE.....G OTHER_____H (SPECIFY)	INJECTION.....A ANTIBIOTIC (PILL OR SYRUP).....B ANTIMALARIAL (PILL OR SYRUP).....C COUGH SYRUP.....D OTHER PILL OR SYRUP.....E UNKNOWN PILL OR SYRUP....F HOME REMEDY/ HERBAL MEDICINE.....G OTHER_____H (SPECIFY)
469	Has (NAME) had diarrhoea in the last two weeks?	YES.....1 (SKIP TO 471) NO.....2 DK.....8	YES.....1 (SKIP TO 471) NO.....2 DK.....8	YES.....1 (SKIP TO 471) NO.....2 DK.....8
470	→ GO BACK TO 449 FOR NEXT BIRTH; OR, IF NO MORE BIRTHS, SKIP TO 489.			
471	Has (NAME) had diarrhoea in the last 24 hours?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
472	For how many days (has the diarrhoea lasted/did the diarrhoea last)? IF LESS THAN 1 DAY, RECORD '00'	DAYS..... ☐☐	DAYS..... ☐☐	DAYS..... ☐☐
473	Was there any blood in the stools?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8 (SKIP TO 477)	YES.....1 NO.....2 DK.....8 (SKIP TO 477)
474	CHECK 430/435: LAST CHILD STILL BREASTFEEDING?	YES ☐ NO ☐ (SKIP TO 477)		
475	During (NAME)'s diarrhoea, did you change the frequency of breastfeeding?	YES.....1 NO.....2 (SKIP TO 477)		
476	Did you <u>increase</u> the number of breastfeeds or <u>reduce</u> them, or did you <u>stop completely</u>?	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_____ (SPECIFY) N	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) N	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) N
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_____ (SPECIFY) H	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_____ (SPECIFY) H	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_____ (SPECIFY) H


LAST BIRTH
NAME
NEXT-TO-LAST BIRTH
NAME
SECOND-FROM-LAST BIRTH
NAME
482
CHECK 481:
ORS FLUID FROM PACKET MENTIONED?
YES, ORS FLUID MENTIONED
NO, ORS FLUID NOT MENTIONED
(SKIP TO 484)
483
Was (NAME) given fluid made from an ORS packet when he/she had the diarrhoea?
YES.....1
NO.....2
(SKIP TO 485)
DK.....8
484
For how many days was (NAME) given the ORS fluid?
IF LESS THAN 1 DAY, RECORD '00'
DAYS.....
DK.....98
485
CHECK 481:
RECOMMENDED HOME FLUID MENTIONED?
YES, HOME FLUID MENTIONED
NO, HOME FLUID NOT MENTIONED
(SKIP TO 487)
486
Was (NAME) given a recommended home fluid made from sugar, salt and water when he/she had the diarrhoea?
YES.....1
NO.....2
(SKIP TO 488)
DK.....8
487
For how many days was (NAME) given the fluid made from sugar, salt and water?
IF LESS THAN 1 DAY, RECORD '00'.
DAYS.....
DK.....98
488
GO BACK TO 449 FOR NEXT BIRTH; OR, IF NO MORE BIRTHS, GO TO 489.

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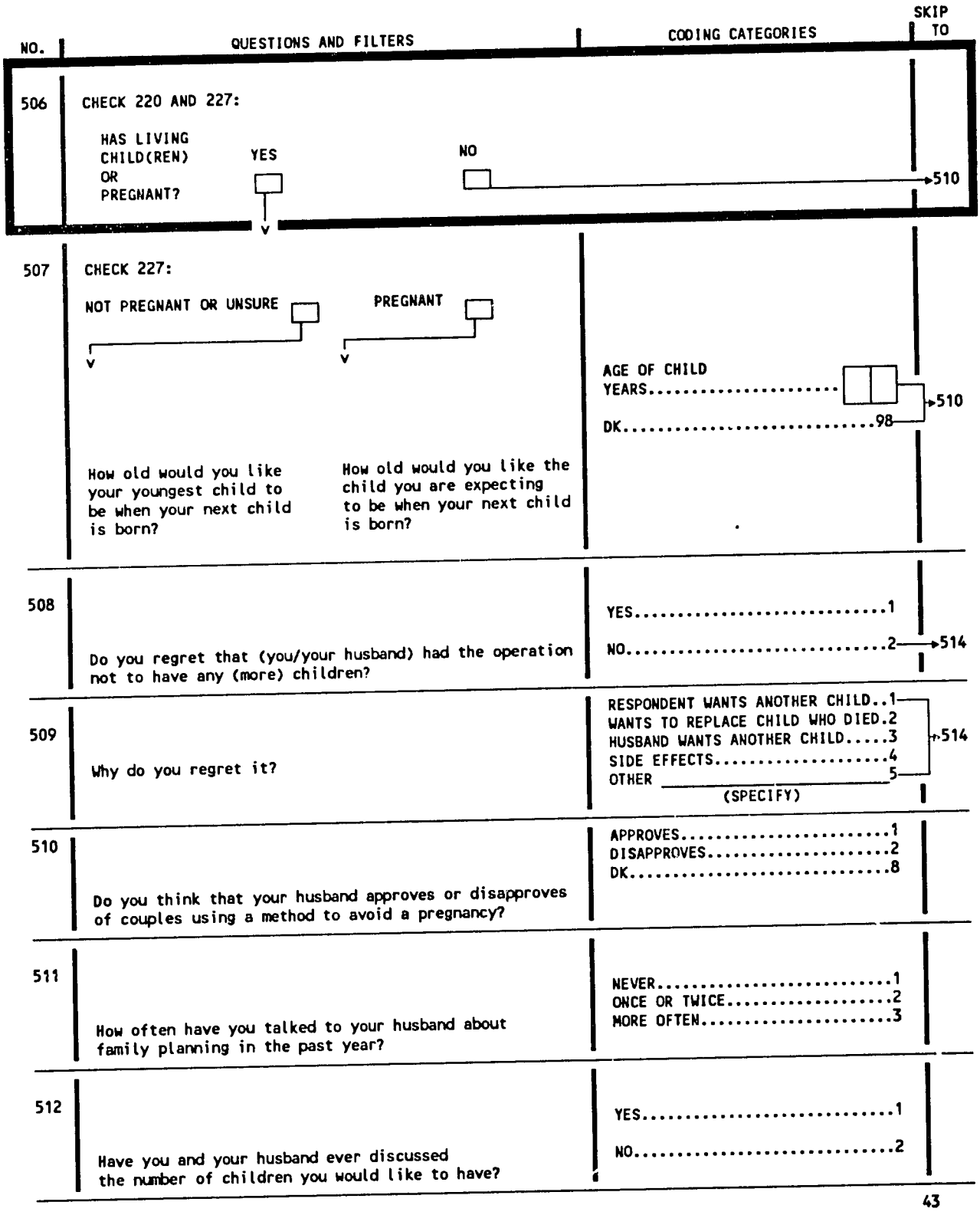
NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
489	CHECK 481 AND 483 (ALL COLUMNS): ORS FLUID FROM PACKET GIVEN TO ANY CHILD ☐ → 492 ORS FLUID FROM PACKET NOT GIVEN TO ANY CHILD OR 481 AND 483 NOT ASKED ☐ ↓		
490	Have you ever heard of a special product called ORS you can get for the treatment of diarrhoea?	YES.....1 NO.....2	492
491	Have you ever seen a packet like one of these before? SHOW BOTH THE W.H.O. AND A COMMERCIAL PACKET.	YES.....1 NO.....2	496
492	Have you ever prepared a solution with one of these packets to treat diarrhoea for yourself or someone else? SHOW BOTH THE W.H.O. AND A COMMERCIAL PACKET.	YES.....1 NO.....2	495
493A	The last time you prepared the ORS, did you use the free W.H.O. packet(SHOW THE W.H.O. PACKET) or an alternative commercial packet (SHOW THE COMMERCIAL PACKET)?	FREE WHO PACKET.....1 ALTERNATIVE COMMERCIAL PACKET....2	
493	The last time you prepared the ORS, did you prepare the whole packet at once or only part of the packet?	WHOLE PACKET AT ONCE.....1 PART OF PACKET.....2 DK.....8	495
494	How much water did you use to prepare ORS the last time you made it?	200 ML. GLASSES.....1 ☐☐ 1\2 LITER.....901 1 LITER.....902 1 1\2 LITERS.....903 2 LITERS.....904 FOLLOWED PACKAGE INSTRUCTIONS.905 OTHER_____906 (SPECIFY) DK.....998	
495	Where can you get the ORS packet? PROBE: Anywhere else? RECORD ALL PLACES MENTIONED.	PUBLIC SECTOR GVT/MUNICIPAL HOSPITAL.....A PRIMARY HEALTH CENTRE.....B SUB-CENTRE.....C MOBILE CLINIC.....D VILLAGE HEALTH GUIDE.....E GOVERNMENT PARAMEDIC .....F PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....G PHARMACY/DRUGSTORE.....H PRIVATE DOCTOR.....I MOBILE CLINIC.....J COMMUNITY HEALTH WORKER.....K OTHER PRIVATE SECTOR SHOP.....L TRADITIONAL PRACTITIONER.....M OTHER_____N (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
496	CHECK 481 AND 486 (ALL COLUMNS): HOME-MADE FLUID GIVEN TO ANY CHILD ☐ → 497 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 ☐ → WIDOWED / DIVORCED / SEPARATED ☐		→514
502	CHECK 313: NEITHER STERILIZED ☐ → 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_____ (SPECIFY) 996 DK.....998	→510


NO.
QUESTIONS AND FILTERS
CODING CATEGORIES
SKIP TO
506
CHECK 220 AND 227:
HAS LIVING CHILD(REN) OR PREGNANT?
YES
NO
510
507
CHECK 227:
NOT PREGNANT OR UNSURE
PREGNANT
How old would you like your youngest child to be when your next child is born?
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
5
(SPECIFY)
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
43

513 Do you think your husband wants the same number of children that you want, or does he want more or fewer than you want?

- SAME NUMBER.....1
- MORE CHILDREN.....2
- FEWER CHILDREN.....3
- DK.....8

514 How long should a couple wait before starting sexual intercourse after the birth of a baby?

- DAYS.....1 ☐☐
- MONTHS.....2 ☐☐
- YEARS.....3 ☐☐
- UP TO COUPLE.....995
- OTHER _____ 996 (SPECIFY)

515 In general, do you approve or disapprove of couples using a method to avoid getting pregnant?

- APPROVE.....1
- DISAPPROVE.....2

516 CHECK 220:

HAS LIVING CHILD(REN) ☐ → 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: AMNIOCENTESIS

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
519	Do you know whether it is possible to predetermine the sex of the foetus before birth?	YES.....1 NO.....2	^P601
520	Some women go for abortion when they come to know that they are carrying a female foetus which they do not want. Do you approve or disapprove this practice?	APPROVE.....1 DISAPPROVE.....2	
521	Why do you (approve/disapprove) this practice?	☐☐ _____ _____ _____	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
601	CHECK 107: CURRENTLY MARRIED ☐ → ASK QUESTIONS ABOUT CURRENT OR MOST RECENT HUSBAND. WIDOWED, DIVORCED, SEPARATED ☐		→603
602	How old was your husband on his last birthday?	AGE IN COMPLETED YEARS..... ☐☐	
603	Did your (last) husband ever attend school?	YES.....1 NO.....2	→606
604	What is the highest grade he completed?	GRADE..... ☐☐	
605	CHECK 604: GRADE 0-5 ☐ →	GRADE 6-12 ☐	→608
		GRADE 13+ ☐	→607
606	(Can/Could) he read and write?	YES.....1 NO.....2	→608
607	What is the highest degree he obtained?	DEGREE NOT COMPLETED.....01 NON-TECHNICAL DEGREE BACHELOR'S DEGREE.....02 MASTER'S DEGREE.....03 Ph.D.....04 TECHNICAL DEGREE BACHELOR'S DEGREE.....05 MASTER'S DEGREE.....06 TECHNICAL DIPLOMA/CERTIFICATE NOT EQUIVALENT TO DEGREE.....07 NON-TECHNICAL DIPLOMA/CERTIF. NOT EQUIVALENT TO DEGREE.....08 OTHER DEGREE_____09 (SPECIFY)	

45

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 □ ↓ 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. 1989 AND LIVING AT HOME?	YES ☐ (v) NO ☐ →620	
618	While you are working, do you usually have (NAME OF YOUNGEST CHILD AT HOME) with you, sometimes have him/her with you, or never have him/her with you?	USUALLY.....1 →620 SOMETIMES.....2 NEVER.....3	
619	Who usually takes care of (NAME OF YOUNGEST CHILD AT HOME) while you are working?	HUSBAND.....01 OLDER CHILD(REN).....02 OTHER RELATIVES.....03 NEIGHBORS.....04 FRIENDS.....05 SERVANTS/HIRED HELP.....06 CHILD IS IN SCHOOL.....07 INSTITUTIONAL CHILDCARE.....08 OTHER_____09 (SPECIFY)	
620	RECORD THE TIME	HOUR..... ☐☐ MINUTES..... ☐☐	
621	PRESENCE OF OTHERS DURING MOST OF THE INTERVIEW TIME.	YES NO CHILDREN UNDER 10.....1 2 HUSBAND.....1 2 MOTHER-IN-LAW.....1 2 OTHER MALES.....1 2 OTHER FEMALES.....1 2	

47

SECTION 7. HEIGHT AND WEIGHT

701	CHECK 219/220:	
	ONE OR MORE LIVING CHILDREN BORN SINCE JAN. 1989 ☐ ↓	NO LIVING CHILDREN BORN SINCE JAN. 1989 ☐ → END

INTERVIEWER: IN 702 (COLUMNS 1-3) RECORD THE LINE NUMBER FOR EACH CHILD BORN SINCE JANUARY 1989 AND STILL ALIVE.
IN 703 AND 704 RECORD THE NAME AND BIRTH DATE FOR ALL LIVING CHILDREN BORN SINCE JANUARY 1989.
IN 705 AND 707 RECORD THE HEIGHT AND WEIGHT OF THE LIVING CHILDREN.
(NOTE:IF THERE ARE MORE THAN 3 LIVING CHILDREN BORN SINCE JANUARY 1989, USE ADDITIONAL FORMS).

	[1] YOUNGEST LIVING CHILD	[2] NEXT-TO-YOUNGEST LIVING CHILD	[3] SECOND-TO-YOUNGEST LIVING CHILD
702 LINE NO. FROM Q.216	☐☐	☐☐	☐☐
703 NAME FROM Q.216 FOR CHILDREN	(NAME) _____	(NAME) _____	(NAME) _____
704 DATE OF BIRTH FROM Q.219 FOR CHILDREN, COPY MONTH AND YEAR OF BIRTH AND ASK FOR DAY OF BIRTH	DAY..... ☐☐ MONTH.... ☐☐ YEAR..... ☐☐	DAY..... ☐☐ MONTH.... ☐☐ YEAR..... ☐☐	DAY..... ☐☐ MONTH.... ☐☐ YEAR..... ☐☐
705 HEIGHT (in centimeters)	☐☐☐.☐	☐☐☐.☐	☐☐☐.☐
706 WAS HEIGHT/LENGTH OF CHILD MEASURED LYING DOWN OR STANDING UP?	LYING.....1 STANDING.....2	LYING.....1 STANDING.....2	LYING.....1 STANDING.....2
707 WEIGHT (in kilograms)	☐☐.☐	☐☐.☐	☐☐.☐
708 DATE WEIGHED AND MEASURED	DAY..... ☐☐ MONTH.... ☐☐ YEAR..... ☐☐	DAY..... ☐☐ MONTH.... ☐☐ YEAR..... ☐☐	DAY..... ☐☐ MONTH.... ☐☐ YEAR..... ☐☐
709 RESULT	CHILD MEASURED.1 CHILD SICK.....2 CHILD NOT PRESENT.....3 CHILD REFUSED..4 MOTHER REFUSED.5 OTHER.....6 (SPECIFY)	CHILD MEASURED.1 CHILD SICK.....2 CHILD NOT PRESENT.....3 CHILD REFUSED..4 MOTHER REFUSED.5 OTHER.....6 (SPECIFY)	CHILD MEASURED.1 CHILD SICK.....2 CHILD NOT PRESENT.....3 CHILD REFUSED..4 MOTHER REFUSED.5 OTHER.....6 (SPECIFY)

710 NAME OF MEASURER: _____ ☐☐ NAME OF ASSISTANT: _____ ☐☐

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INTERVIEWER'S OBSERVATIONS
(To be filled in after completing interview)

Comments About Respondent: _____

_____

_____

_____

Comments on Specific Questions: _____

_____

_____

_____

Any Other Comments: _____

_____

SUPERVISOR'S OBSERVATIONS

_____

_____

_____

_____

_____

_____

Name of Supervisor: _____ Date: _____

EDITOR'S OBSERVATIONS

_____

_____

_____

_____

_____

_____

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: