

PN-HBW-053
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National Family Health Survey **(MCH and Family Planning)**

Orissa **1993**

Population Research Centre
Utkal University
Bhubaneswar
and
International Institute for Population Sciences
Bombay

March 1995

Suggested citation: Population Research Centre, Utkal University (PRC, Bhubaneswar) and International Institute for Population Sciences (IIPS). 1995. *National Family Health Survey (MCH and Family Planning), Orissa 1993*. Bombay: PRC, Bhubaneswar and IIPS.

Additional information about the National Family Health Survey can be obtained from the International Institute for Population Sciences, Govandi Station Road, Deonar, Bombay - 400 088 (Telephone 5564883, 5563254, 5563255, 5563256; Fax 5563257; E-mail iips.nfhs@access.net.in)

CONTRIBUTORS

Bipin Bihari Hota
Basantilata Rath
M. Guruswamy
Karen Oppenheim Mason
B.M. Ramesh

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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 (the erstwhile Union Territory of Delhi, which recently attained statehood), which comprise 99 percent of the total population of India. In all, 89,777 ever-married women age 13-49 and 88,562 households were covered, using uniform questionnaires, sample designs and field procedures. The data collection was carried out on a state-by-state basis during April 1992 to September 1993. Preliminary reports with selected results were prepared for each state by the end of 1993 and presented to policymakers and programme administrators responsible for improving family welfare programmes in most states.

The final state-level reports are based on a tabulation plan discussed, finalized and approved at a workshop held at 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 Orissa. 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.

K.B. Patilak
Director, International
Institute for Population
Sciences, Bombay

Bipin Bihari Hota
Chief Executive,
Population Research Centre,
Utkal University,
Bhubaneswar

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, who later became the 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, the present Secretary of the Department of Family Welfare, New Delhi, for his timely guidance and support to the project. 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 for carrying out the entire sampling design for all the states from the Office of the Registrar General, India, New Delhi. 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 Le and Dr. Vijay K. Verma for their participation and help in preparing a very thorough sampling design for all the states.

The Family Welfare Departments of each state covered in the NFHS helped the Consulting Organizations in data collection by providing accommodations, vehicles and drivers to the interviewing teams. Thanks are also due to the village officials in all of the villages covered for facilitating the data collection.

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.

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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, Program Specialist, USAID/New Delhi, for his initiative, untiring efforts, and emotional 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.

Special thanks are due to the Population Research Centre, Bureau of Statistics and Economics, Bhopal for their help and cooperation rendered in pretesting the national NFHS questionnaires.

Thanks are due to all the members of the Steering Committee, Administrative and Financial Management Committee and Technical Advisory Committee for participating in various meetings and providing valuable guidance to the conducting of the NFHS.

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

A post-survey check of 5 percent of the NFHS sample undertaken by the Institute for Research in Medical Statistics (IRMS) reconfirmed the high quality of the NFHS data. Special thanks are due to Dr. Padam Singh, Director, IRMS, New Delhi, for undertaking this tedious task of 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. Sincere efforts and involvement of Mr. Damodar Sahu, Research Officer at IIPS during the training of the field staff and data collection in Orissa are gratefully acknowledged. The help of all the Research Officers at IIPS, especially the help of Mr. V. Jayachandran and Mrs. Vaidehi Yelamanchali in the preparation of the report and that of Dr. B. S. Singh in producing the graphs for the report, is acknowledged.

Very special thanks are due to Mr. David Cantor for his immense help in the data entry operation, data analysis and the preparation of tables for Orissa. Mr. Sanjay Tiwari who assisted in data processing for Orissa needs 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 in editing this state-level report for Orissa and that of Dr. S. P. Mohanty, Professor, Department of Sociology, University of Bombay, for reviewing the report and offering his comments are gratefully acknowledged.

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

Prof. S. Acharya, Vice-Chancellor, Utkal University, who is also the Ex-Officio Director of the Population Research Centre evinced keen interest in all activities carried out for NFHS. His guidance and cooperation are gratefully acknowledged. Dr. (Mrs) Kamala Das, Minister, Family Welfare, Government of Orissa, was a constant source of inspiration during the activities under NFHS. We are thankful to her. Sri G. B. Mukherjee, I.A.S., and Sri R. M. Senapati, I.A.S., Secretary, Department of Health and Family Welfare, Dr. J. C. Das, Director, Family Welfare, Dr. (Mrs) C. R. Das and Dr. S. Barik, Joint Directors, Directorate of Family Welfare, helped at different stages of the survey activities. Their help and cooperation are gratefully acknowledged.

This acknowledgment cannot be concluded without expressing appreciation for the great amount of pains taken by the interviewers, supervisors and editors in collecting data in Orissa. 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 4,257 ever-married women of Orissa and the household respondents who spent their time and responded to the rather lengthy questionnaires with tremendous patience and without any expectation from the NFHS.

SUMMARY OF FINDINGS

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

The NFHS in Orissa, conducted between 7 March and 18 June 1993, gathered information on a representative sample of 4,257 ever-married women age 13-49 from 4,602 households. The survey also collected information on 2,262 children of interviewed women born in the four years preceding the survey. In this report, the survey findings are generally shown for the whole state, as well as for urban and rural areas.

According to the NFHS, the age distribution of Orissa is typical of high fertility populations, with 35 percent of the population below age 15, and 5 percent age 65 or older at the time of the interview. The population sex ratio of the *de facto* residents is 972 females per 1,000 males.

Marriage is nearly universal in Orissa. At the time of the survey, 28 percent of women age 15-19 were married and 94 percent of women age 25-29 were married. The singulate mean age at marriage has risen steadily over the last several decades to a current level of 26 years for males and 21 years for females. There has also been a dramatic decline in the proportion of women marrying at young ages. The proportion of women marrying by age 13 declined from 16 percent of those age 45-49 to less than 1 percent of those age 15-19, and the proportion marrying by age 15 declined from 34 percent of women age 45-49 to 7 percent of those age 15-19. Marriage at young ages is now very infrequent: 3 percent of women age 15-19 in the urban areas and 7 percent of rural women age 15-19 are married at age 15 or younger. Nevertheless, the legal minimum age of marriage of 18 for females is widely ignored. Forty-six percent of women age 20-24 married at age 18 or younger.

Fertility in Orissa appears to have declined considerably over the past few decades, but it remains well above the long-term national goal of replacement level. According to the NFHS, at current fertility levels, women will have an average of 2.9 children during their childbearing years. Orissa's fertility transition has progressed further in urban areas, where the total fertility rate is 2.5 children per woman compared with 3.0 children per woman in rural areas. Because approximately 87 percent of the state's population is rural, overall fertility remains close to 3 children.

Contraceptive knowledge is nearly universal in Orissa, with 93 percent of currently married women having heard of at least one modern family planning method (most commonly female sterilization). Contraceptive use is less widespread than knowledge, however. Only two in five women have ever used a method, with slightly more than one in three currently using any

method. The most widely used method of family planning is female sterilization, which is the method accepted by 78 percent of current users.

Contraceptive use is appreciably higher in urban areas than in rural areas (47 percent compared with 34 percent), higher among women with at least a high school education than among illiterate women (48 percent compared with 34 percent), and higher among Christians than among Muslims (46 percent compared with 16 percent, with Hindus in between). Current use of contraceptives is also lower among women from scheduled tribes (30 percent) than among other women. Current use is positively related to the number of living children a woman has, ranging from less than 3 percent for women with no children to 54 percent for women with four or more children. Furthermore, contraceptive use in Orissa reflects a preference for sons, with current use at each parity lowest for women with no sons and highest for women with two or more sons. Son preference does not outweigh parity completely, however, because a substantial minority of higher parity women with no living sons nevertheless use contraception.

The public sector, predominantly Primary Health Centres and government and municipal hospitals, is the most important source of contraception, supplying 93 percent of the current users of modern methods. In contrast, the private medical sector provides contraception to only 4 percent of current users. Only 3 percent of current users obtain their contraceptives from shops, friends or relatives. The source of modern contraceptives varies dramatically according to the method used. The government provides over 90 percent of users of all sterilizations and IUDs and 43 percent of pill users, but only 23 percent of condom users.

Three out of five currently married nonusers of contraception say they do not intend to use contraception at any time in the future. Intentions to use family planning in the future are low for all currently nonusing women, regardless of their number of children. Intended users of contraception state a strong preference for using modern methods. Female sterilization is preferred by 46 percent of the potential users, followed by spacing methods, especially the pill.

Information on the fertility preferences of currently married women was also collected in the NFHS. Almost three in five currently married women in Orissa (58 percent) either have already been sterilized or say that they want no more children. Another 18 percent say they want another child but want to wait at least two years before their next birth. Only 14 percent express a desire to have a child within two years. Among women who want an additional child, far more express a preference that the next child be a son than express a preference for a daughter. This preference is present in both urban and rural areas, and it is stronger among high parity women than among low parity women.

Twenty-two percent of currently married women in Orissa 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. The unmet need for spacing is slightly higher than the unmet need for limiting, 13 percent compared with 10 percent, although there is a greater total demand for limiting methods of family planning (44 percent) than for spacing methods (14 percent). Current programmes which emphasize limiting methods are least effective in meeting the needs of young married women who would like to space their births. Were the family welfare programme to make spacing methods, especially the pill, more widely available, the demand for these methods might be higher than it is.

The potential for increased contraceptive use in Orissa is high. If all of the women with unmet need were to use contraception, the contraceptive prevalence rate would rise from 36 to 59 percent. Although there is considerable unmet need for family planning in the state, the ideal number of children remains moderately high, an average of three children among the currently married women giving a numeric response to the question on ideal family size. Further attempts to promote the national goal of two children per couple are therefore needed, as is provision of spacing methods of contraception.

The NFHS also provides information on maternal and child health, and the prevalence of specific medical problems (malaria, blindness, tuberculosis, leprosy and physical impairment of the limbs) among all members of the household. Of the five specific medical problems studied, malaria has the highest prevalence, afflicting, 52 per 1,000 population during the three months prior to the survey. It is followed by blindness, partial or complete (32 per 1,000), and physical impairment of the limbs and tuberculosis (each less than 6 per 1,000). The reported prevalence of leprosy is only 1 per 1,000.

During the two weeks preceding the survey, 10 percent of children under age four had symptoms of acute respiratory infection (cough accompanied by fast breathing), 32 percent were sick with a fever, and 21 percent had diarrhoea. For each medical condition, 47-56 percent of children were taken to a health facility or provider.

Knowledge and use of Oral Rehydration Salt (ORS) packets for the treatment of diarrhoea are not widespread. Overall, 56 percent of mothers are unfamiliar with ORS, and 71 percent have never used it. Moreover, only 41 percent of young children with recent episodes of diarrhoea were treated with ORS or with a recommended home oral rehydration fluid.

Orissa has the highest infant mortality rate of any state in India. The infant mortality rate declined slowly during the 15 years prior to the survey, from 144 per 1,000 live births in 1978-82 to 112 per 1,000 live births in 1988-92. Despite this decline, however, one in nine children still dies within the first year of life, and one in eight dies before reaching age five. The infant mortality rate is 48 percent higher in rural areas than in urban areas, and is two and one-quarter times higher for children of illiterate mothers than for children of mothers with at least a high school education. Children born shortly after the birth of a previous child have an especially high risk of dying in infancy. The infant mortality rate is two and a half times higher for children with short birth intervals (less than 24 months) than for those with long birth intervals (48 months or more), 182 deaths per 1,000 live births as opposed to 74 deaths per 1,000 live births. Almost one-fifth of births in the five years preceding the survey occurred within 24 months of the previous birth.

Both antenatal care and delivery services in Orissa are inadequate. For births in the last four years, 37 percent of mothers did not receive any antenatal care, either, at home or elsewhere. Only 54 percent received two doses of tetanus toxoid vaccine, and only 50 percent received iron and folic acid tablets. Eighty-four percent of deliveries took place at home, and only 21 percent were attended by a trained doctor or nurse/midwife. According to mothers' reports, complications at the time of delivery occurred for 15 percent of all births.

The Universal Immunization Programme has met with only limited success in Orissa. Twenty-eight percent of young children (age 12-23 months) have not been vaccinated against any of six serious but preventable childhood diseases (tuberculosis, diphtheria, pertussis, tetanus, polio and measles). Only 36 percent have been fully vaccinated and another 36 percent have been partly vaccinated.

The NFHS obtained fairly detailed information on infant feeding and child nutrition. Breastfeeding is nearly universal in Orissa, with 95 percent of all children born in the four years preceding the survey having been breastfed. On average, children are breastfed for about 29 months. Breastfeeding immediately after birth is uncommon, however. Among the most recent births, only 18 percent were breastfed within one hour of birth, and only 36 percent were breastfed within 24 hours of birth. Although it is recommended that the first breast milk should be given to children because it contains colostrum, which provides the baby with natural immunities, the majority of women (86 percent) squeeze the first milk from their breast before breastfeeding their children. It is also recommended that children should be exclusively breastfed through age 4-6 months, but about half of babies age 0-3 months are fed water and other supplements, thus jeopardizing their nutritional status and increasing the risk of infection. Solid and semi-solid foods are generally not added to the diet at an early enough stage in the child's development. Only about one in three children is given solid or semi-solid food at the recommended age of 6-9 months.

Chronic and acute undernutrition are very high in Orissa. More than half of all children under age four are underweight and 48 percent are stunted, and 23-25 percent of children are *severely* undernourished according to the weight-for-age and height-for-age measures. One in every five children is excessively thin (wasted). Undernutrition varies substantially by age of child, being lowest in the first six months of life when the majority of children are fully breastfed. Variation by the child's sex, length of previous birth interval, and other demographic characteristics is very modest. Apparently, discrimination against girls does not extend to nutrition, at least for the 73 percent of the children who were weighed and measured in the survey. Variation in nutritional status by mother's education and place of residence is substantial, although even in the most educated groups one-fifth or more of the children are undernourished. Nutritional problems of children are common throughout Orissa, but especially severe among children born to rural, illiterate women, who constitute the great majority of women in the state.

In sum, despite a low level of per capita income in the state and a high level of infant mortality, Orissa has experienced considerable fertility decline in the past 15 years, and currently has a fertility level that is below the national average. There is considerable unmet need for contraception in the state, however, including considerable unmet need for spacing methods which are not sufficiently emphasized and available in government programmes. Antenatal care, childbirth delivery conditions, childhood vaccination coverage, and child nutritional levels are all poor. Programmes designed to produce improvements in these areas are clearly needed.

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 being undertaken as one important component of the PRC Project.

The NFHS covers the population in 24 states and the National Capital Territory of Delhi (the erstwhile Union Territory of Delhi), which 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 states. The second phase included Assam, Goa, Haryana, Karnataka, Kerala, Maharashtra, Rajasthan and Uttar Pradesh. The third phase included 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 Management of Development Programmes (CMDP), Hyderabad, a private research organization, was selected to act as CO for the NFHS in Orissa. The Population Research Centre, Utkal University, Bhubaneswar, collaborated with the CO in the implementation of the survey in Orissa.

1.2 Origin of the State

Orissa, which lies on the eastern coast along the Bay of Bengal, has a long and hoary past. The state once formed part of the Kalinga Kingdom, which is best known in ancient history for its brave resistance against the invasion of the Maurya King Ashoka in the third century B.C. who ultimately conquered it. It is well known that the Emperor Ashoka turned to Buddhism and peace after witnessing the bloodshed of the Kalinga war. This period also formed the turning point in the history of Orissa, giving rise to art and architecture in the ancient kingdom.

The ancient state rose to prominence as a kingdom under Kharavela, a great conqueror and patron of Jainism in the second half of the first century B.C. Other great rulers were the kings of the Kesari dynasty and the Eastern Ganga dynasty who were great builders. The ancient name of Orissa, *Utkal* (which is still used in literary and cultural circles to refer to the state of Orissa), is derived from *Utkrist Kala*, meaning the best in art.

Orissa as a *Rajya* or State owes its origin to the proclamation of Gajapati Kapilendra Dev. This land of the Oriya people was called *Udisa* or *Odisa* from the 15th century A.D. onwards. After 1568 A.D. the dismemberment of the Oriya-speaking region began. The state was invaded by the Marathas, Moghuls and Afghans, and finally in the year 1803 was conquered by the East India Company. Oriyas were administered by five separate administrative authorities, viz., the Bengal and its Orissa Division, the Chotanagpur Division, the Central Provinces, and the Madras and Garhjat Divisions. This arrangement gave rise to discontentment among the Oriya people. A movement for a separate province was mounted from the last quarter of the 19th century and early years of the 20th century. This movement had a long and checkered history. In the end, the government of India bill of 1935 was passed by Parliament and the new province of Orissa as a separate administrative unit came into being on 1 April 1936. The areas included under the newly formed Orissa state were: (1) Orissa Division of Bihar and Orissa; (2) areas from Madras: (i) Ganjam Agency tracts, (ii) the non-Agency portion of Ganjam district, (iii) as much of the Paralakhemundi estate as lay to the North and East, and (iv) areas from Vizagapatnam district; and (3) areas from Central Provinces: (i) the Khadial Zamindari in Raipur district, (ii) the Padmapur tract consisting of 54 villages of the Chandrapur-Padampur estate, and (iii) seven other villages. The rest of the province comprised 26 princely states. This situation continued until 1947.

The formation of the linguistic province of Orissa, in 1936, may be regarded as one of the landmarks in the state's history. Subsequent to this, the demand for states on a linguistic basis gained momentum in post-Independence India. After independence, the ex-princely states were merged, and in 1949 the state was organized into 12 districts with the merged princely states (Government of Orissa, 1991). A new district was added subsequently, and 13 districts were formed. Orissa's present form acquired the status of a state within the Indian Union on 26 January 1950, when the constitution of India came into force.

1.3 Geographic Features

Physical Characteristics

Orissa extends from 17° 49' N to 22° 34' N latitude, and from 81° 29' E to 87° 29' E longitude. It is situated in the northeastern section of the Indian Peninsula, bordered in the East by the Bay of Bengal. The state is bounded by Bihar in the North, Madhya Pradesh in the West, West Bengal in the Northeast and Andhra Pradesh in the South. The coastline of Orissa extends approximately 500 km.

Orissa can be divided into two natural divisions: (1) the Inland Division comprising the districts of Koraput, Kalahandi, Kendujhar, Mayurbhanj, Sundargarh, Sambalpur, Balangir, Phulbani and the Ganjam (Agency), and (2) the Coastal Division comprising Cuttack, Puri, Baleshwar and Ganjam (plains).

Physiographically, Orissa can be divided into the Coastal Plains, the middle Mountainous Countries and Plateaus, and the Rolling Uplands (Government of Orissa, 1991). The Coastal Plains of Orissa stretch westward from the eastern coast of India, and run from the river Subarnarekha in the Northeast to the river Rushikulya in the Southeast. This fertile green tract is known as the "rice bowl" of Orissa. It is narrow in the North, widest in the middle, narrowest along the coast of Chilika lake, and broad in the South. The Coastal Plain derives from six major rivers, which have brought silt from their catchment basins and have reclaimed this area from the Bay of Bengal.

The mountainous portions of Orissa cover about three-fourths of the entire state and hence bear importantly on the economic fortunes of the state. This portion slopes from West to East. The lines of drainage follow a Northwest to Southeast direction. The high Plateaus are within the mountainous area. They have an average elevation of 300-600 metres and possess all the peculiarities of the Peninsular tablelands. The areas of the upper Baitarani and the Sabari basin of Kendujhar district and Koraput district, respectively, can be included in this region.

The Rolling Uplands are lower in elevation and vary between 150-300 metres. These Uplands are the products of river action and are flat in nature. They are rich in soil nutrients and in wet areas afford good opportunities for paddy cultivation. The Uplands comprise the Koel-Sankh basin of upper Brahmani, and the Ib, Suktel, and Sabari basins.

The drainage system in the state may be divided mainly into three parts depending on the origin of the different rivers. They are: (1) the rivers from Chotanagpur Plateau, (2) the rivers from Amarkantaka Plateau, and (3) the rivers from the eastern slopes of the Eastern Ghats. The rivers named Subarnarekha and Brahmani originate from Chotanagpur Plateau. The Subarnarekha is of very little use to Orissa because, except in its lower reaches, it does not flow within the state. The Brahmani has two major tributaries, the Sankh and the Koel. The Mahanadi is the only river that has the Amarkantaka Plateau as its source. It is the largest river of the state; the longest dam in India is built over the Mahanadi at Hirakud in Sambalpur district. This multipurpose dam has improved irrigation facilities and hydro-electric power generation in the state.

The Mahanadi river system covers a major portion of the state. Its important tributaries are the Tel, Jira, the Jhaun, and the Ang. At Naraj in Cuttack district, the Mahanadi bifurcates and the river Kathajodi is born. Further downstream, the Mahanadi bifurcates again into a number of tributaries. The rivers originating in the Eastern Ghats are small. The most important of these are the Burhabalanga, the Salandi, and the Salia. Another important river, the Baitarani, originates in the Kendujhar Plateau of Orissa. Most of the rivers run from North to South and drain into the Bay of Bengal. Some small rivers drain into Chilika lake. In addition to these three main river systems is the Godavari system, which consists of the tributaries of the Godavari, which flows in the Koraput district of Orissa.

Climate, Rainfall and Seasons

The entire state lies in the tropical zone and is subject to high temperature. Being in the belt of medium pressure, it has medium rainfall with moderate variation in different parts of the state. Like most other parts of the country, it enjoys a tropical monsoon type of climate. Orissa

has three main seasons: winter (December to February), summer (March to June), and rainy season (June to September). The months of October and November are the autumn season, when the weather is clear and cool.

Orissa has a mean annual temperature of 26° C. The temperature begins to rise in early March and continues rising until the end of May or early June, when it reaches approximately 38° C, except at high elevations. The mean year-round maximum daily temperature of the state is 33° C, which rises to 38° C in April and May. The mean minimum temperature is 23° C, which falls to 15° C in December. The temperature increases from the coastal plains to the inland districts. Sambalpur, an inland district, has a mean maximum temperature of 42° C, and Puri, a seaside station, has a mean of 32° C (Government of Orissa, 1991).

The Monsoon rainfall is of the highest importance as it directly controls crop conditions in Orissa. The state lies at the point of convergence of the monsoon currents of the Bay of Bengal and the Arabian Sea. A major part of the state receives rainfall from the Bay of Bengal branch of the Southwest monsoon, while the Eastern Ghat region receives the bulk of its rainfall from the Arabian Sea monsoon. Normal rainfall for the state is 1,482 mm. During 1987-91, however, the annual average rainfall in the state was 1,405 mm. July and August are the months of greatest rainfall. The winter rainfall helps the growth of a second crop in Orissa. A total rainfall of about 5 cm during the winter is considered high, and less than 2.5 cm is considered low.

During the monsoon, cyclones originating in the Bay of Bengal often cross the state. There are two cyclonic peaks, one during May-July and the other during October and November when a maximum number of cyclones affect the state.

1.4 Area and People

Area and Administrative Divisions

According to the 1991 Census, the total land area of Orissa is 155,707 km². The state has 3.7 percent of the total population and 4.7 percent of the total land area of the country. Bhubaneswar, which is situated in the coastal belt, is the capital of Orissa. As of 1991, the state was divided into three administrative divisions and 13 districts. By 1993, the state was further subdivided and now has 30 districts.

People, Culture, Religion and Language

Orissa has a rich cultural heritage. It is the land of Lord Jagannatha, whose heritage is intimately connected with the social, cultural and religious life of the people of Orissa. Jainism, Islam, and Christianity each had a considerable impact on the people of Orissa in different periods. Situated at the confluence of North and South, the state has assimilated the culture of both, forming a unique identity of its own. The cultural identities of the state's tribal peoples, who constitute about one-fourth of the state's population, have contributed different hues to the cultural landscape. The culture of Orissa developed over the course of centuries as a result of action and reaction between pre-Aryan and Aryan cultures. Through the centuries, its people have had a reputation of being highly religious. Orissa has the highest concentration of Hindus

among the states of India (Government of Orissa, 1991). According to the 1981 Census (Directorate of Census Operations, Orissa, 1988), 95 percent of the total population of the state are Hindu, 2 percent are Christian, and 2 percent are Muslim. The major language spoken by the people is Oriya, which also is the official language of the state. Besides Oriya, Telugu and Hindi are spoken by an appreciable number of people, as are local variations of Oriya and different tribal languages. Orissa is also distinguished by its arts and crafts. The temple architecture of Konark and other areas attracts worldwide attention, and tourism is a growing industry in the state.

1.5 Economy

Orissa is a predominantly agricultural state with about 87 percent of the people living in rural areas. The agricultural sector absorbs 80 percent of the total work force and contributes 50 percent of the state's domestic product. Paddy is the principal crop of the state, and its cultivation is the main occupation of 75 percent of the people. Other important crops are pulses, oil seeds, jute, mustard, sugarcane, and turmeric. The average annual per capita food grain production in the state between 1988-89 and 1991-92 was 245 kilograms. The annual rate of increase in production of food grains from 1970-73 to 1989-92 was 2.6 percent (Centre for Monitoring Indian Economy, 1993).

Orissa has a forest area of 57,183 km², which is 37 percent of the total geographical area of the state. The main forest products are sal, teak, rosewood, lac, kendu leaves, and medicinal plants.

Iron ore, manganese, limestone, dolomite, chromite, noncoking coal, bauxite, graphite, china clay, nickel, fine clay and mineral sands are the important minerals of Orissa. The state has a few mineral-based industries. Other types of industries are artisan-based small-scale industries. Generally, the state is not well developed industrially. The major heavy industries are steel, aluminium, fertilizer, cement and ferro-alloys. Industry and mining contributed only 21.7 percent of the state's income in 1989-90.

Between 1984-85 and 1990-91, the average annual per capita income of the state was Rs. 2,434 at current prices and Rs. 1,416 at 1980-81 constant prices. In 1990-91, real annual per capita income was Rs. 1,615, which is the second lowest in the country (it is lower in Bihar). During 1987-88, 48 percent of the rural population and 24 percent of the urban population were estimated to be living below the poverty line¹ (Centre for Monitoring Indian Economy, 1993).

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.

1.6 Basic Demographic Indicators

The basic demographic indicators for the state and for the whole of India are presented in Table 1.1. According to the 1991 Census, the state's population is 31.7 million, accounting for about 4 percent of the country's population. Between 1981 and 1991 the state's population increased by 20.1 percent, less than the 23.9 percent increase recorded for the country as a whole. Population density (per km²) for the year 1991 was 203 for Orissa compared with 273 for all of India. Within the state, population density is higher in the coastal districts than the inland districts.

Nearly 87 percent of the population of Orissa live in rural areas, compared with 74 percent in India as a whole. In 1991, the sex ratio of the population (number of females per 1,000 males) was 971 for the state and 927 in all India. The sex ratio has been higher in Orissa than in all India since 1901. Indeed, until 1961 the state's sex ratio exceeded 1,000 and thus favoured females. The percentage of the population age 0-14 years in 1991 is lower in Orissa than in all India, reflecting a lower birth rate in the state. In 1991, persons from scheduled

Table 1.1 Basic demographic indicators		
Basic demographic indicators for Orissa and India, 1981-1992		
Index	Orissa	India
Population (1991)	31,659,736	846,302,688
Percent population increase (1981-91)	20.1	23.9
Density (Population/km ²) (1991)	203	273
Percent urban (1991)	13.4	26.1
Sex ratio (1991)	971	927
Percent 0-14 years old (1981)	39.6	39.6
(1991)	34.7	36.3
Percent 65+ years old (1981)	3.7	3.8
(1991)	3.8	3.8
Percent scheduled caste (1991)	16.2	16.7
Percent scheduled tribe (1991)	22.2	8.0
Percent literate (1991)		
Male	63.1	64.1
Female	34.7	39.3
Total	49.1	52.2
Crude birth rate (1992) ¹	27.8	29.0
Crude death rate (1992) ¹	11.7	10.0
Exponential growth rate (1981-91)	1.83	2.14
Total fertility rate (1991)	3.3	3.6
Infant mortality rate (1992) ¹	114	79
Life expectancy (1986-91)		
Male	57.1	58.1
Female	55.1	59.1
Couple protection rate (1992)	40.2	43.5

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

castes² comprised 16 percent of the population of Orissa compared with 17 percent for the whole country. However, persons from scheduled tribes³ constituted 22 percent of the population of the state compared with 8 percent for the whole country. The state has one of the highest concentration of tribals in the country.

Orissa is educationally near the average for India. According to the 1991 Census, the literacy rate for the population age 7 years and above is 49 percent in the state, compared with 52 percent in the country. The literacy rates are 63 percent for males and 33 percent for females in Orissa compared with 64 percent and 39 percent for males and females, respectively, for all India.

According to estimates derived from the Sample Registration System (SRS) in 1992, Orissa's crude birth rate was 27.8, which was slightly lower than the all-India birth rate of 29.0. Orissa's death rate, however, was slightly higher than the all-India rate: 11.7 per 1,000 compared with 10 per 1,000. The total fertility rate of 3.3 children per woman for the state was lower than the all-India rate of 3.6 as estimated by the SRS in 1991. The annual exponential growth rate of population was 1.83 percent for Orissa compared with 2.14 for all India.

Table 1.1 further indicates that the infant mortality rate of Orissa is very high; indeed, it is the highest among the states in India. For the year 1992, the infant mortality rate estimated by the SP^S was 114 per 1,000 live births in Orissa, compared with 79 in all India. Estimates for 1986-91 show that life expectancy is also lower in the state (57.1 for males and 55.1 for females) than in India (58.1 for males and 59.1 for females). Life expectancy is slightly higher for males than for females in the state, whereas the reverse is true for all India. The state of Orissa, which previously had a good track record in family planning performance, is now lagging behind all India. The couple protection rate (defined as the percentage of eligible couples effectively protected against pregnancy) is 40.2 in Orissa compared with 43.5 in the country as a whole, based on 1992 estimates prepared by the Department of Family Welfare, Government of India.

Trends in some of the basic demographic indicators are presented in Table 1.2. It can be seen that the total population of the state increased from 21.9 million in 1971 to 31.7 million in 1991. The decadal growth rate declined from 25.1 percent for 1951-71 to 20.1 percent for 1981-91. The density of population per km² increased from 141 in 1971 to 203 in 1991.

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, 1984a). The list of scheduled castes used in the 1981 Census was based on the Scheduled Castes and Scheduled Tribes Orders (Amendment) Act of 1976 (Central Act 108 of 1976). Scheduled castes refer to such castes, races or tribes or 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, 1984a).

Table 1.2 Trends in basic demographic indicators

Trends in basic demographic indicators, Orissa, 1971-91

Index	1971	1981	1991
Population	21,944,615	26,370,271	31,659,736
Percent population increase (previous decade)	25.1	20.2	20.1
Density (Population/km ²)	141	169	203
Percent urban	8.4	11.8	13.4
Sex ratio	988	981	971
Percent 0-14 years old	42.4	39.6	34.7
Percent 65+ years old	3.2	3.7	3.8
Percent scheduled caste	15.1	14.7	16.2
Percent scheduled tribe	23.1	22.4	22.2
Percent literate ^a			
Male	38.3	47.1	63.1
Female	13.9	21.1	34.7
Total	26.2	34.2	49.1
Crude birth rate	34.6	33.1	27.8 ^b
Crude death rate	15.5	13.1	11.7 ^b
Exponential growth rate	2.24	1.84	1.83
Total fertility rate	4.7	4.3	3.3
Infant mortality rate	127	135	114 ^b
Life expectancy			
Male	U	54.1 ^c	57.1 ^d
Female	U	51.9 ^c	55.1 ^d
Couple protection rate	14.7	27.1	40.2 ^e

U: Not available

^aBased on the population age 5 and above for 1971 and 1981 and the population age 7 and above for 1991^b1992, provisional^c1981-86^d1986-91^e1992

Source: Office of the Registrar General (1982, 1985, 1992, 1993, 1994), Office of the Registrar General and Census Commissioner (1974, 1976, 1984a, 1987), Ministry of Health and Family Welfare (1989, 1991, 1992)

Table 1.2 also reveals that the percentage of the population classified as urban has increased from 8.4 percent in 1971 to 13.4 percent in 1991. The sex ratio of population declined from 988 to 971 between 1971 and 1991. Because of the decline in fertility noted earlier, the proportion of population age 0-14 years declined from 42.4 percent in 1971 to 34.7 in 1991.

The percentage of population belonging to scheduled castes increased slightly and the percentage belonging to scheduled tribes declined slightly between 1971 and 1991. The literacy rate in Orissa has almost doubled from 26 percent in 1971 to 49 percent in 1991, but it is still very low, especially for females. Although this improvement in literacy is more pronounced in the case of females than males, female literacy levels continue to be substantially lower than male literacy levels. However, the gap in literacy between males and females has remained almost the same during 1971-91.

The crude birth rate in Orissa has declined slowly but steadily, from 34.6 per 1,000 population in 1971 to 27.8 in 1992. The total fertility rate fell from 4.7 to 3.3 between 1971 and 1991. The crude death rate also declined, from 15.5 per 1,000 population in 1971 to 11.7 per 1,000 in 1992. The exponential rate of population growth declined from 2.2 percent in 1961-71 to 1.8 percent in 1981-91.

The infant mortality rate estimated from the SRS declined irregularly from 127 to 114 deaths per 1,000 live births between 1971 and 1992. The SRS estimates of life expectancy show an increase between 1981-86 and 1986-91 for both males and females. Male life expectancy is higher than female life expectancy in both periods.

According to the estimates of couple protection rates prepared by the government (based on service statistics), the percentage of couples effectively protected from pregnancy increased steadily from 15 percent in 1971 to 40 percent in 1992. In 1980, the couple protection rate in Orissa (27 percent) was higher than the national rate (22 percent; Ministry of Health and Family Welfare, 1990). By 1992, however, it was lower than the national rate, indicating a slowing of family planning performance.

1.7 Population and Family Welfare Policies and Programmes

The family welfare programme in India promotes responsible parenthood with a two-child family norm (regardless of the sex of the children), through the voluntary use of contraceptive methods best suited to each couple and a variety of maternal and child health schemes (Ministry of Health and Family Welfare, 1991). The family planning programme was started in Orissa in 1956. Following the guidelines of the national family planning programme, the Orissa programme adopted a clinical approach. The extension approach was introduced in 1963-64. The intra-uterine contraceptive device (IUD) was introduced as a method of family planning into the programme in 1965. The camp approach was adopted to promote surgical methods of birth control during the early 1970s. In this same period, a community-oriented service network was developed, in which family planning services were offered as a part of the overall package of health services. This integrated and coordinated approach was implemented during 1974-77. The mother and child care approach, which commenced in 1977-78, is still continuing. The Expanded Programme on Immunization (EPI) was introduced in 1978 with the objective of providing free vaccination services to all eligible children and expectant mothers. In order to step up the pace of immunization, the Universal Immunization Programme (UIP) was introduced in 1985-86. Since 1991 the programme of Child Survival and Safe Motherhood (CSSM) has been introduced. Family welfare services, including maternal and child health schemes, are offered through the existing network of Primary Health Centres (PHCs), sub-centres, and referral centres called Community Health Centres, and also through Village Health Guides and Traditional Birth Attendants at the village level.

In Orissa, as in other states, the family welfare programme has been voluntary, leaving the choice of the method to the individual couple. Although the programme advocates a cafeteria approach offering various contraceptive methods, sterilization of females has been popular in Orissa since the late 1960s. This may be due to the relatively easy method of mini-laparotomy (also referred to as the button-hole method) of tubal ligation. The mass media and interpersonal communication have been used extensively over the years by the Orissa

programme. The thrust of information, education, and communication activities has been the creation of awareness and a favourable attitude towards family planning, and promotion of the concept of delayed marriage. Various schemes of awards were adopted in the state for promotion of family planning. A package of incentives meant for green card holders (i.e., acceptors of terminal methods with two or fewer children) was introduced in 1983. The country's long-term national goal of reaching a net reproduction rate of 1.0 by the year 2011-2016 is also being pursued by the state. The state government formulated a family planning strategy for Orissa in 1993 (Department of Health and Family Welfare, Orissa, 1993).

1.8 Health Priorities and Programmes

The general condition of poverty of the people of Orissa contributes to poor health conditions and high rates of morbidity in the state. The mortality rates, especially for infants, remain high. The high rate of population growth continues to have an adverse effect on the health of the people and their quality of life. Delivery of health services is mainly governed by the National Health Policy, which was approved by Parliament in 1983. Although the National Health Policy places a major emphasis on ensuring primary health care to all by the year 2000, it nevertheless identifies certain areas which need special attention. These areas are: (1) nutrition for all segments of the population, (2) the immunization programme, (3) maternal and child health care, (4) the prevention of food adulteration and maintenance of the quality of drugs, (5) water supply and sanitation, (6) environmental protection, (7) school health programmes, (8) occupational health services, and (9) prevention and control of locally endemic diseases. Active community participation has been considered to be one of the most important supportive activities for the successful implementation of the health programmes.

After India became a signatory to the Alma Ata Declaration of 1978, thereby committing the country to the goal of "Health for All" by 2000 A.D., the government started to concentrate on the development of the rural health infrastructure. This was done to provide health care services to the rural population, which had, by and large, been neglected. As of March, 1991, there were 3,638 Primary Health Centres and 21,653 sub-centres in Orissa providing health and family welfare services to the rural population (Ministry of Health and Family Welfare, 1992).

CHAPTER 2

SURVEY DESIGN AND IMPLEMENTATION

2.1 Objectives of the NFHS

The primary objective of the NFHS is to provide national-level and state-level data on fertility, nuptiality, family size preferences, knowledge and practice of family planning, the potential demand for contraception, the level of unwanted fertility, utilization of antenatal services, breastfeeding and food supplementation practices, child nutrition and health, immunizations, and infant and child mortality. The NFHS is also designed to explore the demographic and socioeconomic determinants of fertility, family planning, and maternal and child health. This information is intended to assist policymakers, administrators and researchers in assessing and evaluating population and family welfare programmes and strategies. The NFHS used uniform questionnaires and uniform methods of sampling, data collection and analysis with the primary objective of providing a source of demographic and health data for inter-state comparisons. The data collected in the NFHS are also comparable with those of the Demographic and Health Surveys (DHS) conducted in many other countries¹.

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 in all the states of the NFHS, it was decided at the workshop that individual states could recommend a number of state-specific questions which would be formulated after considering the issues of importance in each state. Based on the recommendations of this workshop, the questionnaires were finalized at IIPS, Bombay. The questionnaires are largely precoded, with fixed response categories.

A pretest of the questionnaires was carried out by IIPS with the help of the PRC, Bhopal, in October, 1991. A 10-day training session for the interviewers and supervisors was conducted at the PRC. For the pretesting of the questionnaire, a total of 150 pretest interviews were completed in two villages near Bhopal and a few urban blocks within Bhopal city. After the pretest, appropriate changes were made in the questionnaires, based on the experience of the pretest. The NFHS in Orissa used the standard Household Questionnaire, Woman's Questionnaire, and Village Questionnaire which had been pretested. No state-specific questions

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.

were added to the NFHS questionnaires in Orissa. Questionnaires used in the Orissa NFHS were bilingual, consisting of questions in both Oriya and English.

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 to respond to the Woman's Questionnaire (ever-married women age 13-49 years). In addition, the Household Questionnaire collected information on household conditions, such as the source of water, type of toilet facilities, materials used in the construction of the house, source of lighting, cooking fuel, ownership of agricultural land and livestock, ownership of various consumer durable goods, and characteristics of the head of the household such as religion, caste or tribe. The Household Questionnaire also included household birth and death records wherein all the live births and deaths that took place within the last two years in the household were recorded.

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

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

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

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

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

Section 7. Height and Weight: 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 the measurement of weight of the children, standard spring balance weighing machines (Salter Scales) were used. The height/length of the child was measured using adjustable boards made of acrylic and other synthetic materials with a metal frame providing strength, suitable for measuring either the length or the height of children.

The Village Questionnaire was used to collect information on various amenities available 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 Orissa survey was designed to provide statistical estimates for the state as a whole and for urban and rural areas. The universe consists of all urban and rural areas of the state.

Sample Size and Allocation

The overall target sample size for Orissa was 4,000 completed interviews with eligible women. The target sample size was set considering the size of the state, time and resources available for the state, and the need for separate estimates for urban and rural areas of the state. In order to allow for nonresponse at the household and individual respondent levels, the target sample of women (ever-married women age 13-49 years) was increased to a total of 4,400 women to be selected. The required sampling rates were different for urban and rural areas. However, within the urban and the rural areas the sample was self-weighted. Over-sampling was done in urban areas to ensure sufficient sample size for the small urban sector. The overall sampling fractions (the probability, f , of selecting a woman) for urban and rural areas are 0.001383 and 0.000649, respectively. The overall sampling fractions for any area (either urban or rural area) of the state was computed as:

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

where n = number of women to be interviewed in urban/rural areas of the state adjusted to account for nonresponse and other loss; and

N = projected population of eligible women in urban/rural areas of the state in March, 1993.

All the districts of Orissa as they were at the time of 1981 Census, were subdivided into four contiguous regions according to their geographical characteristics. Four regions were formed; the district composition of regions is as follows:

- Region I : Sundargarh, Kendujhar, Mayurbhanj
- Region II : Phulabani, Koraput
- Region III : Sambalpur, Balangir, Kalahandi
- Region IV : Baleshwar, Cuttack, Dhenkanal, Ganjam, Puri

The Rural Sample: The Frame, Stratification and Selection

In rural areas, the 1981 Census list of villages served as the sampling frame. The 1981 Census list was used because the 1991 Census village list was not available at the time of sample selection. A two-stage sample design was adopted for the rural areas, with the selection of villages in the first stage and of households in the second stage. There were four levels of stratification. The first level of stratification was geographic, with the districts being subdivided into regions according to their geophysical characteristics as described above.

In the second level of explicit stratification, stratum boundaries were determined separately for each region. In Regions I and II, villages were further stratified into three classes of equal size on the basis of their scheduled tribe proportion and in Region III, into two classes of equal size according to the same variable, while the villages in Region IV were stratified into three classes of equal size on the basis of the population size of the village. In the third level of stratification, the villages in Region IV only were stratified into two classes of equal size on the basis of the proportion of females literate in the village. In the last level of stratification, which was implicit, the villages in Regions I, II, and III were further stratified on the basis of the village size (households), alternating between descending and ascending order; for the villages in Region IV, the stratification was by geographical location of the villages.

After the frame of villages was thus organized, a total of 94 Primary Sampling Units (PSUs) were selected systematically with probability proportional to size (PPS). On average, 30 households were selected for interviewing in each selected village. However, for villages with 300 or more households in the 1981 Census, the target sample take per village was set at 40 households.

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

$$f_i = \frac{a \times s_i}{\sum s_i}$$

- where a = number of rural PSUs selected from the state
- s_i = the population size of the selected PSU
- $\sum s_i$ = total rural population of the state

A household listing operation was carried out in each of the selected PSUs about two weeks prior to the data collection. This listing provided the necessary frame for selecting households at the second sampling stage. The household listing operation consisted of preparing

up-to-date notional and layout sketch maps of each selected PSU, assigning numbers to structures, recording addresses of these structures, identifying the residential structures, and listing the names of heads of all the households in the residential structures in the selected PSU. Eleven household listing teams, each team comprising a lister and a mapper, were trained during the last week of December, 1992 at Bhubaneswar. The household listing operation started immediately after the training. This operation was supervised by the senior field staff of the Centre for Management of Development Programmes (CMDP), Hyderabad and the Population Research Centre (PRC), Bhubaneswar. Special efforts were made not to miss any household in the selected PSU during the listing operation. If a PSU had fewer than 500 households, a complete household listing was done. If a PSU had 500 or more households, segmentation of the PSU was done on the basis of existing wards in the PSU, and two segments were selected using either systematic sampling or PPS sampling. The household listing in such PSUs was carried out in the selected segments. The households to be interviewed were selected from the household lists using systematic sampling with equal probability.

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

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

All the selected households were approached during data collection, and no replacement was made if respondents of a selected household were 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 and Census Commissioner 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 (for cities with a population in 1991 that was larger than the sampling interval). Within each stratum, the cities/towns were arranged following the same geographic stratification used in the rural areas.

In self-selecting cities, a two-stage sample design was adopted: selection of Census Enumeration Blocks followed by selection of households in each of the selected blocks. Although it was desirable to select blocks with PPS, since the urban frame was not computerized yet, blocks were selected with equal probabilities. However, to improve control over sample sizes, 'packets' of 10 blocks each were selected with equal probability, the measures of size for each of the blocks in the selected packets were obtained, and one block per selected packet was selected with PPS. In the other two strata, a three-stage sample was adopted, with cities/towns, Census Enumeration Blocks, and households being selected at each successive stage. Cities/towns were selected with probability proportional to their population size. From each selected city/town, two blocks were selected. As in rural areas, household listing was carried out in the selected blocks and an average of 20 households were selected systematically with a random start. In Orissa, a total of 20 cities/towns and 50 blocks within these cities/towns was selected.

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

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

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

where a = number of cities/towns selected from the stratum

s_i = the population size of the selected city/town

Σs_i = total urban population of the stratum

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

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

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

B_i = the population size of the selected block

ΣB_i = the population size of the city/town

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

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

where T = total number of packets in the city

ΣP_i = the population size of the packet

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

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

Sample Weights

In Orissa, the sample was weighted at the level of sampling domains (urban and rural areas) in the state. The final weights included in the state data sets are design weights (as per the sample design) adjusted for nonresponse, and normalized so that the total number of weighted cases is equal to the total number of unweighted cases.

Design Weights

Let w_{Di} be the design weight for the i^{th} domain. Then

$$w_{Di} = \frac{f}{f_i}$$

in which

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

and

$$f_i = \frac{n_i}{N_i}$$

where f is the overall sampling fraction (i.e., for the entire sample in the state) and f_i is the domain sampling fraction. Note that $n = \Sigma n_i$ and $N = \Sigma N_i$, where n is the number of women selected for the survey, and N is the total number of women age 13-49.

Adjustment for Nonresponse

Let R_{Hi} and R_{wi} be the household response rate and the individual (women's) response rate, respectively. Then the household weight w_{Hi} is calculated as follows:

$$w_{Hi} = \frac{w_{Di}}{R_{Hi}}$$

The individual weight w_{wi} is calculated as follows:

$$w_{wi} = \frac{w_{Di}}{R_{Hi} \times R_{wi}}$$

Normalized Weights for Households and Women

After adjustment for nonresponse, the weights are normalized so that the total number of weighted cases is equal to the total number of unweighted cases. The final household weight is:

$$W_{Hi} = \frac{\Sigma n_i}{\Sigma w_{Hi} \cdot n_i} \times w_{Hi}$$

Similarly for the individual weight:

$$W_{wi} = \frac{\sum n_i}{\sum w_{wi} \cdot n_i} \times w_{wi}$$

Village Weights

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. Let f_{1hi} be the selection probability of the i^{th} village in the h^{th} stratum². Then the village weights are calculated as follows:

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

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

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

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

2.4 Recruitment, Training and Fieldwork

In order to maintain uniform survey procedures across the states, four manuals dealing with different aspects of the survey were prepared at IIPS. The *Interviewer's Manual* consisted of instructions to the interviewers regarding interviewing techniques, field procedures, and instructions on the method of asking each question and recording answers. The *Manual for Field Editors and Supervisors* contained a detailed description of the role of field editors and supervisors in the survey. A list of checks to be made by the field editor in the filled-in questionnaires was also provided in this manual. The *Household Listing Manual* was meant for household listing teams, and contained procedures to be adopted for household listing. The guidelines for the training of the field staff were described in the manual entitled *Training Guidelines*. The representatives of each of the COs and the PRCs were trained in a series of Training of the Trainers Workshops organized by IIPS at the beginning of each phase of data collection. The purpose of these workshops was to ensure uniformity in data collection procedures in different states. Persons who were trained in each workshop subsequently trained the field staff in each state according to the standard procedures discussed in the Training of Trainers Workshops. In these workshops, detailed discussions were held on the objectives of the NFHS, different aspects of the survey, roles of various organizations participating in the survey, details of each of the three questionnaires used in the survey, methods of data collection

² The villages in the state were ordered according to a specified stratification scheme prior to selection.

and field supervision, and guidelines for the training of the field staff. Two persons from the Centre for Management of Development Programmes (CMDP) were trained during December, 1991 and two persons from the PRC were trained at a workshop held in Bombay during November, 1992.

All the field investigators were females and most of them had obtained a master's degree. The field editors were females and supervisors were males, most of whom had some working experience after the Masters or M. Phil degree. The training of field staff for the main survey was arranged at Bhubaneswar from 11 February-2 March 1993. A total of 48 persons including 33 female investigators, 8 male supervisors, and 7 editors were trained by the faculty from the PRC, CMDP and IIPS. Guest lectures were also given by the officers of Government of Orissa and others.

The three-week training course consisted of instruction in interviewing techniques and field procedures for the survey, a detailed review of each item in the questionnaire, instruction and practice in weighing and measuring children, mock interviews between participants in the classroom, and practice interviews in the field. In addition, three special lectures were arranged: one on the topic of family planning at the beginning of the section on contraception in the Woman's Questionnaire; another one on maternal and child health practices, including immunizations, at the beginning of the section on health of children; and one on the organization of Health and Family Welfare service delivery. Medical doctors conversant with the state's Maternal and Child Health (MCH) programme were the resource persons for these lectures. In addition to the regular training, training on alternate days was specially arranged for field editors and supervisors. The editors were trained to detect errors in the filled-in questionnaires and to solve problems. A list of checks to be made while editing the filled-in questionnaires was also supplied to them. Each participant filled in more than 20 questionnaires during the field practice.

The fieldwork for the NFHS in Orissa was carried out by seven interviewing teams, each team consisting of one field supervisor, one field editor, and four female interviewers (see Appendix C for a complete list of survey staff). The fieldwork was carried out between 7 March and 18 June 1993. Assignment of Primary Sampling Units (PSUs) to the teams and various logistical decisions were made by the staff of CMDP designated as coordinators. Each team was allowed a fixed period of time to complete fieldwork in a PSU before moving to the next PSU. Each interviewer was instructed not to conduct more than three individual interviews a day and was required to make a minimum of three callbacks if the eligible woman identified in the selected household was not present at the time of the household interview.

The main duty of the field editor was to examine the completed questionnaires in the field for completeness, consistency and legibility of the information collected, and to ensure that all necessary corrections were made. Special attention was paid to missing information, skip instructions, filter questions, age information, and completeness of the birth history and the health section. If the problems were major, such as discrepancies between the birth history and the health section, the interviewers were required to revisit the respondent to correct the errors. If a return visit was not possible, the editor tried to establish, with the interviewer's assistance, the correct response. If either of these options was not possible, the editor designated the response as either "missing" or "inconsistent". An additional duty of the field editor was to

observe ongoing interviews and verify the accuracy of the method of asking questions, recording answers, and following skip instructions correctly. The field supervisor collected information on the village using the Village Questionnaire. In addition, the field supervisor conducted spot-checks to verify the accuracy of information collected on the eligibility of respondents. During the period of data collection, IIPS assigned one Research Officer to the survey for ensuring correct survey procedures and maintaining the quality of the data. Throughout the survey, the staff from CMDP, the PRC, and IIPS maintained close contact with all the teams through direct communication and spot-checking. The objective was to provide support and advice to staff in the field and to enhance data quality and the efficiency of interviewers. This objective was accomplished by communicating data problems and possible solutions to the interviewing teams, reminding interviewers about proper probing techniques, and examining the 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 to identify problem areas. These tables were discussed with the interviewing teams and supervisors during the fieldwork so that they could improve their performance if needed. 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 a variety of field problems that cannot be fully anticipated. There were no major problems encountered in the Orissa NFHS. All the teams were provided with vehicles in the field to visit selected PSUs. In most of cases, Government vehicles were used, however, some of the teams experienced difficulty in reaching PSUs located in hilly regions due to the absence of proper approachable roads. These PSUs were covered by foot and by using local means of transportation. Fieldwork in some parts of Orissa might have been affected due to funds not reaching the field in time.

2.6 Data Processing

All completed questionnaires for the Orissa NFHS were sent to the office of CMDP in Hyderabad for data processing. This process consisted of office editing, coding, data entry, and machine editing. Although field editors examined the completed questionnaires in the field, the questionnaires were re-edited at the CMDP office by specially trained office editors. This re-examination checked all skip sequences, circled response codes, and the information recorded in the filter questions. Special attention was paid to the consistency of responses to age questions and the accurate completion of the birth history. A second stage of office editing comprised the assignment of appropriate codes for the information on occupation, caste, and cause of death, and the addition of commonly mentioned "other" responses to the coding scheme. One supervisor and four data entry operators were responsible for 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 end of June, 1993 (a few days after the end of fieldwork). Computer-based checks were done to clean the data and remove inconsistencies. Age imputation was also completed at this stage. Age variables such as current age, age at first marriage, age of the woman when she

started living with her husband, and the ages of all children were imputed for those cases in which information was missing or incorrect entries were detected.

A preliminary report highlighting the important findings of the survey in Orissa was prepared by the middle of July, 1993. The preliminary report was primarily meant for disseminating the data on basic demographic and health parameters among programme planners, policymakers, and administrators soon after the data collection was over. The report contained fifteen tables and a short description of the findings on fertility, knowledge and use of contraception, utilization of antenatal services, immunization, feeding practices and health of children, and infant and child mortality. The report was presented to senior policymakers and administrators in the Government during the first week of November, 1993.

In order to maintain comparability across all the states, the tabulation plan for the detailed state reports was finalized at a workshop held in Baroda in December, 1992. The final tables for Orissa were produced at IIPS based on this tabulation plan.

2.7 Areas for Reporting Survey Results

In this report, survey results are reported for all of Orissa, as well as separately for its urban and rural areas.

2.8 Sample Implementation

Table 2.1 shows the results of household and individual interviews, response rates for the survey, and reasons for nonresponse. Of the 4,886 households selected in Orissa, interviews were completed in 94 percent of the cases. In 2 percent of the cases, the selected households were found to be vacant or there were no dwellings. The household response rate (the number of households interviewed per 100 occupied households) was 96 percent. A slightly higher response rate for the household interviews was recorded in rural areas of the state (97 percent) than in urban areas (94 percent).

In the interviewed households, 4,461 women were identified to be eligible for the individual interview. Interviews were successfully completed with 95 percent of the eligible women. The individual response rate was higher in rural areas than in urban areas.

Nonresponse at both the household and individual levels was primarily due to respondents being absent or an eligible female respondent not being at home despite repeated household visits. Cases where an eligible woman refused to give the interview were few (overall, only 0.5 percent). As in most sample surveys, refusals were slightly higher in urban areas than in rural areas.

Table 2.1 Sample results

Sample results for households and eligible women (unweighted), Orissa, 1993

Result	Urban		Rural		Total	
	Number	Percent	Number	Percent	Number	Percent
Households selected	1412	100.0	3474	100.0	4886	100.0
Households completed (C)	1296	91.8	3306	95.2	4602	94.2
Households with no competent respondent (HP)	7	0.5	10	0.3	17	0.3
Households absent (HA)	62	4.4	74	2.1	136	2.8
Households postponed (P)	2	0.1	0	--	2	--
Households refused (R)	6	0.4	6	0.2	12	0.2
Households vacant/no dwelling (DV)	23	1.6	54	1.6	77	1.6
Dwellings destroyed (DD)	4	0.3	7	0.2	11	0.2
Dwellings not found (DNF)	11	0.8	17	0.5	28	0.6
Other (O)	1	0.1	0	--	1	--
Households occupied	1384	100.0	3413	100.0	4797	100.0
Households interviewed	1296	93.6	3306	96.9	4602	95.9
Households not interviewed	88	6.4	107	3.1	195	4.1
Household response rate (HHR)¹	NA	93.6	NA	96.9	NA	95.9
Eligible women	1208	100.0	3253	100.0	4461	100.0
Women interviewed (EWC)	1143	94.6	3114	95.7	4257	95.4
Women not at home (EWNH)	50	4.1	108	3.3	158	3.5
Women postponed (EWP)	4	0.3	4	0.1	8	0.2
Women refused (EWR)	11	0.9	13	0.4	24	0.5
Women partly interviewed (EWPC)	0	--	3	0.1	3	0.1
Other (EWO)	0	--	11	0.3	11	0.2
Individual response rate (EWRR)²	NA	94.6	NA	96.1	NA	95.7
Overall response rate (ORR)³	NA	88.6	NA	93.0	NA	91.8

NA: Not applicable

-- Less than 0.05 percent

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

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

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

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

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

$$\text{ORR} = (\text{HHR} \times \text{EWRR}) / 100$$

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 with the 1991 Census of India and the Sample Registration System.

3.1 Age-Sex Distribution of the Household Population

The NFHS household population can be tabulated in two ways: *de facto* (the place each person slept the night before the survey interview) or *de jure* (the place of usual residence). The *de facto* and *de jure* populations may differ because of temporary population movements. Table 3.1 shows the *de facto* population in the NFHS household sample, classified by age, sex, and residence. The total weighted *de facto* sample population is 23,904. The sample is 16 percent urban and 84 percent rural.

The age distribution is typical of high fertility populations, with a high proportion of the population in the younger age groups. Thirty-five percent of the population is below 15 years of age; 9 percent is age 60 or more. While the proportion of child population (below age 15) does not differ between urban and rural areas, the percentage of population age 60 and over is higher in rural areas (9 percent) than in urban areas (5 percent).

Examination of the single-year age distributions (see Appendix Table B.1 and Figure 3.1) indicates some distortions in 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 ten digits, from 0 to 9. Myers' Indices computed for the male and female populations are 55.5 and 23.5, respectively. The corresponding indices for males and females in Orissa from the 1981 Census are 61.9 and 64.4, respectively (Office of the Registrar General and Census Commissioner, 1984b). Although the method of collecting information on the age of household members was almost the same in the Census and the NFHS, age reporting in the NFHS seems to be considerably better, particularly for females. In the NFHS, as in the Census, the interviewer collected information on the age of household members from the head of the household or any responsible adult household member. Myers' Indices for males and females in the NFHS indicate that age reporting is much better for females than for males. Figure 3.1 also indicates that the age distribution is smoother for women in the age group 13-49 than for other females.

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

Table 3.1 Household population by age and sex

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

Age	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
< 1	1.9	2.1	2.0	2.3	2.0	2.2	2.2	2.1	2.1
1 - 4	8.4	7.8	8.2	9.1	8.4	8.8	9.0	8.3	8.7
5 - 9	12.4	13.6	12.9	13.1	13.3	13.2	12.9	13.3	13.1
10-14	11.6	12.1	11.9	11.6	10.9	11.3	11.6	11.1	11.4
15-19	11.5	11.1	11.3	9.0	11.6	10.3	9.4	11.5	10.4
20-24	9.1	11.4	10.2	8.2	10.4	9.3	8.3	10.5	9.4
25-29	8.4	9.1	8.7	8.7	8.3	8.5	8.6	8.5	8.5
30-34	7.3	8.3	7.8	6.8	7.2	7.0	6.9	7.3	7.1
35-39	7.7	5.8	6.8	6.8	4.9	5.8	6.9	5.0	6.0
40-44	5.7	4.8	5.3	4.4	4.1	4.2	4.6	4.2	4.4
45-49	4.9	2.6	3.8	3.4	2.9	3.2	3.7	2.9	3.3
50-54	3.1	2.9	3.0	3.7	3.6	3.6	3.6	3.5	3.5
55-59	2.7	2.7	2.7	3.0	3.7	3.4	3.0	3.5	3.3
60-64	2.1	2.3	2.2	3.9	4.0	3.9	3.6	3.7	3.7
65-69	1.3	1.2	1.3	2.6	2.0	2.3	2.4	1.9	2.1
70-74	1.1	0.8	0.9	2.0	1.5	1.8	1.8	1.4	1.6
75-79	0.3	0.4	0.4	0.7	0.5	0.6	0.6	0.5	0.5
80+	0.5	0.6	0.6	1.0	0.6	0.8	0.9	0.6	0.8
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	1965	1780	3746	10159	9999	20158	12125	11779	23904
Sex ratio	NA	NA	906	NA	NA	984	NA	NA	972

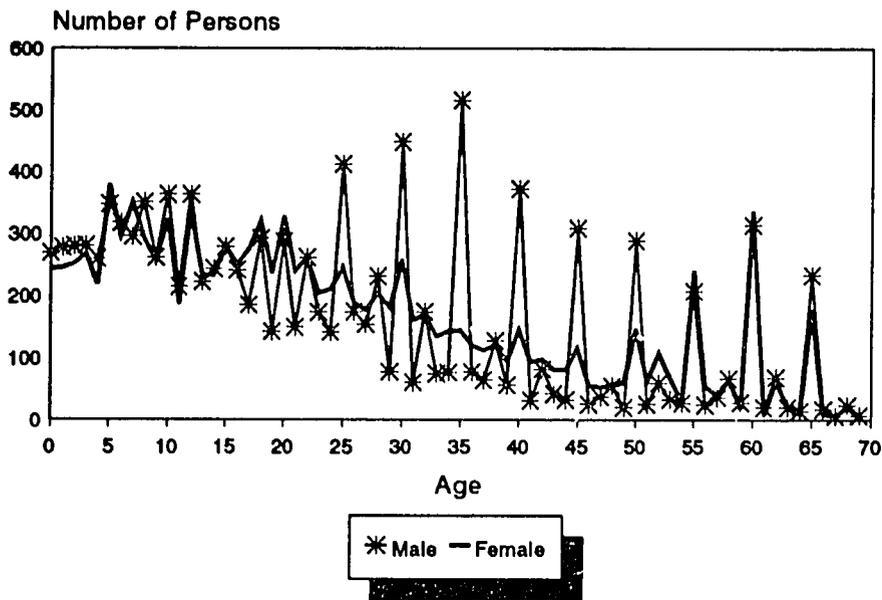
NA: Not applicable

discrepancy. Her age in the Woman's Questionnaire is based on month and year of her birth, if known, or on her reported age otherwise. A variety of probing techniques were used to elicit accurate age information from the respondent to the Woman's Questionnaire.

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

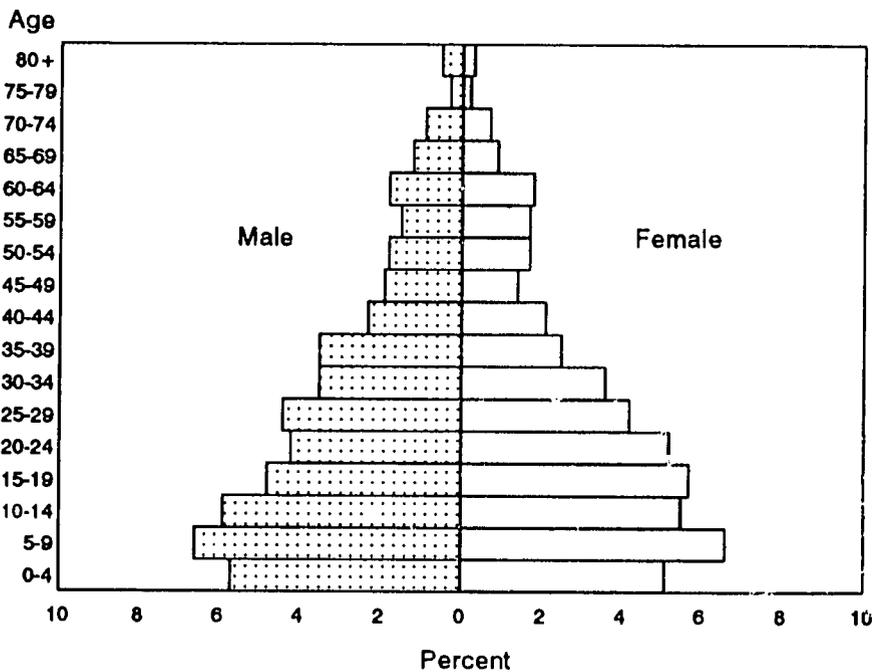
The distribution by five-year age groups is shown in the population pyramid in Figure 3.2. The irregular dip in the proportion of women at age 45-49 is indicative of a possible

Figure 3.1
Number of Persons Reported at Each Age
by Sex



NFHS, Orissa, 1993

Figure 3.2
Population Pyramid of Orissa



NFHS, Orissa, 1993

shifting from this age group to age 40-44 or age 50-54. The latter is a common occurrence in DHS surveys, presumably because it reduces the workload of the interviewer (Rutstein and Bicego, 1990). The impact of this apparent shifting of age on the quality of data is minimal, however, because the shifting is not pronounced.

The *de facto* household population sex ratio (females per 1,000 males) is 906 in urban areas, 984 in rural areas, and 972 for the state as a whole (Table 3.1). Roughly comparable figures from the 1991 Census are 866 for urban areas, 988 for rural areas, and 971 for the state as a whole (Office of the Registrar General and Census Commissioner, 1991). The discrepancy between the two sources is 40 per 1,000 in urban areas and 1 per 1,000 in the state as a whole, with the sex ratio higher in the NFHS. In the case of rural areas, the sex ratio in the NFHS is lower than the 1991 Census by only 4 per 1,000. The higher urban sex ratio in the NFHS could be due to the emphasis that was placed on enumerating visitors in the NFHS; as is discussed below, visitors are disproportionately female (see Table 3.5).

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 by sex are quite similar for the 1991 SRS and the NFHS. Only 4 percent of the males and 5 percent of the females would have to be placed in a different age group for the two age distributions to be identical.

Table 3.2 also provides information on sex ratios by age for the NFHS. The Sample Registration System (SRS) publishes percentaged age distributions for the sample registration areas but not absolute numbers of population, so no population sex ratios can be computed from the SRS publication. The total population sex ratio for Orissa was 981 in the 1981 Census, 971 in the 1991 Census, and 963 in the NFHS *de jure* sample. The NFHS *de jure* value is only 2 percent lower than the 1981 Census value and less than 1 percent lower than the 1991 Census

Table 3.2 Population by age and sex from SRS and NFHS					
Percent distribution of the <i>de jure</i> population by age and sex from SRS and NFHS, Orissa, 1991-93					
Age	SRS (1991)		NFHS (1993)		Sex ratio
	Male	Female	Male	Female	
0 - 4	12.9	12.5	11.2	10.1	866
5 -14	22.3	21.8	24.3	24.5	970
15-29	28.5	30.0	26.7	30.6	1103
30-49	23.1	22.3	22.1	19.7	859
50-64	9.5	9.4	10.1	10.7	1019
65+	3.7	4.0	5.6	4.5	768
Total	100.0	100.0	100.0	100.0	963
Median age	U	U	22.6	21.5	NA

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

value. This suggests that the NFHS household sample represents the underlying population well, at least with regard to sex ratios. The sex ratios in Table 3.2 vary by age. Some of these variations are difficult to explain, but the low values at the youngest ages are consistent with a relatively high mortality among female children compared to male children (see Table 8.5 in Chapter 8).

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, 52 percent are currently married and 38 percent have never been married. The percentage never married is higher for males (47 percent) than females (38 percent), and among females, is lower in rural areas (38 percent) than in urban areas (43 percent). The percentages divorced or separated are small, regardless of age, sex, or type of place. Among women, especially, the percentages widowed are higher, with about 23 percent of women age 55-59 currently widowed and 60 percent of

Table 3.3 Marital status of the household population							
Percent distribution of the <i>de facto</i> household population age 6 and above by marital status, according to age, sex and residence, Orissa, 1993							
Age	Marital status						Total percent
	Never married	Currently married	Widowed	Divorced	Separated	DK/missing	
URBAN							
Male							
6 -12	99.8	0.2	--	--	--	--	100.0
13-14	100.0	--	--	--	--	--	100.0
15-19	98.5	1.3	--	--	0.3	--	100.0
20-24	87.9	11.7	0.3	--	--	--	100.0
25-29	46.9	52.4	0.7	--	--	--	100.0
30-34	10.3	89.3	0.4	--	--	--	100.0
35-39	1.5	98.5	--	--	--	--	100.0
40-44	1.5	98.0	0.5	--	--	--	100.0
45-49	0.6	98.2	1.2	--	--	--	100.0
50-54	1.9	96.2	1.9	--	--	--	100.0
55-59	--	91.3	8.7	--	--	--	100.0
60+	--	82.4	17.6	--	--	--	100.0
Total	52.4	45.9	1.7	--	--	--	100.0
Female							
6 -12	99.6	0.2	--	--	--	0.2	100.0
13-14	98.7	1.3	--	--	--	--	100.0
15-19	83.4	16.0	--	0.3	0.3	--	100.0
20-24	37.3	60.7	0.3	0.6	1.1	--	100.0
25-29	11.9	85.3	1.7	0.3	0.7	--	100.0
30-34	1.5	94.6	1.5	1.2	1.2	--	100.0
35-39	0.5	91.3	6.6	1.1	0.5	--	100.0
40-44	1.3	90.8	7.9	--	--	--	100.0
45-49	--	84.3	15.7	--	--	--	100.0
50-54	1.1	73.6	25.3	--	--	--	100.0
55-59	--	67.4	32.6	--	--	--	100.0
60+	0.6	33.9	63.7	1.2	0.6	--	100.0
Total	42.9	48.6	7.5	0.4	0.4	--	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, Orissa, 1993

Age	Marital status						Total percent
	Never married	Currently married	Widowed	Divorced	Separated	DK/missing	
RURAL							
Male							
6 -12	99.9	--	0.1	--	--	--	100.0
13-14	100.0	--	--	--	--	--	100.0
15-19	96.8	3.2	--	--	--	--	100.0
20-24	74.0	25.7	--	--	0.3	--	100.0
25-29	28.3	71.3	0.4	--	--	--	100.0
30-34	5.1	93.7	0.9	--	0.3	--	100.0
35-39	2.4	96.1	0.9	--	0.7	--	100.0
40-44	0.3	97.4	2.1	--	0.3	--	100.0
45-49	0.7	97.3	1.7	--	0.3	--	100.0
50-54	0.9	91.8	6.9	--	0.3	--	100.0
55-59	0.8	90.5	8.7	--	--	--	100.0
60+	0.3	82.2	16.7	--	0.8	--	100.0
Total	46.2	50.7	2.9	--	0.2	--	100.0
Female							
6 -12	99.6	0.2	0.1	--	0.1	0.1	100.0
13-14	97.5	2.2	--	--	0.3	--	100.0
15-19	69.2	30.0	--	0.3	0.5	--	100.0
20-24	25.8	72.5	0.9	0.2	0.6	--	100.0
25-29	4.9	92.4	1.4	--	1.3	--	100.0
30-34	2.4	93.0	3.3	0.5	0.8	--	100.0
35-39	1.7	89.4	7.0	--	1.9	--	100.0
40-44	1.1	90.6	7.4	--	0.9	--	100.0
45-49	0.4	84.0	14.4	--	1.2	--	100.0
50-54	0.3	82.8	15.6	0.3	1.0	--	100.0
55-59	0.3	77.1	21.7	--	1.0	--	100.0
60+	0.8	38.3	60.0	0.3	0.7	--	100.0
Total	37.5	52.3	9.3	0.1	0.7	--	100.0
TOTAL							
Male							
6 -12	99.9	--	0.1	--	--	--	100.0
13-14	100.0	--	--	--	--	--	100.0
15-19	97.1	2.8	--	--	--	--	100.0
20-24	76.5	23.3	0.1	--	0.2	--	100.0
25-29	31.3	68.3	0.4	--	--	--	100.0
30-34	6.0	92.9	0.8	--	0.3	--	100.0
35-39	2.2	96.5	0.7	--	0.6	--	100.0
40-44	0.5	97.5	1.8	--	0.2	--	100.0
45-49	0.7	97.5	1.6	--	0.3	--	100.0
50-54	1.1	92.4	6.2	--	0.3	--	100.0
55-59	0.6	90.6	8.7	--	--	--	100.0
60+	0.3	82.2	16.8	--	0.7	--	100.0
Total	47.2	49.9	2.7	--	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, Orissa, 1993

Age	Marital status						Total percent
	Never married	Currently married	Widowed	Divorced	Separated	DK/ missing	
	TOTAL						
	Female						
6 -12	99.6	0.2	0.1	--	0.1	0.1	100.0
13-14	97.7	2.0	--	--	0.3	--	100.0
15-19	71.3	28.0	--	0.3	0.5	--	100.0
20-24	27.7	70.6	0.8	0.3	0.7	--	100.0
25-29	6.0	91.3	1.5	0.1	1.2	--	100.0
30-34	2.3	93.3	3.0	0.6	0.9	--	100.0
35-39	1.5	89.7	6.9	0.2	1.7	--	100.0
40-44	1.2	90.6	7.5	--	0.7	--	100.0
45-49	0.3	84.0	14.6	--	1.0	--	100.0
50-54	0.4	81.6	16.8	0.3	0.9	--	100.0
55-59	0.3	75.9	22.9	--	0.8	--	100.0
60+	0.8	37.8	60.3	0.4	0.7	--	100.0
Total	38.4	51.7	9.0	0.2	0.7	--	100.0

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

those age 60 or over currently widowed (compared with only 17 percent of men age 60 or over). The higher percentages of older women than men who are widowed reflects sex differences in age at marriage, longevity, and remarriage rates.

Of interest from the point of view of fertility trends is the proportion of persons (especially females) who marry young. At ages 15-19, the proportions ever married are 2 percent of males and 17 percent of females in urban areas, 3 percent of males and 31 percent of females in rural areas, and 3 percent of males and 29 percent of females in the state as a whole. The high proportions of females married by the age of 19 suggests that substantial numbers are marrying before the legally mandated minimum age of 18.

By age 25-29, almost all females in rural areas (95 percent) have married, and even in urban areas 88 percent have married by that age. The proportions of males ever married by age 25-29 are lower: 53 percent in urban areas, 72 percent in rural areas, and 69 percent in the state as a whole. Overall, the table suggests that women marry at younger ages than men, and that both sexes marry at younger ages in rural than in urban areas. A more comprehensive discussion of marriage patterns is contained in the next chapter, which is devoted entirely to nuptiality.

3.3 Household Composition

Table 3.4 shows the percent distribution of households by various characteristics of the household head (sex, age, marital status, religion and caste/tribe), as well as the number of usual household members. Ninety-three percent of household heads are male, regardless of the place of residence. The median age of household heads varies by residence, being about 41 years

Table 3.4 Household composition

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

Characteristic	Residence		
	Urban	Rural	Total
Sex of household head			
Male	92.5	92.9	92.8
Female	7.5	7.1	7.2
Age of household head			
< 30	12.7	13.1	13.0
30-44	45.2	36.0	37.5
45-59	28.7	26.2	26.6
60+	13.4	24.7	22.9
Median age	40.7	45.1	44.1
Marital status of household head			
Never married	4.3	2.9	3.1
Currently married	87.2	86.8	86.9
Widowed	7.9	9.4	9.2
Divorced	0.1	--	--
Separated	0.5	0.8	0.8
Religion of household head			
Hindu	91.4	97.7	96.7
Muslim	4.7	0.9	1.5
Christian	3.2	1.2	1.5
Other	0.7	0.2	0.2
Caste/tribe of household head			
Scheduled caste	6.5	10.1	9.5
Scheduled tribe	10.6	26.4	23.9
Other	82.9	63.5	66.6
Number of usual members			
1	4.8	3.1	3.4
2	7.7	9.4	9.2
3	10.6	12.5	12.2
4	19.7	16.8	17.2
5	18.8	17.8	17.9
6	15.4	14.5	14.7
7	8.6	9.9	9.7
8	6.5	5.5	5.7
9+	7.9	10.5	10.1
Mean size	5.1	5.3	5.3
Total percent	100.0	100.0	100.0
Number of households	736	3866	4602

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

in urban areas and 45 years in rural areas. This reflects a higher proportion of old heads in rural than in urban areas; in urban households, heads are concentrated in the middle age groups of 30-44 and 45-59. This difference between rural and urban households may reflect underlying differences in household composition, for example, whether the oldest generation is present in the household. As presented earlier, rural areas have a higher proportion of old age population compared with urban areas (Table 3.1)

Table 3.4 also shows that 97 percent of household heads are Hindus, 1.5 percent are Muslims, and another 1.5 percent are Christians. The percentage Muslim is higher in urban areas (5 percent of household heads) than in rural areas (1 percent). Ten percent of household heads are classified as belonging to scheduled castes and 24 percent are members of scheduled tribes. Both groups are disproportionately concentrated in rural areas. The mean household size is 5.3 persons per household. It is slightly lower in urban than in rural areas (5.1 versus 5.3 persons per household).

Table 3.5 shows the jural status of household members by age, residence, and sex. Overall, three 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. The highest percentages of visitors are found among women in the prime childbearing ages (15-29) and among children. This pattern likely results from the common practice of women returning to their parents' house to give birth (particularly common for the first delivery), where they typically remain throughout the postpartum period. The proportion of household members who are visitors is slightly higher in urban than in rural areas, especially among females, a pattern that may partly reflect the visits of wives and children to husbands who are living temporarily in urban areas.

Unless otherwise specified, all subsequent tables in this chapter and in the following chapters are based on the *de facto* sample. The *de facto* sample should be more representative of women in the state as a whole because it encompasses primary respondent women regardless of the household where they were staying at the time of the survey. A *de jure* sample, on the other hand, would miss usual residents who were temporarily staying elsewhere at the time of the survey.

3.4 Educational Attainment

The educational level of household members is an important characteristic because educational attainment often affects reproductive behavior, the use of contraceptives, and the health and survival of children. 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. Fifty-nine percent of females age 6 or above, and 31 percent of males, are illiterate. The NFHS levels of illiteracy are somewhat lower than the 1991 Census rates of 65 percent for females and 37 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 3.9 whereas that for females is 0.0.

Rural illiteracy rates are higher than urban illiteracy rates, with almost one-half (48 percent) of the *de facto* rural population illiterate as opposed to only one-quarter of the urban population. Differences between urban and rural areas in the proportion of the population that has attended or completed primary school are, however, minimal, with 38 percent of both the rural and urban groups attending or completing this level of school. Attending high school or above is, however, more common in the urban than the rural sample. The literacy gap between females and males is also greater in rural than in urban areas. Whereas the percentage of rural females who are illiterate (63 percent) exceeds the percentage of rural males who are illiterate (34 percent) by 29 points, the difference is only 21 points in urban areas (36 versus 15 percent of urban females and males, respectively).

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, Orissa, 1993

Characteristic	Resident status		Total percent	Number
	Usual resident	Visitor		
MALE				
Age				
< 1	94.6	5.4	100.0	268
1 - 4	97.0	3.0	100.0	1094
5 - 14	98.7	1.3	100.0	2973
15-19	98.0	2.0	100.0	1138
20-24	97.0	3.0	100.0	1010
25-29	97.0	3.0	100.0	1048
30-34	96.8	3.2	100.0	831
35-39	98.1	1.9	100.0	839
40-44	97.7	2.3	100.0	556
45-49	98.8	1.2	100.0	445
50+	98.7	1.3	100.0	1921
Residence				
Urban	97.0	3.0	100.0	1965
Rural	98.1	1.9	100.0	10159
Total	97.9	2.1	100.0	12125
FEMALE				
Age				
< 1	93.1	6.9	100.0	243
1 - 4	94.8	5.2	100.0	979
5 - 14	98.5	1.5	100.0	2882
15-19	95.8	4.2	100.0	1359
20-24	94.1	5.9	100.0	1241
25-29	96.0	4.0	100.0	996
30-34	97.9	2.1	100.0	866
35-39	98.1	1.9	100.0	589
40-44	98.0	2.0	100.0	497
45-49	99.3	0.7	100.0	339
50+	97.8	2.2	100.0	1785
Residence				
Urban	95.6	4.4	100.0	1780
Rural	97.2	2.8	100.0	9999
Total	96.9	3.1	100.0	11779
TOTAL				
Age				
< 1	93.9	6.1	100.0	511
1 - 4	96.0	4.0	100.0	2074
5 - 14	98.6	1.4	100.0	5855
15-19	96.8	3.2	100.0	2498
20-24	95.4	4.6	100.0	2251
25-29	96.5	3.5	100.0	2044
30-34	97.4	2.6	100.0	1696
35-39	98.1	1.9	100.0	1428
40-44	97.8	2.2	100.0	1052
45-49	99.0	1.0	100.0	784
50+	98.3	1.7	100.0	3706
Residence				
Urban	96.4	3.6	100.0	3746
Rural	97.6	2.4	100.0	20158
Total	97.4	2.6	100.0	23904

Note: Total includes 1 male and 2 females with missing information on age, who are not shown separately.

Table 3.6 Educational level of the household population

Percent distribution of the *de facto* household population age 6 and above by literacy and level of education, and median number of completed years of schooling, according to age, sex and residence, Orissa, 1993

Age	Educational level							Total percent	Total Number	Median number of years of schooling
	Illiterate	Literate, <primary complete	Primary school complete	Middle school complete	High school complete	Above high school	Missing			
URBAN										
Male										
6 - 9	13.0	84.9	2.1	--	--	--	--	100.0	192	2.3
10-14	8.0	28.9	47.3	14.9	1.0	--	--	100.0	228	6.0
15-19	10.1	5.5	11.8	29.6	37.2	5.8	--	100.0	226	9.7
20-24	12.1	4.4	17.5	18.1	28.6	19.4	--	100.0	179	9.9
25-29	16.9	11.0	19.7	10.7	22.8	19.0	--	100.0	165	9.0
30-34	14.7	9.9	15.3	10.3	21.8	27.0	--	100.0	143	9.8
35-39	15.7	8.6	22.1	9.7	22.1	21.7	--	100.0	152	8.8
40-44	15.7	7.6	14.6	9.1	27.3	25.8	--	100.0	112	10.5
45-49	15.9	5.9	21.8	10.0	17.1	29.4	--	100.0	97	9.5
50+	31.9	18.4	17.9	6.8	15.1	9.9	--	100.0	219	4.9
Total	15.4	20.4	19.6	12.6	18.7	13.4	--	100.0	1712	7.3
Female										
6 - 9	22.2	75.4	1.5	--	--	--	0.9	100.0	184	1.8
10-14	16.8	23.7	38.9	18.4	2.1	--	--	100.0	216	5.7
15-19	17.5	8.9	13.5	22.3	31.8	6.0	--	100.0	198	9.3
20-24	36.2	4.5	13.1	12.8	17.5	15.9	--	100.0	204	7.4
25-29	39.2	7.3	17.1	7.0	16.8	12.6	--	100.0	162	5.5
30-34	39.2	11.9	18.5	8.5	11.5	10.4	--	100.0	148	4.9
35-39	42.1	8.2	21.9	3.8	13.7	10.4	--	100.0	104	4.9
40-44	43.4	15.8	20.4	8.6	5.3	6.6	--	100.0	86	3.4
45-49	51.8	13.3	18.1	--	12.0	4.8	--	100.0	47	0.0
50+	74.2	9.0	12.2	1.7	1.2	1.7	--	100.0	196	0.0
Total	36.1	18.9	17.3	9.6	11.3	6.6	0.1	100.0	1545	4.0
Total										
6 - 9	17.5	80.2	1.8	--	--	--	0.5	100.0	376	2.1
10-14	12.3	26.3	43.2	16.6	1.5	--	--	100.0	444	5.8
15-19	13.5	7.1	12.6	26.2	34.7	5.9	--	100.0	424	9.5
20-24	24.9	4.5	15.1	15.3	22.7	17.5	--	100.0	383	9.2
25-29	28.0	9.2	18.4	8.9	19.8	15.8	--	100.0	327	7.3
30-34	27.1	10.9	17.4	9.4	16.6	18.6	--	100.0	291	7.4
35-39	26.4	8.4	22.0	7.3	18.7	17.1	--	100.0	255	7.2
40-44	27.7	11.1	17.1	8.9	17.7	17.4	--	100.0	199	7.2
45-49	27.7	8.3	20.6	6.7	15.4	21.3	--	100.0	144	7.5
50+	51.9	14.0	15.2	4.4	8.5	6.0	--	100.0	414	0.0
Total	25.2	19.7	18.5	11.2	15.2	10.2	0.1	100.0	3257	5.7
RURAL										
Male										
6 - 9	29.9	69.5	0.5	--	--	--	0.1	100.0	1031	1.4
10-14	17.6	39.2	34.2	8.3	0.6	--	0.1	100.0	1176	4.6
15-19	21.4	13.3	20.8	25.8	16.7	1.9	0.1	100.0	912	7.4
20-24	27.7	13.1	17.4	14.8	18.4	8.6	--	100.0	831	6.6
25-29	36.7	16.2	16.2	9.5	12.5	9.0	--	100.0	883	4.2
30-34	37.9	18.9	17.0	7.0	12.2	7.0	--	100.0	688	3.8
35-39	39.1	17.3	22.8	6.6	10.0	3.9	0.2	100.0	688	4.0
40-44	35.4	22.2	21.1	5.0	11.9	4.5	--	100.0	443	3.7
45-49	41.3	20.1	17.4	4.7	13.1	3.4	--	100.0	349	2.9
50+	52.4	24.9	15.2	2.2	4.3	0.9	0.1	100.0	1703	0.0
Total	34.3	27.5	18.0	8.2	8.6	3.3	0.1	100.0	8704	3.3

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, Orissa, 1993

Age	Educational level							Total percent	Total 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	41.9	57.7	0.3	--	--	--	--	100.0	1009	1.0
10-14	37.0	31.3	25.4	6.2	0.1	--	--	100.0	1095	3.2
15-19	52.7	11.1	14.7	11.2	9.4	1.0	--	100.0	1161	0.0
20-24	59.2	8.8	13.4	7.3	9.1	2.1	--	100.0	1037	0.0
25-29	68.6	10.4	12.8	3.2	3.5	1.5	--	100.0	834	0.0
30-34	65.1	13.8	13.7	2.6	3.7	1.0	--	100.0	718	0.0
35-39	67.5	11.1	18.1	1.4	1.9	--	--	100.0	485	0.0
40-44	78.1	10.0	10.3	0.6	0.9	0.3	--	100.0	410	0.0
45-49	78.8	12.8	7.6	0.4	--	0.4	--	100.0	292	0.0
50+	90.4	6.0	2.8	0.7	0.1	--	--	100.0	1590	0.0
Total	62.7	18.1	11.5	3.9	3.2	0.7	--	100.0	8633	0.0
Total										
6 - 9	35.9	63.7	0.4	--	--	--	0.1	100.0	2041	1.2
10-14	26.9	35.4	30.0	7.3	0.4	--	0.1	100.0	2271	4.1
15-19	38.9	12.1	17.4	17.6	12.6	1.4	0.1	100.0	2073	4.8
20-24	45.2	10.7	15.2	10.6	13.3	5.0	--	100.0	1869	3.4
25-29	52.2	13.4	14.5	6.5	8.1	5.4	--	100.0	1717	0.0
30-34	51.8	16.3	15.3	4.7	7.9	3.9	--	100.0	1406	0.0
35-39	50.8	14.8	20.8	4.5	6.7	2.3	0.1	100.0	1173	0.0
40-44	55.9	16.3	15.9	2.9	6.6	2.5	--	100.0	854	0.0
45-49	58.4	16.8	13.0	2.7	7.1	2.0	--	100.0	641	0.0
50+	70.7	15.8	9.2	1.5	2.3	0.5	--	100.0	3293	0.0
Total	48.4	22.8	14.8	6.1	5.9	2.0	--	100.0	17337	1.0
TOTAL										
Male										
6 - 9	27.3	71.9	0.7	--	--	--	0.1	100.0	1223	1.5
10-14	16.0	37.5	36.3	9.4	0.7	--	0.1	100.0	1405	4.8
15-19	19.2	11.8	19.0	26.5	20.7	2.7	0.1	100.0	1138	8.0
20-24	24.9	11.6	17.4	15.4	20.2	10.5	--	100.0	1010	7.5
25-29	33.6	15.4	16.7	9.7	14.1	10.6	--	100.0	1048	5.2
30-34	33.9	17.3	16.9	7.5	13.9	10.4	--	100.0	831	4.8
35-39	34.9	15.8	22.7	7.2	12.2	7.1	0.1	100.0	839	4.9
40-44	31.4	19.2	19.8	5.8	15.0	8.8	--	100.0	556	4.9
45-49	35.8	17.0	18.4	5.8	13.9	9.0	--	100.0	445	4.2
50+	50.1	24.2	15.5	2.7	5.5	1.9	0.1	100.0	1921	0.0
Total	31.2	26.3	18.3	8.9	10.2	5.0	0.1	100.0	10416	3.9
Female										
6 - 9	38.9	60.4	0.5	--	--	--	0.1	100.0	1194	1.1
10-14	33.7	30.0	27.7	8.2	0.4	--	--	100.0	1310	3.7
15-19	47.5	10.8	14.5	12.8	12.6	1.7	--	100.0	1359	2.5
20-24	55.4	8.1	13.4	8.2	10.5	4.4	--	100.0	1241	0.0
25-29	63.8	9.9	13.5	3.8	5.7	3.3	--	100.0	996	0.0
30-34	60.7	13.5	14.5	3.6	5.1	2.6	--	100.0	866	0.0
35-39	63.0	10.6	18.7	1.9	4.0	1.8	--	100.0	589	0.0
40-44	72.0	11.0	12.0	2.0	1.6	1.4	--	100.0	497	0.0
45-49	75.1	12.9	9.1	0.3	1.7	1.0	--	100.0	339	0.0
50+	88.6	6.4	3.8	0.8	0.3	0.2	--	100.0	1786	0.0
Total	58.6	18.2	12.4	4.8	4.4	1.6	--	100.0	10178	0.0

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, Orissa, 1993

Age	Educational level							Total percent	Total Number	Median number of years of schooling
	Illiterate	Literate, <primary complete	Primary school complete	Middle school complete	High school complete	Above high school	Miss- ing			
TOTAL Total										
6 - 9	33.0	66.2	0.6	--	--	--	0.1	100.0	2417	1.3
10-14	24.5	33.9	32.1	8.8	0.6	--	--	100.0	2715	4.4
15-19	34.6	11.2	16.6	19.1	16.3	2.2	--	100.0	2498	5.8
20-24	41.7	9.6	15.2	11.4	14.9	7.1	--	100.0	2251	4.6
25-29	48.3	12.7	15.1	6.9	10.0	7.0	--	100.0	2044	2.0
30-34	47.6	15.4	15.7	5.5	9.4	6.4	--	100.0	1696	2.2
35-39	46.5	13.6	21.0	5.0	8.8	4.9	0.1	100.0	1428	2.9
40-44	50.6	15.3	16.1	4.0	8.7	5.3	--	100.0	1052	0.0
45-49	52.8	15.2	14.3	3.5	8.6	5.5	--	100.0	784	0.0
50+	68.6	15.6	9.9	1.8	3.0	1.1	-	100.0	3708	0.0
Total	44.8	22.3	15.4	6.9	7.4	3.3	--	100.0	20594	1.8

-- Less than 0.05 percent

Despite the low overall level of literacy, cohort differences in literacy suggest that there has been progress over time (Figure 3.3). For example, while only 11 percent of women age 50 and over are literate, the literacy rate for females increases to 28 percent for those age 40-44, 45 percent for those age 20-24, and 66 percent for those age 10-14. The literacy gap between males and females has also narrowed over time, but even at age 10-14, a much higher percentage of males than females is literate (84 versus 66 percent).

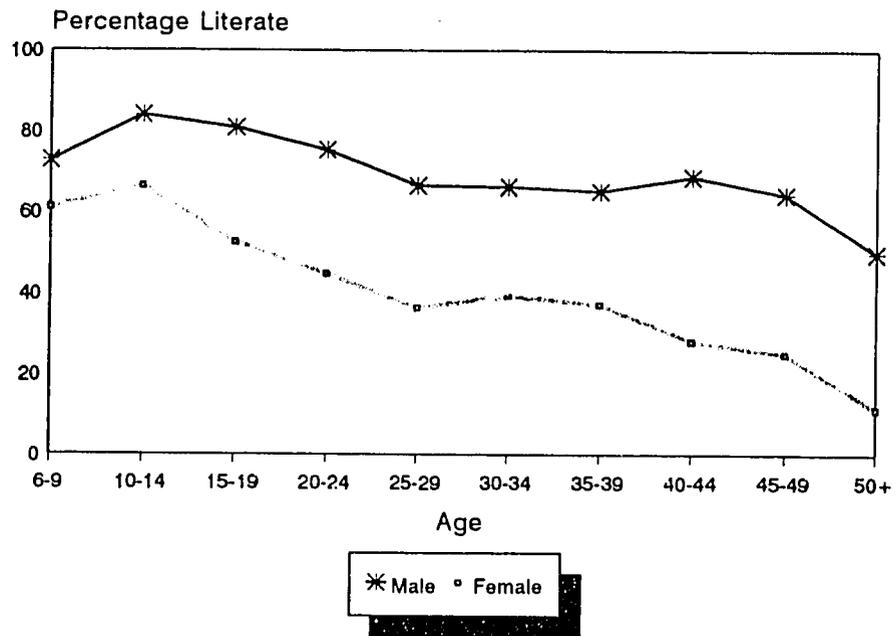
Table 3.7 and Figure 3.4 show the proportion attending school among the school-age household population, by age, sex, and residence. The table focuses on children age 6-14 because the Indian Constitution set a goal of providing free and compulsory education for children through age 14. In the state as a whole, only 70 percent of children age 6-14 are attending school. As expected, the proportion attending is higher for males than for females: 77 percent of males compared with 62 percent of females (Figure 3.4). Urban attendance is also

Table 3.7 School attendance

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

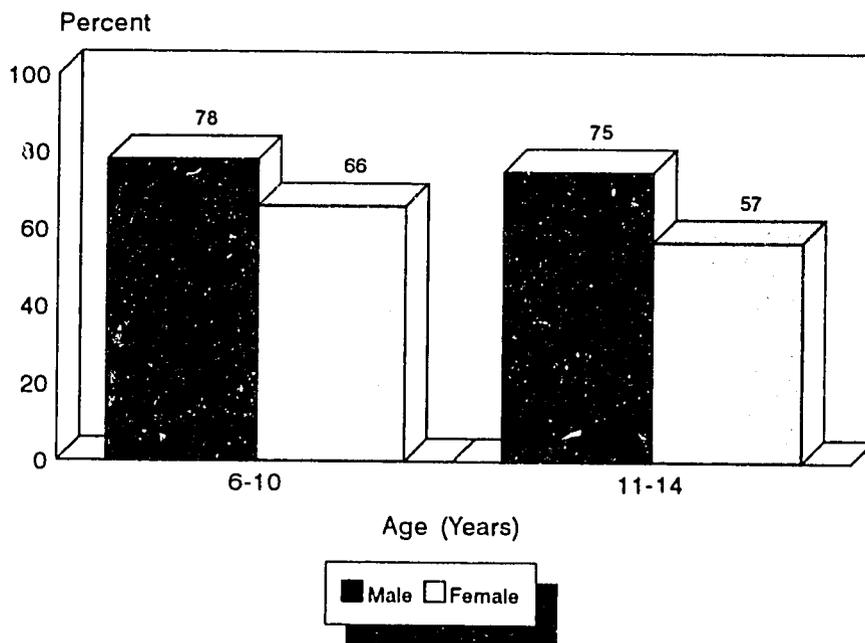
Age	Male			Female			Total		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
6 -10	89.7	75.8	77.9	78.8	63.0	65.5	84.3	69.6	71.8
11-14	86.2	72.9	75.2	78.2	52.5	56.7	82.4	62.9	66.2
6 -14	88.2	74.7	76.8	78.6	58.9	62.0	83.5	67.0	69.6

Figure 3.3
Percentage Literate by Age and Sex



NFHS, Orissa, 1993

Figure 3.4
School Attendance by Age and Sex



NFHS, Orissa, 1993

higher than rural attendance (84 percent compared with 67 percent). The gap between girls and boys in school attendance is more pronounced in rural than in urban areas, especially at age 11-14, where only 53 percent of rural girls as opposed to 73 percent of rural boys are in school. In spite of the substantial educational advances that have been made over time, 38 percent of school-age girls in Orissa are not attending school.

3.5 Housing Characteristics

Table 3.8 provides information on housing characteristics by residence. In urban areas, over two-thirds of households have electricity (69 percent), but in rural areas, only 20 percent enjoy this amenity. Because Orissa is heavily rural, in the state as a whole only 28 percent of households have electricity.

The water and sanitary facilities in a household are important because they can affect the health status of household members, particularly children. The NFHS contained questions on sanitary facilities and the source of the water the household uses for bathing and washing as well as for drinking. Regarding source of water for bathing and washing, 46 percent of households depend on surface water, 25 percent on well water, 21 percent get water from a handpump, and 8 percent have piped water. More than half of rural households use surface water for bathing and washing as opposed to only 14 percent of urban households. The pattern for piped water is the reverse: only 1 percent of rural households have piped water for bathing and washing compared with 41 percent of the urban households. Regarding the source of drinking water, 10 percent of households have piped water, 41 percent get water from a handpump, 32 percent from open wells, and 17 percent from surface water. As in the case of bathing/washing water, there are large urban-rural differences in the source of drinking water. The proportion of households with piped drinking water is 51 percent in urban areas but only 2 percent in rural areas.

Regarding sanitation facilities, only 7 percent of households have a flush toilet, 6 percent have a pit toilet or latrine, and 88 percent have no toilet facility at all. Again, there are large urban-rural differences; for example, 32 percent of households in urban areas but only 2 percent in rural areas have a flush toilet, while 50 percent of households in urban areas and 95 percent in rural areas have no toilet facility.

Several types of fuel are used for cooking in Orissa, with wood the most common one. In the state as a whole, 69 percent of households rely on wood, 11 percent on cow dung cakes, and 20 percent on other fuels. Again, there are big urban-rural differences. Dependency on wood is greater in rural households, almost three-quarters of whom (74 percent) use this fuel for cooking compared with only 43 percent of urban households. Cow dung cakes are also more common in rural than in urban households. More than half the households in urban areas depend on liquid petroleum gas, electricity, kerosene, coal or charcoal -- fuels that are used by only a negligible proportion of rural households (4 percent).

Based on the materials used for the construction of walls, roof and floor, a house in the NFHS is classified as either *kachcha*, *pucca*, or *semi-pucca*. In Orissa, 59 percent of houses are *kachcha* (made from mud, thatch, or other low-quality materials), 32 percent are *semi-pucca* (partly low-quality and partly high-quality materials) and 10 percent are *pucca* (high-quality materials throughout, including roof, walls, and floor). There are large urban-rural differences,

Table 3.8 Housing characteristics

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

Housing characteristic	Residence		
	Urban	Rural	Total
Electricity			
Yes	68.7	20.0	27.8
No	31.3	80.0	72.2
Source of bathing/washing water			
Piped	41.4	1.3	7.7
Handpump	18.9	21.4	21.0
Well water	25.6	25.0	25.1
Surface water	13.7	52.3	46.1
Other	0.5	--	0.1
Source of drinking water			
Piped	51.2	1.8	9.7
Handpump	23.2	44.6	41.2
Well water	20.0	34.1	31.8
Surface water	5.2	19.4	17.1
Other	0.5	0.1	0.2
Sanitation facility			
Flush	32.0	1.8	6.6
Pit toilet/latrine	17.8	3.2	5.5
Other	0.3	--	0.1
No facility	49.8	95.0	87.8
Type of fuel for cooking			
Wood	42.8	73.6	68.7
Cow dung cakes	3.1	12.9	11.4
Coal/coke/lignite/charcoal	20.4	2.1	5.1
Kerosene	10.0	0.2	1.7
Electricity	9.9	1.0	2.4
Liquid petroleum gas	10.1	0.3	1.9
Other	3.8	9.8	8.9
Type of house			
Kachcha	23.7	65.5	58.9
Semi-pucca	44.7	29.2	31.7
Pucca	31.6	5.3	9.5
Place where livestock is kept			
Inside the house	2.2	7.4	6.6
Outside the house	18.4	55.2	49.3
No livestock	79.5	37.4	44.1
Persons per room			
< 3.0	69.5	68.8	69.0
3.0-4.9	22.2	22.7	22.7
5.0-6.9	5.7	6.4	6.2
7.0 +	2.4	2.0	2.1
Don't know/missing	0.2	--	0.1
Mean	2.3	2.4	2.4
Total percent	100.0	100.0	100.0
Number of households	736	3866	4602

-- Less than 0.05 percent

however. Nearly two-thirds of the houses in rural areas are classified as *kachcha* whereas slightly less than one-fourth in urban areas are in this category. The percentage of houses that are *pucca* is much higher in urban (32 percent) than in rural areas (5 percent).

The NFHS also collected information on whether households own any livestock. Only 56 percent of the households in Orissa own livestock, 63 percent in rural areas and 21 percent in urban areas. A follow-up question was asked on where the livestock are kept at night, because keeping them inside the house may affect the health of the residents adversely. Only 2 percent of urban households and 7 percent of rural households have livestock that are kept inside the house at night.

Also potentially related to health, as well as to the quality of life, is the number of people per room in the household. In Orissa, the number of people per room averages 2.4, a figure that is approximately the same in urban (2.3) as in rural areas (2.4). A majority of households have fewer than three persons per room. Six percent of the households, however, have five to seven persons per room and 2 percent of the households have seven or more persons per room.

Table 3.9 contains three sets of measures related to the socioeconomic status of the household: household ownership of agricultural land, livestock by type, and durable goods by type. More than 40 percent of households are landless, with urban households twice as likely to be landless as rural households (77 percent compared with 36 percent). In rural areas, half of the households own non-irrigated land only, with another 8 percent owning both irrigated and non-irrigated land, and the remaining 6 percent owning irrigated land only. With regard to livestock owned, 44 percent of rural households have one or more bullocks, 41 percent have cows, 12 percent have goats, 4 percent have buffaloes, 3 percent have sheep, and 1 percent have other kinds of livestock.

The possession of durable goods is another indicator of a household's socioeconomic level; some goods may also have other benefits. For example, having access to a radio or television may expose household members to innovative ideas; a refrigerator prolongs the wholesomeness of food; and a means of transportation allows greater access to services outside the local area. Table 3.9 shows that in the state as a whole, a sizeable number of households have a bicycle (49 percent), a clock or watch (38 percent), or a radio (32 percent). Other durable goods found in Orissa households are television sets (11 percent), a motorcycle or scooter (5 percent), and refrigerators (2 percent). Urban households are much more likely to have each of these durable goods than are rural households. Agricultural equipment, such as tractors, threshers, bullock carts, and water pumps, are more likely to be owned by rural households. In the state as a whole, only 1 percent of households have a water pump, and the proportion owning other types of agricultural equipment is even smaller, except bullock carts, which are owned by 8 percent of households.

3.6 Background Characteristics of Respondents

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

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, Orissa, 1993			
Item owned	Residence		
	Urban	Rural	Total
Agricultural land			
No land	76.5	36.0	42.4
Irrigated land only			
< 1 Acre	0.8	1.8	1.7
1-5 Acres	2.4	4.2	3.9
6+ Acres	0.8	0.4	0.4
Non-irrigated land only			
< 1 Acre	2.6	10.6	9.3
1-5 Acres	9.6	32.6	28.9
6+ Acres	3.2	6.6	6.1
Irrigated and non-irrigated land			
< 1 Acre	0.6	1.9	1.7
1-5 Acres	2.2	4.1	3.8
6+ Acres	1.2	1.8	1.7
Total percent	100.0	100.0	100.0
Livestock			
Bullock	6.8	44.0	38.1
Cow	15.4	41.3	37.1
Buffalo	1.5	4.3	3.8
Goat	3.2	12.1	10.7
Sheep	0.5	2.6	2.2
Camel	--	0.1	0.1
Other	0.6	1.2	1.1
No livestock	79.5	37.4	44.1
Consumer durable goods			
Sewing machine	19.8	2.4	5.2
Clock/watch	70.0	31.3	37.5
Radio	55.4	27.1	31.6
Television	41.7	5.2	11.0
Refrigerator	9.3	0.5	1.9
Bicycle	67.0	45.9	49.3
Motorcycle/scooter	17.6	2.5	4.9
Car	0.8	--	0.1
Bullock cart	1.2	9.4	8.1
Thresher	0.1	0.5	0.4
Tractor	--	0.2	0.1
Water pump	0.7	1.2	1.1
Number of households	736	3866	4602
-- Less than 0.05 percent			

Table 3.10 shows several basic background characteristics of respondents: age, marital status, education, religion, caste/tribe, work status, and husband's education. The table also provides the number of women interviewed, weighted and unweighted, in each of the categories of background characteristics. The data shown in this, and in all subsequent tables, are based on the weighted sample. The weighted numbers may not add up to the total 4,257 women due to rounding. The age distributions are basically bell shaped, with a modal age of 30-34 in the urban sample and of 25-29 in the rural sample (Figure 3.5). Ninety-five percent of the ever-

Table 3.10 Background characteristics of respondents

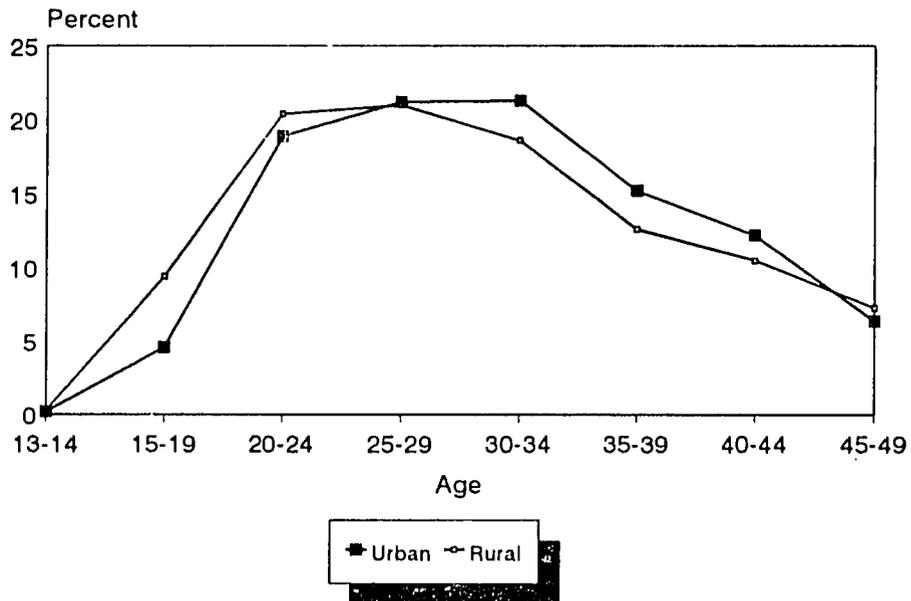
Percent distribution of ever-married women age 13-49, by selected background characteristics, according to residence, Orissa, 1993

Background characteristic	Residence			Total number of women	
	Urban	Rural	Total	Weighted	Unweighted
Age					
13-14	0.2	0.3	0.2	10	10
15-19	4.6	9.4	8.7	368	345
20-24	18.9	20.4	23.2	858	851
25-29	21.2	21.0	21.0	894	895
30-34	21.3	18.6	19.0	809	822
35-39	15.2	12.6	13.0	552	565
40-44	12.2	10.5	10.8	460	468
45-49	6.4	7.3	7.2	306	301
Marital status					
Currently married	94.7	94.5	94.6	4025	4026
Widowed	3.3	4.0	3.9	168	164
Divorced	0.4	0.2	0.3	11	12
Separated	1.6	1.2	1.2	53	55
Education					
Illiterate	45.1	71.5	67.4	2871	2741
Literate, < primary complete	8.7	9.2	9.1	388	385
Primary complete	19.1	13.1	14.0	595	625
Middle school complete	7.7	2.7	3.4	146	171
High school complete	13.2	3.1	4.6	197	247
Above high school	6.3	0.5	1.4	59	88
Religion					
Hindu	91.2	98.0	97.0	4129	4095
Muslim	4.7	0.9	1.5	63	82
Sikh	0.3	--	0.1	3	4
Buddhist	0.2	--	--	1	2
Christian	3.5	0.9	1.3	55	68
Jain	0.1	--	--	1	1
Other	0.1	0.1	0.1	5	5
Caste/tribe					
Scheduled caste	6.8	10.0	9.5	403	388
Scheduled tribe	9.3	23.8	21.6	919	847
Other	83.9	66.2	68.9	2935	3022
Work status					
Not working	84.1	73.5	75.1	3197	3249
Working in family farm/business	0.8	2.9	2.5	108	98
Employed by someone else	11.7	19.5	18.3	779	741
Self-employed	3.4	4.2	4.1	173	169
Husband's education					
Illiterate	19.3	41.6	38.2	1627	1517
Literate, < primary complete	10.3	18.8	17.5	744	702
Primary complete	18.5	19.3	19.2	816	812
Middle school complete	11.1	6.5	7.2	306	329
High school complete	21.2	10.1	11.7	500	555
Above high school	19.4	3.7	6.1	261	338
Don't know/missing	0.1	0.1	0.1	4	4
Total percent	100.0	100.0	100.0	NA	NA
Number of women					
Weighted	650	3607	4257	4257	NA
Unweighted	1143	3114	4257	NA	4257

NA: Not applicable

-- Less than 0.05 percent

Figure 3.5
Age Distribution of Ever-Married
Women by Residence



NFHS, Orissa, 1993

married women are currently married, and most of the remainder are widowed. The education distribution among ever-married women has a form similar to the educational distribution among all females in the *de facto* household sample, but as a group, the primary respondents are less literate than is the female household sample. This may reflect advances in schooling in recent years (advances that have benefitted girls but not adult women past the age of school attendance); it may also reflect a tendency for the youngest-marrying women to be uneducated. In the urban subsample, the level of schooling is higher than among rural respondents. Still, more than two-thirds of all respondents are illiterate, and only 6 percent have completed high school. The distributions of respondents by religion and caste/tribe are similar to the distributions among household heads viewed earlier.

Table 3.10 also shows the distribution of respondents by work status and husband's education. In the NFHS, work includes any kind of job for which the woman is paid in cash or in kind as well as unpaid work on a family farm or business. Despite this liberal definition, 75 percent of respondents report that they are not working, with the percentage not working higher in urban than in rural areas (84 percent compared with 74 percent). The proportion currently working on a family farm or in some other family business is only 3 percent, even in rural areas. About 18 percent of respondents report that they are employed in nonfamily businesses, and 4 percent report that they are self-employed.

With regard to husband's education, 38 percent of husbands are illiterate, a figure that again exceeds the proportion among all males in the *de facto* household sample (31 percent).

The proportion of husbands who are illiterate is 19 percent in urban areas compared with 42 percent in rural areas. The percentage of husbands with at least a high school education is approximately three times as high in urban areas (41 percent) as in rural areas (14 percent).

Table 3.11 shows further details about the respondent's education, broken down by selected background characteristics. The proportion illiterate generally increases with age, reflecting improvements in levels of education over time. Women age 15-19 are an exception to this generalization, but this likely reflects the tendency for poorly educated women to marry young, rather than a reversal in the trend in education in recent years. (Only about 29 percent of women age 15-19 are ever married (Table 3.3), and those who marry young tend to be drawn selectively from among the less educated.)

The percentage illiterate is 68 percent among Hindus, 76 percent among Muslims, and 52 percent among Christians. Although more than 90 percent of the women belonging to scheduled tribes and 80 percent belonging to scheduled castes are illiterate, only 58 percent of the women belonging to other groups are illiterate. A similar disadvantage of scheduled castes and tribes is also found at each level of schooling. With respect to husband's literacy, 95 percent of women with illiterate husbands are illiterate themselves. Although the percentage of

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, Orissa, 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	49.1	7.5	20.8	9.4	11.3	1.9	100.0	30
20-24	47.2	6.0	17.1	12.0	13.9	3.7	100.0	123
25-29	43.0	6.6	18.2	7.9	16.9	7.4	100.0	138
30-34	40.7	11.1	18.5	8.6	12.8	8.2	100.0	138
35-39	44.8	5.7	23.0	2.9	14.4	9.2	100.0	99
40-44	43.6	16.4	20.7	8.6	5.7	5.0	100.0	80
45-49	58.9	8.2	16.4	--	13.7	2.7	100.0	42
Religion								
Hindu	43.9	8.7	19.6	7.8	13.5	6.5	100.0	593
Muslim	75.9	7.4	13.0	1.9	--	1.9	100.0	31
Christian	(35.0)	(5.0)	(15.0)	(15.0)	(25.0)	(5.0)	100.0	23
Caste/tribe								
Scheduled caste	70.5	7.7	16.7	1.3	3.8	--	100.0	44
Scheduled tribe	74.5	1.9	6.6	8.5	8.5	--	100.0	60
Other	39.7	9.5	20.6	8.1	14.5	7.5	100.0	546
Husband's education								
Illiterate	94.1	3.2	1.8	0.9	--	--	100.0	126
Lit., < primary complete	78.0	8.5	11.0	1.7	0.8	--	100.0	67
Primary school complete	59.0	15.6	20.3	1.9	3.3	--	100.0	121
Middle school complete	30.7	15.0	32.3	21.3	0.8	--	100.0	72
High school complete	19.4	12.0	33.5	13.2	19.0	2.9	100.0	138
Above high school	1.4	0.5	16.2	9.5	43.2	29.3	100.0	126
Total	45.1	8.7	19.1	7.7	13.2	6.3	100.0	650

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, Orissa, 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		
RURAL								
Age								
15-19	76.0	7.2	14.7	1.0	1.0	--	100.0	338
20-24	67.6	7.6	12.8	5.4	6.3	0.5	100.0	735
25-29	69.7	10.0	13.2	3.4	3.2	0.6	100.0	756
30-34	67.5	11.4	13.5	2.8	3.6	1.2	100.0	671
35-39	68.8	11.0	17.1	1.0	2.0	--	100.0	453
40-44	81.1	6.1	10.7	0.9	0.9	0.3	100.0	380
45-49	82.0	10.1	7.0	0.4	--	0.4	100.0	264
Religion								
Hindu	71.5	9.2	13.0	2.7	3.1	0.5	100.0	3536
Muslim	(75.0)	(3.6)	(21.4)	(--)	(--)	(--)	100.0	32
Christian	(64.3)	(14.3)	(10.7)	(7.1)	(3.6)	(--)	100.0	32
Caste/tribe								
Scheduled caste	80.6	8.4	7.4	2.3	1.3	--	100.0	359
Scheduled tribe	93.4	3.4	2.0	0.8	0.4	--	100.0	858
Other	62.2	11.4	17.9	3.4	4.3	0.8	100.0	2389
Husband's education								
Illiterate	94.6	3.2	1.9	0.2	0.1	--	100.0	1501
Lit., <primary complete	81.2	11.3	7.0	0.5	--	--	100.0	676
Primary school complete	61.3	17.3	18.7	2.3	0.3	--	100.0	695
Middle school complete	37.1	17.3	33.7	8.9	3.0	--	100.0	234
High school complete	24.0	10.5	41.9	9.9	13.1	0.6	100.0	363
Above high school	6.0	4.3	25.0	12.9	39.7	12.1	100.0	134
Total	71.5	9.2	13.1	2.7	3.1	0.5	100.0	3607
TOTAL								
Age								
15-19	73.8	7.2	15.2	1.7	1.9	0.2	100.0	368
20-24	64.6	7.3	13.4	6.3	7.4	0.9	100.0	858
25-29	65.6	9.4	13.9	4.1	5.3	1.7	100.0	894
30-34	63.0	11.3	14.3	3.8	5.2	2.4	100.0	809
35-39	64.5	10.1	18.2	1.4	4.3	1.6	100.0	552
40-44	74.6	7.9	12.4	2.2	1.7	1.1	100.0	460
45-49	78.9	9.8	8.3	0.4	1.9	0.8	100.0	306
Religion								
Hindu	67.5	9.1	14.0	3.4	4.6	1.4	100.0	4129
Muslim	75.5	5.4	17.3	0.9	--	0.9	100.0	63
Christian	52.2	10.5	12.5	10.4	12.4	2.1	100.0	55
Caste/tribe								
Scheduled caste	79.5	8.3	8.4	2.2	1.6	--	100.0	403
Scheduled tribe	92.1	3.3	2.3	1.3	0.9	--	100.0	919
Other	58.1	11.0	18.4	4.3	6.2	2.0	100.0	2935
Husband's education								
Illiterate	94.6	3.2	1.9	0.2	0.1	--	100.0	1627
Lit., <primary complete	80.9	11.0	7.4	0.6	0.1	--	100.0	744
Primary school complete	61.0	17.1	18.9	2.3	0.8	--	100.0	816
Middle school complete	35.6	16.8	33.3	11.8	2.5	--	100.0	306
High school complete	22.7	10.9	39.5	10.8	14.7	1.3	100.0	500
Above high school	3.8	2.4	20.7	11.2	41.4	20.4	100.0	261
Total	67.4	9.1	14.0	3.4	4.6	1.4	100.0	4257

Note: Total includes 10 women age 13-14, 10 women belonging to other religions, and 4 women whose husband's education is not known, who are not shown separately.

() Based on 25-49 unweighted cases

-- Less than 0.05 percent

illiterate women drops as the husband's educational level rises, even among women married to men who have completed high school but have not gone on to a higher level of education, nearly one-fourth are illiterate, reflecting the general tendency of men to marry women with less education than themselves.

Table 3.12 provides information on the exposure of respondents to the mass media. Slightly more than 60 percent of women are not regularly exposed to any kind of mass media (television, radio, or cinema). This is not surprising given that less than one-third of households own a radio and only 11 percent own a television (Table 3.9). The high proportion of women who have no regular media exposure highlights the difficulty of disseminating information on family planning, health, and other topics through the mass media. Only 35 percent of women normally listen to the radio at least once a week; 16 percent watch television at least once a week; and 7 percent go to a cinema hall or theatre to see a movie at least once a month. Exposure to mass media varies sharply according to women's place of residence, education,

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, Orissa, 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	6.4	29.3	5.6	67.1	368
20-24	15.3	35.8	10.4	60.1	858
25-29	15.5	35.7	9.6	60.1	894
30-34	19.0	38.0	7.4	57.6	809
35-39	18.6	36.2	6.7	58.0	552
40-44	17.8	34.1	3.1	60.3	460
45-49	16.9	27.6	2.4	66.8	306
Residence					
Urban	53.5	54.3	22.3	29.5	650
Rural	9.3	31.4	4.7	66.1	3607
Education					
Illiterate	6.0	21.6	3.8	75.5	2871
Lit., < middle complete	25.7	57.1	10.1	36.5	983
Middle school complete	50.6	65.0	21.6	21.7	146
High school and above	71.4	81.5	29.3	6.7	257
Religion					
Hindu	15.6	34.7	7.4	60.8	4129
Muslim	24.5	42.7	8.2	45.5	63
Christian	35.2	40.5	3.1	50.1	55
Caste/tribe					
Scheduled caste	10.0	31.9	7.3	64.5	403
Scheduled tribe	3.7	14.3	1.6	84.2	919
Other	20.7	41.8	9.2	52.5	2935
Total	16.1	34.9	7.4	60.5	4257

Note: Total includes 10 women age 13-14 and 10 women belonging to other religions, who are not shown separately

religion, and caste/tribe, but not according to their age. The proportion who watch television at least once a week ranges from 15 to 19 percent across the different age groups, except among women under age 20 where it is only 6 percent. This lower percentage no doubt occurs because women who marry young are selectively drawn from among the less educated and lower socioeconomic groups, as mentioned earlier. The proportion who listen to the radio at least once a week ranges from 28 to 38 percent, increasing up to age 30-34, after which it decreases. The number who go to the cinema/theatre at least once a month ranges from 2 to 10 percent, with younger women more likely to attend.

Media exposure is much greater in urban than in rural areas, regardless of the type of media. Seventy-one percent of urban women are regularly exposed to any media compared with only 34 percent of rural women. Differences in media exposure by education are also large, with greater exposure for the more educated. Only 25 percent of illiterate women are regularly exposed to any media compared with 64 percent of literate women who did not complete middle school. Hindus are less exposed to television and radio than are Muslims and Christians, a difference which may reflect the disproportionate presence of the latter groups in urban areas. Women from scheduled tribes are least exposed to all kinds of media. Scheduled caste women are also less likely to be exposed to mass media compared with other castes. Again, these differences may reflect underlying differences in place of residence or education.

CHAPTER 4

NUPTIALITY

This chapter presents findings on marriage patterns from the National Family Health Survey. Marriage is important in its own right, and also because it influences fertility and population growth, affects the nature of family relationships, and is inextricably linked to the status of women. After examining current marital status distributions, the chapter considers age at first marriage, age at first effective marriage, and marriage between relatives.

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 the information on never-married women, which comes from the Household Questionnaire. Table 4.1 contains some of the information in Table 3.3, which also includes information for males and covers a wider range of ages. The percentages never married in the two tables differ slightly due to differential nonresponse among eligible women.

Table 4.1 suggests that marriage is virtually universal in Orissa and that marriages in rural areas take place at relatively young ages. At age 40-44 only 1 percent have never been married. And at age 15-19, 28 percent of women in Orissa are ever married. The proportions ever married at age 15-19 are much lower in urban areas (17 percent) than in rural areas (30 percent). Table 4.1 also makes clear that only tiny proportions of women in Orissa are currently divorced or separated, accounting for only 1 percent of the total sample of women age 15-49. In this sample, 72 percent are currently married, 24 percent are never married, and 3 percent are currently widowed.

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 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 presents female and male SMAMs computed from the 1961, 1971, and 1981 Census, and from the NFHS. Female values of SMAM from the NFHS are 21.8 years in urban areas, 20.4 in rural areas, and 20.7 overall. On average, males marry 5 years later than females. Marriage ages are consistently higher in urban areas, with urban men marrying about two years later than rural men, and urban women marrying about one and one-half years later than their rural counterparts. Together, the Census and NFHS SMAMs in Table 4.2 also suggest how age at marriage has been changing. Between 1961 and 1993, the SMAM for females rose by 3.2 years, from 17.5 years of age to 20.7. Over the same period, the SMAM for males rose by 3.7 years, from 21.9 to 25.6.

More detailed information from the NFHS on female age at first marriage is shown in Table 4.3. The table shows the percentage of all women who were ever married by specified

Table 4.1 Current marital status

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

Age	Marital status					Total percent
	Never married	Currently married	Widowed	Divorced	Separated	
URBAN						
15-19	82.9	16.5	--	--	0.6	100.0
20-24	37.3	60.9	--	0.3	1.5	100.0
25-29	11.8	84.5	1.5	0.4	1.8	100.0
30-34	1.3	94.6	1.6	0.8	1.6	100.0
35-39	0.5	91.5	6.3	0.6	1.1	100.0
40-44	1.1	93.2	5.6	--	--	100.0
45-49	--	84.9	15.1	--	--	100.0
Total	27.1	69.0	2.4	0.3	1.2	100.0
RURAL						
15-19	69.7	29.4	--	0.3	0.5	100.0
20-24	25.6	72.7	0.9	0.2	0.5	100.0
25-29	4.8	92.3	1.6	--	1.3	100.0
30-34	2.4	93.2	3.0	0.3	1.0	100.0
35-39	1.6	89.3	7.5	--	1.5	100.0
40-44	1.0	90.6	7.5	--	0.9	100.0
45-49	0.4	83.4	14.9	--	1.3	100.0
Total	23.4	72.4	3.1	0.2	0.9	100.0
TOTAL						
15-19	71.7	27.5	--	0.3	0.5	100.0
20-24	27.5	70.9	0.8	0.2	0.6	100.0
25-29	6.2	90.7	1.6	0.1	1.4	100.0
30-34	2.2	93.5	2.8	0.4	1.1	100.0
35-39	1.4	89.7	7.3	0.1	1.4	100.0
40-44	1.2	90.9	7.2	--	0.7	100.0
45-49	0.4	83.6	14.9	--	1.1	100.0
Total	24.1	71.8	3.0	0.2	0.9	100.0
-- Less than 0.05 percent						

exact ages and the median age at first marriage¹. The median age at first marriage is used instead of the mean age at marriage (where both are calculated directly from reported ages at marriage) because the median, unlike the mean, is not biased by age truncation. (The survey interview marks the point 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

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 19 is the median, because the number of single women age 15, 16, and 17 at the time of the survey who subsequently marry at ages 16, 17 and 18 might be enough to lower the median to 18 by the time everyone in the cohort reaches age 20.

Table 4.2 Singulate mean age at marriage			
Singulate mean age at marriage from selected sources, Orissa, 1961-93			
Source	Singulate mean age at marriage		
	Male	Female	Difference
1961 Census	21.9	17.5	4.4
1971 Census	22.7	17.3	5.4
1981 Census	24.3	19.1	5.2
1993 NFHS			
Urban	27.2	21.8	5.4
Rural	25.3	20.4	4.9
Total	25.6	20.7	4.9

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 a clear trend toward rising age at marriage, with especially large declines in marriage at very young ages. The proportion marrying by age 13 declines from 16 percent in the 45-49 age cohort to less than 1 percent in the 15-19 age cohort, and the proportion marrying by age 15 declines from 34 percent in the 45-49 age cohort to less than 7 percent in the 15-19 age cohort. Marriages below age 15 have been virtually eliminated. Declines in age at marriage are less pronounced but still large at higher exact age cutoffs. The median age at first marriage correspondingly increases from 15.8 years in the 45-49 age cohort to 18.5 years in the 20-24 age cohort, a rise of 2.7 years. Moreover, although the median cannot be calculated for the 15-19 age group, it obviously will rise above the 18.5 year median observed for the 20-24 age group if the proportions marrying at each exact age continue to be half (or less) of those found in the older age group. Although the median age at marriage is higher among women who are currently living in urban areas than among those currently living in rural areas, both groups show a similar decline across cohorts. Indeed, the decline has been slightly greater in rural than in urban areas.

Table 4.4 shows median female ages at first marriage by age group and selected background characteristics. As already noted, the median age at first marriage is higher among urban women than among rural women. It also is higher the more educated is the woman, with the median among women who have completed high school exceeding the median among illiterate women by almost five years. Differences by religion also exist, with Muslims marrying about one year earlier than Hindus, and Christians marrying more than two years later than Hindus. In most age groups, differences in median age at marriage by caste/tribe are small (half a year or less), but the nonscheduled women marry at a slightly more advanced age than do the scheduled caste or tribal women. Even in the latter groups, however, the median age at

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, Orissa, 1993

Current age ¹	Percentage ever married by exact age:						Percent never married	Median age at first marriage
	13	15	18	20	22	25		
URBAN								
15-19	1.0	3.2	NA	NA	NA	NA	82.9	NC
20-24	2.0	8.7	32.5	48.8	NA	NA	37.3	NC
25-29	4.0	15.7	48.5	64.1	76.2	85.3	11.6	18.1
30-34	5.3	17.9	54.4	79.6	87.7	94.6	1.3	17.7
35-39	6.9	20.6	61.7	84.0	91.5	97.2	0.5	17.0
40-44	12.0	24.0	69.2	86.2	92.5	97.5	1.1	16.7
45-49	12.3	28.8	69.9	84.9	94.5	98.6	--	16.6
20-49	5.5	16.6	50.7	69.4	78.9	84.7	13.3	17.9
25-49	6.8	19.6	57.6	77.2	86.2	93.1	4.2	17.4
RURAL								
15-19	0.6	7.2	NA	NA	NA	NA	69.7	NC
20-24	2.2	13.6	48.0	63.7	NA	NA	25.6	18.2
25-29	2.9	16.3	59.6	78.4	88.2	94.0	4.8	17.2
30-34	4.4	19.2	66.7	84.4	92.4	95.9	2.4	16.8
35-39	9.1	28.9	77.8	91.4	96.1	97.4	1.6	16.0
40-44	16.3	35.0	82.1	93.3	97.2	98.1	1.0	15.7
45-49	16.2	34.5	83.4	97.4	99.2	99.6	0.4	15.7
20-49	6.2	21.1	64.3	80.2	87.4	90.2	9.0	16.9
25-49	7.7	24.0	70.5	86.5	93.2	96.3	2.6	16.5
TOTAL								
15-19	0.7	6.5	NA	NA	NA	NA	71.7	NC
20-24	2.2	12.8	45.5	61.3	NA	NA	27.5	18.5
25-29	3.1	16.2	57.6	75.8	86.0	92.3	6.2	17.4
30-34	4.5	19.0	64.7	83.6	91.6	95.7	2.2	17.0
35-39	8.7	27.4	74.9	90.0	95.3	97.3	1.4	16.2
40-44	15.5	33.0	79.7	91.9	96.2	97.8	1.2	15.9
45-49	15.6	33.7	81.6	95.7	98.5	99.4	0.4	15.8
20-49	6.1	20.3	62.0	78.3	86.0	89.3	9.7	17.0
25-49	7.6	23.2	68.3	84.8	91.9	95.6	3.0	16.6

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

¹The current age groups include both never-married and ever-married women.

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, Orissa, 1993

Background characteristic	Current age						
	20-24	25-29	30-34	35-39	40-49	20-49	25-49
Residence							
Urban	NC	18.1	17.7	17.0	16.7	17.9	17.4
Rural	18.2	17.2	16.8	16.0	15.7	16.9	16.5
Education							
Illiterate	17.0	16.6	16.4	15.8	15.6	16.3	16.1
Lit., < middle complete	18.8	18.1	17.3	16.8	16.7	17.6	17.3
Middle school complete	NC	(21.1)	(18.6)	*	*	NC	19.3
High school and above	NC	22.2	21.3	(19.3)	(19.5)	NC	21.0
Religion							
Hindu	18.4	17.3	17.0	16.2	15.8	17.0	16.6
Muslim	*	*	*	*	*	15.9	15.7
Christian	NC	*	*	*	*	19.9	18.9
Caste/tribe							
Scheduled caste	17.4	16.6	16.7	(15.9)	16.1	16.7	16.5
Scheduled tribe	17.1	16.7	16.5	15.8	16.1	16.5	16.3
Other	19.2	17.7	17.2	16.4	15.8	17.3	16.8
Total	18.5	17.4	17.0	16.2	15.9	17.0	16.6

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 unweighted cases

* Median not shown; based on fewer than 25 unweighted cases

marriage shows a rise across cohorts, although a somewhat less pronounced one than is seen in the "other" group.

According to the Child Marriage Restraint Act of 1978, the minimum legal age at marriage in India is 18 years for women and 21 years for men. In Orissa, 46 percent of women who are age 20-24 were married at age 18 or younger (see Table 4.3). Perhaps because of its weak enforcement, the legal minimum age at marriage is not widely known among women in Orissa (Table 4.5). Overall, only 19 percent of respondents could correctly identify 18 as the legal minimum age at marriage for females, and only 7 percent could correctly identify 21 as the legal minimum age at marriage for males. The provisions of the law are better known in urban areas, where approximately one-third of respondents can correctly identify the legal minimum age at marriage for females, than in rural areas, where only 17 percent know the legally mandated minimum age for females. Knowledge of legal minimum age requirements also varies by literacy and educational attainment. Thirty-one percent of women with a high school education or above know the legal minimum age at marriage for males, and 53 percent know it for females. In contrast, only 3 and 12 percent of illiterate women correctly specify the legal minimum age at marriage for males and females, respectively.

For every group of women shown in Table 4.5, the legal minimum age at marriage for males is less well known than is the legal minimum age at marriage for females. The

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, Orissa, 1993

Background characteristic	Percentage who correctly know legal minimum age at marriage:		Number of women
	For males	For females	
Age			
13-19	4.9	15.0	379
20-29	7.3	19.1	1752
30-39	7.2	21.9	1361
40-49	4.4	16.0	765
Residence			
Urban	12.9	32.5	650
Rural	5.3	16.7	3607
Education			
Illiterate	3.2	11.8	2871
Lit., < middle complete	8.1	27.6	983
Middle school complete	18.1	47.2	146
High school and above	30.6	52.5	257
Religion			
Hindu	6.3	18.7	4129
Muslim	7.3	24.6	63
Christian	15.6	39.5	55
Caste/tribe			
Scheduled caste	3.9	18.1	403
Scheduled tribe	2.5	6.7	919
Other	8.1	23.1	2935
Total	6.5	19.1	4257

Note: Total includes 10 women belonging to other religions, who are not shown separately.

enforcement of the female minimum age at marriage is probably more important than is enforcement of the male minimum age at marriage, however, because it has been the very young marriage of females that has been associated with their low status and high fertility. In this regard, the virtual disappearance of very young marriages of females is encouraging.

4.3 Age at First Cohabitation

Table 4.6 shows median ages at which the respondent started living with her husband. The age at marriage (Table 4.3) and the age given in Table 4.6 may differ because formal marriage is not always immediately followed by living with the husband, which generally does not occur until after the *gauna* ceremony, which is called *chauthi* in Orissa. In Orissa, however, the *chauthi* (*gauna*) ceremony is usually performed at about the same time as marriage. Hence, the median age at first marriage in Orissa is about the same as the median age at first cohabitation.

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, Orissa, 1993

Current age ¹	Percentage who started living with husband by exact age						Percent never cohabited	Median age at first cohabitation with husband
	13	15	18	20	22	25		
URBAN								
15-19	1.0	3.2	NA	NA	NA	NA	82.9	NC
20-24	1.5	8.4	32.5	48.5	NA	NA	37.3	NC
25-29	2.6	14.9	48.5	64.1	76.2	85.3	11.8	18.1
30-34	4.1	17.1	54.8	79.6	83.1	94.6	1.3	17.7
35-39	2.9	17.7	61.2	82.3	90.9	96.6	0.5	17.0
40-44	3.5	19.1	67.8	85.5	91.8	96.8	1.1	16.8
45-49	1.4	19.2	67.1	84.9	94.5	98.6	--	16.8
20-49	2.6	14.7	50.4	69.0	78.8	84.6	13.3	18.0
25-49	3.1	17.0	57.1	76.8	86.1	92.8	4.2	17.5
RURAL								
15-19	0.6	7.2	NA	NA	NA	NA	69.7	NC
20-24	1.4	13.4	47.9	63.7	NA	NA	25.6	18.2
25-29	1.5	15.0	59.2	78.3	88.0	93.9	4.8	17.2
30-34	1.9	17.5	66.4	84.1	92.0	95.6	2.4	16.9
35-39	3.0	25.7	77.5	91.6	96.4	97.6	1.6	16.1
40-44	3.9	28.4	81.8	93.6	97.5	98.4	1.0	15.9
45-49	4.4	27.5	81.3	96.1	97.9	99.2	0.4	16.0
20-49	2.2	18.8	63.9	80.0	87.3	90.2	9.0	16.9
25-49	2.5	20.8	70.0	86.3	93.0	96.2	2.6	16.6
TOTAL								
15-19	0.7	6.6	NA	NA	NA	NA	71.7	NC
20-24	1.4	12.6	45.4	61.3	NA	NA	27.5	18.5
25-29	1.6	15.0	57.3	75.7	85.8	92.2	6.2	17.4
30-34	2.2	17.5	64.5	83.4	91.4	95.4	2.2	17.0
35-39	3.0	24.3	74.6	89.9	95.4	97.4	1.4	16.3
40-44	3.8	26.7	79.2	92.0	96.3	97.9	1.2	16.0
45-49	4.0	26.4	79.3	94.6	97.4	99.1	0.4	16.1
20-49	2.3	18.1	61.6	78.2	85.8	89.2	9.7	17.1
25-49	2.6	20.2	67.7	84.6	91.7	95.5	3.0	16.7

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

¹The current age groups include both never-married and ever-married women.

4.4 Marriage Between Relatives

Table 4.7 provides information on marriage between relatives. For both social and biological reasons, marriage between relatives has implications for mortality and morbidity as well as fertility. For example, Bittles et al. (1992) found a positive association between consanguinity and fertility in 19 out of 22 populations. They also found that mortality was significantly higher among children of marriages between blood relatives than among other children. In analyzing the relationship between inbreeding and mortality, it is important to control for socioeconomic variables because of a tendency for marriages between relatives to be more common in lower socioeconomic groups whose mortality is higher primarily for socioeconomic reasons. Such a refined analysis is infeasible in this report, however, and will have to await further studies.

Background characteristic	First cousin		Second cousin	Other blood Uncle	Other blood relation	Brother in-law	Other non-blood relation	Not related	Missing	Total per-cent	Number
	Father's side	Mother's side									
Age											
15-19	4.6	2.5	1.7	0.2	1.6	0.6	2.8	86.0	--	100.0	368
20-24	3.0	1.6	0.6	0.4	1.5	0.9	1.0	90.8	0.3	100.0	858
25-29	3.0	2.7	1.0	--	1.4	0.2	1.3	90.5	--	100.0	894
30-34	1.6	1.9	0.6	0.3	1.3	0.6	1.7	92.0	--	100.0	809
35-39	3.1	2.2	0.1	0.4	1.3	0.7	1.7	90.5	--	100.0	552
40-44	2.5	1.9	0.3	--	0.5	0.3	1.3	93.3	--	100.0	460
45-49	2.5	1.7	0.2	--	0.9	--	1.1	93.6	--	100.0	306
Residence											
Urban	3.3	2.2	0.8	0.1	1.3	0.9	1.7	89.8	--	100.0	650
Rural	2.7	2.1	0.6	0.2	1.3	0.4	1.4	91.2	0.1	100.0	3607
Education											
Illiterate	3.0	2.4	0.8	0.3	1.1	0.5	1.4	90.5	--	100.0	2871
Lit., < middle complete	2.5	1.5	0.4	0.1	1.4	0.3	1.4	92.4	0.1	100.0	983
Middle school complete	3.6	1.6	0.4	--	2.8	2.0	3.6	86.2	--	100.0	146
High school and above	0.9	1.8	--	--	1.6	0.7	1.6	93.5	--	100.0	257
Religion											
Hindu	2.7	2.1	0.5	0.2	1.3	0.5	1.4	91.3	0.1	100.0	4129
Muslim	6.4	1.8	6.4	--	--	2.7	6.4	76.3	--	100.0	63
Christian	6.3	2.1	1.0	--	2.1	--	2.1	86.4	--	100.0	55
Caste/tribe											
Scheduled caste	1.1	0.9	0.1	0.3	1.3	0.1	2.6	93.6	--	100.0	403
Scheduled tribe	3.1	3.5	0.9	0.6	1.4	0.5	1.9	87.9	0.1	100.0	919
Other	2.9	1.8	0.6	0.1	1.2	0.6	1.2	91.6	--	100.0	2935
Total	2.8	2.1	0.6	0.2	1.3	0.5	1.5	91.0	0.1	100.0	4257

Note: Total includes 10 women age 13-14 and 10 women belonging to other religions, who are not shown separately.
 -- Less than 0.05 percent

Table 4.7 indicates that 5 percent of ever-married women in Orissa married a first cousin (on either their father's side or their mother's side). About 2 percent married a second cousin, uncle, or other blood relative, and 2 percent married a brother-in-law or other non-blood relative. Thus, consanguineous marriages are not very common in Orissa, accounting for 7 percent of the marriages of ever-married women age 13-49. Such marriages occur mainly between first cousins, as is the pattern elsewhere in India. The percentages marrying a close relative vary slightly by age, being somewhat more common in younger cohorts than in older ones. This may reflect a tendency for these marriages to occur at a young age, that is, the age difference may reflect selectivity rather than a trend over time. Interestingly, however, urban women are somewhat more likely to have married a close relative than rural women are, contrary to the general pattern observed elsewhere (Rao et al., 1972; Rao and Inbaraj, 1977; Khlal and Houry, 1991).

Less educated women are more likely to have married a close relative than are more educated women, although women who have completed middle school have the highest rate of marrying blood relatives of any educational group. Muslim women are more likely to have entered into a consanguineous marriage than are non-Muslim women. Nearly 15 percent of Muslim women married a blood relative. This may account for the higher rate of consanguineous marriages in urban areas where Muslims are more concentrated. Consanguineous marriages are slightly more common in scheduled tribes than in nontribal groups.

CHAPTER 5

FERTILITY

A major objective of the NFHS is to estimate fertility levels, differentials, and trends in the state. This chapter presents a description of current and past fertility levels, cumulative fertility and family size, fertility level by sociodemographic characteristics, pregnancy outcomes, birth intervals and duration of postpartum amenorrhoea, abstinence and nonsusceptibility. Topics such as age at first birth and age at last birth, teenage childbearing and age at menopause are also discussed. Most of the fertility estimates presented in this chapter are based on the complete birth histories of ever-married women age 13-49. Several procedures were established to facilitate the complete and accurate reporting of births. First, women were asked separately about the number of their daughters and sons who were still living at home, those living elsewhere, and those who had died. Then, more complete details about each live birth were collected, including the month and year of birth, child's sex, and survival status. Interviewers received extensive training in methods of probing to help respondents recall the details of all births. In addition, interviewers were instructed to check any documents (such as horoscopes, school certificates or vaccination cards) that might provide information on the child's date of birth. Finally, for any interval of four or more years between births, interviewers were required to record the reason for the long interval to help in identifying any live births that might have been omitted during the time period. This additional probing also helped to obtain more accurate information on stillbirths and abortions.

Despite all 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 dates of birth accurately. These problems may be particularly common in states such as Orissa where the level of female literacy is relatively low.

5.1 Current Fertility Levels, Differentials, and Trends

Fertility levels, differentials and trends 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. The crude birth rate calculated from births recorded in the Household Questionnaire pertains to the two-year period immediately preceding the survey. All other measures are calculated for the three-year period preceding the survey. Because the NFHS fieldwork in Orissa was conducted from March to June 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 among three objectives: to obtain the most current information, to reduce the effects of sampling variation, and to minimize problems with the displacement of births from recent years to earlier years.

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

Estimates of various fertility measures from the NFHS and SRS are shown by place of residence in Table 5.1 and discussed in the following sections.

Crude Birth Rate

The two sets of crude birth rates 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 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 for 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 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.

Although the NFHS estimates of the CBR are based on information from two different parts of the interview (often with different respondents), the two estimates agree quite closely. The three-year CBR of 26.5 is slightly higher than the two-year (household-based) rate of 24.5,

Table 5.1 Current fertility						
Age-specific and cumulative fertility rates and crude birth rates from the NFHS and the SRS, by residence, Orissa, 1990-92						
Age	NFHS (1990-92) ¹			SRS (1991)		
	Urban	Rural	Total	Urban	Rural	Total
15-19	0.070	0.089	0.086	0.036	0.065	0.062
20-24	0.182	0.209	0.204	0.181	0.210	0.208
25-29	0.147	0.166	0.163	0.151	0.211	0.204
30-34	0.084	0.089	0.089	0.055	0.116	0.109
35-39	0.012	0.036	0.031	0.030	0.052	0.049
40-44	0.011	0.010	0.010	0.009	0.023	0.021
45-49	0.000	0.000	0.000	0.000	0.008	0.008
TFR 15-44	2.53	3.00	2.92	2.31	3.39	3.27
TFR 15-49	2.53	3.00	2.92	2.31	3.43	3.31
GFR	97	113	110	82	114	110
NFHS CBR based on						
Household birth record	21.9	25.0	24.5	NA	NA	NA
Woman's birth history	23.9	27.0	26.5	NA	NA	NA
SRS CBR	NA	NA	NA	21.6	29.6	28.8

Note: Rates from the NFHS are for the period 1-36 months before the interview except for the CBR from the household birth record which is based on the period 1-24 months before the interview. Rates for the age group 45-49 might be slightly biased due to truncation.
TFR: Total Fertility Rate for ages 15-44 and 15-49, expressed per woman.
GFR: General Fertility Rate (births to women age 15-49 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
¹Three years preceding the survey
Source of SRS data: Office of the Registrar General (1993)

as would be expected when fertility is declining. The SRS crude birth rate for 1991 (28.8) is slightly more than two points above the NFHS crude birth rate for 1990-92 (26.5). Both sets of residence-specific CBRs indicate that the birth rate in rural areas is higher than in urban areas.

General Fertility Rate

The general fertility rate (GFR) in the NFHS is calculated by dividing the total number of births to women age 15-49 occurring 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 in Orissa is 110 births per 1,000 women for the state as a whole, the same as the SRS GFR for 1991. The observed GFR in the NFHS is about 17 percent higher in rural areas (113) than in urban areas (97). The SRS estimates for urban and rural areas in 1991 are 82 and 114, respectively.

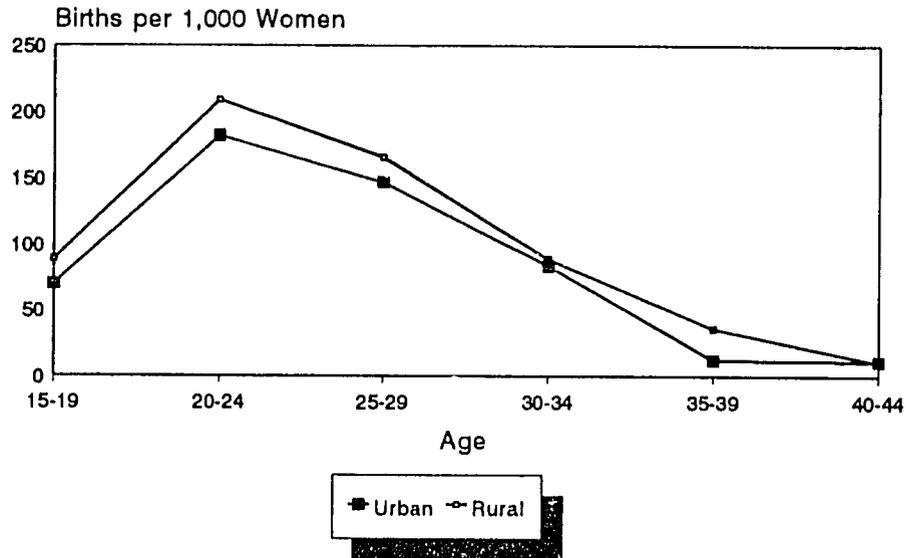
Age-Specific and Total Fertility Rates

Both the GFR and the CBR are crude summary measures of the rate at which the population is replacing itself. A more precise picture of fertility can be obtained by examining the age-specific fertility rates (ASFRs) and the total fertility rate (TFR), insofar as they are not affected by the age structure of the population. Both the ASFRs and the TFR from the NFHS, as shown in Table 5.1, are based on births during the three-year period preceding the survey. The numerator of 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.

A TFR of 2.9 children per woman is observed for the period 1990-92 for both the 15-44 age range and the 15-49 age range, since there were no births to women age 45-49 during the last three years preceding the survey. The urban TFR (2.5 children per woman) is lower than the rural TFR (3.0 children per woman). Under the present age schedule of fertility, a woman in the rural areas would have, on average, 0.5 of a child more (or 20 percent more children) during her childbearing years than a woman in the urban areas.

The age-specific fertility rates follow the expected, bell-shaped pattern. Fertility peaks in the 20-24 age group, reflecting a pattern of early marriage and childbearing. This is true for both the urban and rural areas of the state (see Figure 5.1). Fertility rates decline steadily after age 25, reaching very low levels for women in their forties. Fertility is highly concentrated in the 20-29 age group. Sixty-five percent of urban fertility and 63 percent of rural fertility is concentrated in this age group. Current fertility in Orissa is characterized by a substantial amount of early childbearing; 15 percent of the total fertility is accounted for by births in the age group 15-19, and this percentage in urban and rural areas is 14 and 15, respectively. Births to women age 35 years and above account for only 5 percent of the TFR in urban areas and 8 percent in rural areas. Births to women age 40-49 account for even less of the TFR: 2 percent

Figure 5.1
Age-Specific Fertility Rates
by Residence



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

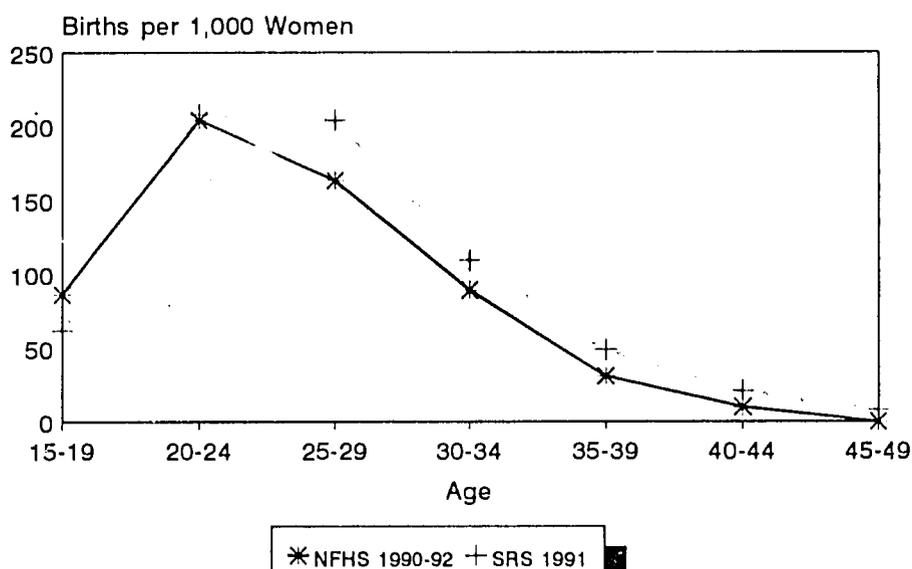
NFHS, Orissa, 1993

in both urban and rural areas. The age-specific fertility rates are consistently higher in rural than in urban areas, although typically only by a small amount.

The TFRs from the NFHS in Table 5.1 are 10 percent higher than the SRS estimates for urban areas, but 13 percent lower than the SRS estimates for rural areas. For the state as a whole, the NFHS TFR is 12 percent lower than the SRS TFR. Thus, in rural areas, the SRS enumerates more births per woman of reproductive age than the NFHS does.

It is instructive to extend the comparison of NFHS and SRS results from total fertility rates to the corresponding age-specific fertility rates, as shown in Table 5.1 and Figure 5.2. The NFHS apparently enumerates relatively more births to younger women (below age 20) than the SRS does (although the difference is small); but the NFHS, in turn, enumerates relatively fewer births to older women (after age 20). The difference for the 15-19 age group may be due to the fact that the SRS rates are *de jure* while the NFHS rates are *de facto*. Thus, in calculating fertility estimates, the SRS excludes births occurring within the sample unit to visitors, but includes births to usual residents outside the sample unit. Because young women typically return to their parental household to have their first baby, it is not surprising that the NFHS fertility estimate for the 15-19 age group is somewhat higher than the SRS estimate. More difficult to explain are the differences in the older age groups, especially at age 25-29, where the SRS ASFR exceeds the NFHS rate by 25 percent. The very low fertility rates for women in the highest age groups in Orissa are reasonable, because many women in these ages have been sterilized or are menopausal. Moreover, terminal abstinence from sexual intercourse is

Figure 5.2
Age-Specific Fertility Rates
NFHS and SRS



NFHS, Orissa, 1993

commonly practised by couples once their daughter attains menarche or once any of their children gets married or has a child. A complete explanation of the differences in fertility at older ages in the two data sets must await further analysis.

Fertility Differentials and Trends

Table 5.2 and Figure 5.3 show current and cohort fertility by selected background characteristics. Current fertility is measured by the total fertility rate for the three years prior to the survey. Cohort fertility is measured by the mean number of children ever born to women age 40-49 at the time of the survey. Both measures are calculated from the birth history information in the Woman's Questionnaire.

If there had been no change in fertility for three or more decades prior to the survey, the current and cohort indicators would be nearly identical, differences being due solely to the slightly incomplete fertility of women age 40-49. If fertility has declined, current fertility will be lower than cohort fertility, with larger differences generally indicating more rapid decline. The gap between the TFR of 2.9 and the mean number of children ever born of 4.9 indicates that a substantial fertility decline has taken place in Orissa. Fertility has been declining more rapidly in urban areas, as indicated by the fact that the urban-rural TFR differential is greater than the children-ever-born differential.

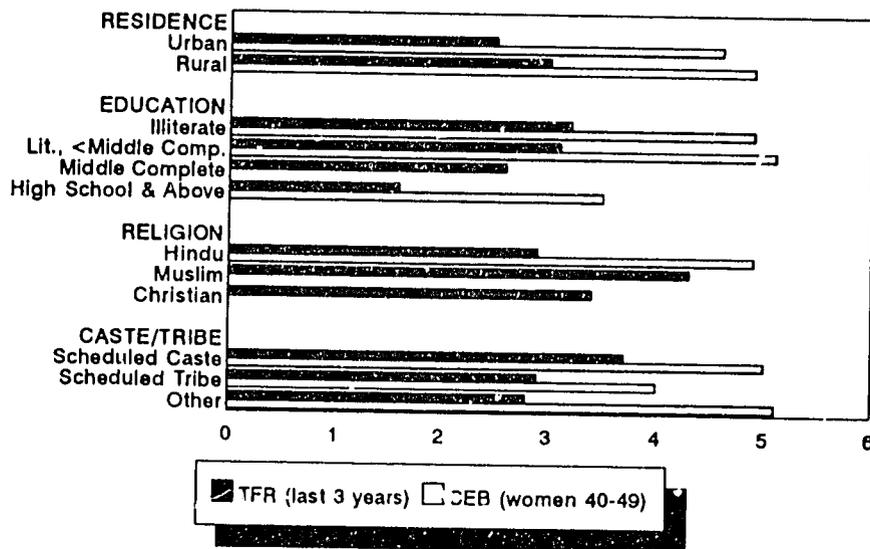
Table 5.2 Fertility by background characteristics		
Total fertility rate for the three years preceding the survey, and mean number of children ever born to women age 40-49, by selected background characteristics, Orissa, 1993		
Background characteristic	Total fertility rate ¹	Mean number of children ever born to women age 40-49
Residence		
Urban	2.53	4.64
Rural	3.00	4.93
Education		
Illiterate	3.17	4.89
Lit., < middle complete	3.08	5.05
Middle school complete	2.59	*
High school and above	1.63	(3.47)
Religion		
Hindu	2.90	4.87
Muslim	4.25	*
Christian	3.36	*
Caste/tribe		
Scheduled caste	3.68	5.00
Scheduled tribe	2.90	4.02
Other	2.82	5.10
Total	2.92	4.88
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. () Based on 25-49 unweighted cases * Mean not shown; based on fewer than 25 unweighted cases ¹ Rate for women age 15-49 years		

Education differentials are substantial, with current fertility declining steadily from 3.2 children per woman for illiterate women to 1.6 children per woman for women with at least a high school education. Cohort fertility also is lower among women with at least a high school education than among illiterate women (3.5 children compared with 4.9 children), but the differential is smaller than is the differential for current fertility. This suggests that fertility has declined more rapidly among educated women than among the illiterate.

Differences in current fertility by religion are less pronounced, but still substantial. Muslims have the highest fertility, followed by Christians, with Hindus having the lowest fertility. The current fertility of scheduled castes is higher compared with other castes and tribes. Scheduled tribes have lower cohort fertility than others, but the decline in fertility has been greater among other groups than among scheduled castes and tribes.

The most direct way of observing fertility trends is to examine changes in age-specific rates over time. Table 5.3 shows age-specific fertility rates for the 20-year period preceding the survey, calculated from the birth history information. Because birth histories are obtained only for women under age 50 at the time of the survey, no rate is available for women age 45 and

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



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

NFHS, Orissa, 1993

over for the period 5-9 years prior to the survey, nor for women age 40 and over 10-14 years prior to the survey, nor for women age 35 and over 15-19 years prior to the survey. In almost every age group, fertility fell steadily from the period 10-14 years before the survey to the period 0-4 years before the survey. There was a general tendency for the fertility decline to accelerate during the most recent period in both urban and rural areas.

The TFR for the five years before the NFHS (roughly 1988-92) is 12 percent lower than the TFR from the SRS for 1989-91. On the other hand, at ages 15-44 the NFHS TFR for the period 5-9 years before the survey is about 12 percent higher than the SRS TFR for 1985-87. This suggests that the NFHS enumeration was more complete than the SRS in the earlier period and less complete in the most recent period, or alternatively that there was some age displacement of NFHS births out of the most recent five-year period.

Further evidence of a decline in fertility over time is shown in Table 5.4, which gives fertility rates over the last 20 years by the number of years since women started living with their husbands¹. This measure controls to some extent for changing age at marriage and may help

¹ Information was collected on a woman's age at effective marriage, not the year and month of her effective marriage (which would be difficult to determine accurately in most cases). Therefore, the duration since first effective marriage is calculated as the woman's age during the specified time period minus the age at which she started living with her (first) husband. For those whose current age is the same as their age at effective marriage (marriage duration 0), the average period covered is only about six months rather than one full year. Hence, the 0-4 duration category effectively covers a period of only about 4.5 years, whereas all other duration categories cover 5 years.

Table 5.3 Fertility trends				
Age-specific fertility rates for five-year periods preceding the survey; by residence, Orissa, 1993				
Maternal age at birth	Years preceding survey			
	0-4	5-9	10-14	15-19
URBAN				
15-19	0.084	0.137	0.162	0.157
20-24	0.188	0.260	0.258	0.303
25-29	0.145	0.196	0.204	0.243
30-34	0.082	0.102	0.139	[0.203]
35-39	0.022	0.063	[0.061]	U
40-44	0.019	[0.020]	U	U
45-49	[0.000]	U	U	U
RURAL				
15-19	0.097	0.141	0.174	0.188
20-24	0.218	0.283	0.276	0.293
25-29	0.166	0.212	0.230	0.246
30-34	0.090	0.133	0.167	[0.199]
35-39	0.036	0.070	[0.111]	U
40-44	0.011	[0.027]	U	U
45-49	[0.002]	U	U	U
TOTAL				
15-19	0.095	0.140	0.172	0.182
20-24	0.213	0.279	0.274	0.295
25-29	0.162	0.209	0.225	0.246
30-34	0.089	0.127	0.162	[0.199]
35-39	0.033	0.069	[0.105]	U
40-44	0.012	[0.026]	U	U
45-49	[0.002]	U	U	U

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

to elucidate the trends in Table 5.3. In most marital duration groups, especially the longer ones, fertility has fallen steadily over time. The rapidity of the fertility decline increases with marital duration, being most pronounced for women married 20 years or more. The general absence of any marked fertility decline in the group married for 0-4 is typical of populations in which contraception is initiated only after the first birth or later (as is the case in Orissa; see Chapter 6). The rise in fertility in this duration group, from 0.299 at 15-19 years before the survey to 0.320 at 5-9 years previously, probably reflects women's rising age at first marriage and a consequent increase in their fecundability at the time they marry.

Marital fertility is lower in urban than in rural areas at most durations and time periods. Once again, the 0-4 duration category is an exception. Here, urban women have higher fertility than rural women. This pattern is not uncommon in populations in which the age at marriage is higher in urban areas than in rural areas, as is the case in Orissa (see Chapter 4). Women who marry at later ages often have their first birth sooner after marriage and concentrate their births earlier in their marriages.

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, Orissa, 1993

Duration of effective marriage	Years preceding survey			
	0-4	5-9	10-14	15-19
URBAN				
0 - 4	0.336	0.352	0.340	0.307
5 - 9	0.178	0.256	0.241	0.327
10-14	0.109	0.149	0.174	0.220
15-19	0.048	0.073	(0.134)	*
20-24	0.018	0.053	*	*
25-29	0.014	*	*	*
RURAL				
0 - 4	0.285	0.315	0.314	0.297
5 - 9	0.226	0.275	0.279	0.285
10-14	0.126	0.190	0.208	0.250
15-19	0.066	0.117	0.159	0.193
20-24	0.028	0.058	0.113	*
25-29	0.008	0.037	*	*
TOTAL				
0 - 4	0.292	0.320	0.318	0.299
5 - 9	0.219	0.272	0.272	0.292
10-14	0.123	0.183	0.202	0.247
15-19	0.063	0.110	0.155	0.190
20-24	0.026	0.058	0.108	*
25-29	0.008	0.036	*	*

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.

() Based on 125-249 person-years of exposure

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

5.2 Outcome of Pregnancies

Table 5.5 shows the outcome of all life-time pregnancies reported by ever-married women according to their current age and current place of residence. Information on stillbirths and spontaneous and induced abortions was obtained in the reproduction section of the Woman's Questionnaire.

In any survey, it is more difficult to collect retrospective information on pregnancies than on live births, particularly on pregnancies spontaneously aborted within the first few months after conception. The total number of pregnancies and the percentage of all pregnancies that end in spontaneous abortions are almost certainly underestimated, and should not be subject to very intensive interpretation. Stillbirths are probably much more accurately reported than abortions. Reports of induced abortions may be suppressed by respondents, or 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, Orissa, 1993

Current age	Outcome of pregnancy				Total percent	Number of pregnancies
	Spontaneous abortion	Induced abortion	Still-birth	Live birth		
URBAN						
15-19	(6.2)	(2.1)	(2.1)	(89.6)	100.0	27
20-24	6.1	1.0	3.0	89.9	100.0	225
25-29	5.4	1.3	1.7	91.6	100.0	392
30-34	3.8	2.4	2.3	91.4	100.0	511
35-39	3.2	2.1	2.4	92.2	100.0	403
40-44	3.3	2.5	4.7	89.5	100.0	402
45-49	3.8	1.3	3.5	91.4	100.0	226
Total	4.1	1.9	2.9	91.1	100.0	2188
RURAL						
15-19	2.6	0.5	2.1	94.7	100.0	220
20-24	4.2	0.5	2.2	93.1	100.0	1181
25-29	4.0	1.0	3.6	91.4	100.0	2231
30-34	4.1	1.1	2.6	92.2	100.0	2628
35-39	3.3	0.8	2.9	93.1	100.0	2100
40-44	2.9	0.2	2.4	94.5	100.0	1944
45-49	3.0	0.1	2.0	94.9	100.0	1434
Total	3.6	0.7	2.7	93.1	100.0	11738
TOTAL						
15-19	3.0	0.7	2.1	94.2	100.0	247
20-24	4.5	0.6	2.3	92.6	100.0	1407
25-29	4.2	1.0	3.3	91.4	100.0	2623
30-34	4.0	1.3	2.6	92.1	100.0	3139
35-39	3.3	1.0	2.8	92.9	100.0	2503
40-44	2.9	0.6	2.8	93.7	100.0	2346
45-49	3.1	0.2	2.2	94.4	100.0	1660
Total	3.7	0.9	2.7	92.8	100.0	13926

Note: Total includes 1 pregnancy to a woman age 13-14, which is not shown separately.
() Based on 25-49 unweighted cases

There is relatively little variation in the outcome of pregnancies by current age of mother. Of the 13,926 pregnancies reported by sample women, 93 percent resulted in live births, 3 percent in stillbirths, 1 percent in induced abortions, and 4 percent in spontaneous abortions. Women currently living in urban areas report somewhat higher pregnancy wastage than do rural women.

In view of the problems of underreporting early spontaneous abortions, it is useful to consider induced abortions and stillbirths in relation to live births rather than to total pregnancies. By this measure, there were 2.9 stillbirths and 1.0 induced abortion for every 100 live births in the state as a whole.

5.3 Children Ever Born and Living

The distribution of women by number of children ever born is shown in Table 5.6, both for currently married women and for all women (including never-married women from the household sample). The table also shows the mean number of children ever born and surviving. Women of childbearing age in Orissa, both ever-married and never-married, have borne an average of 2.3 children and have 1.9 currently living; women who are currently married have borne 3.1 children and have an average number living of 2.5. The mean number of children ever born increases steadily with age among all women as well as among currently married women, reaching a high of around five children per woman at age 45-49. Currently, early childbearing is relatively rare in Orissa. Only 14 percent of all women in the 15-19 age group have ever had a child.

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

The distribution of women age 45-49 by number of children ever born is of particular interest since these women have nearly completed their childbearing. The distribution of children ever born to this cohort therefore approximates their completed parity distribution.

Table 5.6 Children ever born and living															
Percent distribution of all women and currently married women age 15-49 by number of children ever born and mean number of children ever born (CEB) and living, according to age, Orissa, 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	86.0	11.0	2.3	0.6	0.1	--	--	--	--	--	--	100.0	1301	0.18	0.15
20-24	42.9	22.3	20.8	10.5	3.1	0.3	0.1	--	--	--	--	100.0	1184	1.10	0.96
25-29	11.6	12.7	26.6	24.7	15.5	5.5	2.2	0.8	0.2	--	0.1	100.0	954	2.51	2.12
30-34	5.5	6.4	16.7	23.7	22.1	12.5	7.1	4.2	1.7	0.3	0.1	100.0	827	3.50	2.94
35-39	4.2	5.5	10.0	18.0	21.0	19.2	9.4	6.6	3.6	1.1	1.3	100.0	560	4.15	3.36
40-44	3.1	4.3	9.2	14.5	18.0	14.4	15.8	8.1	6.2	4.2	2.2	100.0	465	4.72	3.77
45-49	5.6	4.3	4.3	11.1	14.3	15.8	16.2	12.4	6.8	3.2	5.8	100.0	307	5.11	3.86
Total	32.8	11.5	13.9	13.7	11.0	5.8	4.6	2.8	1.5	0.7	0.7	100.0	5597	2.31	1.90
CURRENTLY MARRIED WOMEN															
15-19	50.1	39.1	8.2	2.3	0.3	--	--	--	--	--	--	100.0	358	0.64	0.55
20-24	20.8	30.4	29.3	14.7	4.3	0.4	0.1	--	--	--	--	100.0	829	1.53	1.34
25-29	5.3	13.7	28.2	26.6	16.6	6.0	2.3	0.9	0.2	--	0.1	100.0	865	2.70	2.29
30-34	3.0	5.8	16.7	24.3	23.0	13.4	7.2	4.5	1.8	0.3	0.1	100.0	773	3.63	3.08
35-39	2.5	4.1	10.0	17.8	21.6	19.9	10.2	7.0	4.0	1.3	1.5	100.0	502	4.33	3.53
40-44	1.2	3.5	8.9	14.1	18.7	15.2	16.1	8.6	6.8	4.7	2.2	100.0	423	4.90	3.94
45-49	4.7	3.4	4.0	11.5	14.2	16.4	17.6	12.2	7.2	2.9	5.9	100.0	256	5.21	3.98
Total	11.3	15.0	18.6	18.1	14.5	9.1	6.0	3.6	2.1	0.9	0.8	100.0	4016	3.05	2.52
Note: All women includes never-married women.															
-- Less than 0.05 percent															

Completed parity distributions are generally unimodal, with the modal number of children born near the mean number of children ever born. The distributions for women age 45-49 in Table 5.6 deviate from this pattern: the modal group in both distributions is parity six while the mean number of children born is somewhat above five. The parity distributions for women age 40-44 are more typical.

The parity distribution of older currently married women provides a measure of primary sterility, which is the proportion of couples who are unable to have children. In Orissa, the proportion of currently married women age 45-49 with no children ever born is 5 percent.

Differentials in the number of children ever born and children still living by background characteristics, shown in Table 5.7, provide additional information on fertility patterns in Orissa. To avoid the confounding influence of different age distributions of women in different groups, the mean values in the table are age-standardized according to the age distribution of all currently married women. The 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

Background characteristic	Children ever born			Children living		
	Male	Female	Total	Male	Female	Total
Age						
15-19	0.3	0.3	0.6	0.3	0.3	0.6
20-24	0.8	0.7	1.5	0.7	0.7	1.3
25-29	1.4	1.3	2.7	1.2	1.1	2.3
30-34	1.9	1.8	3.6	1.6	1.5	3.1
35-39	2.2	2.2	4.3	1.8	1.8	3.5
40-44	2.5	2.4	4.9	2.0	1.9	3.9
45-49	2.7	2.5	5.2	2.0	2.0	4.0
Residence						
Urban	1.6	1.5	3.1	1.4	1.3	2.7
Rural	1.6	1.5	3.0	1.3	1.2	2.5
Education						
Illiterate	1.6	1.5	3.1	1.3	1.2	2.5
Literate, < middle complete	1.6	1.5	3.1	1.4	1.3	2.7
Middle school complete	1.2	1.1	2.3	1.2	1.0	2.1
High school and above	1.1	0.9	2.0	1.0	0.9	1.9
Religion						
Hindu	1.6	1.5	3.0	1.3	1.2	2.5
Muslim	1.8	1.7	3.6	1.6	1.6	3.1
Christian	1.5	1.9	3.4	1.3	1.7	3.0
Caste/tribe						
Scheduled caste	1.7	1.5	3.1	1.3	1.2	2.5
Scheduled tribe	1.4	1.3	2.7	1.1	1.1	2.2
Other	1.6	1.5	3.1	1.3	1.3	2.6
Total	1.6	1.5	3.0	1.3	1.2	2.5

Note: The means by residence, education, religion and caste/tribe are standardized on the age distribution of all currently married women. Total means are based on all women including women age 13-14 and women belonging to other religions, the means for whom are not shown separately.

populations. The ratio of males to females is fractionally higher among children still alive, than among children ever born, but the differences between average numbers born and numbers living are identical for male and female children. This suggests that Orissa does not suffer the high levels of excess female mortality found in certain Indian states in past studies (e.g., Milier, 1981).

For male and female children together, most of the differentials by background characteristics seen in Table 5.7 are similar to those observed earlier in Table 5.2. Fertility is higher among illiterate women and those with low educational attainment, among Muslims, and in scheduled castes. In this table, however, the average number of children ever born is approximately the same in urban and rural areas. Apparently, the lower fertility observed earlier for urban women can be explained statistically by urban-rural differences in the age distribution of married women.

Differentials in the mean number of children still living are in some cases smaller than differentials in the mean number of children ever born. Where this convergence occurs, its cause is the simultaneous occurrence of high fertility and relatively high levels of infant and child mortality. For example, while women age 45-49 have borne almost four children more than women age 20-24, they have only three living children more. Older women not only have had many children, but have lost many as well.

5.4 Birth Order

Births during the three years before the survey by birth order are shown in Table 5.8. Overall, 27 percent of all births were first births and 25 percent were second births. As one would expect, the number of births at each order is greater than the number at the next higher order. 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 percent of all births, decline with increasing age of mother and third and higher-order births increase with increasing age of mother. High-order births are less numerous, but still moderately substantial. Fifteen percent of all births were of order five or higher; about 9 percent were of order six or higher. Predictably, the birth order distribution is slightly more skewed toward lower-order births in urban than in rural area, but the differences are small. Even in urban areas, 12 percent of all births were of order five and above.

5.5 Birth Intervals

Birth intervals indicate the pace of childbearing. In addition, various past researches have shown that children born too close to a previous birth are at increased risk of dying, especially if the interval between births is less than 24 months (Govindasamy et al., 1993; Hobcraft et al., 1983). Table 5.9 presents the percentage distribution of second and higher-order births in the five years prior to the survey by the interval since the previous birth. Overall, 12 percent of the births occurred within 18 months of the previous birth and 25 percent occurred within 24 months; the median birth interval is 33 months or about 2.7 years.

The relatively short median birth interval for women age 15-19 at the time of the survey probably results from a selection effect. Only women who have had two or more births are included in this table, and women age 15-19 with two or more births are likely to have

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, Orissa, 1993

Maternal age at birth	Order of birth						Total percent	Number of births
	1	2	3	4	5	6+		
URBAN								
15-19	60.0	24.3	12.9	2.9	--	--	100.0	40
20-24	34.5	36.2	20.1	5.7	1.1	2.3	100.0	99
25-29	14.2	25.8	21.7	23.3	8.3	6.7	100.0	68
30-34	5.4	7.1	14.3	37.5	16.1	19.6	100.0	32
Total	28.5	26.7	18.3	14.4	5.3	6.7	100.0	245
RURAL								
15-19	68.9	22.6	7.8	0.4	0.4	--	100.0	298
20-24	27.3	38.2	23.8	8.8	1.2	0.6	100.0	564
25-29	8.2	17.1	27.6	24.1	14.1	8.8	100.0	394
30-34	2.2	5.2	16.4	22.4	20.1	33.6	100.0	155
35-39	(--)	(--)	(7.3)	(4.9)	(14.6)	(73.2)	100.0	47
Total	27.2	24.3	20.0	12.6	7.0	8.9	100.0	1476
TOTAL								
15-19	67.8	22.8	8.4	0.7	0.3	--	100.0	337
20-24	28.4	37.9	23.3	8.4	1.2	0.9	100.0	663
25-29	9.1	18.4	26.8	24.0	13.3	8.5	100.0	462
30-34	2.8	5.6	16.1	25.0	19.5	31.2	100.0	187
35-39	(--)	(--)	(6.8)	(4.6)	(15.9)	(72.7)	100.0	51
Total	27.4	24.6	19.8	12.8	6.8	8.6	100.0	1721

Note: There were no reported births to women age 45-49. Total includes 8 births to women age 13-14, 5 births to urban women age 35-44 and 10 births to rural women age 40-44, which are not shown separately.

() Based on 25-49 unweighted cases

-- Less than 0.05 percent

considerably higher fecundability than women at large. Differences in fecundability by age of the mother may likewise account for the generally positive gradient in the length of birth intervals by mother's age. Curiously, in view of the correlation between age of women and birth order, there is little variation in median intervals according to the birth order of the previous birth. This is because women with large numbers of births are probably more fecund, and therefore have shorter median intervals than other women.

The proportion of births with intervals of less than 12 months is more than five times as high when the last birth is deceased as when the last birth is still alive. Probably this reflects the cessation of breastfeeding when the child dies and the consequent shortening of postpartum amenorrhoea.

Birth intervals vary little by the sex of the prior birth, by residence, or by caste/tribe. Highly educated women have somewhat shorter median birth intervals than poorly educated women, a phenomenon alluded to earlier with reference to the higher average age at marriage of highly educated women. Muslims have slightly shorter median birth intervals than either Hindus or Christians.

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, Orissa, 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									
15-19	(8.3)	(14.2)	(32.1)	(37.0)	(8.3)	(--)	100.0	(23.2)	49
20-29	1.9	11.3	15.1	34.7	22.4	14.5	100.0	31.3	1311
30-39	1.6	6.1	10.1	29.8	20.7	31.6	100.0	36.7	632
40-49	--	7.2	6.1	12.3	21.7	52.6	100.0	49.1	56
Order of prior birth									
1	1.7	11.1	14.4	32.0	22.1	18.6	100.0	32.5	707
2-3	1.6	8.5	14.0	32.4	21.6	21.9	100.0	33.0	893
4-5	1.9	9.4	12.3	34.9	20.6	20.8	100.0	32.9	300
6+	5.1	10.2	11.8	31.9	20.8	20.1	100.0	32.0	147
Sex of prior birth									
Male	1.9	8.7	12.0	32.2	22.7	22.4	100.0	33.6	1017
Female	1.9	10.6	15.5	33.0	20.4	18.6	100.0	32.2	1030
Survival of prior birth									
Still living	1.1	7.5	13.1	33.3	22.7	22.2	100.0	34.2	1721
Deceased	6.0	21.0	17.2	29.0	15.4	11.3	100.0	26.3	327
Residence									
Urban	2.3	12.7	17.2	27.1	20.7	19.9	100.0	30.7	291
Rural	1.8	9.2	13.2	33.5	21.7	20.6	100.0	32.9	1756
Education of the mother									
Illiterate	2.0	9.1	12.1	31.9	22.8	22.1	100.0	33.4	1377
Lit., < middle complete	1.7	8.7	16.0	33.9	20.8	18.8	100.0	32.8	504
Middle school complete	1.4	20.4	20.4	38.0	14.6	5.1	100.0	25.8	79
High school and above	2.0	13.9	21.1	31.6	12.5	19.0	100.0	29.2	87
Religion									
Hindu	1.8	9.6	13.8	33.0	21.5	20.3	100.0	32.7	1968
Muslim	2.3	18.6	21.0	23.2	19.8	15.2	100.0	28.5	49
Christian	(7.5)	(--)	(2.5)	(20.0)	(30.0)	(40.0)	100.0	42.0	23
Caste/tribe									
Scheduled caste	1.7	7.8	14.6	32.4	21.7	21.9	100.0	33.3	238
Scheduled tribe	3.7	8.0	9.0	37.5	22.0	19.9	100.0	32.3	422
Other	1.4	10.5	15.1	31.2	21.4	20.4	100.0	32.7	1388
Total	1.9	9.7	13.8	32.6	21.6	20.5	100.0	32.7	2047

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 6 births to mothers belonging to other religions, which are not shown separately.

() Based on 25-49 unweighted cases

-- Less than 0.05 percent

5.6 Age at First and Last Birth

The onset of childbearing is an important demographic indicator. Postponement of births, reflecting a rise in the age at marriage, can make an important contribution to overall fertility decline. Table 5.10 shows the distribution of women by age at first birth. The medians shown in Table 5.10 require special 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 groups, however, the number who will eventually become mothers is not known since some births to the cohort will occur only in the future. The medians shown in Table 5.10 are therefore, calculated as the ages by which one-half of *all* women in the cohort have had a birth, rather than the age by which half of all mothers in the cohort have had a first birth. This statistic may be computed without knowing how many women in the cohort will eventually have a first birth. The medians are, of course, undefined for cohorts in which fewer than half of women have had a first birth. This is the reason why no medians are given for ages 15-19 and 20-24 in both urban and rural areas in Table 5.10.

Table 5.10 Age at first birth									
Percent distribution of women by age at first birth, according to current age and residence, Orissa, 1993									
Current age	No birth ¹	Age at first birth						Total percent	Median age at first birth
		<15	15-17	18-19	20-21	22-24	25+		
URBAN									
15-19	90.0	1.3	6.1	2.6	NA	NA	NA	100.0	NC
20-24	48.0	2.6	16.0	16.0	12.2	5.2	NA	100.0	NC
25-29	16.5	8.0	21.5	19.7	13.8	13.5	6.9	100.0	20.1
30-34	3.4	3.7	24.4	25.2	19.5	14.2	9.7	100.0	19.7
35-39	4.5	5.1	27.4	26.3	16.6	10.9	9.1	100.0	19.4
40-44	1.8	6.4	29.7	22.6	19.1	10.6	9.9	100.0	19.1
45-49	5.5	2.7	27.4	24.7	19.2	12.3	8.2	100.0	19.7
RURAL									
15-19	85.3	2.1	9.2	3.4	NA	NA	NA	100.0	NC
20-24	41.9	5.3	20.1	17.2	11.2	4.2	NA	100.0	NC
25-29	10.4	5.1	26.4	21.1	19.2	13.6	4.2	100.0	19.7
30-34	6.0	5.1	31.0	23.6	16.2	11.5	6.7	100.0	19.1
35-39	4.1	5.8	38.0	27.9	12.8	8.1	3.3	100.0	18.4
40-44	3.1	5.4	34.1	28.1	14.8	10.3	4.2	100.0	18.6
45-49	5.6	7.4	30.1	25.3	14.4	10.5	6.6	100.0	19.1
TOTAL									
15-19	86.0	2.0	8.8	3.3	NA	NA	NA	100.0	NC
20-24	42.9	4.8	19.5	17.0	11.4	4.4	NA	100.0	NC
25-29	11.6	5.6	25.5	20.8	18.3	13.5	4.7	100.0	19.8
30-34	5.5	4.8	29.9	23.9	16.7	11.9	7.3	100.0	19.2
35-39	4.2	5.7	36.1	27.6	13.5	8.6	4.3	100.0	18.5
40-44	3.1	5.6	33.3	27.1	15.5	10.3	5.2	100.0	18.7
45-49	5.6	6.8	29.8	25.2	15.1	10.7	6.8	100.0	19.2

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.
¹Never-married women are included in this category

On average, median ages at first birth are about seven months higher in urban than in rural areas. They are also higher, on average, in recent birth cohorts of women than in older cohorts. Very early childbearing (below age 15) is relatively rare in all of the age groups and the incidence has dropped fairly steadily across cohorts of women, such that it is negligible in the 15-19 age group. Childbearing before age 20 has also declined, with the proportion of women having their first child before age 20 dropping below 50 percent for the first time in the 20-24 age group.

Table 5.11 shows the median age at first birth by selected background characteristics. As has already been discussed, median age at first birth is higher for urban women than rural women. In all age groups, better educated women have a considerably higher median age at first birth than do less educated women: the median is 23 years of age among women with high school or higher educations but only 19 years of age among the illiterate. The strong relationship between education and age at first birth suggests that improvements in education over time might account for the trend toward higher ages at first birth. The continuation of the age differences in age at first birth within education groups, however, suggests otherwise. Apparently, younger women are having their first births at a later age than their older counterparts did for reasons other than their higher level of education alone.

Muslims have the youngest median age at first birth and Christians the oldest, with Hindus falling in between. Generally, however, the differences among religious groups are modest. Scheduled castes and tribes tend to begin childbearing slightly earlier than other caste

Background characteristic	Current age					25-49
	25-29	30-34	35-39	40-44	45-49	
Residence						
Urban	20.1	19.7	19.4	19.1	19.7	19.6
Rural	19.7	19.1	18.4	18.6	19.1	19.0
Education						
Illiterate	18.9	18.6	18.2	18.5	19.0	18.6
Lit., < middle complete	20.1	19.8	18.8	19.1	19.7	19.5
Middle school complete	(22.5)	(20.5)	*	*	*	21.1
High school and above	24.2	23.4	(20.5)	*	*	22.9
Religion						
Hindu	19.8	19.2	18.5	18.7	19.2	19.1
Muslim	*	*	*	*	*	18.7
Christian	*	*	*	*	*	20.2
Caste/tribe						
Scheduled caste	18.9	19.1	(18.2)	(18.7)	(20.3)	18.9
Scheduled tribe	19.5	18.6	18.3	18.7	19.4	18.8
Other	19.9	19.4	18.6	18.7	19.0	19.2
Total	19.8	19.2	18.5	18.7	19.2	19.1

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

groups, but the differences are small.

The age at last birth is another important determinant of overall fertility levels. Table 5.12 shows the distribution of women by age at last birth for women age 40-44 and 45-49. Although a few of these women may have another birth later on, the very low fertility rates for women in their forties seen earlier suggest that childbearing is virtually complete for this cohort. Nearly 40 percent of women age 40-49 had completed their childbearing by age 30 and a majority (72 percent) had their last birth before age 35. The median ages at last birth are not shown in the table, but may be computed by interpolation in the frequency distribution. The median ages at last birth for women age 40-44 and 45-49 at the time of the survey are 30.4 and 31.6 years, respectively. The difference between the median age at first birth for the 45-49 age cohort (19.2 years from Table 5.11) and the median age at last birth for the same age cohort gives an estimated reproductive life of 12 years.

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	1.9	2.8	15.6	26.7	32.7	16.9	3.5	NA	100.0	460
45-49	5.3	1.7	9.3	21.0	32.1	23.1	7.2	0.4	100.0	306
40-49	3.2	2.3	13.0	24.4	32.5	19.3	5.0	0.2	100.0	765

NA: Not applicable

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 represents the proportion of young ever-married women who have begun childbearing. Overall, about 60 percent of ever-married teenage women have started their childbearing. However, because most women in this age group have never been married, and because the proportion never married has been rising, childbearing among teenage women is likely to be less common now than in the past. Only 18 percent of married women age 13-16 are mothers compared with 55 percent of those age 17-19. Not surprisingly, teenage motherhood is higher among illiterate women than among literate women.

5.8 Postpartum Amenorrhoea, Abstinence and Nonsusceptibility

The importance of lactational amenorrhoea and postpartum abstinence as determinants of fertility is well recognized. The duration of postpartum amenorrhoea (delayed resumption of ovulation) following a birth is closely associated with the duration of breastfeeding, which tends to suppress resumption of ovulation. Conception can also be delayed by prolonged postpartum abstinence. The total period of protection from amenorrhoea or abstinence or both is defined as the nonsusceptible duration. The percentage of births during the last 3 years whose

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, Orissa, 1993

Background characteristic	Percentage who are:		Percent who have begun childbearing	Number of women
	Mothers	Pregnant with first child		
Age				
13-16	18.2	15.1	33.3	73
17-19	55.4	10.8	66.2	306
Literacy				
Illiterate	50.8	12.1	62.9	281
Literate	40.8	10.1	50.9	98
Total	48.2	11.6	59.8	379

mothers are presently postpartum amenorrhoeic or abstaining or nonsusceptible, by duration since last birth, is presented in Table 5.14. The mean and median durations and the prevalence/incidence mean duration are also shown in the table. 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-six percent of all women who had a birth in the two months prior to the survey were still amenorrhoeic when interviewed, and 85 percent of women whose last birth occurred 2-3 months prior to the survey were amenorrhoeic. The proportion amenorrhoeic gradually decreases as the number of months since birth increases. Forty-five percent of women were still amenorrhoeic 10-11 months after the birth, but the proportion amenorrhoeic drops off rapidly thereafter. The proportions of mothers abstaining from sexual intercourse are much lower than the proportions amenorrhoeic. At 6-7 months since the birth, less than one-third of women were still abstaining.

Overall, nearly half (45 percent) of women become susceptible to pregnancy within 10-11 months of giving birth and almost 65 percent become susceptible within 12-13 months. The median and mean duration of nonsusceptibility are 10.2 and 12.9 months, respectively. The median duration of amenorrhoea (8.5 months) is longer than the median duration of abstinence (4.7 months). The prevalence-incidence mean suggests that on average, women remain nonsusceptible to conception for just over one year after a birth, primarily due to the effects of postpartum amenorrhoea.

Table 5.15 shows median durations of postpartum amenorrhoea, postpartum abstinence, and postpartum nonsusceptibility by selected background characteristics. The median durations of amenorrhoea and abstinence are slightly longer for women age 30 and over than for women under age 30. However, the median duration of postpartum nonsusceptibility does not differ much between the young and older women. Median durations of postpartum amenorrhoea and nonsusceptibility are longer for women in rural areas than for women in urban areas, possibly due to the longer period of breastfeeding in rural areas. Periods of amenorrhoea, abstinence, and nonsusceptibility are relatively long for illiterate women and women belonging to scheduled

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 nonsusceptible, by number of months since birth, and median and mean durations, Orissa, 1993

Months since birth	Percentage of births whose mothers are:			Number of births
	Postpartum amenorrhoeic	Postpartum abstaining	Postpartum nonsusceptible	
< 2	96.1	84.3	96.1	59
2 - 3	84.9	78.6	95.6	92
4 - 5	75.5	48.0	84.2	99
6 - 7	57.2	31.7	66.7	104
8 - 9	47.6	30.7	56.7	96
10-11	45.1	24.4	55.0	104
12-13	27.2	14.4	35.4	113
14-15	22.9	19.0	37.4	103
16-17	16.9	11.3	24.0	82
18-19	9.2	9.8	14.1	94
20-21	8.6	14.5	19.5	80
22-23	10.7	7.4	15.4	86
24-25	4.3	6.0	8.1	107
26-27	5.5	5.5	9.7	84
28-29	2.3	3.5	5.9	99
30-31	1.2	1.2	2.4	96
32-33	1.1	5.4	5.4	108
34-35	--	--	--	70
Median	8.5	4.7	10.2	NA
Mean	10.6	8.2	12.9	NA
Prevalence/incidence mean	9.9	7.4	12.3	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

castes and tribes, again as a possible consequence of relatively prolonged breastfeeding in these groups. The periods of amenorrhoea, abstinence, and nonsusceptibility are also relatively long for Hindus and Christians. Note that the medians for Muslims and Christians are based on relatively small numbers of births.

5.9 Menopause

Another factor impinging on fertility is the onset of menopause. Later in life (typically beginning around age 30), the risk of pregnancy begins to decline with age. In the NFHS, menopause is defined as the lack of a menstrual period for at least six months preceding the survey for women who are neither pregnant nor postpartum amenorrhoeic. Women who report that they are menopausal are also included in this group. In Orissa, menopause is relatively rare for women in their thirties, but its incidence increases rapidly after age 40 (Table 5.16). By age 44-45, over one-third of women are in menopause. This figure increases to 53 percent for women age 46-47 and 74 percent for women age 48-49. The onset of menopause appears to be somewhat later in urban than in rural areas, but this result is based on a fairly small number of urban women in the older age groups.

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, Orissa, 1993

Background characteristic	Postpartum amenorrhoea	Postpartum abstinence	Postpartum nonsusceptibility	Number of births
Age				
13-29	8.4	4.6	10.2	1327
30-49	8.8	5.3	10.1	348
Residence				
Urban	5.9	4.8	8.0	234
Rural	8.9	4.7	10.5	1441
Education				
Illiterate	9.1	5.2	11.5	1096
Lit., < middle complete	8.1	3.6	9.0	397
Middle school complete	7.0	4.3	8.5	85
High school and above	3.1	4.1	6.1	98
Religion				
Hindu	8.5	4.7	10.4	1614
Muslim	(6.5)	(4.5)	(7.5)	33
Christian	(9.0)	(5.8)	(9.0)	23
Caste/tribe				
Scheduled caste	9.1	5.0	12.2	195
Scheduled tribe	10.6	5.1	13.5	368
Other	7.6	4.5	9.2	1111
Total	8.5	4.7	10.2	1675

Note: Medians are based on current status. Total medians are based on all births including 4 births to mothers belonging to other religions, the medians for whom are not shown separately.

() Based on 25-49 unweighted cases

Table 5.16 Menopause

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

Age	Urban		Rural		Total	
	Percent	Number	Percent	Number	Percent	Number
30-34	1.4	118	0.6	539	0.8	656
35-39	4.5	89	3.9	383	4.0	473
40-41	10.2	34	19.8	152	18.1	185
42-43	(22.4)	28	22.3	130	22.3	158
44-45	(31.1)	26	39.0	116	37.6	141
46-47	*	12	54.7	74	53.0	86
48-49	*	10	74.0	89	73.8	99
Total	11.3	316	15.5	1483	14.7	1799

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 report that they are menopausal.

() Based on 25-49 unweighted cases

* Percentage not shown; based on fewer than 25 unweighted cases

CHAPTER 6

FAMILY PLANNING

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

6.1 Knowledge of Family Planning Methods and Sources

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

Table 6.1 presents the extent of knowledge of ever-married women and currently married women as obtained by spontaneous responses (without any probe) and probed responses. Knowledge of family planning is nearly universal in Orissa, with 98 and 91 percent of ever-married respondents in urban and rural areas, respectively, recognizing at least one modern method of family planning (Figure 6.1). Knowledge of at least one modern method among ever-married women is reported spontaneously by 74 percent of urban women and 56 percent of rural women. Effective knowledge of family planning methods is thus lower in rural than in urban areas. Ever-married and currently married women differ little in their knowledge of family planning methods.

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

In contrast to widespread knowledge of sterilization, knowledge of the three officially sponsored spacing methods, namely, the IUD, the pill, and the condom, is much less widespread. The most well known among the spacing methods are the pill and the IUD: more than half of ever-married women know about the pill, and 47 percent know about the IUD, however, only two-fifths mentioned them spontaneously. One-third report knowledge of the condom, but only 12 percent could respond without any probe. Injections are the least known modern method, with only 7 percent reporting knowledge of them.

In Orissa, traditional methods of contraception are generally less well known than modern methods. Thirty-three percent of ever-married women report knowledge of these methods, with periodic abstinence being better known (27 percent) than withdrawal (9 percent). The table reveals that probing was often needed to elicit complete knowledge about contraceptive methods, especially traditional methods.

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, Orissa, 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	
URBAN								
Any method	74.5	23.5	98.0	94.1	75.5	22.6	98.1	94.5
Any modern method	73.9	24.1	98.0	93.9	75.0	23.0	98.1	94.3
Pill	42.9	32.3	75.2	64.0	43.9	32.6	76.5	65.7
Copper T/IUD	39.8	33.9	73.8	64.7	40.5	34.8	75.2	66.5
Injection	5.2	11.4	16.6	12.7	5.2	11.5	16.6	12.7
Condom	31.8	31.8	63.6	54.9	32.6	32.5	65.2	56.1
Female sterilization	64.8	32.3	97.1	91.7	65.8	31.5	97.3	92.0
Male sterilization	35.8	51.6	87.4	79.2	36.2	51.3	87.5	79.6
Any traditional method	13.6	34.3	47.9	NA	13.6	35.3	48.9	NA
Rhythm/periodic abstinence	7.9	34.3	42.2	16.9	7.9	35.2	43.1	17.2
Withdrawal	2.0	15.2	17.2	NA	2.0	15.3	17.4	NA
Other methods	6.5	NA	6.5	NA	6.3	NA	6.3	NA
Number of women	650	650	650	650	615	615	615	615
RURAL								
Any method	58.0	33.3	91.3	79.4	59.2	32.7	91.9	80.1
Any modern method	55.8	35.1	90.9	79.2	57.0	34.6	91.5	79.9
Pill	18.4	27.9	46.3	33.4	19.2	28.5	47.7	34.4
Copper T/IUD	15.9	26.0	41.9	31.8	16.6	26.5	43.0	32.6
Injection	0.9	4.6	5.5	3.2	1.0	4.7	5.7	3.3
Condom	8.9	19.2	28.2	19.9	9.3	19.8	29.1	20.5
Female sterilization	52.1	38.0	90.1	77.0	53.0	37.6	90.7	77.7
Male sterilization	18.3	50.4	68.7	53.8	18.6	50.7	69.4	54.7
Any traditional method	9.9	20.6	30.4	NA	10.2	21.0	31.2	NA
Rhythm/periodic abstinence	2.7	21.4	24.1	9.0	2.8	21.8	24.6	9.3
Withdrawal	0.6	7.3	7.9	NA	0.6	7.4	8.1	NA
Other methods	7.4	NA	7.4	NA	7.6	NA	7.6	NA
Number of women	3607	3607	3607	3607	3410	3410	3410	3410

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, Orissa, 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	60.5	31.8	92.3	81.6	61.7	31.2	92.9	82.3
Any modern method	58.6	33.4	92.0	81.4	59.7	32.8	92.5	82.1
Pill	22.1	28.6	50.7	38.1	22.9	29.1	52.1	39.2
Copper T/IUD	19.5	27.2	46.7	36.8	20.2	27.7	48.0	37.8
Injection	1.6	5.6	7.2	4.6	1.6	5.8	7.4	4.7
Condom	12.4	21.1	33.6	25.2	12.9	21.7	34.6	26.0
Female sterilization	54.0	37.1	91.2	79.3	55.0	36.7	91.7	79.9
Male sterilization	21.0	50.5	71.5	57.7	21.3	50.8	72.2	58.5
Any traditional method	10.4	22.7	33.1	NA	10.7	23.2	33.9	NA
Rhythm/periodic abstinence	3.5	23.4	26.8	10.2	3.6	23.9	27.4	10.5
Withdrawal	0.8	8.5	9.3	NA	0.9	8.6	9.5	NA
Other methods	7.3	NA	7.3	NA	7.4	NA	7.4	NA
Number of women	4257	4257	4257	4257	4025	4025	4025	4025

NA: Not applicable

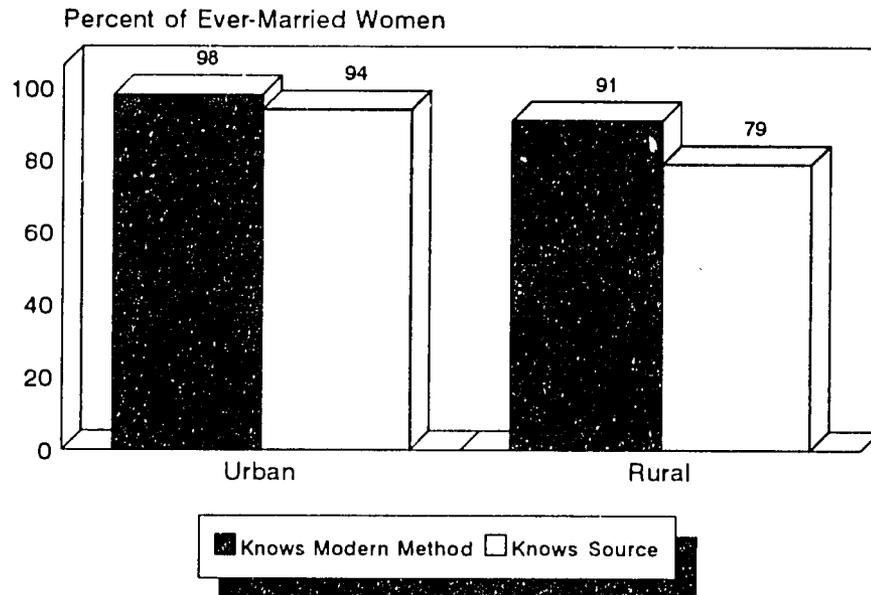
¹For modern methods, the source refers to a place that a person could go to get the method. For rhythm/periodic abstinence, the source refers to a source of advice on how to use periodic abstinence.

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 that survey, 90-100 percent of the currently married women in Orissa were aware of male and female sterilization, 64 percent were aware of the condom, and 40-60 percent were aware of the IUD and the pill. The survey also observed that the proportion of currently married women in Orissa who had correct knowledge of how to use different family planning methods was generally low for most methods (29 percent for vasectomy, 41 percent for the condom, 42 percent for the pill, and 32 percent for the IUD), except for tubectomy, where 62 percent had correct knowledge.

In the NFHS, urban-rural differentials in the level of knowledge are most pronounced for the pill, the IUD, and condoms, with knowledge of these methods greater among urban than among rural women. Although female sterilization is known almost as well in rural as in urban areas, male sterilization is relatively less known among rural women. Urban and rural women also differ in their knowledge of traditional methods. Only 30 percent of women in rural areas know of a traditional method, compared with nearly one-half of women in urban areas.

Table 6.1 also provides information about knowledge of sources of contraceptive methods. The question about the source of a method was asked only of those women who knew about the method. Knowledge about the sources of contraceptives is generally high, with more than 80 percent of respondents knowing where to obtain at least one modern method of family

Figure 6.1
 Knowledge of Modern Contraceptive
 Methods and Sources by Residence



NFHS, Orissa, 1993

planning. Women are most knowledgeable about a source for sterilizations, especially tubectomies. Spacing methods are not only less well known to them, but knowledge about where to obtain these methods is also more limited. For example, only 38 percent know where to obtain the pill, and only 37 percent know where to obtain the IUD. Knowledge of a source for condoms is even more limited, which is perhaps not surprising given that it is a male method of contraception. Regardless of method, urban women are more likely to know of a contraceptive source than rural women.

Table 6.2 shows differentials in knowledge of modern contraceptive methods and sources of methods among currently married women according to background characteristics. Most differentials in knowledge of methods are small. More than 90 percent of every age group except women age 15-19 know of at least one modern method. Substantially fewer illiterate women than other women know of a modern method, but even among illiterates, almost 90 percent have heard of at least one modern method. Differentials among the other levels of education and among other background characteristics are small. Knowledge of contraceptive sources shows somewhat greater variation, generally increasing with age and education. Contraceptive sources are relatively better known to Christians, and are less well known to women from scheduled tribes.

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, Orissa, 1993

Background characteristic	Knows any method	Knows any modern method ¹	Knows source for any modern method	Number of women
Age				
15-19	81.2	60.6	62.2	358
20-24	91.1	90.8	75.4	839
25-29	94.2	93.7	85.2	865
30-34	96.2	95.9	89.1	773
35-39	95.5	95.3	88.9	502
40-44	95.2	95.2	87.1	423
45-49	92.3	92.3	79.7	256
Residence				
Urban	98.1	98.1	94.3	615
Rural	91.9	91.5	79.9	3410
Education				
Illiterate	90.0	89.5	76.6	2682
Lit., < middle complete	98.0	98.0	91.7	944
Middle school complete	99.6	99.6	95.1	143
High school and above	100.0	100.0	97.3	256
Religion				
Hindu	92.7	92.4	82.0	3908
Muslim	98.0	98.0	82.8	57
Christian	95.6	95.6	91.1	52
Caste/tribe				
Scheduled caste	96.0	96.0	82.4	380
Scheduled tribe	80.7	80.0	63.2	858
Other	96.2	95.9	87.9	2787
Total	92.9	92.5	81.9	4025

Note : Total includes 9 women age 13-14 and 9 women belonging to other religions, who are not shown separately.
¹Includes pill, copper T/IUD, injections, condoms, female sterilization and male sterilization.

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.

Although 93 percent of currently married women know of at least one method of family planning, only 40 percent have ever used a method. Modern methods have been used by 37 percent of currently married women and traditional methods by another 6 percent. By far the most commonly used method is female sterilization, which has been adopted by 28 percent of

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, Orissa, 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	9.4	5.7	3.8	--	--	3.8	--	--	3.8	3.8	--	--	30
20-24	23.6	22.7	5.1	6.5	--	4.2	11.6	0.5	3.2	2.3	1.4	0.5	123
25-29	54.5	50.0	9.9	13.6	0.4	9.1	28.5	2.1	7.4	5.8	2.1	--	138
30-34	63.4	57.2	7.8	10.7	--	9.1	42.4	3.7	13.6	7.0	3.7	4.9	138
35-39	66.1	63.8	9.2	5.7	--	2.9	46.0	8.6	10.9	6.9	2.9	1.7	99
40-44	60.0	58.6	7.1	5.7	--	0.7	46.4	5.0	5.7	5.0	1.4	--	80
45-49	50.7	47.9	2.7	--	--	--	34.2	11.0	6.8	6.8	--	--	42
Total	50.6	47.2	7.3	8.0	0.1	5.3	32.1	3.9	8.0	5.4	2.1	1.4	650
Currently married women													
15-19	9.8	5.9	3.9	--	--	3.9	--	--	3.9	3.9	--	--	29
20-24	24.3	23.3	5.2	6.7	--	4.3	11.9	0.5	3.3	2.4	1.4	0.5	119
25-29	56.0	51.3	10.3	14.2	0.4	9.5	28.9	2.2	7.8	6.0	2.2	--	132
30-34	64.8	58.4	8.2	10.7	--	9.4	43.3	3.9	14.2	7.3	3.9	5.2	133
35-39	68.8	66.3	9.4	6.3	--	2.5	48.8	8.8	11.9	7.5	3.1	1.9	91
40-44	62.1	60.6	6.8	6.1	--	0.8	47.7	5.3	6.1	5.3	1.5	--	75
45-49	56.5	54.8	3.2	--	--	--	38.7	12.9	6.5	6.5	--	--	35
Total	52.1	48.7	7.6	8.3	0.1	5.5	33.1	4.1	8.4	5.6	2.2	1.5	615
RURAL													
Ever-married women													
15-19	2.4	1.4	0.3	0.7	--	0.3	--	--	1.4	1.0	--	0.3	338
20-24	19.4	17.0	2.4	3.6	--	2.5	10.4	0.8	3.5	2.2	0.8	0.5	735
25-29	35.4	32.2	3.4	4.7	0.2	2.1	24.7	1.1	5.7	4.4	1.2	0.9	756
30-34	55.6	52.5	4.5	5.0	--	1.7	43.0	3.3	6.9	4.7	1.0	2.1	671
35-39	58.3	54.5	2.6	3.1	--	0.3	44.0	7.7	6.4	4.6	0.3	2.3	453
40-44	49.4	46.0	3.4	1.5	--	0.6	36.9	6.7	5.2	2.7	0.9	2.1	380
45-49	37.7	36.4	0.4	1.3	--	--	28.9	7.0	2.6	2.6	--	0.4	264
Total	37.2	34.5	2.8	3.4	--	1.4	26.8	3.2	4.8	3.4	0.7	1.3	3607
Currently married women													
15-19	2.5	1.4	0.4	0.7	--	0.4	--	--	1.4	1.1	--	0.4	329
20-24	19.8	17.4	2.4	3.7	--	2.6	10.6	0.8	3.5	2.3	0.8	0.5	719
25-29	36.0	32.7	3.5	4.9	0.2	2.2	25.0	0.9	5.8	4.6	1.3	0.9	733
30-34	56.8	53.5	4.7	5.2	--	1.8	43.8	3.3	7.2	4.9	1.1	2.2	641
35-39	61.7	57.5	2.8	3.4	--	0.3	46.2	8.2	7.0	5.1	0.3	2.5	411
40-44	52.3	49.0	3.7	1.7	--	0.7	39.0	7.3	5.3	2.7	1.0	2.3	347
45-49	40.3	38.7	0.5	1.6	--	--	30.4	7.9	3.1	3.1	--	0.5	221
Total	38.2	35.3	2.9	3.6	--	1.5	27.3	3.2	5.1	3.6	0.8	1.3	3410

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, Orissa, 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	3.0	1.7	0.6	0.6	--	0.6	--	--	1.6	1.3	--	0.3	368
20-24	20.0	17.8	2.8	4.0	--	2.8	10.6	0.7	3.4	2.2	0.9	0.5	858
25-29	38.3	34.9	4.4	6.1	0.2	3.2	25.2	1.1	5.9	4.6	1.4	0.8	894
30-34	56.9	53.3	5.1	6.0	--	3.0	42.9	3.4	8.0	5.1	1.5	2.6	809
35-39	59.7	56.1	3.7	3.5	--	0.7	44.3	7.8	7.2	5.0	0.7	2.2	552
40-44	51.2	48.2	4.0	2.3	--	0.6	38.5	6.4	5.3	3.1	1.0	1.8	460
45-49	39.5	38.0	0.8	1.1	--	--	29.7	7.6	3.2	3.2	--	0.4	306
Total	39.3	36.4	3.5	4.1	--	2.0	27.6	3.3	5.3	3.7	0.9	1.3	4257
Currently married													
15-19	3.1	1.8	0.6	0.6	--	0.6	--	--	1.6	1.3	--	0.3	358
20-24	20.4	18.2	2.8	4.1	--	2.8	10.8	0.8	3.5	2.3	0.9	0.5	839
25-29	39.1	35.5	4.5	6.3	0.2	3.3	25.6	1.1	6.1	4.8	1.4	0.8	865
30-34	58.2	54.4	5.3	6.2	--	3.1	43.7	3.4	8.4	5.3	1.6	2.7	773
35-39	63.0	59.1	4.0	3.9	--	0.7	46.7	8.3	7.9	5.5	0.8	2.4	502
40-44	54.1	51.1	4.2	2.4	--	0.7	40.6	7.0	5.5	3.1	1.1	1.9	423
45-49	42.5	41.0	0.9	1.4	--	--	31.5	8.5	3.6	3.6	--	0.5	256
Total	40.3	37.4	3.6	4.3	--	2.1	28.2	3.4	5.6	3.9	1.0	1.3	4025

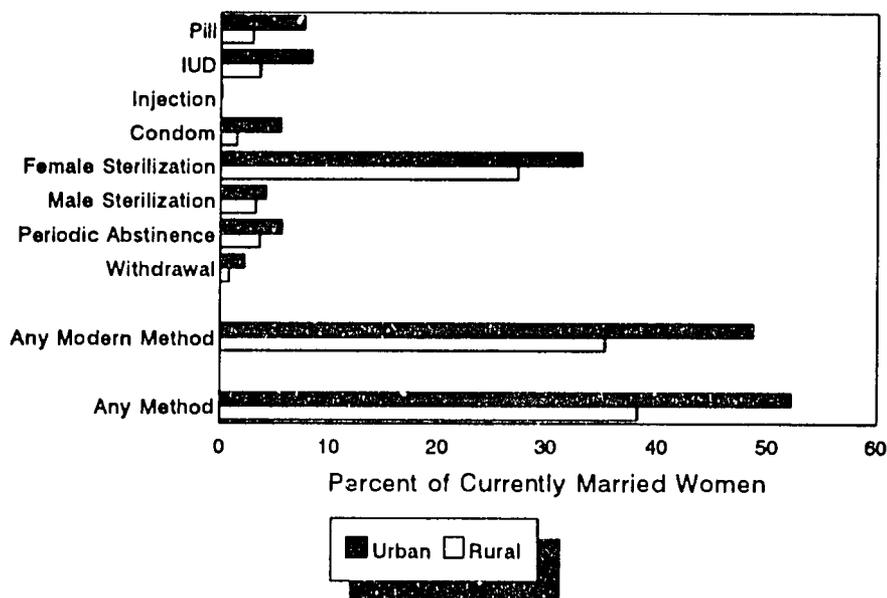
Note: Total for ever-married women includes 10 women age 13-14 and total for currently married women includes 9 women age 13-14, who are not shown separately.
 -- Less than 0.05 percent

currently married women. Modern spacing methods such as IUDs, pills, and condoms have each been used by only 2-4 percent. As expected, ever use of modern methods is higher in urban than in rural areas (49 percent compared with 35 percent of currently married women; see Figure 6.2). This differential exists for all methods, including the traditional ones.

In terms of differences by age, experience with having used a modern method rises with age until around age 40, then declines thereafter. The rise at the earlier ages likely reflects a life-course effect: only after having at least one birth or after reaching their desired parity do most women adopt a modern contraceptive method. In contrast, the decline at older ages in ever use of a modern method likely reflects a historical change in contraceptive use: fewer women in the oldest cohorts adopted modern contraception, even when their parity was high. This may partly reflect their having attained a high parity some time ago, when contraceptive sterilization was less readily available and less accepted than it is today.

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

Figure 6.2
Ever Use of Contraception by
Residence



NFHS, Orissa, 1993

Current Use of Family Planning Methods

Current contraceptive prevalence in Orissa is moderate with 36 percent of currently married women practising family planning; 35 percent use modern methods and another 2 percent use traditional methods (Table 6.4)¹. Most of the currently married women who have ever used contraception are current users (36 out of 40 percent). The NFHS estimate of current contraceptive prevalence is somewhat lower than that obtained in a 1988-89 survey, the Third All India Survey on Family Planning Practices in India (Operations Research Group, 1990). That survey (which covered currently married women age 15-44 only) found a contraceptive prevalence rate of 45 percent for Orissa, with 41 percent using modern methods and 4 percent using traditional methods. When the NFHS sample is restricted to match the All India Survey's sample, the prevalence rate is 36 percent, with 34 percent using modern methods. Part of the difference in these estimates reflects a higher sterilization rate in the All India Survey (34 percent) than in the NFHS (31 percent) and part of it reflects a higher use rate for condoms and pills (5 percent and 2 percent, respectively). Whether these differences reflect an actual decline in contraceptive prevalence between 1988-89 and 1993 or instead result from sampling or other sources of error is unknown. The NFHS sterilization figures are, however, very close to the official statistics for 1993 (Ministry of Health and Family-Welfare, 1993), which show 30 percent

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, Orissa, 1993

Age	Any method	Any modern method	Pill	IUD	Injection	Condom	Female sterilization	Male sterilization	Any trad. method	Periodic abstinence	Withdrawal	Other methods	Not using any method	Total per cent	Number of women
URBAN															
15-19	2.0	2.0	2.0	--	--	--	--	--	--	--	--	--	98.0	100.0	29
20-24	21.4	20.0	1.9	4.3	--	1.4	11.9	0.5	1.4	1.0	--	0.5	78.6	100.0	119
25-29	49.6	46.6	4.3	6.5	--	4.7	28.7	2.2	3.0	1.7	1.3	--	50.4	100.0	132
30-34	60.1	55.4	1.7	3.0	--	3.4	43.3	3.9	4.7	2.1	1.3	1.3	39.9	100.0	133
35-39	65.0	63.8	3.8	1.3	--	1.3	48.8	8.8	1.3	0.6	0.6	--	35.0	100.0	91
40-44	57.6	56.1	1.5	1.5	--	--	47.7	5.3	1.5	0.8	0.8	--	42.4	100.0	75
45-49	51.6	51.6	--	--	--	--	38.7	12.9	--	--	--	--	48.4	100.0	35
15-44	47.2	44.8	2.7	3.4	--	2.4	32.8	3.5	2.5	1.3	0.8	0.4	52.8	100.0	579
15-49	47.5	45.2	2.5	3.2	--	2.2	33.1	4.1	2.3	1.2	0.7	0.4	52.5	100.0	614
13-49	47.4	45.1	2.5	3.2	--	2.2	33.1	4.1	2.3	1.2	0.7	0.4	52.6	100.0	615
RURAL															
15-19	1.8	1.1	--	0.7	--	0.4	--	--	0.7	0.4	--	0.4	98.2	100.0	329
20-24	15.5	14.5	1.0	1.4	--	0.6	10.6	0.8	1.0	0.8	0.2	--	84.5	100.0	719
25-29	30.6	28.9	0.5	1.9	--	0.6	24.8	1.1	1.7	1.1	0.5	0.2	69.4	100.0	733
30-34	52.3	50.1	1.1	1.8	--	0.2	43.8	3.3	2.2	0.7	0.2	1.3	47.7	100.0	641
35-39	58.0	55.8	0.6	0.8	--	--	46.2	8.2	2.3	1.4	--	0.8	42.0	100.0	411
40-44	48.3	46.3	--	--	--	--	39.0	7.3	2.0	1.3	--	0.7	51.7	100.0	347
45-49	38.2	38.2	--	--	--	--	30.4	7.9	--	--	--	--	61.8	100.0	221
15-44	34.0	32.4	0.6	1.3	--	0.4	27.2	2.9	1.6	0.9	0.2	0.5	66.0	100.0	3181
15-49	34.3	32.8	0.6	1.2	--	0.2	27.4	3.2	1.5	0.9	0.2	0.5	65.7	100.0	3402
13-49	34.2	32.7	0.6	1.2	--	0.2	27.3	3.2	1.5	0.9	0.2	0.5	65.8	100.0	3410
TOTAL															
15-19	1.8	1.1	0.2	0.6	--	0.3	--	--	0.6	0.3	--	0.3	98.2	100.0	358
20-24	16.3	15.3	1.1	1.9	--	0.8	10.8	0.8	1.0	0.8	0.1	0.1	83.7	100.0	839
25-29	33.5	31.6	1.1	2.6	--	1.3	25.4	1.3	1.9	1.2	0.6	0.1	66.5	100.0	865
30-34	53.6	51.0	1.2	2.0	--	0.7	43.7	3.4	2.6	1.0	0.4	1.3	46.4	100.0	773
35-39	59.3	57.2	1.1	0.9	--	0.2	46.7	8.3	2.1	1.3	0.1	0.7	40.7	100.0	502
40-44	50.0	48.1	0.3	0.3	--	--	40.6	7.0	1.9	1.2	0.1	0.5	50.0	100.0	423
45-49	40.1	40.1	--	--	--	--	31.5	8.5	--	--	--	--	59.9	100.0	256
15-44	36.1	34.3	0.9	1.6	--	0.7	28.0	3.0	1.8	1.0	0.3	0.5	63.9	100.0	3760
15-49	36.3	34.7	0.9	1.5	--	0.6	28.3	3.4	1.7	0.9	0.3	0.5	63.7	100.0	4016
13-49	36.3	34.6	0.9	1.5	--	0.6	28.2	3.4	1.6	0.9	0.3	0.5	63.7	100.0	4025

Note: Total includes 9 women age 13-14, who are not shown separately.
 -- Less than 0.05 percent

of couples in Orissa protected through sterilization compared with 32 percent in the NFHS.

Table 6.4 shows that female sterilization is the most popular contraceptive method in Orissa, as in most of the states in India. Twenty-eight percent of currently married women are sterilized and female sterilization alone accounts for 78 percent of current contraceptive prevalence. Another 3 percent of currently married women report that their husbands are sterilized, and 2 percent report the use of IUDs. No other method of family planning is used by more than 1 percent of currently married women. The preponderance of terminal methods is commensurate with the emphasis on sterilization in the Indian family planning programme.

Contraceptive prevalence is almost 40 percent higher in urban than in rural areas (47 percent compared with 34 percent), with urban use higher for every single method of family planning, including terminal methods. In rural areas, however, male and female sterilization together account for a higher proportion of total contraceptive use among women age 15-49 (89 percent) than they do in urban areas (78 percent).

The level of contraceptive use varies with the age of women, increasing from less than 2 percent for currently married women age 15-19 to a high of 59 percent for women age 35-39, and decreasing thereafter. In the age groups with the highest fertility (20-24 and 25-29), contraceptive prevalence rates are only 16 and 34 percent, respectively. Among modern methods, female sterilization is the most widely used method above age 20, with its use peaking in the age group 35-39 (47 percent). The use rate of most of the modern methods, especially female sterilization, shows an expected curvilinear relationship with age. The age pattern of current use of contraception is similar for urban and rural women, peaking in the age group 35-39. At every age, however, the current use is higher for urban than for rural women.

Socioeconomic Differentials in Current Use of Family Planning

Table 6.5 shows differences in current contraceptive use by background characteristics. Education has a positive relationship to current use, although the contraceptive prevalence rate among women who have completed middle school is unexpectedly low (Figure 6.3). The relationship holds regardless of whether any method or only modern methods are considered, and is most evident for spacing methods. The relationship is reversed for sterilizations, however, where the percentage of women sterilized is higher among illiterates than among those with a high school education. Illiterate women use almost no method other than female or male sterilization, whereas a substantial proportion of women with high school or higher levels of education use the IUD, condom and the pill.

Religious differences in the use of contraception are even more substantial than the differences by education. The prevalence rate is lowest among Muslim women, only 16 percent of whom use a modern method, and is highest among Christian women, 45 percent of whom use a modern method. Hindus occupy an intermediate position with a modern method prevalence rate of 35 percent.

Caste/tribe also is related to current use of contraception, although not as strongly as religion or parity. The practice of family planning is lowest among women from scheduled tribes and is highest among non-SC/ST women. Ninety-two percent of current use among

Table 6.5 Current use by background characteristics

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

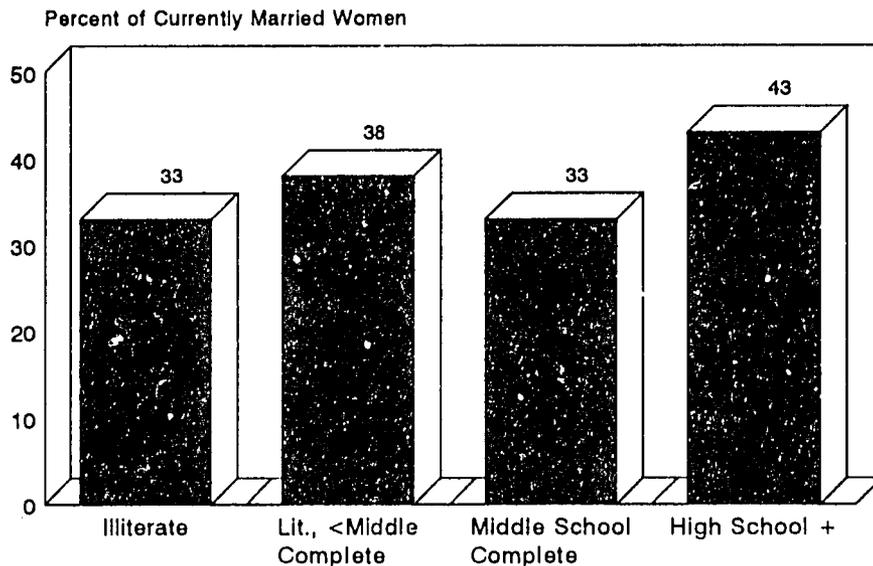
Background characteristic	Any method	Any modern method	Pill	IUD	Condom	Female sterilization	Male sterilization	Any trad. method	Periodic abstinence	Withdrawal	Other methods	Not using any method	Total percent	Number of women
Residence														
Urban	47.4	45.1	2.5	3.2	2.2	33.1	4.1	2.3	1.2	0.7	0.4	52.6	100.0	615
Rural	34.2	32.7	0.6	1.2	0.3	27.3	3.3	1.5	0.9	0.2	0.5	65.8	100.0	3410
Education														
Illiterate	33.8	32.5	0.4	0.5	0.1	27.5	4.1	1.2	0.6	--	0.5	66.2	100.0	2682
Literate, < middle	40.5	38.2	1.3	1.7	0.9	32.6	1.8	2.3	1.4	0.4	0.5	59.5	100.0	944
Middle complete	33.8	33.0	1.2	3.2	1.2	24.9	2.4	0.8	--	0.8	--	66.2	100.0	143
High school and above	47.5	43.0	3.6	10.8	5.1	21.0	2.5	4.5	2.7	1.6	0.2	52.5	100.0	256
Religion														
Hindu	36.5	34.8	0.8	1.6	0.6	28.4	3.4	1.7	1.0	0.3	0.5	63.5	100.0	3908
Muslim	16.1	16.1	3.0	--	2.0	8.0	3.0	--	--	--	--	83.9	100.0	57
Christian	45.6	44.5	2.2	1.1	2.2	34.4	4.5	1.1	--	1.1	--	54.4	100.0	52
Caste/tribe														
Scheduled caste	33.7	31.8	1.1	0.3	--	27.7	2.7	2.0	0.9	0.1	0.9	66.3	100.0	380
Scheduled tribe	30.0	28.9	0.6	0.5	0.3	22.1	5.5	1.1	0.7	--	0.3	70.0	100.0	858
Other	38.5	36.7	0.9	2.0	0.8	30.1	2.8	1.8	1.0	0.4	0.4	61.5	100.0	2787
Number and sex of living children														
None	2.7	2.4	--	0.2	0.2	0.4	1.6	0.2	--	--	0.2	97.3	100.0	543
1 child														
1 son	14.0	12.3	1.6	4.0	0.9	3.1	2.7	1.6	1.3	0.3	--	86.0	100.0	388
No son	9.9	9.4	0.2	2.0	1.4	4.0	1.8	0.5	0.2	0.4	--	90.1	100.0	321
2 Children														
2 sons	51.8	49.9	1.7	2.1	1.2	40.1	4.8	1.9	0.2	1.2	0.4	48.2	100.0	275
1 son	40.0	37.4	0.8	2.9	1.6	28.7	3.4	2.6	2.2	0.1	0.3	60.0	100.0	438
No sons	20.0	18.3	--	3.5	1.4	9.7	3.8	1.7	1.0	0.3	0.3	80.0	100.0	167
3 children														
3 sons	60.2	57.1	2.5	--	--	46.5	8.1	3.1	0.6	1.2	1.2	39.8	100.0	93
2 sons	61.5	59.6	1.7	0.9	0.2	53.5	3.3	1.9	1.3	--	0.6	38.5	100.0	365
1 son	43.3	42.9	0.6	1.4	0.6	34.6	5.6	0.4	--	--	0.4	56.7	100.0	278
No sons	21.5	19.0	1.7	2.6	0.8	9.5	4.3	2.6	2.6	--	--	78.5	100.0	67
4+ children														
2+ sons	55.8	53.9	0.6	0.4	--	49.3	3.7	1.9	0.8	0.1	1.1	44.2	100.0	820
1 son	51.0	48.0	1.2	1.0	0.2	42.7	2.7	3.0	1.8	0.7	0.5	49.0	100.0	231
No sons	(42.7)	(36.8)	(3.0)	(--)	(--)	(28.0)	(5.9)	(5.9)	(5.9)	(--)	(--)	(57.3)	100.0	39
Total	36.3	34.6	0.9	1.5	0.6	28.2	3.4	1.6	0.9	0.3	0.5	63.7	100.0	4025

Note: Total includes 9 women belonging to other religions, who are not shown separately.

() Based on 25-49 unweighted cases

-- Less than 0.05 percent

Figure 6.3
Current Use of Modern Contraceptive
Methods by Education



NFHS, Orissa, 1993

scheduled tribe women consists of sterilization, a figure that is 85 percent among non-SC/ST women.

Table 6.5 also shows differences in current use by the number and sex of living children. A strong positive association exists between the number of living children and current use of contraception. Contraceptive use increases steadily from only 3 percent for women with no living children to 54 percent for women with four or more children. The same trend is evident, if a bit weaker, for sterilized women. The prevalence rates by sex composition of living children indicate the existence of son preference. At each parity, current use of family planning is lowest among women having no sons and is highest among women having two or more sons. However, son preference does not completely outweigh parity in determining contraceptive use, because a substantial minority of higher parity women with no sons nevertheless use family planning. This, again, suggests that son preference in Orissa is weaker than in some other, North Indian, states.

Number of Children at First Use of Contraception

In order to examine the timing of initial family planning use, the NFHS included a question on how many living children women had when they first used a method. The distribution of ever-married women according to the number of living children at first contraceptive use is shown in Table 6.6. Overall, only 3 percent of contraceptors (1 percent of all ever-married women) initiated the use of contraception before having any children, and

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, Orissa, 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	90.6	5.7	3.8	--	--	--	100.0	30
20-24	76.4	0.5	6.0	8.3	6.5	2.3	100.0	123
25-29	45.5	1.2	14.5	17.8	12.4	8.7	100.0	138
30-34	36.6	0.4	10.3	14.4	19.3	18.9	100.0	138
35-39	33.9	1.1	5.7	9.2	19.5	30.5	100.0	99
40-44	40.0	0.7	4.3	5.7	14.3	35.0	100.0	80
45-49	49.3	2.7	1.4	5.5	11.0	30.1	100.0	42
Total	49.4	1.1	8.0	10.8	13.4	17.1	100.0	650
RURAL								
15-19	97.6	1.4	1.0	--	--	--	100.0	338
20-24	80.6	1.6	5.5	7.6	4.3	0.5	100.0	735
25-29	64.6	0.6	5.5	12.9	10.6	5.8	100.0	756
30-34	44.4	1.4	5.5	11.6	17.1	20.0	100.0	671
35-39	41.7	0.8	3.1	8.4	16.6	29.4	100.0	453
40-44	50.6	0.6	1.2	4.3	11.3	32.0	100.0	380
45-49	62.3	0.4	1.3	2.6	5.3	28.1	100.0	264
Total	62.8	1.0	4.0	8.1	9.9	14.2	100.0	3607
TOTAL								
15-19	97.0	1.7	1.3	--	--	--	100.0	368
20-24	80.0	1.4	5.6	7.7	4.6	0.7	100.0	858
25-29	61.7	0.7	6.9	13.6	10.8	6.3	100.0	894
30-34	43.1	1.2	6.3	12.1	17.5	19.8	100.0	809
35-39	40.3	0.8	3.5	8.6	17.1	29.6	100.0	552
40-44	48.8	0.6	1.8	4.5	11.8	32.5	100.0	460
45-49	60.5	0.8	1.3	3.0	6.0	28.4	100.0	306
Total	60.7	1.0	4.6	8.5	10.5	14.6	100.0	4257

Note: Total includes 10 women age 13-14, who are not shown separately.
 -- Less than 0.05 percent

another 12 percent started after the first child. However, although early use of contraception is rare, the majority of those who ever used family planning (63 percent) initiated use when they had fewer than four living children. This pattern of first acceptance at relatively low parities means that family planning has a larger demographic impact than it would if contraceptive use were initiated later.

Table 6.6 suggests that there has been a shift over time toward initiating contraceptive use at lower parities. In the older cohorts, the average parity at which women who ever used contraception first did so was considerably higher than the parity at which ever users in the younger cohorts first used. For example, 63 percent of ever users in the age group 40-44 first used contraception only when they had four or more living children, while only 16 percent of the ever users in the 25-29 group waited this long. The average parity at which urban women

initiate contraceptive use also is slightly lower than the average parity at which rural women initiate use, but the difference is small, despite the very substantial urban-rural difference in total contraceptive prevalence.

Problems in the Current Use of Family Planning

Table 6.7 deals with the problems faced by women while using the pill, IUD, and sterilization. A majority of the women using these methods did not report any problems. Among the specific problems listed in the case of pill users, headache is most common (16 percent of users), followed by dizziness (5 percent). In the case of the IUD, it is backache (9 percent of users), followed by excessive bleeding (8 percent). The proportion of women complaining of a problem is higher in the case of female sterilization, the most commonly used

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, Orissa, 1993		
Problem	Method	
	Pill	
No problems	(72.2)	
Cramps	(3.3)	
Dizziness	(4.9)	
Body ache	(1.5)	
Spotting/bleeding	(3.3)	
Nausea/vomiting	(3.3)	
Headache	(16.3)	
Other	(3.3)	
Number of pill users	35	
	Copper T/IUD	
No problems	76.6	
Cramps	3.8	
Backache	9.4	
Irregular periods	1.8	
Excessive bleeding	8.4	
Weakness/inability to work	4.7	
Other	0.9	
Number of IUD users	62	
	Female sterilization	Male sterilization
No problems	67.0	83.9
Fever	3.0	2.6
Pain/backache	16.7	4.2
Sepsis	8.6	6.8
Weakness/inability to work	15.8	5.5
Failure/woman got pregnant	1.0	0.8
Other	2.7	--
Number sterilized	1135	136
Note: Percentages may sum to more than 100.0 because multiple problems could be recorded.		
() Based on 25-49 unweighted cases		
-- Less than 0.05 percent		

method. The major complaints here are pain or backache (17 percent) and weakness or inability to work (16 percent). Sepsis is most commonly mentioned in the case of male sterilization (7 percent), followed by weakness or inability to work (6 percent), but this method generated the fewest complaints, at least according to female respondents.

Age at Sterilization

Table 6.8 shows the age and time relative to the interview at which couples obtained a sterilization. Of the 1,271 sterilization operations reported, 45 percent were conducted fewer than 6 years before the survey, another 26 percent were conducted 6-9 years before the survey, and the remaining 29 percent were conducted 10 or more years before the survey. The majority of the couples had undergone sterilization before the wife was age 30, as indicated by a median age at sterilization of 27 years. However, there were also an appreciable number who accepted sterilization when the wife was age 30-34 (21 percent).

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, Orissa, 1993									
Years since operation	Woman's age at the time of operation						Total percent	Number	Median age ¹
	<25	25-29	30-34	35-39	40-44	45-49			
STERILIZED WOMEN									
< 2	28.7	40.1	23.4	6.9	1.0	--	100.0	177	27.6
2-3	29.9	41.5	21.4	5.8	1.4	--	100.0	170	27.3
4-5	37.4	36.0	17.1	7.1	1.7	0.6	100.0	202	26.4
6-7	39.6	29.3	20.6	8.1	2.5	U	100.0	185	26.7
8-9	33.0	34.9	18.8	11.9	1.4	U	100.0	126	27.0
10+	29.0	40.9	26.9	3.2	U	U	100.0	275	NC
Total	32.8	37.4	21.9	6.6	1.2	0.1	100.0	1135	27.0
WIVES OF STERILIZED MEN									
< 10	(37.0)	(24.7)	(27.2)	(8.6)	(2.5)	(--)	100.0	47	27.1
10+	47.7	37.5	12.9	1.9	U	U	100.0	89	NC
Total	44.0	33.1	17.8	4.2	0.9	--	100.0	136	25.6
STERILIZED COUPLES									
< 2	27.9	39.6	24.4	7.3	0.9	--	100.0	182	27.7
2-3	31.3	39.4	21.9	5.5	1.9	--	100.0	179	27.2
4-5	37.2	36.9	16.6	7.2	1.6	0.5	100.0	216	26.4
6-7	39.8	29.0	20.4	8.4	2.4	U	100.0	193	26.7
8-9	33.3	33.3	20.7	11.4	1.3	U	100.0	137	27.1
10+	33.6	40.1	23.5	2.9	U	U	100.0	364	NC
Total	34.0	37.0	21.4	6.4	1.2	0.1	100.0	1271	26.8
NC: Not calculated due to censoring U: Not available () Based on 25-49 unweighted cases -- Less than 0.05 percent ¹ Median ages are calculated only for persons sterilized at less than 40 years of age to avoid problems of censoring.									

6.3 Source of Supply of Contraception

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

In order to assess the relative importance of various sources of contraceptive methods, the NFHS included a question about where current users of contraception obtained their methods. Overall, the public sector, consisting of government/municipal hospitals, Primary Health Centres and other governmental health infrastructure, provide services to 93 percent of the current users of all modern methods, while the private medical sector, including private hospitals and clinics, private doctors, and pharmacies/drugstores serve only 4 percent of current users (Table 6.9 and Figure 6.4). Also, only 3 percent of users obtain their methods from other sources, such as shops, friends or relatives.

The mix of public and private sector sources varies according to the method used. For clinical methods (sterilizations and the IUD), the government is by far the major source of

Source of supply	Pill	Copper T/ IUD	Con- dom	Female steril- ization	Male steril- ization	All modern methods
URBAN						
Public sector	(22.2)	(85.7)	*	88.0	(81.8)	79.7
Government/municipal hospital	(14.8)	(57.1)	*	65.4	(56.8)	58.4
Primary Health Centre	(7.4)	(17.1)	*	18.4	(22.7)	17.2
Sub-centre	(--)	(--)	*	--	(--)	--
Family planning clinic	(--)	(5.7)	*	0.8	(--)	1.0
Public Mobile clinic	(--)	(--)	*	0.8	(2.3)	0.8
Camp	(--)	(--)	*	2.5	(--)	1.8
Government paramedic	(--)	(5.7)	*	--	(--)	0.4
Private medical sector	(25.9)	(14.3)	*	11.2	(11.4)	13.7
Private hospital or clinic	(--)	(8.6)	*	9.5	(9.1)	8.4
Pharmacy/drugstore	(18.5)	(--)	*	--	(--)	3.1
Private doctor	(7.4)	(5.7)	*	1.4	(2.3)	2.0
Private mobile clinic	(--)	(--)	*	0.3	(--)	0.2
Other source	(51.9)	(--)	*	0.8	(6.8)	6.6
Shop	(48.1)	(--)	*	--	(--)	4.5
Husband	(--)	(--)	*	--	(--)	--
Friend/relative	(3.7)	(--)	*	--	(--)	0.2
Other	(--)	(--)	*	0.8	(6.8)	1.8
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	15	20	14	204	25	278

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, Orissa, 1993

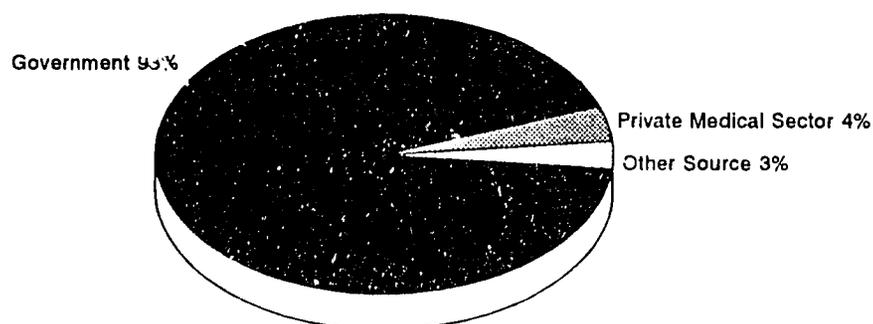
Source of supply	Pill	Copper T/ IUD	Con- dom	Female steril- ization	Male steril- ization	All modern methods
RURAL						
Public sector	*	(94.4)	*	98.4	96.9	96.8
Government/municipal hospital	*	(36.1)	*	16.5	18.8	17.4
Primary Health Centre	*	(47.2)	*	62.1	69.8	61.1
Sub-centre	*	(2.8)	*	--	--	0.2
Family planning clinic	*	(--)	*	0.4	1.0	0.6
Public mobile clinic	*	(--)	*	3.6	--	3.0
Camp	*	(--)	*	15.8	7.3	13.9
Government paramedic	*	(8.3)	*	--	--	0.5
Private medical sector	*	(5.6)	*	1.2	--	1.7
Private hospital or clinic	*	(--)	*	0.9	--	0.7
Pharmacy/drugstore	*	(--)	*	--	--	0.4
Private doctor	*	(5.6)	*	--	--	0.2
Private mobile clinic	*	(--)	*	0.4	--	0.3
Other source	*	(--)	*	0.4	3.1	1.6
Shop	*	(--)	*	--	--	0.6
Husband	*	(--)	*	--	--	0.2
Friend/relative	*	(--)	*	--	--	0.1
Other	*	(--)	*	0.4	3.1	0.6
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	20	42	12	931	111	1115
TOTAL						
Public sector	(42.8)	91.6	(22.9)	96.5	94.1	93.4
Government/municipal hospital	(13.1)	42.9	(13.7)	25.3	25.7	25.6
Primary Health Centre	(16.5)	37.5	(4.6)	54.2	61.1	52.3
Sub-centre	(3.3)	1.9	(--)	--	--	0.2
Family planning clinic	(6.6)	1.8	(--)	0.5	0.9	0.7
Public mobile clinic	(--)	--	(--)	3.1	0.4	2.6
Camp	(--)	--	(--)	13.4	6.0	11.5
Government paramedic	(3.3)	7.5	(4.6)	--	--	0.5
Private medical sector	(21.3)	8.4	(27.1)	3.0	2.1	4.1
Private hospital or clinic	(--)	2.8	(--)	2.4	1.7	2.3
Pharmacy/drugstore	(18.0)	--	(27.1)	--	--	0.9
Private doctor	(3.2)	5.6	(--)	0.3	0.4	0.6
Private mobile clinic	(--)	--	(--)	0.4	--	0.3
Other source	(35.9)	--	(50.0)	0.5	3.8	2.6
Shop	(34.3)	--	(29.5)	--	--	1.4
Husband	(--)	--	(9.2)	--	--	0.2
Friend/relative	(1.6)	--	(4.6)	--	--	0.1
Other	(--)	--	(6.8)	0.5	3.8	0.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	35	62	25	1135	136	1393

() Based on 25-49 unweighted cases

* Percentage not shown; based on fewer than 25 unweighted cases

-- Less than 0.05 percent

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



NFHS, Orissa, 1993

supply – more than 90 percent of male and female sterilization operations and IUD insertions were done at a government source. Even among the nonclinical methods, pills are provided by the government to 43 percent of users. In the case of condoms, "other" sources such as shops are used by half of the users. The private medical sector followed by the government are the sources of supply for 27 percent and 23 percent of condom users, respectively.

With regard to specific sources of contraception, Primary Health Centres and government/municipal hospitals (the main institutions that provide contraceptive services) are the most important sources. In Orissa, about 80 percent of female sterilization acceptors, 87 percent of male sterilization acceptors, 80 percent of IUD users, and 30 percent of pill users are served by these institutions. Private shops are major sources for pills and condoms (34 percent of pill users and 30 percent of condom users). Thirteen percent of female sterilizations and 6 percent of male sterilizations were done in sterilization camps. Only 6 percent of IUDs were inserted by private doctors.

Differentials in the source of methods are found between urban and rural areas of the state. In rural areas, the public sector is the source of supply for almost all users (97 percent) regardless of method, while in urban areas, the public sector is the source of supply for only 80 percent of users, and for the pill, for only 22 percent of users. In urban areas, private medical sources provide contraception to 14 percent of users and other nonmedical sources to 7 percent of them; together, they supply 12 percent of the female sterilizations, 14 percent of the IUD users, and 78 percent of the pill users. Thus, while government sources are important in urban as well as rural areas, their importance is particularly great in rural Orissa.

6.4 Reasons for Discontinuation

All currently married women who had ever used contraception but who were not using any method at the time of the survey and were not currently pregnant were asked why they had discontinued their use of contraception. Their responses to this question are presented in Table 6.10. The most commonly mentioned reason for discontinuing a method is that it created health problems (28 percent of discontinuers), with "other" being the second most common reason (22 percent), and "did not like the method" the third most common one (17 percent). The only other reason given by more than one-tenth of the discontinuers was that the method created menstrual problems (13 percent). Health and physiological difficulties associated with the method are therefore among the most common reasons given for discontinuation. It is unclear whether this reflects a lack of medical follow-up for many of the temporary methods, or instead reflects unavoidable difficulties associated with particular methods. If methods other than sterilization become more important in Orissa in the future, more attention will have to be paid to the reasons for discontinuation.

Reason for stopping use	Urban	Rural	Total
Method failed/got pregnant	(--)	7.4	6.1
Lack of sexual satisfaction	(--)	1.1	0.9
Created menstrual problem	(4.9)	14.7	13.0
Created health problem	(41.5)	25.3	28.1
Inconvenient to use	(--)	6.3	5.2
Hard to get method	(2.4)	1.1	1.3
Put on weight	(9.8)	2.1	3.4
Did not like the method	(12.2)	17.9	16.9
Wanted to have a child	(--)	2.1	1.7
Other	(29.3)	20.0	21.6
Don't know/missing	(--)	2.1	1.7
Total percent	100.0	100.0	100.0
Number	23	110	133

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

6.5 Intention to Use Family Planning in the Future

In the NFHS, all currently married women who were not using contraception at the time of the interview (including those who were currently pregnant) were asked about their future intentions regarding the use of family planning and their method preference if they intended to use contraception. This type of information can assist family planning programme administrators in identifying potential groups of users and in providing the types of contraception that are likely to be in demand. Responses to the questions on future use according to past use, place of residence, and number of living children are given in Table 6.11.

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, Orissa, 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	--	13.5	18.2	20.4	14.2	14.4
Intends to use later	20.8	26.2	16.9	9.7	5.0	15.6
Intends to use, unsure when	--	0.8	3.4	--	0.8	1.2
Unsure as to intention	16.7	12.7	8.1	8.7	5.8	9.8
Does not intend to use	58.3	45.2	38.5	51.5	61.7	49.7
Missing	--	--	0.7	--	--	0.2
Previously used contraception						
Intends to use in next 12 months	--	--	6.8	4.9	4.2	3.5
Intends to use later	1.4	--	3.4	--	1.7	1.4
Intends to use, unsure when	1.4	--	0.7	--	--	0.4
Unsure as to intention	--	--	--	--	2.5	0.5
Does not intend to use	1.4	1.6	3.4	4.9	4.2	3.2
Missing	--	--	--	--	--	--
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	--	13.5	25.0	25.2	18.3	17.9
Intends to use later	22.2	26.2	20.3	9.7	6.7	17.0
Intends to use, unsure when	1.4	0.8	4.1	--	0.8	1.6
Unsure as to intention	16.7	12.7	8.1	8.7	8.3	10.4
Does not intend to use	59.7	46.8	41.9	56.3	65.8	52.9
Missing	--	--	0.7	--	--	0.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	41	72	84	59	68	324
RURAL						
Never used contraception						
Intends to use in next 12 months	1.2	6.0	13.3	17.1	19.1	11.2
Intends to use later	11.0	17.2	11.8	11.6	3.7	11.3
Intends to use, unsure when	--	0.4	1.0	3.2	2.0	1.2
Unsure as to intention	17.1	9.6	8.9	8.7	6.9	10.1
Does not intend to use	69.9	63.2	56.9	50.0	59.2	60.1
Missing	--	--	--	--	0.5	0.1
Previously used contraception						
Intends to use in next 12 months	--	0.9	3.4	5.2	3.7	2.5
Intends to use later	0.3	1.9	1.5	0.3	1.0	1.1
Intends to use, unsure when	--	0.2	0.2	0.6	0.7	0.4
Unsure as to intention	0.6	0.2	0.7	--	0.7	0.5
Does not intend to use	--	0.4	2.2	3.2	2.2	1.5
Missing	--	--	--	--	0.2	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
All currently married nonusers						
Intends to use in next 12 months	1.2	6.8	16.7	22.3	22.8	13.7
Intends to use later	11.3	19.1	13.3	11.9	4.7	12.3
Intends to use, unsure when	--	0.6	1.2	3.9	2.7	1.6
Unsure as to intention	17.6	9.8	9.6	8.7	7.7	10.5
Does not intend to use	69.9	63.6	59.1	53.2	61.4	61.7
Missing	--	--	--	--	0.7	0.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	401	544	470	359	468	2242

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, Orissa, 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	1.0	6.8	14.1	17.6	18.4	11.6
Intends to use later	11.9	18.3	12.6	11.3	3.9	11.8
Intends to use, unsure when	--	0.5	1.3	2.8	1.8	1.2
Unsure as to intention	17.0	9.9	3.8	8.7	6.8	10.0
Does not intend to use	68.9	61.1	54.1	50.2	59.5	58.8
Missing	--	--	0.1	--	0.4	0.1
Previously used contraception						
Intends to use in next 12 months	--	0.8	4.0	5.1	3.8	2.7
Intends to use later	0.4	1.7	1.8	0.3	1.1	1.1
Intends to use, unsure when	0.1	0.2	0.3	0.6	0.6	0.4
Unsure as to intention	0.5	0.2	0.6	--	1.0	0.5
Does not intend to use	0.1	0.6	2.4	3.5	2.5	1.8
Missing	--	--	--	--	0.2	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
All currently married nonusers						
Intends to use in next 12 months	1.0	7.6	18.0	22.7	22.2	14.2
Intends to use later	12.3	20.0	14.4	11.6	5.0	12.9
Intends to use, unsure when	0.1	0.7	1.7	3.3	2.5	1.6
Unsure as to intention	17.5	10.1	9.4	8.7	7.8	10.5
Does not intend to use	69.0	61.7	56.5	53.7	62.0	60.6
Missing	--	--	0.1	--	0.6	0.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number	442	616	554	418	536	2566

-- Less than 0.05 percent

¹Includes current pregnancy, if any.

Overall, 6 out of 10 currently married nonusers reported that they did not intend to use contraception in the future. Twenty-nine percent said that they would use in the future, and another 11 percent were unsure of their intentions. The high proportion of women who do not intend to use family planning suggests that it will be difficult for the family planning programme to succeed without a strong Information, Education and Communication (IEC) component to motivate couples to use contraception.

Among those intending to use family planning, one-half said they would use contraception within the next 12 months, 45 percent said they would use it at a later stage, and 6 percent were unsure when they would start using contraception. Among women who have never used contraceptive methods before, the majority (63 percent) reported that they did not intend to use them in the future, and 11 percent were not sure of their intentions. In contrast, 65 percent of the women who have used contraception in the past but are not currently using, although fewer in number, intend to use contraception again in the future; another 8 percent are not sure of their intentions.

The proportion of women who intend to use family planning in the future increases gradually with each additional living child up to three, then declines slightly among women with four or more children. For instance, while only 13 percent of women with no living children expressed an intention to use contraceptives in the future, this percentage reaches 38 for those with three living children. The slight drop-off among women with four or more children (to 30 percent intending to use) may reflect their relatively advanced ages and consequent infecundability.

Although a higher proportion of urban than of rural women has already had tubectomies (33 percent compared with 27 percent; see Table 6.4), Table 6.11 nevertheless shows that urban nonusers are more likely than their rural counterparts to intend to adopt family planning in the future (37 percent among urban nonusers compared with 28 percent among rural nonusers). The parity pattern of intended future use found in the total sample is also found among rural women, but among urban women, intended use peaks at two living children, rather than at three. This likely reflects a selection effect: in urban areas, the women with three or more children who wish to cease childbearing have probably already been sterilized and hence are no longer in the sample of nonusers.

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. Information on reasons for nonuse is crucial for designing successful information programmes and for understanding the obstacles to further increase in contraceptive prevalence. Reasons for not intending to use any method are indicated in Table 6.12. The largest proportion of women (53 percent) say they do not intend to use contraception because they want more children, either in general or because they want a child of a particular sex. Not surprisingly, this reason is more common among women under age 30 (80 percent) than among those 30 or older (19 percent). Among older women, the most common reason given for future nonuse is that they are menopausal or already had a hysterectomy (25 percent), with another 8 percent reporting that they had difficulty getting pregnant, and a further 10 percent reporting that their health does not permit the use of family planning. Thus, only about two in five older women might be considered potential users of family planning, in the sense of not wanting more children and not already experiencing subfecundity or health problems barring sterilizations.

Because women under age 30 account for 78 percent of total current fertility in the NFHS (see Table 5.1), from a policy perspective, their reasons for not intending to use family planning are far more important than are the reasons older women give. Of the one-fifth of younger women who give a reason for nonuse other than wanting more children, half name worries about side effects, lack of knowledge, or problems of method access or cost as their reason for future nonuse. This suggests that improved communication and quality of services could enhance the impact of the family planning programme in Orissa by a modest amount. Again, however, it is the desire for more children that is the major barrier to future use among the younger nonusers.

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, Orissa, 1993

Reason	Urban			Rural			Total		
	Age <30	Age 30+	Total	Age <30	Age 30+	Total	Age <30	Age 30+	Total
Wants children	58.5	10.7	30.2	67.3	11.2	43.7	66.6	11.1	42.2
Wants a son	8.9	5.6	7.0	11.7	6.4	9.5	11.5	6.3	9.2
Wants a daughter	0.8	1.7	1.3	1.7	1.4	1.6	1.7	1.4	1.6
Worry about side effects	1.6	5.6	4.0	1.9	2.6	2.2	1.9	3.0	2.4
Can't work after sterilization	--	1.7	1.0	0.9	2.2	1.4	0.8	2.1	1.4
Lack of knowledge	--	1.1	0.7	4.3	5.2	4.7	4.0	4.6	4.2
Afraid of sterilization	4.9	7.9	6.6	3.0	8.8	5.4	3.2	8.6	5.6
Hard to get methods	--	1.1	0.7	--	--	--	--	0.2	0.1
Cost too much	--	--	--	0.6	0.6	0.6	0.5	0.5	0.5
Against religion	2.4	2.2	2.3	0.7	1.0	0.8	0.9	1.2	1.0
Opposed to family planning	--	2.2	1.3	0.3	1.6	0.8	0.3	1.7	0.9
Husband opposed	4.9	2.8	3.7	1.9	2.8	2.3	2.1	2.8	2.4
Other people opposed	0.8	--	0.3	0.6	0.4	0.5	0.6	0.3	0.5
Difficult to get pregnant	0.8	10.7	6.6	0.7	7.2	3.4	0.7	7.7	3.8
Menopausal/had hysterectomy	--	17.4	10.3	--	25.7	10.8	--	24.5	10.7
Health does not permit	4.1	9.6	7.3	1.4	9.8	4.9	1.7	9.7	5.2
Inconvenient	--	2.8	1.7	0.4	1.2	0.8	0.4	1.4	0.9
Doesn't like existing methods	9.8	9.6	9.6	1.3	4.6	2.7	2.0	5.3	3.4
Other	2.4	7.3	5.3	1.2	7.6	3.9	1.3	7.5	4.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	70	101	171	802	581	1383	871	683	1554

-- Less than 0.05 percent

6.7 Preferred Future Method of Family Planning

Women currently not using contraception who said they intend to use a method in the future were asked to specify the method of family planning that they want to use. From Table 6.13 it can be seen that 40 percent of the women say they prefer to use modern spacing methods, especially the pill (34 percent); slightly fewer than half (47 percent) prefer terminal methods, female sterilizations in particular (46 percent).

The choice of preferred methods is slightly different for those who intend to use within 12 months and those who intend to use later, with the pill being the most popular method in the former group and female sterilization being most popular in the latter. The pattern of preferred future methods is generally similar in both urban and rural areas, although pills are a much more popular choice in rural areas, and IUDs and female sterilization are mentioned more often in urban areas. Condoms are named by only 1 percent of the women in both urban and rural areas.

The contraceptive method mix implied by the inclusion of intended future users in the sample differs somewhat from the methods selected by current users. Modern spacing methods are being used by only 3 percent of all currently married women (Table 6.4), but if future users are added to current users, this percentage rises to slightly more than 10 percent. There is thus

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, Orissa, 1993

Preferred method	Timing of intended use			All women
	Next 12 months	Later	Unsure when	
URBAN				
Pill	26.5	11.3	*	19.2
Copper T/IUD	11.8	5.2	*	8.7
Injection	2.9	--	*	1.4
Condom	1.0	1.0	*	1.4
Female sterilization	45.1	66.0	*	55.3
Male sterilization	2.0	1.0	*	1.4
Periodic abstinence	2.9	4.1	*	3.4
Withdrawal	2.0	--	*	1.0
Other	2.9	5.2	*	3.8
Unsure	2.9	6.2	*	4.3
Total percent	100.0	100.0	100.0	100.0
Number	58	55	5	118
RURAL				
Pill	47.9	28.0	(19.4)	37.2
Copper T/IUD	4.2	2.1	(3.2)	3.2
Injection	1.1	0.4	(3.2)	0.9
Condom	1.1	0.4	(--)	0.7
Female sterilization	35.5	54.0	(45.2)	44.3
Male sterilization	0.4	1.7	(6.5)	1.3
Periodic abstinence	2.3	2.1	(3.2)	2.2
Withdrawal	0.4	0.4	(--)	0.4
Other	3.0	1.3	(3.2)	2.4
Unsure	4.2	9.6	(16.1)	7.3
Total percent	100.0	100.0	100.0	100.0
Number	307	277	36	622
TOTAL				
Pill	44.5	25.3	(19.7)	34.4
Copper T/IUD	5.4	2.6	(4.2)	4.0
Injection	1.4	0.3	(2.8)	1.0
Condom	1.1	0.5	(1.4)	0.9
Female sterilization	37.0	56.0	(46.5)	46.1
Male sterilization	0.6	1.6	(5.6)	1.3
Periodic abstinence	2.4	2.4	(2.8)	2.4
Withdrawal	0.6	0.3	(--)	0.5
Other	3.0	1.9	(2.8)	2.6
Unsure	4.0	9.1	(14.1)	6.8
Total percent	100.0	100.0	100.0	100.0
Number	365	332	41	740

Note: All women includes 2 rural women with missing information on timing of intended use, who are not shown separately.

() Based on 25-49 unweighted cases

* Percentage not shown; based on fewer than 25 unweighted cases

-- Less than 0.05 percent

a demand for spacing methods among approximately 7 percent of all currently married women in Orissa that is not now being met. This result suggests that the family welfare programme should increase their attention to the provision of spacing methods as part of creating a more balanced programme that satisfies the contraceptive needs of women in the state.

6.8 Exposure to Family Planning Messages on Radio and Television

For many years, the family welfare programme has been utilizing the electronic mass media to promote family planning. In order to explore the spread of family planning messages through various mass media, respondents were asked whether they had heard such messages on radio or television in the past month. Table 6.14 shows the percentage of women who report seeing or hearing a family planning message according to various background characteristics. The effort to disseminate family planning information through the electronic mass media has succeeded in reaching only one-fourth of ever-married women in Orissa. This is perhaps not

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, Orissa, 1993

Background characteristic	Heard family planning message on radio or television				Total percent	Number
	Neither	Radio only	Television only	Both		
Age						
13-19	83.4	13.0	0.8	2.9	100.0	379
20-29	71.5	16.2	2.4	9.9	100.0	1752
30-39	72.9	12.9	2.7	11.5	100.0	1361
40-49	76.6	11.8	2.5	9.1	100.0	765
Residence						
Urban	47.2	10.3	10.0	32.5	100.0	650
Rural	78.7	14.7	1.0	5.5	100.0	3607
Education						
Illiterate	84.7	11.4	1.1	2.8	100.0	2871
Lit., < middle complete	59.7	21.3	3.4	15.5	100.0	983
Middle school complete	36.7	21.3	7.8	34.1	100.0	146
High school and above	28.3	11.9	9.6	50.2	100.0	257
Religion						
Hindu	74.4	14.0	2.4	9.2	100.0	4129
Muslim	58.3	22.7	3.6	15.4	100.0	63
Christian	60.6	6.2	2.1	31.1	100.0	55
Caste/tribe						
Scheduled caste	74.5	18.8	1.1	5.6	100.0	403
Scheduled tribe	91.1	6.8	0.4	1.7	100.0	919
Other	68.5	15.7	3.2	12.7	100.0	2935
Use of contraception						
Ever used	68.2	14.7	3.1	13.9	100.0	1671
Never used	77.6	13.6	1.9	6.9	100.0	2586
Total	73.9	14.0	2.4	9.7	100.0	4257

Note: Total includes 10 women belonging to other religions, who are not shown separately.

surprising, given that only 11 percent of households in Orissa own televisions and only 32 percent own radios (Table 3.9). About one in ten women (10 percent) reported hearing a message on both radio and television in the month preceding the survey. One in seven (14 percent) reported hearing a family planning message only on radio, and one in 50 women (2 percent) only on television. This suggests that the electronic media play only a limited role in reaching potential users of family planning in Orissa.

Urban-rural differences in exposure to family planning messages are substantial. While over one-half (53 percent) of urban women reported exposure to family planning messages on radio or television, only one-fifth (21 percent) of rural women did so. In urban areas, television and radio are about equally important in effectively conveying family planning messages, but in rural areas, radio is far more important than television.

Women's exposure to family planning messages on radio and television is positively related with educational attainment. Only 15 percent of illiterate respondents reported having heard a family planning message on the radio or television, whereas 72 percent of women with at least a high school education have heard a message. The proportion having heard a message on television or on both radio and television increases sharply with increasing education.

Exposure to family planning messages also differs by religion. The percentage who say they have heard a family planning message on television or radio is highest among Muslims (42 percent) followed by Christians (39 percent), then Hindus (26 percent). The percentage who recall having heard a family planning message on radio or television is lowest among scheduled tribe women (9 percent), next lowest among scheduled caste women (25 percent), and highest in the other caste category (31 percent). All of these differentials are likely to reflect some combination of greater access to broadcast signals in urban than in rural areas, the greater ability of higher-income groups to own receivers, and the differential attentiveness to media messages associated with differing levels of education and leisure.

6.9 Acceptability of Family Planning Messages on Radio and Television

Regardless of whether women had heard a family planning message on radio or television, they were asked whether they considered it acceptable for family planning information to be provided over the airwaves. More than 70 percent of the sample women say it is acceptable to have family planning messages on radio and television. Only 7 percent say it is not acceptable and the rest (22 percent) are not sure (Table 6.15). Younger women (under age 20) and older women (over age 39), rural residents, illiterate women, Hindu women, and women belonging to scheduled tribes are less likely than other women to think it acceptable to broadcast family planning messages on radio or television. The acceptance of family planning messages on the electronic media is particularly high among women with at least a middle school education. All in all, the responses indicate that there is little ambivalence about media messages in Orissa; few women state categorically that such messages are unacceptable to them. Attempts at increasing effective exposure to such messages would therefore be likely to prove acceptable to the great majority of the population.

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, Orissa, 1993

Background characteristic	Acceptability of media messages			Total percent	Number of women
	Acceptable	Not acceptable	Uncure		
Age					
15-19	63.6	7.5	28.9	100.0	368
20-24	72.0	6.8	21.2	100.0	858
25-29	73.2	6.0	20.8	100.0	894
30-34	77.6	4.1	18.3	100.0	809
35-39	75.0	5.3	19.7	100.0	552
40-44	66.5	10.4	23.0	100.0	460
45-49	61.8	8.1	30.1	100.0	306
Residence					
Urban	84.0	4.8	11.2	100.0	650
Rural	69.3	6.8	23.9	100.0	3607
Education					
Illiterate	63.4	7.7	28.9	100.0	2871
Lit., < middle complete	86.1	4.0	9.9	100.0	983
Middle school complete	93.3	3.5	3.2	100.0	146
High school and above	94.0	4.9	1.1	100.0	257
Religion					
Hindu	71.3	6.5	22.3	100.0	4129
Muslim	78.2	11.8	10.0	100.0	63
Christian	83.3	3.1	13.6	100.0	55
Caste/tribe					
Scheduled caste	76.2	5.4	18.3	100.0	403
Scheduled tribe	49.7	8.3	42.0	100.0	919
Other	77.7	6.1	16.2	100.0	2935
Total	71.5	6.5	22.0	100.0	4257

Note: Total includes 10 women age 13-14 and 10 women belonging to other religions, who are not shown separately.

6.10 Discussion of Family Planning Among Couples

Among nonsterilized couples, all currently married women who knew a contraceptive method were asked how often they talked with their husbands about family planning in the past year. The extent of such communication is low in the state. Sixty-nine percent of currently married women say they did not discuss this topic with their husbands at all in the previous year (Table 6.16). Twenty-five percent discussed family planning once or twice, and only 6 percent discussed it more often. A somewhat higher percentage of women age 25-34 (about 40 percent) report discussing family planning with their husbands. Women in the early and late reproductive years are least likely to have discussed family planning, probably because, if young, they are still early in the family building process and hence are not yet interested in limiting family size, and if older, no longer believe themselves to be at high risk of pregnancy (see Table 6.12).

Substantial differences in discussing family planning are also observed according to the woman's place of residence, her level of education, her husband's education, and whether she

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, Orissa, 1993

Background characteristic	Number of times family planning discussed				Total percent	Number of women
	Never	Once or twice	More often	Missing		
Age						
15-19	79.7	16.9	3.4	--	100.0	291
20-24	68.4	25.5	6.1	--	100.0	667
25-29	60.4	30.8	8.8	--	100.0	584
30-34	58.1	34.7	6.8	0.5	100.0	380
35-39	73.1	22.9	3.4	0.6	100.0	204
40-44	79.1	14.9	6.0	--	100.0	201
45-49	96.1	2.6	1.3	--	100.0	134
Residence						
Urban	57.5	31.7	10.6	0.2	100.0	375
Rural	71.2	23.5	5.2	0.1	100.0	2092
Respondent's education						
Illiterate	76.4	19.7	3.8	0.1	100.0	1566
Lit., < middle complete	62.4	30.4	7.1	0.2	100.0	601
Middle school complete	47.4	43.6	8.9	--	100.0	103
High school and above	42.3	38.3	19.3	--	100.0	196
Religion						
Hindu	69.1	24.7	6.1	0.1	100.0	2381
Muslim	69.9	25.5	4.6	--	100.0	49
Christian	(66.7)	(27.5)	(5.8)	(--)	100.0	29
Caste/tribe						
Scheduled caste	66.2	28.5	4.9	0.5	100.0	250
Scheduled tribe	80.7	16.2	3.0	--	100.0	456
Other	66.5	26.5	7.0	0.1	100.0	1761
Use of contraception						
Ever used	36.9	41.2	21.5	0.3	100.0	353
Never used	74.4	22.0	3.4	0.1	100.0	2114
Husband's education						
Illiterate	79.1	16.9	3.8	0.1	100.0	851
Lit., <primary complete	72.7	22.8	4.5	--	100.0	426
Primary school complete	70.6	24.7	4.3	0.3	100.0	507
Middle school complete	65.2	29.1	5.7	--	100.0	182
High school complete	52.3	36.3	11.4	--	100.0	319
Above high school	42.0	41.9	16.1	--	100.0	178
Total	69.1	24.8	6.0	0.1	100.0	2467

Note: Table excludes women who are sterilized or whose husbands are sterilized. Total includes 5 women age 13-14, 7 women belonging to other religions and 3 women with missing information on husband's education, who are not shown separately.

() Based on 25-49 unweighted cases

-- Less than 0.05 percent

has ever used family planning. Women in urban areas are more likely to have discussed family planning with their husbands than those in rural areas (42 percent compared with 29 percent). As expected, the extent of husband-wife communication about family planning is positively related to the educational attainment of women, as well as to the education of their husbands. For example, 58 percent of women with at least a high school education have discussed family planning with their husbands, compared with only 24 percent of illiterate women.

A majority of women who have ever used a family planning method have discussed the topic with their husbands (63 percent); 41 percent discussed it once or twice, and 22 percent discussed it more often. Among those who never used family planning, however, only one-quarter have discussed the topic with their husbands in the past year. Religious differences in husband-wife communication about family planning are virtually nonexistent. Women from scheduled tribes are somewhat more likely than other women to report that they have not discussed family planning with their husbands in the past year (81 percent compared with 66 percent in the other groups), but women from scheduled castes are no different from non-SC/ST women.

6.11 Attitudes of Couples Toward Family Planning

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

Table 6.17 shows that 81 percent of currently married, nonsterilized women who know of a contraceptive method approve of family planning use. Almost all of the remainder disapprove. There is substantial consensus between husbands and wives regarding approval of family planning, at least as reported by the wife. Sixty-one percent of women say that both they and their husbands approve of family planning, and 8 percent say that they both disapprove, indicating a total of 69 percent who are in reported agreement. However, a substantial proportion (24 percent) of women do not know their husband's attitude. Convincing couples in which both spouses disapprove of family planning to use contraception is probably more difficult than convincing couples in which only one spouse disapproves. In this regard, it is comforting to know that only a small fraction of the nonsterilized couples of reproductive age in Orissa are united in their opposition to family planning.

The percentage of women approving family planning tends to be greater among younger than among older women. Approval of family planning is slightly greater among urban women than among rural women, but the difference is not very large (88 percent compared with 80 percent). Approval of family planning by both husband and wife is also slightly higher in urban than in rural areas (68 percent compared with 60 percent). Rural women are slightly less likely to know their husband's attitude than are urban women (26 percent compared with 16 percent), which is consistent with the lower level of interspousal communication about family planning in rural areas.

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, Orissa, 1993

Background characteristic	Respondent approves			Respondent disapproves			Respondent unsure	Total percent	Number of women
	Husband approves	Husband disapproves	Husband's attitude unknown ¹	Husband approves	Husband disapproves	Husband's attitude unknown ¹			
Respondent's age									
15-19	54.9	2.4	23.3	0.8	9.9	8.4	0.4	100.0	291
20-24	67.3	3.6	12.8	0.6	8.7	6.7	0.3	100.0	667
25-29	62.5	5.4	15.3	1.9	8.0	6.4	0.4	100.0	584
30-34	65.9	3.2	16.1	1.2	5.2	7.3	1.1	100.0	380
35-39	55.8	4.2	16.4	2.6	9.1	8.5	3.4	100.0	204
40-44	51.9	3.1	17.5	4.6	10.6	12.4	--	100.0	201
45-49	48.3	3.9	15.9	4.3	10.3	16.4	0.9	100.0	134
Residence									
Urban	67.8	6.2	13.7	1.1	8.2	2.6	0.5	100.0	375
Rural	59.9	3.4	16.6	1.8	8.4	9.1	0.8	100.0	2092
Respondent's education									
Illiterate	52.1	3.9	19.9	2.0	10.0	11.2	0.9	100.0	1566
Lit., < middle complete	73.0	3.9	11.1	1.6	6.0	3.8	0.6	100.0	601
Middle school complete	82.7	4.5	9.5	--	2.8	0.6	--	100.0	103
High school and above	85.1	2.6	5.0	0.6	5.9	0.6	0.3	100.0	196
Religion									
Hindu	61.1	3.9	16.1	1.6	8.4	8.1	0.8	100.0	2381
Muslim	52.3	3.5	16.3	5.8	9.3	12.9	--	100.0	49
Christian	(72.5)	(1.9)	(17.7)	(4.0)	(3.9)	(--)	(--)	100.0	29
Caste/tribe									
Scheduled caste	66.4	4.4	16.0	0.9	5.1	6.3	0.9	100.0	250
Scheduled tribe	46.6	3.3	18.8	1.8	11.4	16.6	1.5	100.0	456
Other	64.1	3.9	15.5	1.8	8.1	6.1	0.5	100.0	1761
Use of contraception									
Ever used	87.1	3.3	3.6	0.5	2.8	2.1	0.7	100.0	353
Never used	56.8	4.0	18.2	1.9	9.3	9.1	0.7	100.0	2114
Family planning discussed with husband in last year									
Never	51.8	3.7	20.5	2.0	10.7	10.7	0.6	100.0	1704
Once or twice	80.7	4.5	7.4	1.2	3.1	2.4	0.7	100.0	611
More often	88.4	2.7	2.7	0.8	3.9	1.6	--	100.0	149
Husband's education									
Illiterate	48.3	4.5	22.2	1.3	9.7	12.9	1.1	100.0	851
Lit., < primary complete	57.2	1.9	18.2	3.0	8.3	10.9	0.5	100.0	426
Primary school complete	65.5	3.5	14.0	1.9	8.7	5.9	0.5	100.0	507
Middle school complete	71.8	4.4	7.9	0.6	9.8	4.1	1.3	100.0	182
High school complete	74.5	4.1	12.3	1.8	5.6	1.3	0.4	100.0	319
Above high school	83.6	5.2	3.5	1.0	5.5	1.0	0.3	100.0	178
Total	61.1	3.9	16.1	1.7	8.4	8.1	0.7	100.0	2467

Note: Table excludes women who are sterilized or whose husbands are sterilized. Total includes 5 women age 13-14, 7 women belonging to other religions, 3 women with missing information on husband's education and 3 women with missing information on whether family planning was discussed with their husband, who are not shown separately.

() Based on 25-49 unweighted cases

-- Less than 0.05 percent

¹ Respondent does not know her husband's attitude

Education of women as well as their husbands is strongly related to the approval of family planning by both husband and wife. Overall, 76 percent of illiterate women approve of family planning, compared with 93 percent of women with at least a high school education. Approval by both husband and wife is also lower among illiterate women than among highly educated ones. Similar relationships are observed for the husband's education.

Approval of family planning is somewhat lower among Muslims than among Hindus or Christians. Approval is also lower among scheduled tribe women (69 percent) than among scheduled caste women (87 percent) and non-SC/ST women (84 percent). Not surprisingly, approval is considerably higher among women who have used contraception than among those who have not. Ninety-four percent of the ever users approve of family planning as opposed to only 79 percent of the never users. That four out of five never users approve the use of contraception, however, makes it clear that it is not moral opposition that keeps contraceptive prevalence in Orissa at moderate levels only.

Table 6.17 also shows that approval of family planning by both the husband and wife is positively related to the number of times family planning was discussed between them in the past year, with the largest difference occurring between couples who never discussed family planning and those who discussed it at least once. Probably the most striking correlate of discussing family planning, however, is the wife's knowledge of her husband's attitudes. The percentage of women who are ignorant of their husbands' attitudes is greatest among those who have not discussed family planning (31 percent) and is lowest among those who have discussed it more than twice (4 percent).

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 only be implemented if a woman has the means to fulfil her desires. Nevertheless, in the aggregate, data on fertility preferences can be useful as an indicator of general attitudes and the possible future course of fertility.

In this chapter, it is assumed that women who are sterilized or whose husbands are sterilized do not want any more children. Although women may come to regret that a sterilization took place because they subsequently decide that they would like to have another child after all, only 3 percent of the women in the Orissa sample who were sterilized or whose husbands were sterilized said they regretted that the sterilization was performed (data not shown). Moreover, fewer than half of these women said they regretted the sterilization because they or their husbands wanted to have another child. (Most of the remainder cited side effects as their reason for regret.) Therefore, the assumption that sterilized women or women whose husbands are sterilized do not want any more children appears to be accurate in almost all cases.

7.1 Desire for More Children

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

Table 7.1 and Figure 7.1 provide information about the fertility preferences of currently married women. Overall, 34 percent of women say they want another child at some time in the future, 14 percent say they would like to have it within the next two years and 18 percent say they want to delay it for two years or more. This compares with 58 percent who either do not want any more children (26 percent) or have already been sterilized (32 percent). Thus, far more women do not want additional children than want them. This is more evident in urban areas, where only 25 percent want an additional child, than in rural areas, where 35 percent want more children. Only 5 percent of all women are undecided on this matter or think that it

is "up to God", with little difference between urban and rural areas.

From the point of view of understanding the total demand for contraception, it is of interest to add together women who do not want any more children (including those who have already been sterilized) with women who want to delay their next birth for two years or longer. Overall, 76 percent of women fall into the category of potential users of contraception, with the figure being 83 percent in urban areas and 74 percent in rural ones. Thus, in addition to the 32

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, Orissa, 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	58.9	12.9	5.1	4.8	1.6	--	--	8.6
Have another later ³	16.4	55.8	14.5	4.4	3.2	1.5	3.0	15.1
Have another, undecided when	2.7	1.8	0.7	0.4	0.5	1.5	--	0.9
Undecided	1.4	3.1	3.3	3.6	--	--	1.5	2.3
Up to God	4.1	1.8	1.5	1.6	0.5	1.5	3.0	1.7
Want no more	2.7	14.7	44.7	32.7	31.9	38.2	29.9	31.1
Sterilized	1.4	8.0	28.7	50.6	58.9	55.9	52.2	37.2
Declared infecund	12.3	1.8	1.5	2.0	3.2	1.5	10.4	3.2
Missing	--	--	--	--	--	--	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	42	93	156	143	105	39	38	615
Preferred sex of additional child								
Boy	45.6	40.0	62.5	*	*	*	*	49.2
Girl	3.5	13.9	21.4	*	*	*	*	13.9
Doesn't matter	49.1	37.4	12.5	*	*	*	*	32.0
Up to God	1.8	8.7	3.6	*	*	*	*	4.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number wanting more	32	65	32	14	6	1	1	151
RURAL								
Desire for additional child								
Have another soon ²	56.1	25.7	8.8	4.7	1.5	0.9	1.7	14.7
Have another later ³	17.0	48.9	23.8	8.9	4.1	2.6	0.6	18.6
Have another, undecided when	3.1	4.2	2.5	1.7	0.7	--	--	2.1
Undecided	7.3	3.6	3.1	1.7	1.7	3.0	2.9	3.2
Up to God	4.7	3.2	1.9	1.7	1.2	0.4	2.3	2.2
Want no more	2.2	7.6	25.7	34.2	33.3	38.4	52.6	25.0
Sterilized	2.5	5.5	32.3	44.5	53.2	49.6	31.2	30.6
Declared infecund	7.0	1.3	2.0	2.5	4.4	5.2	8.7	3.6
Missing	--	--	--	0.2	--	--	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	415	609	749	690	477	269	200	3410
Preferred sex of additional child								
Boy	41.0	45.9	64.6	81.3	(73.1)	*	*	53.1
Girl	--	15.5	11.5	6.6	(7.7)	*	*	9.4
Doesn't matter	52.7	30.8	17.3	8.8	(19.2)	*	*	31.1
Up to God	6.2	7.8	6.6	3.3	(--)	*	*	6.4
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number wanting more	316	477	262	105	30	9	5	1205

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, Orissa, 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	56.4	24.0	8.2	4.7	1.5	0.8	1.5	13.7
Have another later ³	17.0	49.8	22.2	8.1	4.0	2.4	1.0	18.1
Have another, undecided when	3.0	3.9	2.2	1.5	0.7	0.2	--	1.9
Undecided	6.7	3.5	3.1	2.0	1.4	2.6	2.7	3.1
Up to God	4.7	3.0	1.8	1.7	1.1	0.6	2.4	2.2
Want no more	2.3	8.5	29.0	34.0	33.0	38.3	49.0	25.9
Sterilized	2.4	5.8	31.7	45.5	54.2	50.4	34.6	31.6
Declared infecund	7.5	1.4	1.9	2.4	4.2	4.7	9.0	3.5
Missing	--	--	--	0.1	--	--	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	456	702	906	833	582	307	238	4025
Preferred sex of additional child								
Boy	41.5	45.2	64.4	79.2	(71.0)	*	*	52.6
Girl	0.3	15.3	12.6	8.2	(9.6)	*	*	9.9
Doesn't matter	52.4	31.6	16.7	9.7	(19.4)	*	*	31.2
Up to God	5.8	7.9	6.3	2.9	(--)	*	*	6.3
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number wanting more	349	543	294	119	36	10	6	1356

() Based on 25-49 unweighted cases

* Percentage not shown; based on fewer than 25 unweighted cases

-- Less than 0.05 percent

¹Includes current pregnancy, if any

²Wants next birth within 2 years

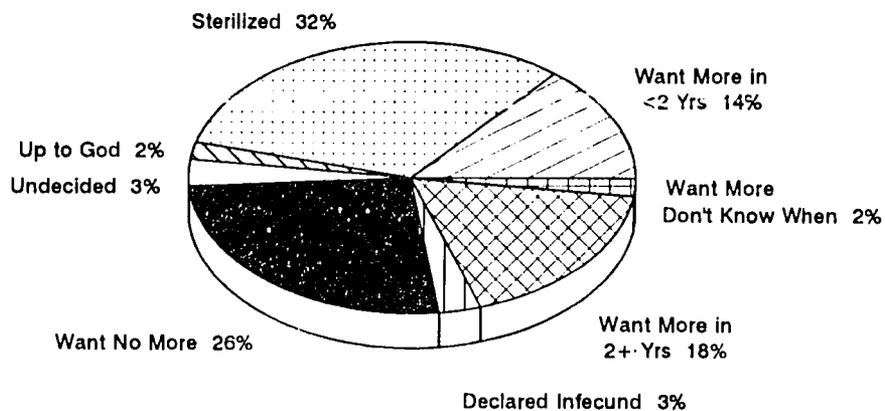
³Wants to delay next birth for 2 or more years

percent who are already sterilized (or whose husbands are already sterilized), another 44 percent have fertility preferences that imply a desire to contracept.

A majority of the women who want another child say they want the next child to be a son (53 percent). This compares with only 10 percent who want the next child to be a girl, and 31 percent who say that the next child's sex does not matter. (Another 6 percent say that the next child's sex is up to God.) Son preference for the next child is thus strong. Interestingly, the desire for a son is only slightly more prevalent among rural women (53 percent) than among urban women (49 percent). Women who do not have any children are extremely unlikely to want a daughter as their first child (less than 1 percent), although a majority say that the sex of their next child does not matter (52 percent). Generally, son preference increases as the number of living children increases, except perhaps among women with very large families (four or more living children). Thus, the relative indifference of couples without children towards their first child's sex would appear to reflect a willingness to wait for a son rather than a willingness not to have sons.

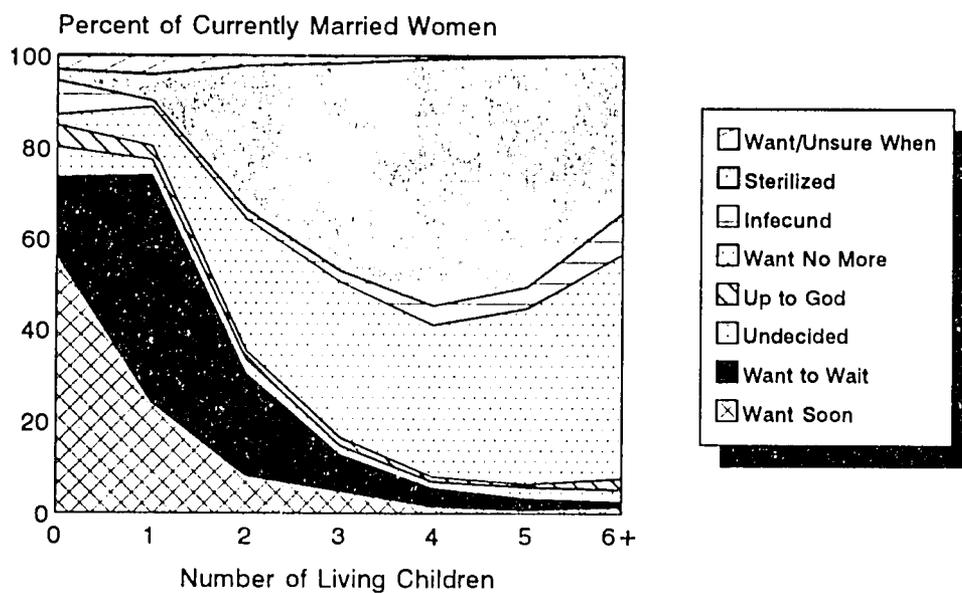
As expected, the desire for more children declines rapidly as the number of children increases (Table 7.1 and Figure 7.2). Seventy-six percent of women with no children say they

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



NFHS, Orissa, 1993

Figure 7.2
Fertility Preferences by Number of
Living Children



NFHS, Orissa, 1993

want a child and only 5 percent say they do not want any children or have been sterilized. The proportion who want another child drops to 33 percent among women with two living children and to 14 percent among those with three living children. The desire to have a child within two years declines even more rapidly, from 56 percent for women with no children to less than 5 percent for women with three or more living children. Interestingly, the desire for spacing children is very strong for women who have one or two living children. One-half of women with one child and one-fifth of women with two children would like to wait at least two years before having their next child. Since 40 percent of all women have one or two children, the strong expressed desire for spacing children among these women cannot be ignored. The family planning programme's current emphasis on permanent methods of contraception is evidently not satisfying the needs of a substantial number of women in Orissa who wish to space. Providing spacing methods to women who want to delay their next child's birth would not only lower fertility and hence population growth in Orissa, but would also provide health benefits to both mothers and their children.

The age pattern of fertility preferences shown in Table 7.2 is similar to the pattern by number of children discussed above. The majority of currently married women age 15-24 who want another child would like to space their next birth; by age 30-34 more than three-fourths of women want to stop childbearing altogether. The desire to have another child declines progressively with age, and at ages over 35 the desire for spacing is almost nonexistent.

Table 7.2 Fertility preferences by age								
Percent distribution of currently married women by desire for children and preferred sex of additional child, according to age and residence, Orissa, 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	(19.6)	15.7	12.5	4.3	4.4	2.3	(--)	8.6
Have another later ²	(58.8)	38.1	14.7	6.4	2.5	--	(--)	15.1
Have another, undecided when	(5.9)	1.4	--	0.9	1.3	--	(--)	0.9
Undecided	(3.9)	4.8	1.3	2.6	2.5	--	(--)	2.3
Up to God	(2.0)	2.9	1.7	1.7	1.3	0.8	(--)	1.7
Want no more	(5.9)	24.3	38.4	36.1	26.9	30.4	(27.4)	31.1
Sterilized	(--)	12.4	31.0	47.2	57.5	53.0	(51.6)	37.2
Declared infecund	(3.9)	0.5	0.4	0.9	3.8	7.6	(21.0)	3.2
Missing	(--)	--	--	--	--	--	(--)	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	29	119	132	133	91	75	35	615
Preferred sex of additional child								
Boy	(41.9)	47.4	52.4	(59.3)	*	*	NC	49.2
Girl	(11.6)	12.9	15.9	(18.5)	*	*	NC	13.9
Doesn't matter	(37.2)	32.8	30.2	(22.2)	*	*	NC	32.0
Up to God	(9.3)	6.9	1.6	(--)	*	*	NC	4.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	NC	100.0
Number wanting more	24	66	36	15	7	2	0	151

Table 7.2 Fertility preferences by age (Contd.)

Percent distribution of currently married women by desire for children and preferred sex of additional child according to age and residence, Orissa, 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	32.0	25.3	17.7	7.4	5.4	2.7	0.5	14.7
Have another later ²	45.1	39.5	20.1	8.1	0.6	--	--	18.6
Have another, undecided when	3.2	3.4	2.5	1.4	0.3	1.3	0.5	2.1
Undecided	8.5	3.5	3.6	2.5	2.3	0.3	1.0	3.2
Up to God	4.9	3.1	2.7	1.3	1.4	1.3	--	2.2
Want no more	6.0	13.5	26.7	30.0	32.7	39.3	34.0	25.0
Sterilized	--	11.4	25.9	47.0	54.4	46.3	38.2	30.6
Declared infecund	0.4	0.3	0.8	2.2	2.8	8.7	25.7	3.6
Missing	--	--	--	--	0.3	--	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	329	719	733	641	411	347	221	3410
Preferred sex of additional child								
Boy	44.3	52.6	58.4	58.5	*	*	*	53.1
Girl	6.1	10.0	11.8	9.6	*	*	*	9.4
Doesn't matter	40.4	31.0	25.5	25.5	*	*	*	31.1
Up to God	9.2	6.4	4.3	6.4	*	*	*	6.4
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number wanting more	264	486	295	109	25	14	2	1205
TOTAL								
Desire for additional child								
Have another soon ¹	31.0	23.9	16.9	6.9	5.2	2.6	0.5	13.7
Have another later ²	46.2	39.3	19.2	7.8	0.9	--	--	18.1
Have another, undecided when	3.4	3.1	2.1	1.3	0.5	1.1	0.5	1.9
Undecided	8.1	3.7	3.3	2.5	2.3	0.3	0.9	3.1
Up to God	4.7	3.0	2.5	1.3	1.4	1.2	--	2.2
Want no more	6.0	15.1	28.5	31.1	31.6	38.8	33.1	25.9
Sterilized	--	11.6	26.7	47.0	54.9	47.5	40.1	31.6
Declared infecund	0.6	0.3	0.7	1.9	3.0	8.5	25.0	3.5
Missing	--	--	--	--	0.2	--	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	358	839	865	773	502	423	256	4025
Preferred sex of additional child								
Boy	44.1	52.0	57.8	58.6	(73.8)	*	*	52.6
Girl	6.6	10.4	12.2	10.7	(7.0)	*	*	9.9
Doesn't matter	40.1	31.2	26.0	25.1	(19.2)	*	*	31.2
Up to God	9.2	6.5	4.0	5.6	(--)	*	*	6.3
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number wanting more	289	552	331	124	33	16	2	1356

Note: Total includes 9 women age 13-14, who are not shown separately.

NC: Not computed because there are no cases on which to base a percentage

() Based on 25-49 unweighted cases

* Percentage not shown; based on fewer than 25 unweighted cases

-- Less than 0.05 percent

¹Wants next birth within 2 years

²Wants to delay next birth for 2 or more years

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. Age and residence differences have already been discussed. Educational attainment is not strongly related to fertility desires for women with fewer than two children. Among women with two or three living children, however, the better educated are considerably more likely than the illiterate to want no more children. The

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, Orissa, 1993

Background characteristic	Number of living children ¹							Total
	0	1	2	3	4	5	6+	
Age								
13-19	2.6	3.8	(26.9)	*	NC	NC	NC	6.0
20-29	1.0	8.9	50.5	70.2	79.7	(82.9)	*	41.1
30-39	(25.3)	39.5	82.7	87.4	89.5	90.3	86.0	81.4
40-49	*	(60.9)	79.4	86.3	89.3	87.8	81.6	81.4
Residence								
Urban	4.1	22.7	73.5	83.3	90.8	94.1	82.1	68.2
Rural	4.7	13.1	58.0	78.7	86.4	87.9	83.8	55.5
Education								
Illiterate	5.7	15.3	56.5	75.9	85.3	86.1	81.6	55.4
Lit., < middle complete	2.5	11.0	61.6	84.5	90.9	95.6	87.4	63.1
Middle school complete	*	(12.2)	(59.9)	(85.3)	*	*	*	51.1
High school and above	(--)	16.6	87.3	95.2	(94.2)	*	*	61.6
Religion								
Hindu	4.8	14.5	60.9	80.0	87.6	89.1	83.8	57.6
Muslim	*	*	*	*	*	*	*	51.4
Christian	*	*	*	*	*	*	*	58.8
Caste/tribe								
Scheduled caste	(2.9)	21.6	70.5	77.1	(89.5)	*	*	61.1
Scheduled tribe	5.4	13.2	51.3	67.5	78.9	(79.5)	(71.4)	46.6
Other	4.6	13.8	62.5	83.2	89.2	90.0	85.4	60.3
Number of living sons²								
None	4.7	13.3	32.9	25.9	*	*	*	14.8
1	NA	18.4	67.8	72.8	79.1	88.5	(81.4)	58.1
2	NA	NA	75.3	94.7	92.8	90.6	88.7	88.5
3+	NA	NA	NA	86.0	91.6	91.7	83.5	88.3
Number of living daughters²								
None	4.7	18.4	75.3	86.0	(82.5)	*	*	33.1
1	NA	13.3	67.8	94.7	93.1	(91.5)	*	66.7
2	NA	NA	32.9	72.8	92.8	90.6	(81.8)	72.8
3+	NA	NA	NA	25.9	76.5	88.1	84.2	77.1
Total	4.7	14.4	60.6	79.5	87.2	88.7	83.5	57.5

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 currently married women including 9 women belonging to other religions, the percentages for whom are not shown separately.

NA: Not applicable

NC: Not calculated because there are no women age 13-19 with more than three children

() Based on 25-49 unweighted cases

* Percentage not shown; based on fewer than 25 unweighted cases

-- Less than 0.05 percent

¹Includes current pregnancy, if any

²Excludes pregnant women

differential is particularly large for women who have exactly two children, suggesting that the two-child family is much more acceptable to educated women than to other women. Muslims are somewhat less likely to want to stop childbearing than are members of other religious groups.

Differentials by the number of living sons and daughters shown in Table 7.3 are indicative of son preference. Although having a large number of daughters *per se* does not make women less likely to want to stop having children, having no living son reduces considerably the proportion wanting to stop. For example, among women with exactly three living children, 85 percent want to stop if the children are all sons, but only 26 percent want to stop if the children are all daughters. Similarly, among women with fewer than four children, the great majority with no living sons wants another child.

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 who 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. 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 detailed definitions of these concepts.

Overall, 22 percent of women in Orissa have an unmet need for family planning, according to the definitions being used. The unmet need is slightly greater for spacing births (13 percent) than for limiting births (10 percent). Together with the 36 percent of currently married women who are using contraception, a total of 59 percent of currently married women have a demand for family planning. If all of the women who say they want to space or limit their births were to use family planning, the contraceptive prevalence rate would increase from 36 percent to 59 percent of married women. This means that only 62 percent of the demand for family planning is being met by current programmes, as can be 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 30. This is the segment of the population whose family planning needs are least likely to be met by current programmes, which emphasize terminal methods of contraception. Only 5 percent of the total demand for family planning services is being met for married women age 15-19, a figure that rises to 33 percent for women age 20-24, and to 55 percent for women age 25-29. If the level of unmet need indicated in the table is assumed to reflect the needs of all currently married women age 13-49 in Orissa, then about one million women in Orissa have an unmet need for family planning.

The unmet need for family planning is approximately the same in urban and rural areas, but the total demand for family planning is less likely to be met in rural areas. In urban areas, 68 percent of total demand is satisfied, compared with only 61 percent in rural areas. Interestingly, the unmet need for family planning increases somewhat as the level of education

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, Orissa, 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	32.0	2.7	34.7	1.5	0.3	1.8	33.4	3.1	36.5	4.9
20-24	26.7	6.1	32.8	3.1	13.2	16.3	29.8	19.3	49.1	33.2
25-29	15.2	12.0	27.2	2.5	31.1	33.5	17.6	43.1	60.7	55.2
30-34	4.9	15.9	20.8	1.0	52.6	53.6	5.9	68.5	74.4	72.0
35-39	0.7	12.0	12.7	0.5	58.8	59.3	1.1	70.8	71.9	82.4
40-44	--	8.3	8.3	--	50.0	50.0	--	58.3	58.3	85.7
45-49	--	2.2	2.2	--	40.1	40.1	--	42.3	42.3	94.7
Residence										
Urban	12.3	10.5	22.8	2.2	45.2	47.4	14.5	55.7	70.2	67.5
Rural	12.8	9.5	22.3	1.4	32.8	34.2	14.2	42.3	56.6	60.5
Education										
Illiterate	11.0	9.0	20.0	0.7	33.1	33.8	11.7	42.1	53.8	62.8
Lit., < middle complete	15.3	11.2	26.5	1.9	38.6	40.5	17.2	49.9	67.1	60.4
Middle complete	21.0	9.7	30.6	2.4	31.4	33.8	23.4	41.0	64.4	52.4
High school and above	16.8	10.8	27.6	8.8	38.7	47.5	25.6	49.5	75.1	63.2
Religion										
Hindu	12.7	9.5	22.2	1.5	34.9	36.5	14.2	44.4	58.6	62.2
Muslim	21.2	22.2	43.5	1.0	15.1	16.1	22.2	37.3	59.6	27.0
Christian	11.1	8.9	20.0	3.3	42.2	45.6	14.4	51.1	65.6	69.5
Caste/tribe										
Scheduled caste	13.5	14.1	27.7	0.9	32.8	33.7	14.4	47.0	61.4	55.0
Scheduled tribe	10.9	6.1	17.0	0.9	29.1	30.0	11.8	35.2	47.0	63.8
Other	13.2	10.2	23.3	1.8	36.7	38.5	15.0	46.8	61.9	62.3
Number of living children										
None	14.9	1.5	16.4	0.6	2.0	2.7	15.5	3.5	19.0	14.0
1	30.0	3.1	33.1	4.9	7.2	12.1	34.9	10.3	45.2	26.8
2	15.0	9.8	24.7	1.8	38.1	39.9	16.7	47.9	64.6	61.8
3	7.3	14.2	21.6	0.9	50.9	51.7	8.2	65.1	73.3	70.6
4	3.8	11.8	15.5	0.2	59.7	59.9	4.0	71.5	75.5	79.4
5	1.8	12.2	14.0	0.2	57.2	57.4	2.0	69.4	71.4	80.4
6+	0.7	24.3	25.0	--	36.8	36.8	0.7	61.1	61.9	59.5
Total	12.7	9.7	22.4	1.5	34.7	36.3	14.3	44.4	58.6	61.8

Note: Total percentages are based on all women including 9 women age 13-14 and 9 women belonging to other religions, the percentage for whom are not shown separately.

-- Less than 0.05 percent

¹Unmet 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.

²Using 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.

rises (although it is primarily at the lower levels that the largest differences occur). Met need, however, does not rise consistently with education. The consequence of this is that women who have completed middle school have the lowest percentage of their need for family planning currently being satisfied. Apparently, the family planning programme in Orissa has managed to serve the needs of illiterate and less educated women better than it has the needs of those who have completed middle school.

With regard to religious differentials, the unmet need for family planning is considerably higher among Muslims (44 percent) than among Hindus (22 percent) or Christians (20 percent). Satisfaction of demand is also highest among Christians (70 percent), followed by Hindus (62 percent), and is lowest among Muslims (27 percent). Thus, the relatively high fertility of Muslim women compared with other women in Orissa (see Table 5.2) appears to reflect an unmet need for contraception more than a desire for high fertility (see Table 7.3). Among the different caste and tribal groups, unmet need is least in scheduled tribes and highest in scheduled castes. The percentage of need satisfied is likewise highest for scheduled tribes and lowest for scheduled castes. The final panel in Table 7.4 indicates that current family planning services are particularly inadequate for satisfying the childspacing needs of women with less than three children. The percentage of need currently satisfied increases with the number of living children up to five living children.

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. In determining the *ideal* number of children, on the other hand, the respondent is asked to perform the more difficult, abstract task of stating the number of children she would like to have if she could start over again. In the NFHS, women who have 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 often had to be repeated to ensure that they were understood by the respondent. Nevertheless, 84 percent of respondents were able to give a numerical response when asked for their ideal number of children.

Table 7.5 shows that the ideal number of children falls within the range of 2-4 children for 76 percent of women. Almost one-third of the women expressed a desire for fewer than three children, and only 6 percent thought that more than four children would be ideal. For those who gave numeric responses, the average number of children considered ideal is 3.0. The mean ideal number of children ranges from 2.7 for women with one or two children to 4.0 for those who already have six or more children, and is slightly higher in rural areas than in urban areas. Thus, although the "two-child family norm" cannot be said to exist in Orissa at this time, the majority of women giving a numeric response to the ideal family size questions consider a small or moderate size family as ideal rather than a very large one.

Some women are thought to adjust their ideal family size upwards as their number of children increases by way of rationalization. In Table 7.5, however, a substantial proportion

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, Orissa, 1993

Ideal number of children	Number of living children ¹							Total
	0	1	2	3	4	5	6+	
URBAN								
1	6.2	12.2	2.8	0.8	--	--	--	3.2
2	51.9	55.8	64.8	29.9	28.3	19.7	8.3	42.2
3	12.3	15.5	19.3	41.4	32.1	33.8	16.7	26.1
4	3.7	3.9	6.2	16.5	28.3	15.5	26.4	13.5
5	1.2	2.2	1.0	1.5	0.5	5.6	4.2	1.7
6+	1.2	1.7	--	--	0.5	5.6	5.6	1.1
Non-numeric responses	23.5	8.8	5.9	10.0	10.2	19.7	38.9	12.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	46	103	165	148	106	40	41	650
Mean ideal number ²								
Ever-married women	2.3	2.3	2.3	2.9	3.0	3.3	3.8	2.7
Currently married women	2.3	2.2	2.3	2.8	3.0	3.3	3.8	2.7
RURAL								
1	2.3	3.8	0.6	0.6	0.5	0.8	--	1.4
2	34.6	39.8	45.0	21.1	12.5	8.4	6.6	28.4
3	20.9	25.0	25.7	45.2	23.4	25.9	14.9	27.9
4	9.7	11.7	15.5	17.6	39.6	22.6	26.0	18.9
5	3.1	3.5	2.7	2.6	3.9	11.7	7.2	4.0
6+	2.3	1.7	0.9	1.8	3.5	8.4	9.4	2.8
Non-numeric responses	27.2	14.4	9.7	11.1	16.7	22.2	35.9	16.5
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	455	666	780	719	500	277	210	3607
Mean ideal number ²								
Ever-married women	2.8	2.7	2.8	3.1	3.5	3.8	4.1	3.1
Currently married women	2.8	2.7	2.7	3.1	3.5	3.8	4.1	3.1
TOTAL								
1	2.6	4.9	1.0	0.7	0.4	0.7	--	1.7
2	36.2	42.0	48.5	22.6	15.3	9.8	6.9	30.5
3	20.1	23.8	24.6	44.6	24.9	26.9	15.2	27.7
4	9.1	10.6	13.8	17.4	37.6	21.7	26.0	18.1
5	2.9	3.3	2.4	2.4	3.3	10.9	6.7	3.6
6+	2.2	1.7	0.7	1.5	3.0	8.0	8.8	2.6
Non-numeric responses	26.9	13.7	9.0	10.9	15.5	21.9	36.4	15.8
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	501	769	944	868	607	317	251	4257
Mean ideal number ²								
Ever-married women	2.8	2.7	2.7	3.0	3.4	3.8	4.0	3.0
Currently married women	2.8	2.7	2.7	3.0	3.4	3.8	4.0	3.0

-- Less than 0.05 percent

¹Includes current pregnancy, if any

²Means are calculated excluding the women giving non-numeric responses

of women say that their ideal number of children is less than the number they already have. (Approximately 26 percent of women with two or more living children give this response.) For example, among women who have five living children, 59 percent state that their ideal family would consist of fewer than five children. Similarly, 41 percent of women with four children think that three children or less would be ideal. Thus, family size norms are moderate and often are lower than women's actual fertility. This is 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 steadily from 2.8 children for women

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, Orissa, 1993								
Background characteristic	Current age							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Residence								
Urban	(2.6)	2.5	2.4	2.7	2.8	3.1	3.4	2.7
Rural	2.9	2.8	2.9	3.0	3.2	3.5	3.7	3.1
Education								
Illiterate	3.1	3.0	3.0	3.1	3.3	3.6	3.8	3.2
Lit., < middle complete	2.5	2.6	2.7	3.0	2.9	3.1	(3.2)	2.8
Middle school complete	*	2.2	(2.5)	(2.5)	*	*	*	2.4
High school and above	*	2.1	2.0	2.1	(2.3)	*	*	2.2
Religion								
Hindu	2.9	2.8	2.9	3.0	3.1	3.5	3.7	3.0
Muslim	*	*	*	*	*	*	*	3.1
Christian	*	*	*	*	*	*	*	3.3
Caste/tribe								
Scheduled caste	(2.8)	2.9	3.0	3.3	(2.9)	(3.5)	*	3.1
Scheduled tribe	3.4	3.2	3.4	3.4	3.5	4.2	(4.3)	3.5
Other	2.7	2.7	2.7	2.8	3.0	3.3	3.5	2.9
Work status								
Not working	2.7	2.7	2.8	2.9	3.1	3.4	3.6	2.9
Working in family farm/business	*	*	*	*	*	*	*	3.5
Employed by someone else	(3.8)	3.1	3.1	3.0	3.2	3.8	(4.0)	3.3
Self employed	*	(3.5)	(3.2)	*	*	*	*	3.3
Husband's education								
Illiterate	3.1	3.1	3.1	3.2	3.3	3.6	4.0	3.3
Lit., < primary complete	(3.3)	3.0	3.0	3.0	3.3	3.8	(3.6)	3.2
Primary school complete	2.7	2.6	2.8	3.1	3.2	3.6	(3.2)	3.0
Middle school complete	*	2.5	2.6	2.9	(2.9)	*	*	2.8
High school complete	*	2.4	2.4	2.7	2.7	2.9	*	2.6
Above high school	*	2.2	2.4	2.3	2.6	(2.8)	*	2.4
Total	2.9	2.8	2.9	3.0	3.1	3.5	3.6	3.0

Note: Means are calculated excluding women who gave non-numeric responses. Total means are based on all women including 7 women age 13-14, 8 women belonging to other religions and * women with missing information on husband's education, the means for whom are not shown separately.
 () Based on 25-49 unweighted cases
 * Mean not shown; based on fewer than 25 unweighted cases

under age 25 to 3.6 children for women age 45-49. On average, the stated ideal family size is higher by 0.4 child in rural areas than in urban areas. It is higher by 0.3 child for Christian women than for Hindu women, and it is higher by 0.6 child for scheduled tribe women than for non-SC/ST women. The most pronounced differentials are by respondent's education. The average ideal family size is one child higher for illiterate women than for women with at least a high school education. There is little difference in the ideal number of children by respondent's work status, and the nonworking group has a smaller ideal family size than do the working groups by 0.4-0.6 child. Ideal family size differentials by husband's education are similar to those by respondent's education.

Women who gave a numerical response to the question about the ideal number of children were further asked how many of these children they would like to be boys and how many they would like to be girls. The responses are shown in Table 7.7. A preference for sons over daughters can be seen in this table. Overall, the ideal family consists, on average, of 1.7 sons and 1.2 daughters, with a very small percentage of women stating that the sex of the child does not matter. Women in rural areas want more sons than do women in urban areas, and the sex ratio implied by the ideal number of daughters versus sons is also lower in rural areas than

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, Orissa, 1993

Sex composition of living children	Urban			Rural			Total		
	Sons	Daughters	Doesn't matter	Sons	Daughters	Doesn't matter	Sons	Daughters	Doesn't matter
None	1.2	0.8	0.3	1.5	1.0	0.3	1.5	1.0	0.3
1 child	1.1	0.9	0.2	1.5	1.0	0.2	1.5	1.0	0.2
1 son	1.1	0.8	0.3	1.6	1.0	0.2	1.5	0.9	0.2
No sons	1.1	1.1	0.2	1.5	1.1	0.2	1.4	1.1	0.2
2 children	1.3	0.9	0.2	1.6	1.0	0.1	1.5	1.0	0.1
2 sons	1.3	0.8	0.3	1.8	0.8	0.2	1.7	0.8	0.2
1 son	1.2	1.0	0.1	1.5	1.1	0.1	1.4	1.1	0.1
No sons	(1.2)	1.1	0.1	1.6	1.3	0.1	1.5	1.2	0.1
3 children	1.6	1.1	0.2	1.9	1.2	0.1	1.8	1.2	0.1
3 sons	*	*	*	2.1	0.8	0.1	2.0	0.9	0.1
2 sons	1.7	1.0	0.2	1.8	1.1	0.1	1.8	1.1	0.1
1 son	1.5	1.2	0.1	1.9	1.3	--	1.8	1.3	0.1
No sons	*	*	*	(1.9)	(1.6)	(--)	1.9	1.5	--
4+ children	1.9	1.3	0.1	2.2	1.5	0.1	2.1	1.5	0.1
2 or more sons	1.9	1.3	0.1	2.2	1.5	0.1	2.2	1.5	0.1
1 son	1.7	1.3	--	2.0	1.6	0.1	2.0	1.5	0.1
No sons	*	*	*	*	*	*	(1.6)	(1.4)	(0.1)
Total	1.5	1.1	0.2	1.8	1.2	0.1	1.7	1.2	0.1

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

() Based on 25-49 unweighted cases

* Mean not shown; based on fewer than 25 unweighted cases

-- Less than 0.05 children

in urban areas (approximately 666 females per 1,000 males in rural areas compared with 733 in urban areas). There is a clear tendency for women who have more daughters to exhibit a weaker preference for sons. For example, the sex ratio implied by the family size ideals of women with three living children increases from 450 for those with no living daughters to 789 for those with no sons. No matter what the current composition of the family is, however, the implied sex ratios are always substantially below 1,000; thus son preference persists.

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 was wanted at that time (planned), wanted at a later time (mistimed), or not wanted at all (unwanted). Information from these questions may result in underestimation of unplanned childbearing due to rationalization. A woman may retrospectively declare an unplanned pregnancy as one that was wanted at the time. Nevertheless, these questions provide another indication of the degree to which couples successfully control childbearing.

Table 7.8 shows that more than one-quarter of all pregnancies that resulted in live births in the four years before the survey (including current pregnancies) were either mistimed (17 percent) or unwanted (9 percent). The proportion of urban women reporting a mistimed or unwanted pregnancy is somewhat higher than the proportion of rural women reporting a mistimed or unwanted pregnancy: 33 percent compared with 26 percent. Among the religious groups, Muslims report the highest proportion of unwanted and mistimed pregnancies (35 percent compared with 27 percent among Hindus). Among the caste groups, scheduled tribe women have a lower percentage of unwanted or mistimed pregnancies than do scheduled caste women (15 percent compared with 30 percent). Although the best educated women are somewhat less likely than other women to have unwanted pregnancies, they are actually more likely to have mistimed pregnancies, another indication of the unmet demand for spacing methods in this group. Major differences in the planning status of pregnancies are apparent by the child's birth order and the age of the mother at the time of the birth. First births are relatively well planned, second and third births are more likely to be mistimed (21 percent), and fourth and higher-order births are particularly likely to be unwanted (27 percent). The percentage of pregnancies that were planned decreases steadily as age increases. Almost one-half of all pregnancies 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 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. Table 7.9 shows total wanted fertility and total fertility rates by background characteristics.

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, Orissa, 1993

Background characteristic	Planning status of pregnancy				Total percent	Number of births
	Wanted then	Wanted later	Wanted no more	Missing		
Residence						
Urban	66.1	20.9	11.7	1.4	100.0	374
Rural	73.1	16.7	9.1	1.1	100.0	2211
Education						
Illiterate	75.6	13.8	9.3	1.3	100.0	1687
Lit., < middle complete	64.8	22.5	11.8	0.8	100.0	620
Middle school complete	64.3	26.8	8.0	0.9	100.0	123
High school and above	69.5	26.8	3.0	0.7	100.0	155
Religion						
Hindu	72.0	17.4	9.3	1.2	100.0	2480
Muslim	64.6	18.1	17.3	--	100.0	63
Christian	(84.8)	(10.1)	(5.1)	(--)	100.0	34
Caste/tribe						
Scheduled caste	67.9	19.5	10.9	1.6	100.0	281
Scheduled tribe	83.6	10.5	4.3	1.6	100.0	566
Other	69.0	19.2	10.9	0.9	100.0	1738
Birth order¹						
1	87.3	11.6	--	1.2	100.0	688
2	77.2	21.6	0.4	0.9	100.0	654
3	70.6	20.7	8.0	0.7	100.0	503
4+	54.6	16.6	27.2	1.6	100.0	740
Mother's age at birth²						
15-19	81.6	16.4	0.5	1.5	100.0	518
20-24	75.8	19.2	4.2	0.9	100.0	993
25-29	67.6	19.2	12.0	1.2	100.0	666
30-34	61.4	13.9	22.9	1.8	100.0	292
35-39	45.9	4.5	49.7	--	100.0	78
Total	72.1	17.3	9.4	1.1	100.0	2585

Note: Total includes 8 births belonging to other religions, 15 births to mothers age 13-14 and 23 births to mothers age 40-44, which are not shown separately.

() Based on 25-49 unweighted cases

-- Less than 0.05 percent

¹Includes current pregnancy, if any

²For current pregnancy, estimated maternal age at birth

Overall, the wanted TFR in Orissa is 2.3, which is lower by 0.6 child (or 21 percent) than the actual TFR of 2.9. Large differences between these two measures are evident for all population subgroups, with differences that are especially large among women who have completed middle school, among Muslim and Christian women, and among scheduled caste women. The difference is especially small in the groups with relatively large family size ideals, particularly scheduled tribe women and illiterate women.

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, Orissa, 1993

Background characteristic	Total wanted fertility rate	Total fertility rate
Residence		
Urban	1.96	2.53
Rural	2.40	3.00
Education		
Illiterate	2.62	3.17
Literate, < middle complete	2.31	3.08
Middle school complete	1.72	2.59
High school and above	1.42	1.63
Religion		
Hindu	2.32	2.90
Muslim	3.29	4.25
Christian	2.26	3.36
Caste/tribe		
Scheduled caste	2.85	3.68
Scheduled tribe	2.64	2.90
Other	2.16	2.82
Total	2.32	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. Total rates are based on all women including women belonging to other religions, the rates for whom are not shown separately.

CHAPTER 8

MORBIDITY AND MORTALITY

This chapter presents data on the prevalence of certain diseases as well as mortality rates, especially for infants and young children. This type of information is relevant both to the demographic assessment of the population and to health policies and programmes. Mortality estimates are also useful for projecting the future size of the population. Detailed information on the mortality of children can be used to identify sectors of the population that are at high risk and in need of health services.

The NFHS includes two sources of information on mortality and one on morbidity. The Household Questionnaire includes questions on individuals in the household suffering from blindness, tuberculosis, leprosy, physical impairment of the limbs, and malaria. The Household Questionnaire also includes a question on deaths occurring in the household during the past two years, and the Woman's Questionnaire collects information on the survival status of all births and the age at death if the child died.

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.

It is worth noting some of the possible reasons for failure to report particular health conditions. Conditions carrying a stigma, such as leprosy, may be underreported due to intentional concealment by respondents or embarrassment on the part of interviewers about asking these questions. Respondents will be aware of certain conditions, such as blindness and physical impairment, but may be unaware of others unless they have been diagnosed by medical personnel. Moreover, given the linguistic diversity in India, locally as well as nationally, respondents may know that a household member suffers from a given condition but fail to report it because they do not recognize the words used by the interviewer in asking the question.

Table 8.1 shows the prevalence in the household population of the five health conditions about which the Household Questionnaire inquired by age, sex, and place of residence. Of the five, malaria has the highest prevalence, afflicting 52 per 1,000 population during the three months prior to the survey. Blindness (partial or complete), reported for 32 per 1,000 population, is second most prevalent. The remaining diseases all show an overall incidence of less than 6 per 1,000.

Table 8.1 Morbidity

Number of persons per 1,000 household population suffering from blindness, tuberculosis, leprosy, physical impairment of the limbs and malaria according to age, sex and residence, Orissa, 1993
1570X

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	4.3	1.7	3.9	--	1.3	23.2	1323
15-59	22.2	3.0	5.3	0.3	2.0	24.7	2253
60+	164.3	34.0	14.2	2.8	14.2	39.7	200
Sex							
Male	18.9	3.2	6.0	0.3	2.9	26.1	1981
Female	28.5	5.4	4.4	0.3	1.9	23.7	1796
Total	23.5	4.2	5.3	0.3	2.4	25.0	3776
RURAL							
Age							
0 -14	4.7	1.1	1.8	--	4.8	56.2	7240
15-59	23.4	1.9	6.3	1.2	6.2	55.9	11494
60+	157.5	16.4	15.8	4.3	14.0	59.6	1923
Sex							
Male	29.4	3.2	7.0	1.6	8.0	59.7	10467
Female	29.3	2.8	4.1	0.6	4.8	52.9	10190
Total	29.3	3.0	5.6	1.1	6.5	56.3	20656
TOTAL							
Age							
0 -14	4.6	1.2	2.1	--	4.3	51.1	8563
15-59	23.2	2.1	6.1	1.1	5.5	50.8	13746
60+	158.2	18.1	15.7	4.1	14.0	57.7	2123
Sex							
Male	27.7	3.2	6.9	1.4	7.2	54.3	12447
Female	29.1	3.1	4.2	0.5	4.4	48.5	11985
Total	28.4	3.2	5.6	1.0	5.8	51.5	24433
-- Less than 0.05 per 1,000							

Malaria

The overall level of incidence of malaria in the three months prior to the survey is 52 per 1,000. Prevalence is substantially lower in urban areas (25 per 1,000) than in rural areas (56 per 1,000), and is slightly higher for males than for females (54 per 1,000 compared with 49 per 1,000, respectively). The sex differential is slightly larger in rural areas than in urban areas. Because the prevalence of malaria is known to vary considerably by season, however, the NFHS estimates should not be taken to represent the typical level throughout the year. The NFHS fieldwork was conducted during the dry season when malaria rates are normally relatively low.

Differences in prevalence among age groups are modest but suggest that prevalence is higher for those age 60 and over (58 per 1,000) than for those age 0-14 or 15-59 (51 per 1,000). In urban areas, the age differential is sharper, with prevalence ranging from 23 per 1,000 and 25 per 1,000, respectively, in the two younger age groups, to 40 per 1,000 in the 60 and over group.

Partial and Complete Blindness

The overall prevalence of partial blindness is 28 per 1,000 population, with slightly lower prevalence in urban than in rural areas (24 compared with 29 per 1,000, respectively). Prevalence rates are 5 per 1,000 for persons age 0-14, 23 per 1,000 for persons age 15-59, and 158 per 1,000 for persons age 60 and over. The high prevalence among older persons, by far the largest differential displayed for any of these morbidity data, is particularly striking, and probably reflects some combination of historical improvements in the prevention of blindness and the tendency for blindness to increase with age at all periods in history. In urban areas, females are more prone to partial blindness than are males. The urban prevalence for females is 29 per 1,000, compared with 19 per 1,000 for males. The prevalence of partial blindness does not vary by sex in rural areas.

The overall prevalence of complete blindness is 3 per 1,000 population. The NFHS estimate of total blindness is considerably higher than the 1981 Census estimate of 0.1 percent (Office of the Registrar General and Census Commissioner, 1983). This is probably indicative of relatively high underenumeration in the Census rather than a substantial increase in blindness between 1981 and 1993.

Urban residents are slightly more likely to be completely blind (4 per 1,000) than are rural residents (3 per 1,000). Again in urban areas males are less prone to complete blindness than are females, with little difference occurring in rural areas. Complete blindness is also far more prevalent among the old than among the young or middle aged.

Physical Impairment of the Limbs

The overall prevalence of persons with physically impaired limbs is 6 per 1,000, with a higher prevalence in rural than in urban areas (7 compared with 2 per 1,000), and among males than among females (7 compared with 4 per 1,000). As with blindness, impairment of limbs is more prevalent among those age 60 and over than among younger people: 14 per 1,000 compared with 4-6 per 1,000.

Tuberculosis

The overall prevalence of tuberculosis is 6 per 1,000, with rural areas having a prevalence that is only a fraction higher than urban areas (5.6 per 1,000 compared with 5.3 per 1,000). Prevalence among males (7 per 1,000) is higher than among females (4 per 1,000). Age differences are marked, with values of 2 per 1,000 for persons age 0-14, 6 per 1,000 for those age 15-59, and 16 per 1,000 for those age 60 and over.

Leprosy

The reported prevalence of leprosy is only 1 per 1,000. The observed sex differential is small, but in rural areas, rates are higher for males than for females, perhaps as a result of differential underreporting. The reported rates are also higher for persons age 60 and over compared with those age 15-59, especially in rural areas. No cases of leprosy were reported for age 0-14.

8.2 Crude Death Rates and Age-Specific Death Rates

Table 8.2 shows crude death rates (CDRs) and age-specific death rates by sex for the usual resident population in Orissa from the NFHS and the SRS. The crude death rate from the NFHS is based on deaths occurring to usual residents of the household during the two years preceding the survey as obtained in the Household Questionnaire, whereas the SRS estimates are based on deaths during a one-year period. The NFHS CDR is calculated as the annual number of deaths in the two-year period before the date of interview per 1,000 usual residents. The denominator of this measure is calculated by projecting the number of usual residents at the time of the survey backwards to the mid-point of the time period on the basis of the intercensal population growth rate in the state. The intercensal growth rate is assumed to be the same for all age and sex groups.

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

Table 8.2 shows an average annual crude death rate for the usually resident population of Orissa of 11.0 per 1,000 for the two years before the NFHS (roughly 1991-92). The SRS

Age	NFHS (1991-92)						SRS (1991)		
	Death rate			Number of usual residents			Death rate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
0 - 4	26.0	28.7	27.3	1397	1210	2607	39.3	38.7	39.0
5 - 14	2.3	1.8	2.1	3023	2933	5956	2.8	2.7	2.8
15-49	3.5	3.6	3.5	6069	6023	12091	4.7	4.5	4.5
50+	37.0	37.3	37.2	1957	1820	3777	38.9	34.8	36.8
CDR	11.0	10.9	11.0	12447	11985	24433	13.3	12.4	12.8

Note: Crude death rate 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 of SRS data: Office of the Registrar General (1993).

crude death rate for the state is 12.8 per 1,000 for 1991 and 11.7 per 1,000 (provisional) for 1992 (Office of the Registrar General, 1993, 1994). The NFHS estimate of CDR is thus close to the SRS estimates, albeit slightly lower. The NFHS estimate of the crude death rate may be subtracted from the earlier estimate of the crude birth rate from the household birth record (see Table 5.1) to calculate the rate of natural increase of the population of Orissa. The rate of natural increase so estimated is 13.5 per 1,000 population per year for the two-year period before the survey.

The age-specific death rates for broad age groups shown in Table 8.2 can be compared directly with the SRS rates. The SRS death rates for the 15-49 age group shown in Table 8.2 are calculated from the death rates and population for conventional five-year age groups published by the SRS. The SRS age-specific death rates are substantially higher than the NFHS rates at ages 0-4 and are slightly higher at ages 5-14 and 15-49. At older ages, they are approximately the same. The lower figures for child mortality in the NFHS may be consistent with the SRS if infant and child mortality continued to decline after 1991 (as the provisional 1992 SRS estimates indicate). To the extent this is true, the NFHS in Orissa appears to have obtained reasonably complete reporting of deaths occurring in households during 1991-92.

In most countries, male death rates are higher than female death rates at nearly all ages. South Asia generally has been an exception in this respect, with higher death rates for females over much of the age span (Preston, 1990; Ghosh, 1987). Sex-specific mortality differentials can be analyzed by computing the ratio of female to male rates in each age group. For the NFHS, these ratios are 1.10, 0.78, 1.03, and 1.01 for the 0-4, 5-14, 15-49, and 50+ age groups, respectively. Thus, females in the NFHS have higher mortality rates than males at all ages except during adolescence. In the case of the SRS for 1991, the ratios are all below 1.00, indicating lower mortality for females in each age group.

8.3 Infant and Child Mortality

Definitions of Infant and Child Mortality

All respondents in the NFHS were asked to give a complete birth history, including sex, date of birth, survival status, and age at the time of the survey or age at death for each live birth. For children who had died, age at death was recorded in days for children dying in the first month of life, in months for children dying before their second birthday, and in years for children dying at later ages. This information was used to calculate the following direct estimates of infant and child mortality¹:

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 1.00:

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

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

Assessment of Data Quality

The reliability of mortality estimates calculated from retrospective birth histories depends upon the completeness with which deaths of children are reported and the extent to which birth dates and ages at deaths are accurately reported and recorded. Estimated rates of infant and child mortality are subject to both sampling and nonsampling errors. While the sampling errors for various mortality estimates are provided in Table A.2 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.

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 mortality to infant mortality. Changes in these ratios over time can be examined to test the hypothesis that underreporting of early infant deaths is more common for births that occurred longer before the survey. Results from Table B.5 (see Appendix B) suggest that early infant deaths have *not* been severely underreported in the Orissa 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 ratios are almost the same for 0-4 years (62) and 10-14 years (60) prior to the survey. However, the ratio for the period 5-9 years prior to the survey is slightly higher (67), indicating that some early infant deaths may not have been reported by older women and younger women. The ratios of infant deaths that occurred during the neonatal period (see Table B.6 in Appendix B) are also quite high. These ratios show a substantial increase over time from 48 to 61.

One problem that is inherent in most retrospective surveys is heaping of ages at death on certain digits, e.g., 6, 12, and 18 months. Misreporting of 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 one or older. Thus, heaping at 12 months can bias the mortality estimates because a certain fraction of these deaths, which are reported to have occurred after infancy (i.e., at ages 12-23 months), may actually have occurred during infancy (i.e., at ages 0-11 months). In this case, heaping would bias the infant mortality rate (${}_1q_0$) downward and child mortality (${}_4q_1$) upward.

In the Orissa NFHS, there was some misreporting of age at death due to a preference for reporting age at death at 4, 5, and 8 days during the five years before survey (see Table B.5 in Appendix B). The clustering of reported deaths is also seen at age less than 1 to 8 days during 5-9 and 10-14 years prior to survey. Examination of the distribution of deaths under age 22 months during the 15 years prior to the survey by month of death (Table B.6 in Appendix B) indicates that the calculated infant mortality rates for the population of Orissa as a whole are not likely to be understated by more than 1-2 percent on this account. There was surprisingly little "heaping" on particular *months* of death, and due to strong emphasis during training², there were no deaths reported to have occurred at age "1 year", making any adjustment in the infant and child mortality rates unnecessary.

This brief check on internal consistency of the Orissa NFHS childhood mortality data suggests that there is no serious underreporting of deaths during the time periods for which the mortality rates are estimated. Also, although there is some evidence of heaping of ages 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 15-year period considered here, apparent trends in mortality rates should be interpreted with caution, for several reasons. First, there may exist differences in the completeness of death reporting related to the length of time before the survey. Second, the accuracy of reports of age at death and of date of birth may deteriorate systematically with time. Third, sampling variability for mortality rates is relatively high (see Appendix A). The fourth reason relates to truncation of mortality rates further back in time, because women age 50 and over who were bearing children during these periods were not included in the survey. This truncation particularly affects mortality trends. For example, for the period 10-14 years before the survey, the rates do not include any births for women age 40-49 since these women were over age 50 at the time of the survey and not eligible to be interviewed. Because these excluded births to older women were likely to be at a somewhat greater risk of dying than births to younger women, the mortality levels for the period may be slightly underestimated. However, the estimates for later periods are less affected by the truncation bias since fewer older women are excluded. The extent of this bias depends on the proportion of births omitted, however, and Table 8.6 shows that among children born in the five years prior to the survey, only four percent were born to women over age 34 years. Given the small proportion of births excluded, selection bias for infant and child mortality statistics as far as 15 years back from the survey should be negligible.

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 in Orissa by 22 percent during the 15 years prior to the NFHS, although at the time the NFHS was fielded they remained highest of any state in the country (International Institute for Population Sciences, 1994). The infant mortality rate for the total population declined from

² Interviewers in the NFHS were instructed to probe for the exact number of months lived by the child if the age at death was reported as "1 year".

Table 8.3 Infant and child mortality

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

Years prior to survey	Neonatal mortality (NN)	Postneonatal mortality ¹ (PNM)	Infant mortality (I _q)	Child mortality (C _q)	Under-five mortality (U _q)
URBAN					
0-4 years	42.4	42.1	84.5	24.8	107.2
5-9 years	38.4	47.0	85.4	10.0	94.6
10-14 years	58.1	58.6	116.7	15.4	130.3
RURAL					
0-4 years	68.6	48.3	116.9	20.6	135.1
5-9 years	68.3	65.6	133.9	19.7	150.9
10-14 years	71.7	77.8	149.4	22.2	168.3
TOTAL					
0-4 years	64.7	47.4	112.1	21.3	131.0
5-9 years	63.7	62.7	126.4	18.1	142.1
10-14 years	69.5	74.7	144.1	21.0	162.1

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

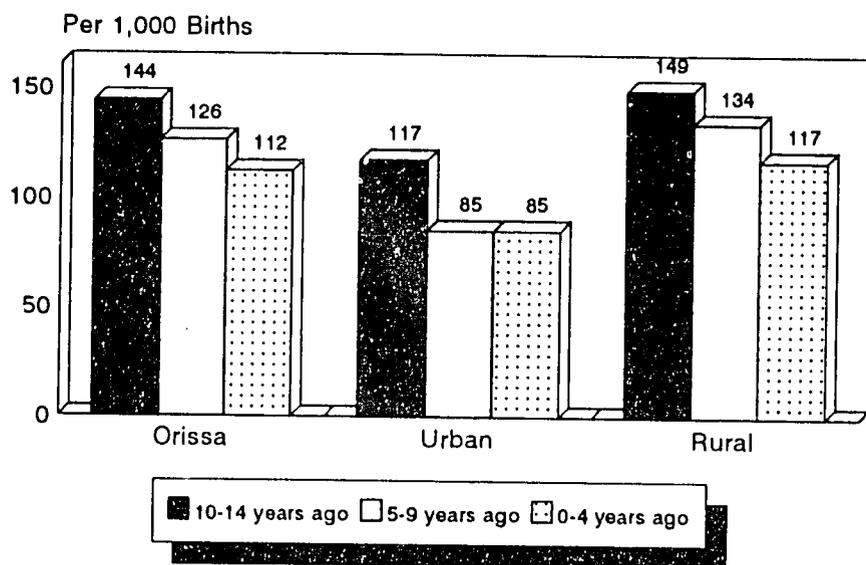
144 per 1,000 10-14 years prior to the survey to 112 per 1,000 0-4 years prior, an average rate of decline of two infant deaths per 1,000 live births per year. The percentage decline in mortality was not the same for all five measures of mortality. The highest decline is observed for postneonatal mortality (37 percent) and the smallest for neonatal mortality (7 percent). There was no decline in child mortality. The rates of decline for infant and under-five mortality are almost the same (22 and 19 percent, respectively).

In almost all instances, urban mortality rates are lower than rural mortality rates. Urban-rural differences in the rate of decline of mortality, however, depend on the mortality measure examined. While postneonatal and under-five mortality declined more rapidly in rural areas than in urban areas during the 15 years prior to the survey, neonatal mortality declined more rapidly in urban than in rural areas (the decline of total infant mortality was also slightly greater in urban than in rural areas). In addition, there is an apparent increase in child mortality in urban areas. However, the difference in child mortality over time are not statistically significant in urban areas because the sampling errors are quite large (see Table A.2 in Appendix A).

Despite the improvements seen in infant mortality (although not in child mortality) during the five-year period before the NFHS, more than one in every nine children die in the first year of life, and one in eight die before reaching age five. These rates are among the highest in India. Clearly child survival programmes in Orissa need to be intensified to produce further reductions in the level of infant and child mortality.

The estimated NFHS infant mortality rate of 112 in 1988-92 is virtually identical to the SRS value of 114 infant deaths per 1,000 live births for the calendar year 1992 (Office of the Registrar General, 1994). The two sets of figures are the same in rural areas, but in urban

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



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

NFHS, Orissa, 1993

areas, the NFHS rate of 85 is slightly higher than the SRS rate of 80. 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 lower 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 would be higher than the corresponding SRS estimate for the same period. For earlier periods also, the overall NFHS estimates of infant mortality correspond well to the SRS estimates, being 6 percent lower in 1984-88 (126 compared with 132) but identical in 1979-83 (144 per 1,000).

Socioeconomic Differentials in Infant and Child Mortality

Table 8.4 and Figure 8.2 show infant and child mortality statistics for the 10-year period preceding the survey, by selected background characteristics. The infant mortality rate is nearly 50 percent higher in rural areas than in urban areas, 126 per 1,000 live births compared with 85 per 1,000. Children in rural Orissa experience a 42 percent higher risk of dying before their fifth birthday than do urban children. As one would expect, infant mortality declines sharply with the increasing education of mothers, from a high of 132 per 1,000 for illiterate mothers to a low of 59 per 1,000 for mothers with at least a high school education. The other mortality indicators vary by education in a similar fashion. Scheduled castes have very high infant (161 per 1,000) and under-five mortality (176 per 1,000), but scheduled tribes, although having relatively high child mortality, have infant mortality as low as that for others.

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, Orissa, 1993

Background characteristic	Neonatal mortality (NN)	Postneonatal mortality ¹ (PNN)	Infant mortality (₁ q ₀)	Child mortality (₄ q ₁)	Under-five mortality (₅ q ₀)
Residence					
Urban	40.2	44.6	84.9	17.7	101.0
Rural	68.4	57.2	125.7	20.1	143.3
Mother's education					
Illiterate	68.7	63.5	132.2	24.8	153.6
Literate, < middle complete	60.0	43.9	103.9	9.5	112.4
Middle school complete	(44.9)	(26.7)	(71.5)	*	(87.0)
High school and above	38.7	20.3	59.0	4.3	63.1
Caste/tribe					
Scheduled caste	76.3	84.5	160.8	17.8	175.8
Scheduled tribe	53.2	60.3	113.4	40.0	148.8
Other	65.7	49.6	115.3	14.5	128.1
Medical maternity care²					
No antenatal or delivery care	69.4	56.4	125.8	17.8	159.8
Either antenatal or delivery care	50.5	26.0	76.5	(40.0)	148.8
Both antenatal and delivery care	(35.6)	(21.1)	(56.7)	*	(128.1)
Total	64.2	55.3	119.5	19.7	136.9

Note: Total includes the mortality experience of all religious groups, which is based on fewer than 250 unweighted children surviving to the beginning of the age interval, and is not shown separately.

() Based on 250-499 unweighted children surviving to the beginning of the age interval

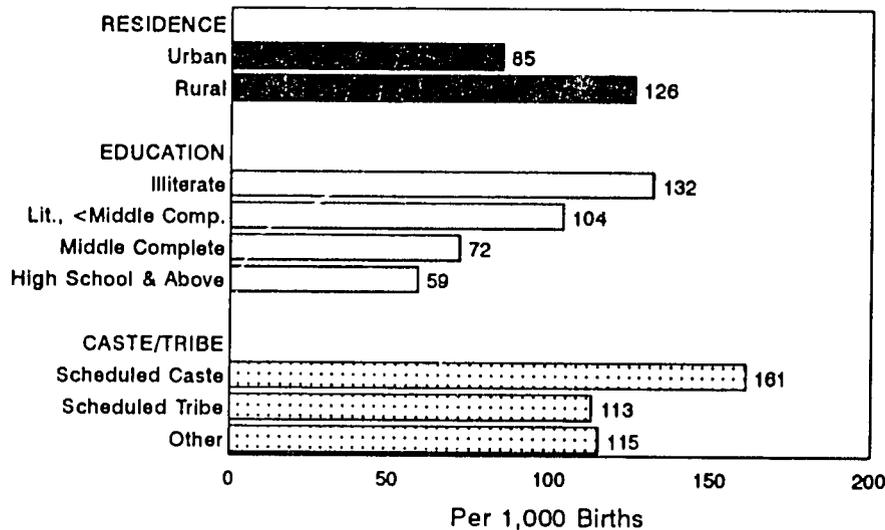
* Rate not shown; based on fewer than 250 unweighted children surviving to the beginning of the age interval

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

²Rates for the five-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

Table 8.4 also shows that antenatal or delivery care by a trained health professional is associated with much reduced infant mortality risks. Infant mortality rates fall from 126 per 1,000 for births with neither antenatal or delivery care, to 77 per 1,000 for births with either type of care, and to 57 per 1,000 for births which had both types of care. One might expect the effect of antenatal and delivery care to be most pronounced for mortality risks immediately following birth (neonatal mortality), but this is not the case. The impact of antenatal and delivery care on postneonatal deaths is actually greater (63 percent reduction) than is their impact on neonatal deaths (49 percent reduction). Although it is possible that antenatal and delivery care could influence mortality risks one month to one year following birth (postneonatal mortality), it seems unlikely that the presence of such care explains fully the magnitude of the apparent impact. Utilization of antenatal and delivery care services is however, undoubtedly associated with other circumstances favourable to child survival, which might explain the apparently large effect of antenatal and delivery care on postneonatal mortality.

Figure 8.2
 Infant Mortality Rates by Selected
 Background Characteristics



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

NFHS, Orissa, 1993

Nevertheless, the impact of antenatal and delivery care on survival during the first month of life is very large. Children of mothers who received no such care have a neonatal mortality rate that is almost twice that experienced by children whose mothers received both antenatal and delivery care, 69 compared with 36 deaths per 1,000 live births. This differential is all the more impressive because women who have pregnancy-related complications (whose babies have a relatively high risk of dying) are usually more likely to seek antenatal and delivery care in the first place (see Table 9.7 in Chapter 9).

Demographic Differentials in Infant and Child Mortality

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

The data on household deaths in Table 8.2 indicated that the female death rate for the age group 0-4 exceeds the male rate by 10 percent. Table 8.5 suggests that excess female mortality occurs only after age one. Before then, in both the neonatal and postneonatal period, males have higher risks of dying than females do, with the difference being especially pronounced in the neonatal period (70 compared with 58 deaths per 1,000). However, child mortality (${}_4q_1$) is 45 percent higher for females than for males. This reversal of sex differentials in mortality after the age of weaning has been observed in other studies conducted in South Asia and is thought

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, Orissa, 1993

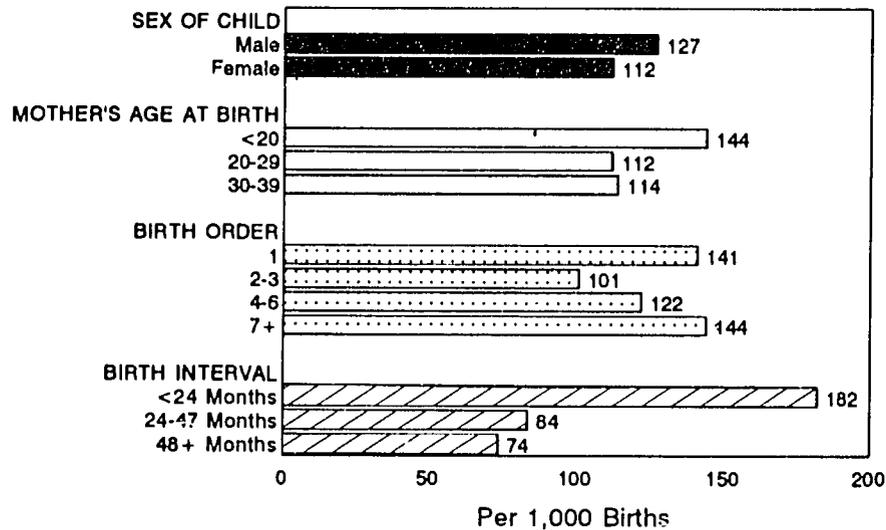
Demographic characteristic	Neonatal mortality (NN)	Postneonatal mortality ¹ (PNN)	Infant mortality ¹ (Iq ₀)	Child mortality (4q ₁)	Under-five mortality (6q ₀)
Sex of child					
Male	70.4	56.5	126.9	16.1	141.0
Female	57.6	54.1	111.6	23.4	132.5
Mother's age at birth					
< 20	76.5	67.9	144.3	21.9	163.1
20-29	58.5	53.3	111.8	16.8	126.7
30-39	71.1	43.2	114.3	26.4	137.7
Birth order					
1	87.3	53.9	141.3	12.2	151.7
2-3	48.4	52.6	101.1	18.2	117.4
4-6	62.5	59.9	122.4	24.5	143.9
7+	(82.5)	(61.4)	144.0)	(40.7)	(178.8)
Previous birth interval					
< 24 months	90.8	90.8	181.6	35.5	210.7
24-47 months	38.4	45.1	83.5	19.1	101.0
48+ months	44.9	28.8	73.7	9.3	82.3
Birth size²					
Large	(66.9)	(12.5)	(79.4)	*	(89.2)
Average	31.4	36.9	68.3	19.4	86.4
Small	99.6	61.2	160.8	(9.8)	169.0

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

to reflect the relative nutritional and medical neglect of girls after breastfeeding has ceased. Higher neonatal mortality among boys than girls is found in most populations and reflects greater underlying male frailty. The Baseline Survey of Orissa also found that neonatal and postneonatal mortality rates were higher for boys than for girls (Kanitkar and Murthy, 1988), as did a study conducted by the Institute for Research in Medical Statistics (1993) in Orissa.

For both social and biological reasons, infant and child mortality often exhibit 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 being at higher risks of dying than children whose mothers are in the prime reproductive ages. This pattern is also seen in Orissa. As Table 8.5 shows, infant mortality is highest for children of mothers under age 20 (144 per 1,000) and is lowest for children whose mothers were age 20-29 at the time of childbirth (112 per 1,000). A similar age pattern is also observed for the other infant and child mortality rates, including 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. Similarly, children born to mothers above 30 are at higher risk of experiencing congenital malformations.

Figure 8.3
Infant Mortality Rates by Selected
Demographic Characteristics



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

NFHS, Orissa, 1993

Birth order also tends to have a U-shaped relationship to infant deaths, with first births and very high-order births having elevated mortality rates. In Table 8.5, birth order differentials in neonatal, infant and under-five mortality rates show the expected U-shaped pattern, but the other measures do not. The magnitudes of the differentials by birth order are similar to the magnitudes by age. There is, however, a close relationship between age of mother and birth order, with higher-order births occurring at older ages. The steady increase in child mortality with birth order may also reflect the more intense competition for nutritious food faced by high-birth-order children once they are weaned.

Childspacing patterns have a powerful effect on the survival chances of children in Orissa. Infant and child mortality risks increase sharply as the length of the preceding birth interval decreases. Infant mortality is about two and half times as high for children with a preceding birth interval of less than 24 months as for children with a preceding interval of 48 months or more (182 compared with 74 per 1,000). Lengthening the birth interval from less than 24 months to 24-47 months has a much stronger association with child survival than does lengthening the interval from 24-47 months to 48 months or more. Note, however, that although the length of the preceding birth interval is likely to affect mortality risks directly, a substantial portion of the total association between birth intervals and mortality risks may reflect other risk factors that are correlated with birth intervals. For example, shorter intervals are likely to occur in larger families, and larger families are more likely to reside in rural areas where medical facilities and other survival-enhancing resources are less readily available. Nevertheless, multivariate analyses of birth intervals and child survival commonly find short intervals (less than 24 months) to be damaging to a child's survival chances.

Another important determinant of the survival chances of children is the baby's weight at the time of birth. Many studies have found that low birth weight babies (under 2,500 grams) have a substantially increased risk of mortality. Because most babies in Orissa are not weighed at the time of birth, mothers were asked whether babies born during the four years preceding the interview were "large, average, or small" at birth. The last panel of Table 8.5 shows infant and child mortality statistics for births classified in this way. Children who are perceived by their mothers to be smaller than average at birth experience higher mortality risks than children perceived to be average or larger.

8.4 High-Risk Fertility Behaviour

In theory, the mother's age at first birth, the interval between births, and the order of a birth (parity) can all be controlled by the parents if there are adequate family planning services and supplies available to them. Understanding the prevalence of high-risk births in Orissa is therefore of interest for health and family planning policymakers and programme managers. Table 8.6 shows the percentages of births in the five years preceding the interview that fall into different child survival risk categories, as well as the distribution of all currently married women across these categories. It also shows the relative risks of children dying across the different risk categories. The purpose of this table is to identify areas in which changed reproductive behaviour would be likely to effect a reduction in infant and child mortality. Mortality risks are represented here by the proportion of children born during the five years prior to the survey who had died by the time of the survey. The "risk ratio" is the ratio of the proportion of deceased children in a given "high-risk" category to the proportion of deceased children not in any "high-risk" category.

The 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, since parents will presumably want to avoid having births under circumstances that are likely to result in the child's death. For policymakers, not only is the magnitude of each risk important; so, too, is the percentage of births or of women in each of the high-risk categories. The latter is important because it determines whether particular types of high-risk births are likely to occur frequently or only rarely; presumably, policymakers will want to target their efforts toward types of high-risk births that occur most frequently.

In terms of the magnitudes of the risks associated with each risk factor, Table 8.6 suggests that a birth interval of less than 24 months is the most dangerous condition under which a birth can occur (risk ratio of 1.58), followed by a maternal age under 18 (risk ratio of 1.50), then by a birth order higher than three (1.07), with the combination of a short birth interval and a high birth order being particularly dangerous (ratios of 2.18-2.73). In terms of the proportion of births or women falling into the different risk categories, however, high-order births, although less risky in absolute terms than births to women under age 18, constitute a far higher proportion of births (and of currently married women) than do births to women under age 18. Thus, from a policy perspective, the combination of convincing women to reduce family size and to space their births in intervals of at least two years will go furthest in lowering infant and child mortality. Individual couples, however, would be well advised to avoid having any children until the wife enters her twenties, as the risks of a child dying if the mother is younger are relatively high.

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, Orissa, 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	52.7	1.00	56.1 ^b
Single high-risk category			
Age<18: Age under 18 years at birth	5.8	*	0.6
Age>34: Age over 34 years at birth	0.7	*	4.1
BI<24 : Birth interval under 24 months	12.8	(1.70)	8.6
BO>3 : Birth order higher than 3	15.4	2.81	10.4
Subtotal	34.8	2.68	23.8
Multiple high-risk category			
Age<18 & BI<24 ^c	1.9	*	0.2
Age>34 & BI<24	--	*	0.1
Age>34 & BO>3	2.4	*	14.6
Age>34 & BI<24 & BO>3	0.7	*	0.6
BI<24 & BO>3	7.5	(4.13)	4.6
Subtotal	12.5	(4.21)	20.1
In any high-risk category	47.3	3.08	43.9
Total percent	100.0	NA	100.0
Number	409	NA	615
RURAL			
Not in any high-risk category	52.3	1.00	53.8 ^b
Single high-risk category			
Age<18: Age under 18 years at birth	8.0	1.28	2.1
Age>34: Age over 34 years at birth	0.3	*	3.7
BI<24 : Birth interval under 24 months	9.2	1.62	8.0
BO>3 : Birth order higher than 3	18.6	0.95	10.0
Subtotal	36.2	1.21	23.7
Multiple high-risk category			
Age<18 & BI<24 ^c	1.5	*	0.4
Age>34 & BI<24	--	*	--
Age>34 & BO>3	7.1	(0.92)	14.1
Age>34 & BI<24 & BO>3	0.4	*	0.7
BI<24 & BO>3	6.6	2.04	7.2
Subtotal	11.6	1.69	22.5
In any high-risk category	47.7	1.33	46.2
Total percent	100.0	NA	100.0
Number	2389	NA	3410

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, Orissa, 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	52.3	1.00	53.8 ^b
Single high-risk category			
Age<18: Age under 18 years at birth	7.7	1.50	1.9
Age>34: Age over 34 years at birth	0.4	*	3.7
BI<24 : Birth interval under 24 months	9.7	1.58	8.1
BO>3 : Birth order higher than 3	18.1	1.07	10.0
Subtotal	36.0	1.31	23.7
Multiple high-risk category			
Age<18 & BI<24 ^c	1.5	*	0.4
Age>34 & BI<24	--	*	--
Age>34 & BO>3	3.0	(1.10)	14.2
Age>34 & BI<24 & BO>3	0.5	2.73	0.7
BI<24 & BO>3	6.8	2.18	6.8
Subtotal	11.7	1.87	22.1
In any high-risk category	47.7	1.45	45.8
Total percent	100.0	NA	100.0
Number	2798	NA	4025

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

() Denominator of the upper proportion in the risk ratio is between 50-99 unweighted births

* Risk ratio not shown; denominator of the upper proportion in the risk ratio is fewer than 50 unweighted births

-- Less than 0.05 percent

^aWomen 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.

^bIncludes sterilized women and women whose husbands are sterilized

^cAlso includes category age under 18 and birth order greater than 3.

While mortality risks to children can undoubtedly be reduced by changing women's childbearing behavior, the risk ratios shown in Table 8.6 almost certainly overstate the magnitude of the potential effect. This is because a mother's demographic characteristics are not the only causal factors influencing the risks of mortality experienced by her children. Women who have many children at short birth intervals almost certainly tend, for example, to live in rural areas, which will raise mortality risks to their children independently of their childbearing behaviour. However, a multivariate analysis designed to assess the effects of the demographic factors while controlling for the potentially confounding effects of residence, education, and other correlated socioeconomic factors is beyond the scope of this report.

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 has now been further strengthened by introducing the Child Survival and Safe Motherhood Programme (Ministry of Health and Family Welfare, 1992). The Ministry of Health and Family Welfare has also sponsored special schemes, under the Maternal and Child Health Programme, including the programme of Oral Rehydration Therapy, development of Regional Institutes of Maternal and Child Health in states where infant mortality rates are high, the Universal Immunization Programme, and the Maternal and Child Health Supplemental Programme within the Post-Partum Programme (Ministry of Health and Family Welfare, 1992).

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

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

A major objective of the NFHS was to provide information on maternal and child health care practices. The relevant information was collected in the Woman's Questionnaire from the mothers of all children born since 1 January 1989. The information covered matters related to pregnancy and childbirth; infant and child feeding practices, including breastfeeding; immunizations; episodes of illnesses such as acute respiratory infection, fever and diarrhoea, and

the treatment received; mothers' knowledge and use of Oral Rehydration Salts (ORS); and the level of child nutrition assessed by measuring the weight and height of children.

This chapter analyzes the data collected on antenatal and delivery care, immunization coverage, prevalence of acute respiratory infection, fever and diarrhoea and their treatment, and mothers' knowledge and use of ORS. Chapter 10 deals with infant feeding and child nutrition.

Although information was obtained for each child born since January 1989, the analysis in this chapter is restricted to children born during the four years before the date each woman was interviewed. If a woman had more than one live birth during this four-year period, information was collected for the three most recent live births; all of these births are used in the current analysis.

9.1 Maternal Care Indicators

Antenatal Care

Antenatal care (ANC) refers to pregnancy-related health care provided by a doctor or a health worker in a medical facility or at home. The Safe Motherhood Initiative proclaims that all pregnant women must receive basic but professional antenatal care (Harrison, 1990). Antenatal care can contribute significantly to the reduction of maternal morbidity and mortality because it 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 to reduce the incidence of low birth weight babies and thus reduce perinatal, neonatal, and infant mortality.

A pregnant woman can receive antenatal care by visiting a doctor or other health professional in a medical facility, or by receiving a home visit from a health worker, or both. In the NFHS, each woman who had a live birth during the four years prior to the survey was initially asked whether any health worker visited her at home for an antenatal check-up when she was pregnant and, if so, at which month of pregnancy the first visit was made and how many such visits were made in all. Next she was asked whether she had gone for an antenatal check-up outside the home and whom she saw for the check-up. If she saw more than one person, information was collected on all persons seen. She was asked at which month of pregnancy she first went for an antenatal check-up and how many such visits she made.

Table 9.1 and Figure 9.1 show the percentage distribution of live births in the last four years by the source of antenatal care received during pregnancy. 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. That 37 percent of births were to mothers who did not receive any antenatal care (the single largest category) does not come as a surprise, because previous studies conducted in Orissa have found a low level of antenatal care in the state (International Institute for Population Sciences, 1985). The absence of antenatal care is, expectedly, greater in rural areas (40 percent) than in urban areas (22 percent).

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, Orissa, 1993

Background characteristic	ANC only at home from health worker	Antenatal care provider (outside home) ¹			No ANC	Miss- ing	Total percent	Number of births
		Doctor	Other health profes- sional	Traditional birth attendant, other ²				
Mother's age at birth								
< 20	24.7	30.5	4.4	0.5	38.3	1.6	100.0	467
20-34	22.4	34.7	4.9	0.4	36.1	1.3	100.0	1693
35+	15.0	27.8	4.7	1.4	51.1	--	100.0	85
Birth order								
1	20.4	43.4	3.8	0.8	30.3	1.3	100.0	603
2-3	22.2	33.7	6.5	0.5	36.2	0.9	100.0	1002
4-5	26.2	27.1	3.0	0.3	41.6	1.9	100.0	429
6+	23.9	18.4	3.6	--	52.2	1.9	100.0	210
Residence								
Urban	8.6	60.1	7.2	0.2	22.4	1.5	100.0	330
Rural	25.0	29.0	4.4	0.5	39.7	1.3	100.0	1915
Education								
Illiterate	26.9	22.1	4.5	0.5	44.5	1.5	100.0	1461
Literate, < middle complete	17.0	46.0	5.0	1.0	30.2	1.0	100.0	542
Middle school complete	14.2	66.4	7.3	--	11.0	1.1	100.0	110
High school and above	5.3	83.3	4.4	--	6.2	0.7	100.0	132
Religion								
Hindu	23.3	33.4	4.5	0.5	37.0	1.4	100.0	2158
Muslim	2.2	40.6	10.9	--	46.3	--	100.0	52
Christian	(15.2)	(43.2)	(15.2)	(--)	(26.4)	--	100.0	30
Caste/tribe								
Scheduled caste	30.6	32.7	2.6	--	32.2	1.9	100.0	246
Scheduled tribe	30.0	16.3	5.0	0.7	46.1	1.9	100.0	493
Other	18.9	39.4	5.1	0.5	35.0	1.0	100.0	1507
Total ³	22.6	33.6	4.8	0.5	37.1	1.3	100.0	2245

Note: ANC refers to pregnancy related health care provided by a doctor or a health worker in a medical facility or at home.

() Based on 25-49 unweighted cases

-- Less than 0.05 percent

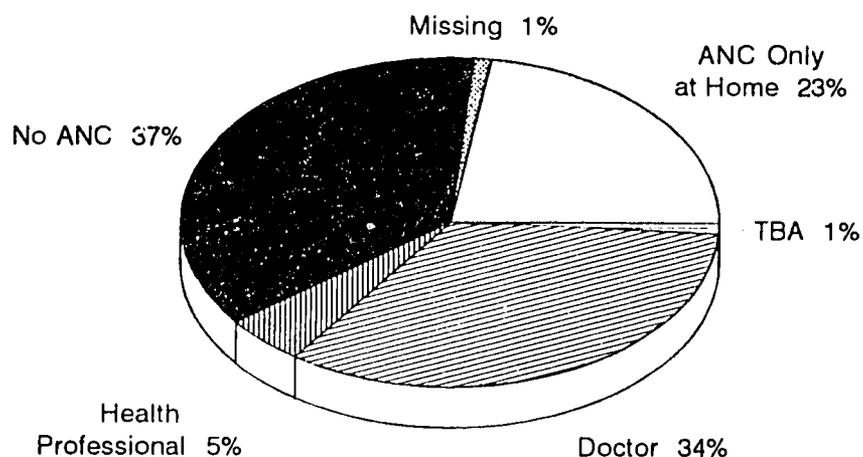
¹Includes births to women who received ANC outside the home whether or not they also received ANC at home from a health worker. If more than one source of ANC was mentioned, only the provider with the highest qualifications is considered in this tabulation.

²Includes hakim and "Don't know"

³Births in the period 1-47 months prior to the survey. Total includes 5 births to women belonging to other religions, which are not shown separately.

Thirty-nine percent of the births received antenatal care from outside the home. Note that in this tabulation, those who received antenatal care outside the home whether they also received care at home from a health worker, are classified as "outside home". Allopathic doctors provided antenatal care for 34 percent of the births, 60 percent in urban areas and 29 percent in rural areas. Mothers did not go outside the home to seek antenatal care but received it through home visits of health workers for 23 percent of live births, with this type of care being almost three times more prevalent in rural areas than in urban areas (25 percent compared with 9 percent).

Figure 9.1
Sources of Antenatal Care (ANC)
During Pregnancy



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

NFHS, Orissa, 1993

For another 5 percent of births, antenatal care was given by other health professionals, such as nurse/ midwives, ayurvedic doctors, and homoeopathic doctors (7 percent in urban areas compared with 4 percent in rural areas). For a negligible proportion of births (0.5 percent), mothers received antenatal care outside the home from traditional birth attendants.

The coverage of antenatal care is greatest (62 percent) among births to mothers age 20-34 and lowest (49 percent) among births to mothers age 35 or over. There is a negative relationship between the order of births and coverage of antenatal care, one that reflects the differential care by allopathic doctors rather than by other types of health professionals. While the mothers of 68 percent of the first-order births received antenatal care, this figure was only 46 percent for births of order six or higher. The proportion of births whose mothers received antenatal care increases steadily with each increase in the educational level of the mother, from 54 percent for the births to illiterate mothers to 88 percent for births to mothers who had completed middle school, and to 93 percent for births to mothers who had completed high school. This relationship is produced entirely by variation in the care by allopathic doctors; antenatal care only at home from health workers is actually more common among births to illiterate mothers than among births to educated mothers. Hindu mothers are slightly more likely to be covered by antenatal care than are Muslim mothers, although Muslims are slightly more likely to consult doctors than are Hindus. Mothers from scheduled tribes are less likely to receive antenatal care than are mothers from either scheduled or nonscheduled castes.

Reasons for Not Seeking Antenatal Care Services

Mothers who had not sought antenatal care outside the home were asked about the main reason for not going for an antenatal check-up. The findings shown in Table 9.1A for women who did not seek any antenatal care (outside the home) are quite revealing. For this group, more than half of births (55 percent) were to respondents who stated that it was not necessary to go for an antenatal check-up. This shows that a large proportion of births are to women who have not realized the importance of safe motherhood. A higher proportion of the urban than the rural births were to mothers who felt this way (70 percent compared with 54 percent), but it must be remembered that this question was asked only of women whose births did not involve any antenatal care, a category that is far smaller among urban births (22 percent) than among rural births (40 percent). Other major factors contributing to the nonuse of antenatal care were financial cost (13 percent) and lack of knowledge of services (11 percent). Less than one percent of the responses involved poor quality service, indicating that the problem lies with the lack of demand rather than the supply of antenatal services. These findings underline the importance of information, education and communication with respect to antenatal care and safe motherhood.

Reason for not seeking antenatal care	Urban	Rural	Total
Lack of knowledge of services	10.8	11.3	11.2
Not necessary	70.0	53.7	55.1
Not customary	3.8	6.2	6.0
Financial cost	8.5	13.9	13.4
Inconvenient	1.5	4.4	4.2
Poor quality service	--	0.5	0.4
No time to go	2.3	4.1	4.0
Not permitted to go	--	3.8	3.5
Other	3.1	2.1	2.2
Total percent	100.0	100.0	100.0
Number	74	760	834

-- Less than 0.05 percent

Number and Timing of Antenatal Care Visits

The number of antenatal care visits and the timing of the first antenatal check-up are important for the health of the mother and the outcome of the pregnancy. Ideally, for normal cases antenatal care visits after confirmation of pregnancy should be scheduled at intervals of four weeks throughout the first seven months, then every two weeks until the last month and weekly thereafter (MacDonald and Pritchard, 1980). However, working women from lower socioeconomic groups often find it difficult to attend an antenatal clinic this often because they face a loss of wages whenever they attend. Under these circumstances, a minimum of four antenatal visits are recommended, during the third, sixth, eighth, and ninth months of the pregnancy (Park and Park, 1989).

Table 9.2 and Figure 9.2 show the percentage distribution of live births in the last four years by the number and timing of antenatal care visits. Among births for which the mother received any form of antenatal care, the median frequency of antenatal care visits either in the home or elsewhere is slightly above three (3.2); the median number of home visits is 2.8 and of visits outside the home, 3.1. These medians make clear that women in Orissa are far behind in following the standards set for antenatal visits. The median number of visits is larger in urban areas (3.8) than in rural areas (3.1), but even in urban areas it falls below the recommended minimum of four 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 the NFHS, the median gestational age for the first antenatal care visit of either type (home or outside) is, among births receiving any antenatal care, 5.1 months, with a median gestational age of 4.2 months in urban areas and 5.3 months in rural areas. The median age of gestation in urban areas is slightly higher for home visits (5.1 months) than outside visits (4.2 months). No such difference is observed in rural areas.

<u>Table 9.2 Number of antenatal care visits and stage of pregnancy</u>			
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, Orissa, 1993			
ANC visits/ months pregnant	Home visits	Outside visits	Any type
URBAN			
Number of ANC visits			
None	80.9	31.0	22.4
1 visit	4.6	5.9	5.9
2-3 visits	11.9	33.4	36.7
4 or more visits	1.0	28.2	33.6
Don't know/missing	1.5	1.5	1.5
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	2.7	3.7	3.8
Months pregnant at the time of the first ANC visit			
No antenatal care	80.9	31.0	22.4
First trimester	5.0	31.5	35.6
Second trimester	9.6	26.2	32.0
Third trimester	2.9	9.8	8.4
Don't know/missing	1.5	1.5	1.5
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	5.1	4.2	4.2
Number of live births ¹	330	330	330

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

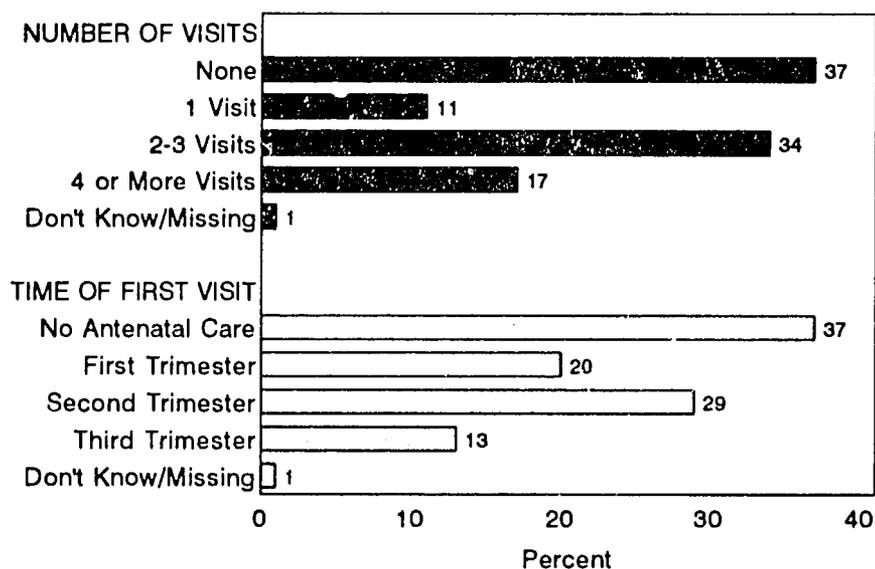
Percent distribution of live births during the four years preceding the survey by number of antenatal care (ANC) visits, and by the stage of pregnancy at the time of the first visit, according to residence, Orissa, 1993

ANC visits/ months pregnant	Home visits	Outside visits	Any type
RURAL			
Number of ANC visits			
None	66.0	64.7	39.7
1 visit	6.2	9.5	11.7
2-3 visits	22.2	17.7	33.2
4 or more visits	4.3	6.8	14.1
Don't know/missing	1.3	1.3	1.3
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	2.9	2.8	3.1
Months pregnant at the time of the first ANC visit			
No antenatal care	66.0	64.7	39.7
First trimester	8.4	10.2	17.7
Second trimester	16.9	14.9	28.0
Third trimester	7.3	8.8	13.2
Don't know/missing	1.3	1.3	1.3
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	5.4	5.3	5.3
Number of live births ¹	1915	1915	1915
TOTAL			
Number of ANC visits			
None	68.2	59.8	37.1
1 visit	5.9	9.0	10.8
2-3 visits	20.7	20.0	33.7
4 or more visits	3.8	9.9	17.0
Don't know/missing	1.4	1.3	1.4
Total percent	100.0	100.0	100.0
Median number of visits (for those with ANC)	2.8	3.1	3.2
Months pregnant at the time of the first ANC visit			
No antenatal care	68.2	59.8	37.1
First trimester	7.9	13.4	20.4
Second trimester	15.9	16.6	28.6
Third trimester	6.7	9.0	12.5
Don't know/missing	1.4	1.3	1.4
Total percent	100.0	100.0	100.0
Median months pregnant at first visit (for those with ANC)	5.4	5.1	5.1
Number of live births ¹	2245	2245	2245

-- Less than 0.05 percent

¹Births in the period 1-47 months prior to the survey

Figure 9.2
Number and Timing of Antenatal Visits



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

NFHS, Orissa, 1993

No home visits were made by health workers to the mothers of 68 percent of births; only 33 percent of births in rural areas and 18 percent of births in urban areas received antenatal care through home visits. The NFHS data for the other states of India show that although the prevalence of home visits by health workers in Orissa is higher than average for the country as a whole, the proportion of births for which mothers received antenatal care through doctors and other health professionals is below average (International Institute for Population Sciences, 1994). The lack of care by health professionals, the relatively late gestational age at first visit, and the relatively small number of such visits, may help to explain, at least in part, the unusually high infant mortality rate observed in Orissa.

Tetanus Toxoid Vaccination

In Orissa, an important cause of death among neonates is neonatal tetanus. According to the Central Bureau of Health Intelligence, 8.7 percent of all deaths due to neonatal tetanus in India in 1990 occurred in Orissa (Central Bureau of Health Intelligence, 1991). Because Orissa accounted for only 3.7 percent of the total population of India in 1991, the incidence of deaths due to neonatal tetanus in Orissa is relatively high. Neonatal tetanus is caused by infection of the newborn (usually at the umbilical stump) with tetanus organisms. Neonatal tetanus is most common when the delivery takes place in an unhygienic environment and nonsterilized instruments are used for cutting the umbilical cord. Tetanus typically develops during the first or second week of life and is fatal in 70 to 90 percent of cases (Foster, 1984). Where this disease is most common, such as in the rural areas of Orissa, expert medical help

is also rarely available, thereby leading to a fatality rate of nearly 100 percent. Neonatal tetanus is a preventable disease, however. Two doses of tetanus toxoid vaccine given to the mother one month apart during early pregnancy are nearly 100 percent effective in preventing tetanus among newborns (and among mothers).

In India, the tetanus immunization programme for expectant mothers was initiated in 1975-76 and was integrated with the Expanded Programme on Immunization (EPI) in 1978 (Ministry of Health and Family Welfare, 1991). In order to hasten implementation of the immunization programme, the Government of India started a special programme called the Universal Immunization Programme (UIP) in 1985-86. In 1986, the UIP was recognized as one of the seven Technology Missions. One important objective of the UIP was to protect all pregnant women against tetanus by 1990. According to the National Immunization Schedule, a pregnant woman should receive two doses of tetanus toxoid injection, the first when she is 16 weeks pregnant and the second when she is 20 weeks pregnant (Central Bureau of Health Intelligence, 1991). Reinoculation is recommended every three years. If the initial doses were received less than three years ago, a single, booster injection is recommended.

In the NFHS, each mother who had a live birth during the past four years was asked whether she was given an injection in the arm to prevent her and her baby from getting tetanus and, if so, how many times she received such an injection. The distribution of births by the number of tetanus toxoid injections given to the mother, according to selected background characteristics, is shown in Table 9.3. Fifty-four percent of births were to mothers who had received two or more doses of tetanus toxoid vaccine, 9 percent were to those who had received one dose, and 37 percent were to those who did not receive even a single dose. This level of coverage is close to that for India as a whole (International Institute for Population Sciences, 1994).

Two-dose immunization for tetanus is significantly higher in urban than in rural areas (72 percent compared with 51 percent). For births in the last four years, tetanus toxoid coverage is lower for older mothers, mothers pregnant with higher-order births, and mothers with lower educational attainment. The proportion of births whose mothers had received two doses of tetanus toxoid vaccine increases steadily from 43 percent for illiterate mothers to 88 percent for mothers with at least a high school education. Immunization against tetanus is slightly less common among births to Hindu women (63 percent) than among those to Muslim women (70 percent), and is lower among scheduled tribe women (51 percent) than among scheduled caste women and non-SC/ST women (63 percent and 67 percent, respectively).

Iron and Folic Acid Tablets

Proper maternal nutrition is important for the healthy intrauterine growth of the baby and may affect the baby's birth weight. Various studies in different parts of India have indicated that the percentage of low birth weight babies (weighing less than 2,500 grams) ranged from 15 in Trivandrum to 46 in Baroda (Nutrition Foundation of India, 1993). Overall, around one-third of babies in India are low birth weight, suggesting nutritional deficiencies among many expectant mothers. Improved nutrition (coupled with improved health care in pregnancy) has, however, substantially improved birth weights in India (Ramachandran, 1992). The provision of iron and folic acid tablets as a prophylaxis against nutritional anaemia among pregnant women forms an

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, Orissa, 1993

Background characteristic	Number of tetanus toxoid injections				Total percent	Percent given iron/folic tablets	Number of births
	None	One dose	Two doses or more	Don't know/missing			
Mother's age at birth							
< 20	37.8	7.7	54.6	--	100.0	51.0	467
20-34	35.6	9.5	54.5	0.4	100.0	50.5	1693
35+	57.9	6.1	34.6	1.4	100.0	32.6	85
Birth order							
1	28.3	8.1	63.5	0.2	100.0	57.1	603
2	35.4	9.4	54.7	0.5	100.0	52.8	565
3	34.5	10.7	54.8	--	100.0	51.2	437
4	41.9	9.1	49.0	--	100.0	42.7	280
5	49.6	6.2	44.2	--	100.0	40.7	149
6+	54.7	9.1	34.6	1.7	100.0	35.2	210
Residence							
Urban	23.1	5.2	71.6	0.2	100.0	66.4	330
Rural	39.3	9.7	50.7	0.4	100.0	47.1	1915
Education							
Illiterate	46.6	10.3	42.7	0.4	100.0	43.9	1461
Lit., < middle complete	24.3	6.8	68.7	0.2	100.0	56.8	542
Middle school complete	8.9	5.2	85.9	--	100.0	61.7	110
High school and above	4.4	7.5	88.1	--	100.0	78.1	132
Religion							
Hindu	37.0	9.2	53.4	0.3	100.0	50.2	2158
Muslim	29.8	5.5	64.7	--	100.0	30.6	52
Christian	(34.0)	(--)	(66.0)	(--)	100.0	(67.8)	30
Caste/tribe							
Scheduled caste	36.5	12.5	50.3	0.7	100.0	52.9	246
Scheduled tribe	48.7	11.5	39.1	0.7	100.0	47.7	493
Other	33.1	7.6	59.1	0.2	100.0	50.2	1507
Total¹	36.9	9.0	53.8	0.3	100.0	49.9	2245

() Based on 25-49 unweighted cases

-- Less than 0.05 percent

¹Births in the period 1-47 months prior to the survey. Total includes 5 births to women belonging to other religions, which are not shown separately

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.

In the NFHS, information was collected on whether the mother had received iron and folic acid tablets during each pregnancy resulting in a live birth during the last four years. This information is presented in Table 9.3. Fifty percent of births were to mothers who had received iron and folic acid tablets. As expected, the receipt of iron and folic acid tablets is substantially higher in urban areas (66 percent) than in rural areas (47 percent). The differentials in the

distribution of iron and folic acid tablets by other background characteristics is almost the same as those for tetanus toxoid injections.

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 hygienic conditions with the assistance of a trained medical practitioner. Table 9.4 and Figure 9.3 present the percent distribution of live births occurring during the four years preceding the survey according to place of delivery and selected background characteristics. Only 14 percent of births during the last four years occurred in medical institutions, with 12 percent in public institutions and 2 percent in private medical institutions. The percentage of births that took place in medical institutions is four times as high in urban areas (40 percent) as in rural areas (10 percent). Information on the percent distribution of births by place of delivery and type of attendance at birth (for home deliveries) is also available from the Sample Registration System (SRS) for all the major states in India. The latest SRS information, for 1991, puts the percentage of births in Orissa occurring in institutions at 10 percent overall, with 34 percent in urban areas and 6 percent in rural areas (Office of the Registrar General, 1993). These estimates are slightly lower than either the NFHS estimates or estimates made by the Institute for Research in Medical Statistics (1993), something that may reflect a change over time in Orissa.

The proportion of births taking place in medical institutions is lower among births to older women than among those to younger women, and is likewise lower among higher-order births than among lower-order births. As is the case for antenatal visits, tetanus immunization, and iron and folic acid supplements, institutional deliveries are also more common among the births of well educated women than among the births of poorly educated women, and are less common among the births to women from scheduled tribes than among the births to other women, especially those from non-SC/ST group. Muslim births are, however, slightly more likely to occur in an institutional setting than are Hindu births, a difference that likely reflects the heavy urban concentration of the Muslim population in Orissa.

In Orissa, delivery in medical institutions (14 percent) is less common than antenatal care (62 percent) but is related with it. The percentage of institutional deliveries is higher among births to women who had four or more antenatal visits (38 percent) than among births to women who had fewer antenatal visits (14 percent) or none (4 percent). This could be due to the availability of services for both antenatal care and delivery in the same settings. It might also reflect complications during pregnancy, which often lead women to seek antenatal care and to deliver in an institutional setting. It is also possible that pregnant women receiving antenatal care outside the home are encouraged by the antenatal care provider to have medical assistance during delivery.

Table 9.5 and Figure 9.3 present information on assistance during delivery according to selected background characteristics. As in the case of antenatal care, the interviewer was instructed to record all responses if more than one person was reported to have assisted during delivery. 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, one-fifth of the births were attended by a doctor (13 percent) or by a nurse/midwife (8 percent). Another 38 percent were attended by

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, Orissa, 1993

Background characteristic	Place of delivery						Total percent	Number of live births ¹
	Health facility/institution		Home			Don't know/missing		
	Public	Private	Own home	Parents' home	Other			
Mother's age at birth								
< 20	10.5	1.4	73.7	12.1	0.7	1.6	100.0	467
20-34	12.5	2.5	74.8	8.1	0.8	1.3	100.0	1693
35+	8.8	--	89.9	1.4	--	--	100.0	85
Birth order								
1	19.3	3.5	64.5	10.6	0.8	1.3	100.0	603
2-3	11.4	2.1	74.8	10.3	0.6	0.9	100.0	1002
4-5	6.6	1.3	84.6	4.8	0.8	1.9	100.0	429
6+	4.9	0.3	88.2	3.0	1.7	1.9	100.0	210
Residence								
Urban	30.8	9.0	49.9	8.4	0.3	1.5	100.0	330
Rural	8.7	1.0	79.5	8.7	0.8	1.3	100.0	1915
Education								
Illiterate	6.1	0.7	82.1	8.8	0.8	1.5	100.0	1461
Lit., < middle complete	18.9	1.5	70.2	7.9	0.5	1.0	100.0	542
Middle school complete	21.4	5.7	57.7	12.0	2.1	1.1	100.0	110
High school and above	40.5	18.3	32.5	7.8	--	0.9	100.0	132
Religion								
Hindu	11.9	2.0	75.4	8.7	0.7	1.4	100.0	2158
Muslim	16.4	2.2	75.9	3.3	2.2	--	100.0	52
Christian	(13.2)	(11.3)	(53.0)	(18.8)	(3.8)	(--)	100.0	30
Caste/tribe								
Scheduled caste	10.8	0.7	75.3	10.8	0.5	1.9	100.0	246
Scheduled tribe	3.3	1.3	85.1	7.3	1.2	1.9	100.0	493
Other	15.0	2.7	71.8	8.8	0.7	1.0	100.0	1507
Antenatal care visits								
None	4.1	0.1	87.5	7.9	0.4	--	100.0	834
1-3 visits	11.9	1.8	76.6	9.0	0.8	--	100.0	1000
4+ visits	30.3	7.7	50.0	10.3	1.7	--	100.0	381
Don't know/missing	(--)	(--)	(3.8)	(--)	(--)	(96.2)	100.0	31
Total¹	12.0	2.1	75.1	8.7	0.8	1.3	100.0	2245

() Based on 25-49 unweighted cases

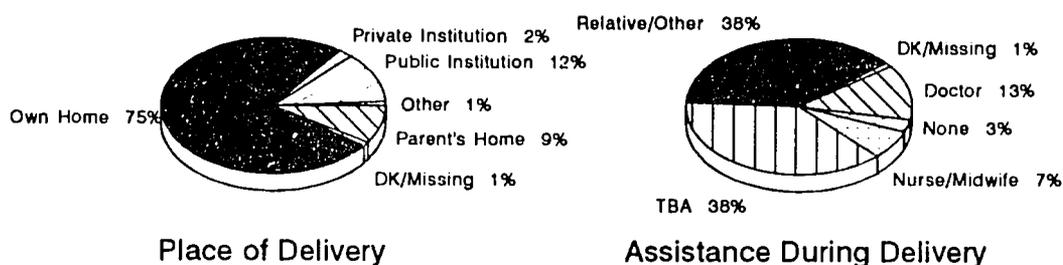
-- Less than 0.05 percent

¹Births in the period 1-47 months prior to the survey. Total includes 5 births to women belonging to other religions, which are not shown separately

traditional birth attendants, and 38 percent were attended only by relatives, friends or neighbours. Three percent were delivered without any birth attendant. Thus, the great majority of births were delivered without assistance from a formally trained medical person.

As one would expect, the proportion of deliveries attended by doctors is higher in urban areas (35 percent) than in rural areas (9 percent). Nurse/midwife attendance is also more common in urban than in rural areas (14 percent compared with 6 percent of all births). Attendance by a trained medical person is also higher among births to well educated mothers

**Figure 9.3
Place of Delivery and
Assistance During Delivery**



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

NFHS, Orissa, 1993

than among births to poorly educated or illiterate mothers, and is less common among scheduled tribe births than among other births. As previously noted, trained medical assistance during a birth is strongly related to the number of antenatal visits.

The type of assistance during delivery also varies according to the place of delivery. Among the deliveries that took place in private health facilities, 87 percent were attended by doctors and 12 percent by nurse/midwives, whereas among deliveries in public health facilities, 77 percent were attended by doctors and 20 percent by nurse/midwives. Among deliveries taking place in the respondent's home, nearly half (45 percent) were attended by only relatives or others, 45 percent by traditional birth attendants, and only 2 percent by doctors. Because a large proportion of births take place at home, it is not surprising to find that traditional birth attendants, relatives, and neighbours play a major role in assisting deliveries in Orissa.

Compared with other states in India, Orissa has an unusually large proportion of births that are delivered at home, where they are attended in most cases by untrained persons (International Institute for Population Sciences, 1994). This may explain the high level of neonatal mortality in Orissa observed in both the SRS and the NFHS.

Delivery Characteristics

The percentage distribution of live births in the last four years according to complications during delivery, prematurity, birth weight, and mothers' estimates of the baby's size at birth are

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, Orissa, 1993

Background characteristic	Attendant assisting during delivery ¹						Total percent	Number of live births ²
	Doctor	Nurse/ midwife	Traditional birth attendant	Relative/ other	None	Don't know/ missing		
Mother's age at birth								
< 20	12.7	5.9	35.7	42.9	2.4	0.:	100.0	467
20-34	13.1	8.0	38.1	36.7	3.1	1.0	100.0	1693
35+	12.2	5.4	38.1	37.5	6.8	--	100.0	85
Birth order								
1	21.6	9.0	35.5	31.7	1.2	1.0	100.0	603
2-3	11.8	8.2	37.2	40.3	2.1	0.3	100.0	1002
4-5	7.4	5.1	40.0	41.4	4.8	1.3	100.0	429
6+	5.7	4.6	40.1	38.2	9.6	1.7	100.0	210
Residence								
Urban	35.1	13.6	26.3	21.3	2.9	0.7	100.0	330
Rural	9.2	6.4	39.5	40.9	3.1	0.8	100.0	1915
Mother's education								
Illiterate	7.2	4.5	38.2	45.3	3.6	1.1	100.0	1461
Lit., < middle complete	17.6	11.3	39.5	28.8	2.6	0.2	100.0	542
Middle school complete	24.0	14.6	36.7	23.6	--	1.1	100.0	110
High school and above	48.8	18.3	23.3	7.4	2.2	--	100.0	132
Religion								
Hindu	13.0	7.0	37.8	38.3	3.1	0.9	100.0	2158
Muslim	14.2	24.2	25.3	33.0	3.3	--	100.0	52
Christian	(16.9)	(15.1)	(37.8)	(30.2)	(--)	(--)	100.0	30
Caste/tribe								
Scheduled caste	12.2	6.8	36.5	41.7	2.4	0.5	100.0	246
Scheduled tribe	3.4	3.9	33.8	52.7	4.3	1.9	100.0	493
Other	16.3	8.8	39.0	32.6	2.8	0.5	100.0	1507
Antenatal care								
None	3.8	2.9	40.9	49.0	3.5	--	100.0	834
1-3 visits	12.5	9.1	38.8	36.7	2.8	--	100.0	1000
4+ visits	35.4	13.8	29.7	20.6	0.5	--	100.0	381
Don't know/missing	(--)	(--)	(3.8)	(--)	(35.8)	(60.4)	100.0	31
Place of delivery								
Public health facility	77.1	19.9	2.1	0.9	--	--	100.0	269
Private health facility	86.9	11.9	1.2	--	--	--	100.0	48
Own home	2.2	5.0	44.5	44.8	3.5	--	100.0	1687
Parents' home	3.0	10.1	41.0	46.0	--	--	100.0	195
Don't know/missing	(--)	(--)	(--)	(--)	(37.2)	(62.8)	100.0	29
Total³	13.0	7.5	37.6	38.0	3.1	0.8	100.0	2245

() Based on 25-49 unweighted cases

-- Less than 0.05 percent

¹If the respondent mentioned more than one attendant, only the most qualified attendant is considered in this tabulation

²Births in the period 1-47 months prior to the survey. Total includes 5 births to women belonging to other religions and 17 births with "Other" place of delivery, which are not shown separately.

presented in Table 9.6. As reported by mothers, 85 percent of the deliveries had no complications, 10 percent were characterized by a long period of labour, 1 percent were accompanied by excessive bleeding, and 3 percent involved delayed delivery of the placenta. One percent of births were by Caesarian section (C-section). C-section deliveries were more than four times as prevalent in urban areas (where institutional deliveries are more common) as in rural areas. Otherwise, urban-rural differences in delivery complications are minor. A very small percentage of live births (2 percent) were reported as premature.

A large majority of babies were not weighed at birth (71 percent in urban areas and 94 percent in rural areas), which is to be expected given that the majority of the deliveries took place at home. Moreover, for 9 percent of births in urban areas and 3 percent of births in rural areas, the baby was weighed but information on birth weight was unavailable at the time of the interview. Thus, the resulting sample of birth weights is small and subject to substantial

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, Orissa, 1993			
Delivery characteristic	Urban	Rural	Total
Complications at delivery¹			
No complications	83.3	85.2	85.0
Caesarian section	3.6	0.8	1.2
Use of forceps	1.2	0.6	0.7
Excessive bleeding	1.2	1.3	1.3
Long period of labour	8.4	9.7	9.5
Delayed delivery of placenta	2.2	2.9	2.8
Other	--	0.5	0.4
Premature birth			
Yes	3.3	2.3	2.4
No	94.7	96.1	95.9
Don't know/missing	2.1	1.6	1.6
Total percent	100.0	100.0	100.0
Birth weight			
Less than 2.5 kg	4.8	0.8	1.4
2.5 kg or more	15.3	2.7	4.6
Don't know/missing	8.6	3.0	3.8
Not weighed	71.3	93.5	90.2
Total percent	100.0	100.0	100.0
Size at birth			
Large	18.2	14.5	15.1
Average	58.5	57.7	57.8
Small	21.7	25.7	25.1
Don't know/missing	1.5	2.1	2.0
Total percent	100.0	100.0	100.0
Number of births ²	330	1915	2245

-- Less than 0.05 percent
¹Percentages may sum to more than 100.0 because multiple complications could be recorded.
²Births in the period 1-47 months prior to the survey.

selection bias. Slightly less than one-quarter of babies whose weight at birth was known had low birth weight (less than 2.5 kg).

Because most deliveries in India take place at home where it is difficult to weigh newborns, a question on the size of the baby at birth (small, average or large) was asked in the NFHS. Experience has shown that the mothers can give useful information about the size of their newborns. One-quarter of births were reported by mothers to be small in size.

Table 9.7 shows differentials in delivery characteristics by the type of antenatal care, length of the previous birth interval, and the mother's age at birth. Complications and premature births were most common for births to mothers who had four or more antenatal visits.

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, Orissa, 1993

Delivery characteristic	Antenatal care				Previous birth interval				Age of mother at birth		
	None	1-3 visits	4+ visits	DK/missing	Under 2 years	2-3 years	4+ years	First birth	<20	20-34	35+
Complications at delivery¹											
No complications	89.7	85.1	80.7	(3.8)	87.3	89.0	82.7	78.8	85.0	85.0	83.7
Caesarian section	0.1	1.3	3.5	(--)	0.2	0.4	0.8	3.3	1.6	1.2	--
Use of forceps	0.4	0.2	2.6	(--)	0.8	0.4	0.5	1.1	0.1	0.9	--
Excessive bleeding	1.1	1.3	1.8	(--)	1.2	0.6	2.0	2.0	1.5	1.3	--
Long period of labour	8.1	10.1	11.6	(--)	6.5	6.8	11.6	14.1	10.0	9.3	10.9
Delayed delivery of placenta	2.6	3.4	2.1	(--)	2.2	3.0	5.2	1.5	1.5	3.0	5.5
Other	--	0.8	0.3	(--)	0.6	0.3	--	0.8	0.5	0.4	--
Premature birth											
Yes	2.7	2.1	3.0	(--)	1.8	1.5	2.3	4.4	3.8	1.8	6.8
No	96.7	97.6	97.0	(3.8)	95.7	97.1	96.6	93.9	94.2	96.5	93.2
Don't know/missing	0.6	0.3	--	(96.2)	2.5	1.5	1.1	1.7	2.0	1.6	--
Total percent	100.0	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	0.1	1.3	4.4	(--)	0.9	0.8	2.0	2.3	1.2	1.4	1.4
2.5 kg or more	0.7	3.7	15.8	(--)	5.5	1.6	5.4	8.0	3.5	5.0	2.7
Don't know/missing	0.9	2.4	6.6	(96.2)	5.1	3.0	2.8	5.0	4.9	3.5	4.1
Not weighed	98.3	92.6	73.2	(3.8)	88.5	94.7	89.9	84.7	90.4	90.1	91.8
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Size at birth											
Large	12.4	16.1	19.3	(--)	15.4	12.9	17.7	16.5	15.1	15.2	11.6
Average	60.5	57.9	55.6	(3.8)	57.6	61.8	55.5	53.2	52.0	59.3	59.1
Small	26.3	25.1	24.4	(--)	23.5	23.3	26.1	28.4	29.3	23.7	29.3
Don't know/missing	0.7	0.8	0.6	(96.2)	3.6	2.0	0.8	1.9	3.6	1.7	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of births ²	834	1000	381	31	374	911	353	607	467	1693	85

DK: Don't know

() Based on 25-49 unweighted cases

-- Less than 0.05 percent

¹Percentages may sum to more than 100.0 because multiple complications could be recorded.

²Births in the period 1-47 months prior to the survey.

This suggests that there is a tendency among pregnant women having complications to obtain antenatal care. Not surprisingly, antenatal care is also related to newborns being weighed. The proportion of newborns who were weighed is 2 percent for those whose mothers did not receive antenatal care, 7 percent for those whose mothers had 1-3 antenatal check-ups, and 27 percent for those whose mother had 4 or more antenatal visits. As indicated in Table 9.4, 38 percent of births to mothers who had four or more antenatal visits were delivered in institutions, where the possibility of weighing children is very high.

There is no relationship between the previous birth interval and complications at delivery, but first births have a slightly higher complication rate, especially with respect to the period of labour. Perhaps because of this, C-sections were carried out for 3 percent of first births compared with 1 percent for other births. First births are also slightly more likely to be premature (4 percent compared with 1-2 percent for other births). Births to mothers more than 35 years of age at the time of delivery are more likely to be premature than are other births, but the differences are small.

9.2 Child Care Indicators

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

In order to accelerate implementation of the immunization scheme, the Government of India started a special programme called the Universal Immunization Programme (UIP) in 1985-86. The UIP was designated as one of the seven Technology Missions and was charged with two objectives: i) to vaccinate at least 85 percent of all infants by 1990 against the six vaccine-preventable diseases; and ii) to achieve self-sufficiency in vaccine production and manufacture of cold chain equipment (Ministry of Health and Family Welfare, 1991).

The standard immunization schedule developed for the immunization programme for children contains the age at which each vaccine is 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 copy

carefully the dates on which the child received vaccinations against each disease. When the mother could not produce the vaccination card she was asked whether the child had received any vaccinations. If any vaccination had been received, the mother was then asked whether the child had received a vaccination against tuberculosis (BCG); diphtheria, whooping cough (pertussis) and tetanus (DPT); polio; and measles. For DPT and polio, information was obtained on the number of injections or oral doses given.

Table 9.8 presents the percentage of children age 12-23 months who received each vaccine at any time before the interview and the percentage who received each vaccine before 12 months of age, by source of information (i.e., vaccination card or mother's report). The below-12 months age group 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 where a card was shown but (1) there was an indication on the card that the vaccination was given but the actual date was either missing or inconsistent or (2) there was no record of receipt of the vaccination on the card, but the mother reported that the vaccination was given. The numerator for each entry in the row labelled "Mother's report" is the number of children whose mothers did not show a card to the interviewer but reported that the child had received the vaccination. The numerator for each entry in the row labelled "Either source" is the sum of the numerators in the preceding two rows for the vaccination under consideration. The numerator for each entry in the fourth row, "Vaccinated by 12 months of age," is the sum of two quantities: (1) children vaccinated during the first year of life (0-11 months) as indicated on the vaccination card (including cases where there was no date on the card or the specific vaccine was not recorded on the card) and (2) children vaccinated by 12 months of age according to the mother's report. Because the date of immunization was not asked of the mother if she could not show the card, the proportion of vaccinations given during the first year of life among children whose information is based on the mother's report is assumed to be the same as the proportion of vaccinations given during the first year of life among children with a written record of vaccination.

Of the 505 children in the age group 12-23 months, vaccination cards were seen by the interviewer for only 42 percent of children in Orissa, a percentage that is, however, higher than the nationwide percentage of 31 (International Institute for Population Sciences, 1994). The percentage producing cards was almost the same in urban and rural areas. As expected, levels of immunization coverage are much higher for children whose vaccination cards were seen by the interviewer than for children who either did not have a card or whose card was not seen.

Based on the information either recorded on a card or reported by the mother, only 36 percent of children age 12-23 months are fully vaccinated¹. Thus, Orissa has a long way to go

¹ They have received BCG, measles, and three doses of DPT and polio (excluding polio 0). Polio 0 was introduced only recently and because it is a vaccination given at the time of birth, mothers may not remember whether the first dose of the polio vaccine was given just after birth or later. Therefore, the coverage of polio 0 reported in the NFHS may be subject to response errors.

Table 9.8 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, Orissa, 1993

Source of information	Percentage vaccinated among children age 12-23 months											Number of children
	BCG	Polio 0	DPT			Polio			Measles	All ¹	None	
			1	2	3	1	2	3				
URBAN												
Vaccinated at any time before interview												
Vaccination card	94.7	--	96.5	93.0	78.9	96.5	93.0	78.9	63.2	59.6	--	32
Mother's report	50.0	8.7	51.2	50.0	42.5	55.0	52.5	46.2	37.5	32.5	43.7	46
Either source	68.6	5.1	70.1	67.9	57.7	72.3	69.3	59.9	48.2	43.8	25.5	78
Vaccinated by 12 months of age²												
	64.7	5.1	67.5	66.5	56.3	69.6	67.9	58.4	36.1	32.8	28.2	78
RURAL												
Vaccinated at any time before interview												
Vaccination card	89.0	--	99.4	91.6	86.4	98.7	91.6	86.4	59.7	56.5	--	178
Mother's report	43.3	2.8	47.0	42.3	34.4	49.3	44.2	34.4	23.7	19.1	48.8	249
Either source	62.3	1.6	68.8	62.9	56.1	69.9	64.0	56.1	38.8	34.7	28.5	427
Vaccinated by 12 months of age²												
	61.4	1.6	67.0	60.1	51.7	68.1	61.2	51.7	26.8	24.4	30.3	427
TOTAL												
Vaccinated at any time before interview												
Vaccination card	89.8	--	98.9	91.8	85.2	98.4	91.8	85.2	60.3	57.0	--	211
Mother's report	44.3	3.7	47.6	43.5	35.7	50.2	45.5	36.2	25.8	21.1	48.1	295
Either source	63.3	2.2	69.0	63.6	56.3	70.3	64.8	56.7	40.2	36.1	28.0	505
Vaccinated by 12 months of age²												
	61.9	2.2	67.1	61.1	52.3	68.3	62.2	52.7	28.2	25.6	30.0	505

-- Less than 0.05 percent

¹Children who are fully vaccinated, i.e., those who have received BCG, measles and three doses of DPT and polio vaccine (excluding polio 0).

²For children whose information was based on the mother's report, the proportion of vaccinations given during the first year of life was assumed to be the same as for children with a written record of vaccination.

to achieve the goal of universal immunization of children. In the state as a whole, 28 percent of children age 12-23 months had not been vaccinated at all. This suggests that the greatest shortfall in Orissa involves partial immunizations rather a complete failure to immunize.

Analysis of vaccine-specific data shows that more than three-fifths of children (63 percent) have received BCG vaccine, the first dose of DPT (69 percent), and the first polio vaccine dose (70 percent). Slightly more than 56 percent have received three doses of DPT and three doses of the polio vaccine. The DPT and polio coverage rates are about the same because both vaccines are normally administered simultaneously. The continuation rate from the first to the third dose of DPT and the polio vaccine, however, indicates considerable dropout (18 percent in the case of DPT and 19 percent in the case of polio). Only 40 percent of the children age 12-23 months have been vaccinated against measles. The rate of measles vaccination has been the largest shortfall in Orissa in increasing the percentage of children fully immunized.

The urban-rural differences in percentages vaccinated are small or moderate for most vaccines. Only in the case of measles vaccination does the percentage in urban areas exceed the percentage in rural areas by as much as 9 percentage points, but even in urban areas, only 44 percent of children age 12-23 months are fully vaccinated.

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 indicate that most vaccinations that are given in Orissa are being given within the first year of life. For example, about 26 percent of children had been fully vaccinated by age 12 months compared with 36 percent fully vaccinated by the time of the survey. The gap between on-time and late vaccination is particularly wide for measles. For example, only 70 percent of children who were vaccinated against measles by age 12-23 months had received the vaccination before their first birthday. This contrasts with an on-time rate of 98 percent for BCG and of 93 for the third doses of DPT and polio.

Table 9.9 and Figure 9.4 present vaccination coverage rates among children age 12-23 months by selected background characteristics. The proportion of children for whom the mother showed a vaccination card varies by background characteristics shown in the table. The vaccination cards were seen for a higher percentage of male children, lower-order births, children of mothers with at least a middle school education, and non-SC/ST children. There are notable differences in vaccination coverage also by these characteristics. For every type of vaccination, coverage is higher among male than among female children, although typically by only a relatively small amount (the difference may reflect a tendency to provide better medical care for boys than for girls). For example, 38 percent of male children are fully vaccinated compared with 34 percent of female children. The difference in coverage rates for male and female children range from less than 1 percentage point for polio 0 to 9 percentage points for polio 3. Thus, while there appears to be discrimination against female children with regard to immunization, the level of this discrimination is modest. Sex differentials in immunization could nevertheless be an important factor underlying higher female than male mortality in childhood observed in Table 8.5.

The relationship between vaccination coverage and birth order is consistently negative for all vaccinations except polio 0 and DPT1. The majority of first-order births occur to younger women who have been observed to have a higher degree of utilization of health care services, such as antenatal and natal services. As in the case of the utilization of maternal health care services, there is a consistent positive relationship between the educational level of the mother and utilization of immunization services. The percentage of children who are fully immunized increases from 30 percent for children whose mothers are illiterate to 79 percent for children whose mothers have completed high school.

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

Table 9.9 Vaccinations by background characteristics

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

Background characteristic	Percentage ^a vaccinated									Percentage showing vaccination card			Number of children
	BCG	Polio 0	DPT			Polio			Measles	All ¹	None		
			1	2	3	1	2	3					
Sex													
Male	66.9	2.3	71.8	67.1	60.3	73.5	68.2	60.7	42.9	37.8	25.0	46.4	270
Female	59.2	2.0	65.8	59.7	51.8	66.6	60.9	52.1	37.1	34.1	31.5	36.3	235
Birth order													
1	76.2	4.8	80.6	77.5	71.4	81.9	78.8	71.8	54.2	51.1	16.3	48.4	131
2-3	62.7	1.2	68.0	62.8	53.8	69.5	64.0	54.3	37.7	34.0	28.8	42.7	233
4-5	50.0	1.2	57.1	54.7	50.6	58.3	55.9	50.6	35.9	28.2	39.4	35.3	98
6+	(57.3)	(1.3)	(66.7)	(46.6)	(37.4)	(66.7)	(46.6)	(37.4)	(21.3)	(20.0)	(33.3)	(30.7)	43
Residence													
Urban	68.6	5.1	70.1	67.9	57.7	72.3	69.3	59.9	48.2	43.8	25.5	41.6	78
Rural	62.3	1.6	68.8	62.9	56.1	69.9	64.0	56.1	38.8	34.7	28.5	41.7	427
Mother's education													
Illiterate	56.5	1.1	62.0	55.7	48.4	63.5	57.0	48.6	33.3	29.6	34.2	36.0	322
Lit., < middle complete	67.7	2.7	75.9	71.4	63.7	78.2	72.7	64.6	44.5	38.6	21.8	47.7	127
Middle school complete	(90.9)	(13.7)	(93.2)	(88.6)	(79.5)	(88.6)	(88.6)	(79.5)	(54.5)	(54.5)	(6.8)	(61.4)	25
High school and above	(94.3)	(1.9)	(94.3)	(94.3)	(90.5)	(94.3)	(94.3)	(90.5)	(83.0)	(79.2)	(5.7)	(60.4)	30
Caste/tribe													
Scheduled caste	(56.6)	(--)	(61.4)	(54.2)	(44.5)	(66.3)	(56.6)	(44.5)	(32.5)	(25.2)	(33.7)	(39.8)	48
Scheduled tribe	56.4	--	57.5	48.6	41.3	57.5	49.7	41.3	32.4	28.5	36.9	32.9	104
Other	66.2	3.1	73.4	69.3	62.3	74.6	70.3	62.8	43.5	39.8	24.6	44.5	354
Total	63.3	2.2	69.0	63.6	56.3	70.3	64.8	56.7	40.2	36.1	28.0	41.7	505

(¹) Based on 25-49 unweighted cases

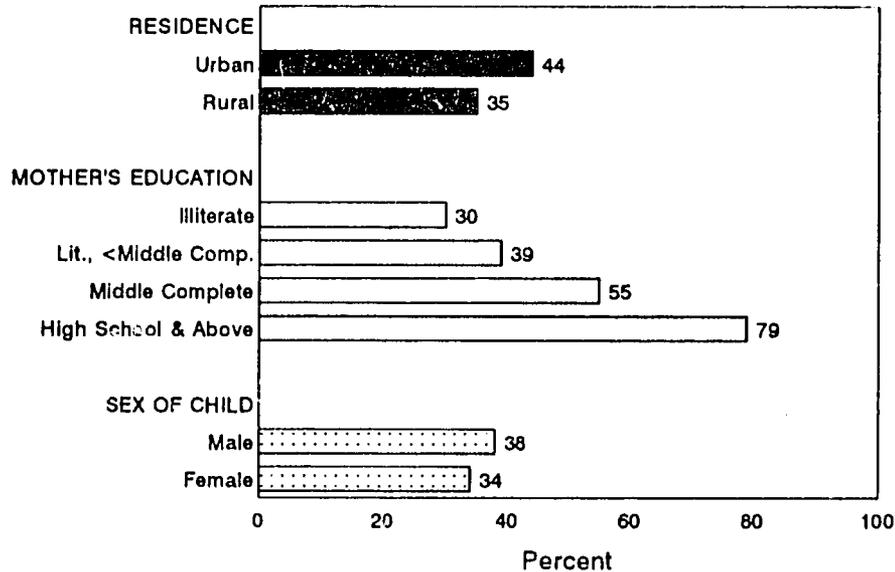
-- Less than 0.05 percent

¹Children who are fully vaccinated, i.e., those who have received BCG, measles and three doses of DPT and polio vaccine (excluding polio 0)

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 vaccination coverage for each vaccine except polio 0, is observed at age 12-23 months. The coverage then progressively declines with an increase in age up through age 36-47 months. This phenomenon is noted for rural areas of Orissa. In urban areas, children age 24-35 months received proportionately more vaccinations than older or younger children.

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



NFHS, Orissa, 1993

Child Morbidity and Treatment Patterns

Because the two major causes of death among infants and children in India are acute respiratory infection and diarrhoea (Central Bureau of Health Intelligence, 1991), the NFHS collected information on the occurrence of the symptoms of these two diseases. Information was also collected on recent episodes of fever. 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. The mothers of children born during the past four years were asked a series of questions on the incidence of cough, fever, and diarrhoea during the last two weeks and the type of treatment given to the child. Table 9.11 shows the percentage of children with cough accompanied by rapid breathing (i.e., acute respiratory infection or ARI), fever, and diarrhoea during the two weeks prior to the survey, and the percentage with diarrhoea in the 24 hours before the survey by selected background characteristics.

Only one in 10 children suffered from the symptoms of ARI during the two weeks preceding the survey. The highest incidence occurs among children age 6-11 months (15 percent) and the lowest among those age less than 6 months and those age 36-47 months (8 percent, each). Small differences are observed according to the gender and birth order of the child, residence, and the mother's educational level.

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, Orissa, 1993

Vaccination status	Current age of child in months			Total
	12-23	24-35	36-47	
URBAN				
Vaccination card shown to interviewer	41.6	44.2	17.1	33.3
Percent vaccinated at 0-11 months¹				
BCG	64.7	68.4	66.6	66.5
Polio 0	5.1	4.2	6.6	5.4
DPT				
1	67.5	75.1	56.7	65.7
2	66.5	73.5	54.1	64.0
3	56.3	65.6	52.7	57.7
Polio				
1	69.6	76.9	59.7	68.1
2	67.9	75.2	57.2	66.1
3	58.4	67.3	57.0	60.5
Measles	36.1	39.4	24.2	32.6
All vaccinations ²	32.8	35.6	23.7	30.2
No vaccinations	28.2	22.3	33.2	28.3
Number of children	78	68	86	233
RURAL				
Vaccination card shown to interviewer	41.7	20.4	14.8	25.6
Percent vaccinated at 0-11 months¹				
BCG	61.4	45.8	49.0	52.0
Polio 0	1.6	4.0	3.0	2.9
DPT				
1	67.0	53.5	53.8	58.1
2	60.1	48.4	47.6	52.0
3	51.7	38.4	35.9	42.0
Polio				
1	68.1	54.6	57.1	59.9
2	61.2	49.6	49.2	53.3
3	51.7	40.1	36.9	42.9
Measles	26.8	21.1	20.6	22.8
All vaccinations ²	24.4	16.5	16.8	19.2
No vaccinations	30.3	41.9	40.5	37.6
Number of children	427	431	431	1289

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, Orissa, 1993.

Vaccination status	Current age of child in months			Total
	12-23	24-35	36-47	
TOTAL				
Vaccination card shown to interviewer	41.7	23.7	15.2	26.8
Percent vaccinated at 0-11 months¹				
BCG	61.9	49.4	51.9	54.4
Polio 0	2.2	4.1	3.6	3.3
DPT				
1	67.1	56.9	54.3	59.4
2	61.1	52.2	48.7	53.9
3	52.3	42.4	38.7	44.4
Polio				
1	68.3	58.3	57.5	61.4
2	62.2	53.6	50.5	55.4
3	52.7	44.1	40.3	45.6
Measles	28.2	23.9	21.5	24.5
All vaccinations ²	25.6	19.2	18.0	20.9
No vaccinations	30.0	38.6	39.3	36.0
Number of children	505	499	517	1522

-- Less than 0.05 percent

¹Information 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

²Children who have received BCG, measles and three doses of DPT and polio vaccines (excluding polio 0)

Fever was the most prevalent of the three conditions examined, with 32 percent of the children suffering this problem during the two weeks prior to the survey. Children age 6-23 months were somewhat more prone to fever than were other children, as were children residing in rural areas. The children of scheduled caste and schedule tribe mothers also had slightly higher rates of fever. The mother's education generally made little difference for the incidence of fever, except that children of mothers with at least a high school education had somewhat lower rates of fever than did other children.

Table 9.11 provides two types of prevalence estimates for diarrhoea including (1) a period prevalence measure, namely the percentage of children under age four whose mothers reported that they had diarrhoea in the two-week period before the interview and (2) a point prevalence measure, namely the percentage of children under 4 years whose mothers reported that they had diarrhoea in the 24-hour period before the interview. Both of these measures are

Table 9.11 Prevalence of acute respiratory infection, fever and diarrhoea

Among all children under four years of age, the percentage who were ill with a cough accompanied by fast breathing, fever and diarrhoea during the two weeks before the survey, and percentage with diarrhoea in the 24 hours before the survey, according to selected background characteristics, Orissa, 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 in previous 24 hours ²	
			Any	Bloody		
Child's age						
< 6 months	8.4	22.2	19.0	1.0	10.3	219
6-11 months	14.5	37.0	29.4	2.7	15.1	275
12-23 months	12.8	40.2	26.4	3.4	12.2	505
24-35 months	9.5	33.7	22.0	3.5	8.0	499
36-47 months	7.6	24.4	12.6	2.0	4.2	517
Sex						
Male	11.2	32.0	22.1	3.8	9.7	1057
Female	9.5	32.2	20.6	1.5	8.9	959
Birth order						
1	8.7	31.2	25.0	2.7	11.7	520
2-3	12.0	33.8	19.4	2.6	7.8	917
4-5	9.8	29.7	19.8	3.2	9.6	379
6+	8.5	31.5	24.0	2.4	9.7	191
Residence						
Urban	7.7	24.9	16.1	1.7	7.3	304
Rural	10.9	33.4	22.3	2.9	9.7	1712
Mother's education						
Illiterate	10.6	33.8	22.1	2.8	9.5	1299
Lit., < middle complete	10.7	30.6	22.3	3.5	10.1	490
Middle school complete	8.1	30.5	13.8	0.6	7.4	100
High school and above	9.2	22.0	16.5	0.5	5.5	126
Religion						
Hindu	10.4	32.2	21.7	2.7	9.3	1940
Muslim	11.4	34.2	15.2	2.6	10.2	45
Christian	(12.6)	(27.2)	(14.6)	(6.3)	(8.4)	28
Caste/tribe						
Scheduled caste	14.7	39.4	25.6	3.8	12.0	213
Scheduled tribe	9.9	36.8	24.4	3.6	10.4	439
Other	9.9	29.5	19.8	2.3	8.5	1364
Source of drinking water						
Piped water	U	U	17.8	3.6	7.9	174
Ground water	U	U	19.0	2.0	8.1	790
Well water	U	U	23.1	3.3	10.1	711
Surface water	U	U	25.3	2.7	11.1	339
Total	10.4	32.1	21.4	2.7	9.3	2016

Note: Figures are for children born in the period 1-47 months prior to the survey. Total includes 2 children belonging to other religions, and 2 children who have "other" sources of drinking water, who are not shown separately.

U: Not available

() Based on 25-49 unweighted cases

¹Includes diarrhoea in the past 24 hours

²Includes diarrhoea with blood

affected by the reliability of the mother's recall of when the diarrhoeal episode occurred. In addition, the NFHS questions allow estimation of the proportion of children under four years of age who had bloody diarrhoea, a symptom of dysentery, during the two weeks preceding the survey.¹

The incidence of diarrhoea during the two weeks before the survey was 21 percent for any type of diarrhoea and 3 percent for bloody diarrhoea. Nine percent of children had diarrhoea during the preceding 24 hours. To the extent that there are seasonal variations in the incidence of diarrhoea, these estimates may not reflect the average situation throughout the year (the NFHS was fielded during the dry season). The incidence of diarrhoea was the highest (29 percent) among children age 6-11 months, after which it declined with increasing age. Diarrhoea occurred less frequently in urban areas (16 percent) than in rural areas (22 percent). Its incidence was also lower among children whose mothers had completed middle school (14 percent) or high school (17 percent) than among those with less schooling (22 percent). Diarrhoea was also slightly more common among children whose mothers were from scheduled castes (26 percent) and tribes (24 percent) than among others (20 percent).

Surprisingly, the source of drinking water made only a small difference for the incidence of diarrhoea. As one would expect, the incidence was highest among those using surface water (25 percent), but it was almost as high among those obtaining drinking water from a well (23 percent), and was only slightly lower among those using ground water (19 percent) or piped water (18 percent).

Treatment of Acute Respiratory Infection (ARI)

Table 9.12 presents information on the type of treatment received by children suffering from ARI. Fifty-six percent of the children who suffered from ARI during the past two weeks were taken to a health facility for treatment or were treated by a doctor or other health professional. Twenty-seven percent of children with ARI did not receive any treatment. Sick children were most often treated with oral antibiotics, cough syrups, or injections. A home or herbal remedy was used in only 7 percent of the cases. Children age 24 months or older were the least likely to receive treatment for ARI, but the birth order of the child made little difference for whether treatment was given. The child's sex did, however, make a difference. The percentage of children given treatment was much higher for boys (77 percent) than for girls (68 percent). Only 48 percent of female children with cough and fast breathing were taken to a health facility or provider for treatment compared with 63 percent of male children. This, again, is indicative of discrimination against female children in the provision and use of health care facilities, and could be a contributing factor in the higher female mortality at the postneonatal and childhood stage in Orissa. Literate mothers were much more likely than illiterate mothers to treat their children's ARI, while children from scheduled castes and tribes were less likely to receive treatment than were other children.

Treatment of Fever

Table 9.13 shows treatment patterns for children suffering from fever during the two weeks before the survey. Fifty-three percent of the children with fever were taken to a health facility or provider for treatment. Twenty-one percent were treated with oral antibiotics and 6 percent were given injections. Much smaller proportions were given antimalarial medication (5

Table 9.12 Treatment of acute respiratory infection

Among all children under four years of age who had cough accompanied by fast breathing during the two weeks before the survey, the percentage taken to a health facility or provider and percentage given treatment, according to selected background characteristics, Orissa, 1993

Background characteristic	Among children with cough and fast breathing							Number of children
	Percentage taken to a health facility or provider ¹	Percentage treated with					None	
		Anti-biotic pill or syrup	Injection	Cough syrup	Home remedy/herbal medicine	Other		
Child's age								
< 12 months	61.4	4.9	7.9	23.8	14.9	44.5	18.8	58
12-23 months	60.7	22.3	8.9	1.3	7.2	51.8	24.1	65
24 + months	49.9	20.7	8.7	22.0	2.7	36.6	33.4	87
Sex								
Male	62.9	12.7	8.8	22.5	7.3	47.8	22.5	118
Female	48.1	22.1	8.2	17.1	7.6	38.0	31.7	91
Birth order								
1	(53.6)	(15.0)	(7.5)	(25.0)	(5.0)	(41.2)	(27.6)	46
2+	57.2	17.3	8.8	18.7	8.1	44.2	26.2	164
Residence								
Urban	(75.0)	(26.8)	(2.4)	(12.2)	(2.4)	(48.8)	(14.6)	23
Rural	54.0	15.5	9.3	21.1	8.1	42.9	28.0	186
Mother's education								
Illiterate	50.0	14.7	9.7	18.9	7.6	37.8	33.2	138
Literate	68.8	20.8	6.4	22.4	7.2	54.4	13.6	72
Caste/tribe								
Scheduled caste	(40.7)	(18.5)	(3.7)	(11.1)	(11.1)	(40.7)	(33.3)	31
Scheduled tribe	(49.3)	(13.3)	(14.7)	(20.0)	(5.3)	(32.0)	(37.3)	43
Other	62.4	17.5	7.7	22.3	7.3	47.9	21.4	135
Total	56.4	16.8	8.6	20.1	7.4	43.5	26.5	210

() Based on 25-49 unweighted cases
¹Includes government/municipal hospital, private hospital/clinic, Primary Health Centre, sub-centre, doctor or other health professional

percent) or home remedies (7 percent), and 28 percent received no treatment. Differentials in the treatment of fever are similar to those seen earlier for the treatment of ARI, with the additional difference that urban children were more likely than rural children to have their fever treated medically.

Treatment of Diarrhoea

Deaths from acute diarrhoea are most often due to the dehydration that results from the loss of water and electrolytes (Black, 1984). Because of this, nearly all diarrhoeal deaths can be prevented by prompt administration of rehydration solutions. Because deaths due to 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

Table 9.13 Treatment of fever

Among all children under four years of age suffering from fever during the two weeks before the survey, percentage taken to the health facility or provider and type of treatment given, according to selected background characteristics, Orissa, 1993

Background characteristic	Among children with fever								Number of children
	Per-centage taken to a health facility or provider ¹	Percentage treated with						Don't know/missing	
		Anti-malarial	Antibiotic pill or syrup	Injection	Home remedy/herbal medicine	Other	None		
Child's age									
< 6 months	(39.3)	(--)	(10.7)	(2.4)	(4.8)	(41.6)	(45.3)	(--)	49
6-11 months	60.2	4.0	18.8	3.4	7.4	53.4	23.3	--	102
12-23 months	51.1	6.5	24.1	6.3	9.1	43.8	24.7	--	203
24-35 months	53.2	5.8	19.9	4.5	3.8	43.6	31.6	--	168
36-47 months	53.6	3.2	20.6	9.2	8.3	43.1	27.5	0.9	126
Sex									
Male	57.8	4.1	21.5	6.0	5.6	49.0	24.4	--	339
Female	47.1	5.6	19.4	5.2	8.4	40.6	32.7	0.4	309
Birth order									
1	56.6	2.4	19.9	5.6	5.6	49.2	28.7	--	165
2-3	50.2	5.2	18.1	5.2	7.5	44.2	30.2	0.4	310
4-5	56.4	6.7	29.2	8.7	6.2	39.0	25.1	--	113
6+	48.1	5.7	18.3	1.9	9.6	48.1	24.0	--	60
Residence									
Urban	65.4	10.5	25.6	3.8	4.5	49.6	19.5	--	76
Rural	51.0	4.0	19.8	5.9	7.3	44.3	29.6	0.2	572
Mother's education									
Illiterate	46.4	3.9	18.7	5.8	7.5	41.1	34.0	0.3	439
Literate	65.9	6.6	24.4	5.3	5.8	53.2	16.6	--	208
Caste/tribe									
Scheduled caste	51.7	2.1	23.5	2.8	6.2	45.5	28.3	1.4	84
Scheduled tribe	41.6	5.4	18.7	9.0	9.3	35.8	35.5	--	161
Other	57.4	5.1	20.6	4.9	6.2	48.5	25.6	--	403
Total	52.7	4.8	20.5	5.6	7.0	44.9	28.4	0.2	648

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

(ORS) packets, which are made widely available. The programme 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 preparation of RHS are regularly shown in cinema theatres. Spot announcements are also shown on television, and All India Radio frequently airs messages on ORS and RHS.

In order to gauge the extent of knowledge and use of oral rehydration, the NFHS asked mothers of children born during the last four years a series of questions regarding the knowledge and use of ORS and RHS. Table 9.14 shows that 44 percent of mothers know about ORS and 29 percent have used ORS packets at some time in the past. As expected, both knowledge and

Table 9.14 Knowledge and ever use of ORS packets

Percentage of mothers with births during the four years preceding the survey who know about and have ever used ORS packets, according to selected background characteristics, Orissa, 1993

Background characteristic	Know about ORS packets	Have ever used ORS packets	Number of mothers
Mother's age			
15-19	31.6	15.3	177
20-24	45.9	29.5	603
25-29	44.9	31.6	548
30-34	47.0	30.9	306
35+	36.3	26.8	122
Residence			
Urban	59.7	41.4	246
Rural	41.1	26.7	1512
Mother's education			
Illiterate	32.6	20.1	1154
Lit., < middle school complete	59.6	42.3	422
Middle school complete	69.6	45.2	78
High school and above	82.3	58.5	104
Religion			
Hindu	43.6	28.9	1691
Muslim	(48.3)	(24.1)	36
Christian	(48.9)	(33.3)	26
Caste/tribe			
Scheduled caste	40.7	23.7	180
Scheduled tribe	25.8	14.2	391
Other	50.0	34.4	1186
Mother's exposure to media			
Exposed to media	61.0	41.6	677
Watches television weekly	72.5	50.6	231
Listens to radio weekly	60.9	41.4	602
Visits cinema/theatre monthly	65.2	45.5	149
Not exposed to any of the media	32.8	20.8	1080
Total	43.7	28.8	1757

Note: Total includes 6 mothers age 13-14 and 5 mothers belonging to other religions, who are not shown separately.

() Based on 25-49 unweighted cases

use of ORS are higher among urban than among rural mothers. Levels of knowledge and use of ORS are also strongly positively related to the educational attainment of mothers, and to their exposure to media. Both knowledge and use of ORS are approximately twice as high among mothers exposed to electronic mass media as among those with no such exposure. Without a multivariate analysis, however, it is unclear whether differences in ORS knowledge or use by media exposure reflect the direct impact of the media on women's knowledge and behaviour, or the underlying correlation between women's educational levels and media exposure.

Table 9.15 shows the type of treatment obtained for children who had diarrhoea during the two weeks before the survey. Only 47 percent of all children who suffered from diarrhoea were taken to a health facility or provider for treatment. Seventeen percent were treated with

Table 9.15 Treatment of diarrhoea

Among children under four years who had diarrhoea in the past two weeks, the percentage taken for treatment to a health facility or provider, the percentage who received increased fluids and oral rehydration therapy (ORT), either an oral rehydration solution made from a packet (ORS) or a recommended home solution (RHS), the percentage who received neither ORT nor increased fluids, and the percentage given other treatments, according to selected background characteristics, Orissa, 1993

Background characteristic	Percent taken to a health facility or provider ¹	Oral Rehydration								Number of children with diarrhoea	
		ORS packets	RHS at home	Either ORS or RHS	In-creased fluids	Not given ORS, RHS or in-creased fluids	Anti-biotics	Injec-tion	Home remedy, other		None
Child's age											
< 6 months	(45.8)	(8.3)	(13.8)	(18.0)	(6.9)	(79.2)	(5.6)	(--)	(47.2)	(41.7)	42
6-12 months	43.6	22.8	26.4	42.8	2.1	56.5	12.1	2.9	54.3	26.5	81
12-23 months	53.7	16.8	34.6	43.3	7.8	51.9	16.4	1.7	62.3	17.3	133
24-35 months	41.5	15.2	34.2	40.5	2.6	57.4	12.6	2.1	44.7	28.4	110
36-47 months	47.8	16.8	41.6	50.5	2.6	46.9	21.3	1.8	46.9	24.3	65
Sex											
Male	46.0	18.5	33.9	44.3	4.9	52.7	14.4	2.5	52.2	23.5	233
Female	48.2	14.6	29.8	37.4	4.1	60.0	14.3	1.2	52.9	27.5	198
Birth order											
1	52.0	19.6	34.1	44.5	6.1	52.4	13.5	1.8	55.0	25.8	132
2-3	45.7	15.6	33.4	42.8	3.6	53.6	12.0	2.6	54.8	23.7	178
4-5	50.7	18.4	28.4	36.1	5.4	61.6	20.8	1.5	46.1	28.5	75
6+	(31.6)	(10.1)	(26.6)	(32.9)	(2.5)	(67.1)	(15.2)	(--)	(46.8)	(25.3)	46
Residence											
Urban	59.3	29.1	36.0	50.0	7.0	46.5	15.1	--	65.1	15.1	49
Rural	45.5	15.2	31.5	40.0	4.2	57.3	14.2	2.1	50.9	26.7	382
Mother's education											
Illiterate	43.0	13.7	29.4	36.8	4.4	60.0	12.5	1.6	50.1	27.4	287
Literate	55.0	22.9	37.4	49.8	4.8	48.2	18.1	2.4	57.4	21.3	144
Caste/tribe											
Scheduled caste	(48.9)	(17.0)	(40.4)	(51.0)	(9.6)	(44.7)	(10.6)	(2.1)	(51.1)	(23.4)	54
Scheduled tribe	41.6	15.7	29.2	36.8	3.2	60.0	17.3	1.1	43.2	29.7	107
Other	48.8	17.1	31.5	40.9	4.1	56.8	13.9	2.1	56.5	24.0	270
Total	47.0	16.7	32.0	41.1	4.6	56.1	14.3	1.9	52.5	25.4	431

Note: Figures are for children born in the period 1-47 months prior to the survey.

() Based on 25-49 unweighted cases

-- Less than 0.05 percent

¹Includes government/municipal hospital, private hospital/clinic, Primary Health Centre, sub-centre, doctor, or other health professional

ORS packets and 32 percent received a Recommended Home Solution, with a total of 41 percent receiving at least one of these treatments. In order to reduce dehydration due to diarrhoea, mothers are also taught to increase the supply of fluids to children with diarrhoea. However, 56 percent of the children received neither ORS treatment nor increased fluids. Thus, while many mothers in Orissa have apparently gotten the message that young children's diarrhoea must be treated, many others remain ignorant about the importance of treatment. Orissa's unusually high level of infant mortality might be reduced considerably were efforts made to promote a better understanding of the treatment of diarrhoea through means more likely to reach rural,

literate women than via television, radio, or the movies.

Differentials in the treatment of diarrhoea depend in part on the type of treatment examined, specifically, on treatment by a health facility or provider versus oral rehydration efforts made by the mother herself. Treatment from a health facility or provider is more common in urban areas (59 percent) than in rural ones (46 percent), and is also more common among the children of literate mothers (55 percent) than among those with illiterate mothers (43 percent). Differences in treatment by the child's sex are, however, more complex. While girls are less likely than boys to receive either ORS, RHS, or increased fluids, they are just as likely to be taken to a health facility or provider. It would appear that discrimination against female children in the treatment of diarrhoea is relatively minor in Orissa.

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 the children who suffered from diarrhoea were asked about changes in feeding practices of those children during the diarrhoea. Table 9.16 provides information on feeding practices during diarrhoea for children of different ages. For a large majority of children (78 percent), the frequency of breastfeeding remained the same or increased during the diarrhoea. In one-fifth of the cases, however, breastfeeding was actually reduced. Moreover, intake of fluids, although maintained as usual or increased in 55 percent of the cases, was actually reduced in 43 percent of the cases. Thus, a substantial number of children with diarrhoea are being treated contrary

Table 9.16 Feeding practices during diarrhoea			
Percent distribution of children under four years who had diarrhoea in the past two weeks, according to feeding practices during diarrhoea and age, Orissa, 1993			
Feeding practices during diarrhoea	Age of the child		
	<1 year ¹	1-3 years	Total ²
Breastfeeding frequency³			
Same as usual	78.7	75.3	76.4
Increased	1.4	1.6	1.5
Reduced	18.9	20.8	20.2
Stopped	1.0	1.6	1.4
Don't know/missing	--	0.7	0.5
Total percent	100.0	100.0	100.0
Number of children	120	253	373
Amount of fluids given			
Same as usual	59.0	48.5	51.5
More	2.4	3.6	3.2
Less	34.9	45.9	42.8
Don't know	3.8	2.1	2.5
Total percent	100.0	100.0	100.0
Number of children with diarrhoea	123	309	431
-- Less than 0.05 percent			
¹ Children born in the period 1-11 months prior to the survey			
² Children born in the period 1-47 months prior to the survey			
³ Applies only to children who are still breastfed			

to medical recommendations with regard to fluid intake. This, again, suggests that Orissa's unusually high infant mortality rate might be substantially reduced were a more effective education programme on the treatment of diarrhoea developed, one designed to reach poor illiterate mothers living in rural areas.

CHAPTER 10

INFANT FEEDING AND CHILD NUTRITION

Infant feeding practices and child nutrition have significant effects on child survival, maternal health and fertility. Breastfeeding improves the nutritional status of young children and reduces morbidity and mortality. Breast milk not only provides the child with important nutrients but also protects the child against certain infections. The timing and type of supplementary foods introduced in the infant's diet also have significant effects on the nutritional status of the child. The duration and intensity (i.e., frequency) of breastfeeding have additional effects on duration of postpartum amenorrhoea, birth intervals, and fertility. This chapter discusses the information collected on infant feeding, including both breastfeeding and supplementary feeding. Also included is a brief discussion of the nutritional status of children under four years of age as measured by height and weight of children.

10.1 Breastfeeding and Supplementation

The Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding (1990) and the WHO Working Group on Infant Feeding (World Health Organization, 1991) have made several recommendations on the feeding of infants and young children. These international recommendations state that infants should be given only breast milk up to 4-6 months of age. Aside from breast milk, no other foods or liquids are needed during this period. At age 4-6 months, adequate and appropriate complementary foods should be added to the infant's diet in order to provide sufficient nutrients for optimal growth. It is recommended that breastfeeding should continue, along with complementary foods, up through the second year of life or beyond. It is further recommended that a feeding bottle with a nipple should not be used at any age, for reasons having to do mainly with sanitation and the prevention of infections. The Baby Friendly Hospitals Initiative, launched by WHO, additionally recommends early initiation of breastfeeding, immediately after childbirth.

Several indicators of breastfeeding practices have been suggested by WHO to guide countries in the gathering of information for measuring and evaluating infant feeding practices. These indicators include the ever breastfed rate, the exclusive breastfeeding rate, the timely complementary feeding rate, the continued breastfeeding rate, and the bottle feeding rate. The *exclusive breastfeeding rate* is defined as the proportion of infants under four months who receive only breast milk. The *timely complementary feeding rate* is the proportion of infants age 6-9 months who receive both breast milk and solid or semi-solid food. The *continued breastfeeding rate through one year of age* is the proportion of children age 12-15 months who are still being breastfed. The *continued breastfeeding rate through two years of age* is the proportion of children age 20-23 months who are still breastfed. The *bottle feeding rate* is the proportion of infants who are fed using a bottle with a nipple. These indicators are highlighted in the presentation of data on breastfeeding and other feeding practices in this chapter.

In the NFHS, data on breastfeeding and supplementation were obtained from a series of questions in Section 4 of the Woman's Questionnaire. These questions pertain to births since January 1989. For any given woman, a maximum of three births was included in the analysis.

Table 10.1 shows the percentages of children ever breastfed by selected background characteristics. This information is reported for children born in the four years preceding the survey -- a total of 2,262 births. In India, breast milk has traditionally been the main source of nutrition for infants and young children. Breast milk not only provides the child with important nutrients but also protects the child against certain infections. Breastfeeding is nearly

Table 10.1 Initiation of breastfeeding					
Percentage of all children who were ever breastfed and the percentage of last-born children who started breastfeeding within one hour and one day of birth, among children born during the four years preceding the survey, according to selected background characteristics, Orissa, 1993					
Background characteristic	Among all children:		Among last-born children:		
	Percentage ever breastfed	Number of children	Percent started breastfeeding within 1 hour of birth	Percent started breastfeeding within 1 day of birth ¹	Number of children
Sex of child					
Male	94.1	1200	18.8	37.8	960
Female	95.3	1062	16.4	34.5	811
Residence					
Urban	94.7	332	15.5	35.5	250
Rural	94.7	1931	18.1	36.4	1521
Mother's education					
Illiterate	94.9	1476	20.0	39.2	1163
Lit., < middle complete	94.6	545	12.2	28.4	423
Middle school complete	93.2	110	13.1	36.5	79
High school and above	93.9	132	17.9	35.2	106
Religion					
Hindu	94.8	2175	17.8	36.4	1704
Muslim	92.3	52	(6.4)	(20.9)	36
Christian	(94.3)	30	(28.9)	(53.4)	26
Caste/tribe					
Scheduled caste	92.5	247	12.1	25.7	182
Scheduled tribe	94.2	501	34.0	57.4	391
Other	95.2	1514	13.2	31.0	1197
Assistance at delivery					
Health professional	93.8	464	13.3	32.8	373
Traditional birth attendant	96.3	849	12.9	30.6	661
Other or none	95.5	930	24.5	43.6	729
Place of delivery					
Public health facility	93.8	270	13.0	35.6	216
Private health facility	91.7	48	15.9	36.4	36
Own home	96.1	1701	18.4	36.2	1333
Parents' home	98.2	197	21.7	41.2	160
Total	94.7	2262	17.7	36.3	1771

Note: Table is based on children born in the four years preceding the survey, whether living or dead at the time of interview. The total among all children includes 13 children with "other" place of delivery and 13 children with missing information on place of delivery, 5 children belonging to other religions and 8 children with missing information on assistance at delivery, who are not shown separately.
 () Based on 25-49 unweighted cases
¹Includes children who started breastfeeding within one hour of birth.

universal in Orissa, with 95 percent of all children having been breastfed. The practice of breastfeeding is high in all groups, ranging from 92 to 98 percent.

The early initiation of breastfeeding is important because it benefits both the mother and the infant. As soon as the infant starts suckling at the breast, the hormone oxytocin is released, resulting in uterine contractions that 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 month of life, it is dangerous, because supplemental foods or liquids may introduce contaminants that cause infection, leading to diarrhoea.

It is also recommended that the first breast milk should be given to the child rather than squeezed from the breast 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 1,771 births). The timing of initiation of breastfeeding for a majority of children in Orissa is later than recommended by international authorities. While almost all children are breastfed, breastfeeding begun shortly after delivery is relatively uncommon. In fact, only 18 percent of children began breastfeeding within one hour of birth, and 36 percent began breastfeeding during the first 24 hours of their life. Certain cultural practices may be responsible for delay in the early initiation of breastfeeding. Traditionally, the first feed given to the child is not the mother's milk but other liquids which include honey, jaggery, etc. The practice of squeezing the first milk from the breast is also very common in Orissa. NFHS data not shown here indicate that, in Orissa, a substantial majority (86 percent) of women who breastfed, squeezed the first milk from the breast before they began breastfeeding their babies. This suggests the importance of launching an educational campaign to inform women about the benefits of providing the first breast milk to their children.

There is a small difference in the timing of initiation of breastfeeding by the sex of the child, with breastfeeding being initiated within a day of birth slightly more frequently for male than for female babies (38 percent compared with 35 percent). More substantial differences are seen according to caste/tribe and the circumstances of the delivery. One of the most striking results in Table 10.1 is that women from scheduled tribes initiate breastfeeding much earlier than any other group. More than half the children from scheduled tribes are breastfed within the first 24 hours of their life, and more than one-third were initiated to breastfeeding within one hour of birth. A similar pattern is also observed among the small number of Christian babies, with Muslims being especially unlikely to initiate breastfeeding early.

The other striking result in Table 10.1 is the much earlier initiation of breastfeeding associated with unassisted deliveries and deliveries occurring in the parents' home. This may partly reflect a selection effect in which complicated deliveries are either attended by professionals or delivered in a health facility and, because of complications, the mother is unable to breastfeed the baby immediately after delivery. That the delayed breastfeeding is as common when the birth is attended by a traditional birth attendant as when it is attended by a trained health professional, however, suggests that the tendency for at-home, unattended births to initiate breastfeeding sooner does not simply reflect selection effects due to problems of pregnancy or childbirth.

For children currently being breastfed, mothers were asked if the children had been given any other liquids or solid foods at any time the previous day or night. The results are shown in Table 10.2 and Figure 10.1 according to the child's age. Children who received nothing but breast milk in the previous 24 hours are defined as being *exclusively breastfed*, while *full breastfeeding* refers to both those given only breast milk and those who received breast milk and plain water only. In Orissa, exclusive breastfeeding is quite common for very young children, but even at age 0-1 month about two-fifths of babies are given water or other supplements. On average, about 46 percent of infants under four months are given only breast milk, while 68 percent receive full breastfeeding. The percentage of babies being exclusively breastfed drops off rapidly after the first few months of life, to less than 8 percent at age 10-11 months and still lower at older ages. Supplements other than plain water are given in addition to breast milk to 15 percent of children age 0-1 month, 40 percent of those age 2-3 months, and 58 percent of those age 6-7 months. Even though supplements are given to more than 80 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), more than 70 percent of children are still being breastfed and even after three years (i.e., 36-37 months), 37 percent are still being breastfed.

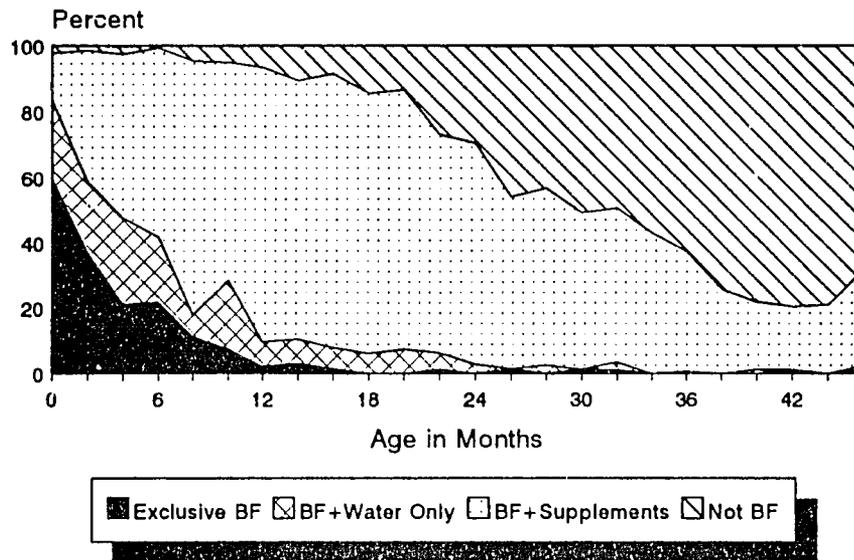
Table 10.2 Breastfeeding status by child's age

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

Age in months	Percentage among all living children					Total percent	Number of living children
	Not breast-feeding	Exclusively breastfeeding	Breastfeeding and				
			Plain water only	Supplements	DK supplements		
0 - 1	2.1	59.4	23.9	14.6	--	100.0	55
2 - 3	1.4	36.6	22.0	40.0	--	100.0	84
4 - 5	2.4	21.1	26.5	49.9	--	100.0	96
6 - 7	0.6	21.7	19.9	57.8	--	100.0	96
8 - 9	4.6	11.2	6.6	77.6	--	100.0	88
10-11	5.0	7.6	20.9	66.5	--	100.0	91
12-13	6.6	2.4	7.3	83.7	--	100.0	95
14-15	10.5	3.1	7.4	79.0	--	100.0	94
16-17	8.6	1.6	6.3	83.6	--	100.0	74
18-19	14.5	--	6.2	79.3	--	100.0	84
20-21	13.4	--	7.5	79.1	--	100.0	77
22-23	26.9	1.4	5.0	65.3	1.4	100.0	81
24-25	29.5	--	2.9	64.8	2.9	100.0	100
26-27	45.8	1.6	--	52.5	--	100.0	71
28-29	43.5	--	2.6	50.1	3.9	100.0	90
30-31	50.7	1.4	--	46.4	1.4	100.0	81
32-33	49.4	1.2	2.4	44.6	2.4	100.0	96
34-35	57.0	--	--	43.0	--	100.0	52
36-37	62.8	0.7	--	33.8	2.7	100.0	87
38-39	74.2	--	--	25.8	--	100.0	76
40-41	78.0	--	1.3	19.3	1.3	100.0	87
42-43	79.4	1.3	--	15.9	3.3	100.0	87
44-45	78.9	--	--	18.4	2.6	100.0	88
46-47	68.1	1.3	1.3	23.2	6.3	100.0	92

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

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



NFHS, Orissa, 1993

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

Table 10.3 and Figure 10.2 show in more detail the types of food supplementation received by currently breastfeeding last-born children under four years of age during the 24 hours before the interview. The use of infant formula is rare in Orissa. The percentage given infant formula increases up to age 8-9 months, when it reaches 17 percent, but it declines thereafter. Supplementation of breast milk by other milk likewise rises steadily with age through age 8-9 months, to 33 percent of all children; it, too, declines at older ages. Supplementation by other liquids, such as juice or tea, rises to above 60 percent of all children age 18-19 months and thereafter remains more or less constant till age four years. Supplementation by solid or mushy foods shows a rise from only 19 percent at age 6-7 months to 83 percent by age 18-19 months and a slower rise thereafter to 90 percent by age 4 years. Less than one-third of infants age 6-9 months received both breast milk and solid foods, as recommended. While 90 percent of the infants in this age group were breastfed, most did not receive complementary foods.

The use of a bottle with a nipple to feed children is of interest to both demographers and health personnel. Bottle feeding has a direct effect on the mother's exposure to the risk of pregnancy because the period of amenorrhoea (if not yet over) is shortened when mothers feed their children from bottles with nipples. 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. The use of bottles with nipples is relatively rare in Orissa, increasing from 6 percent in the first month after birth to a high of 19 percent for children age 4-5 months, after which it declines slowly to zero for children approaching four years of age.

Table 10.3 Type of supplementation by child's age

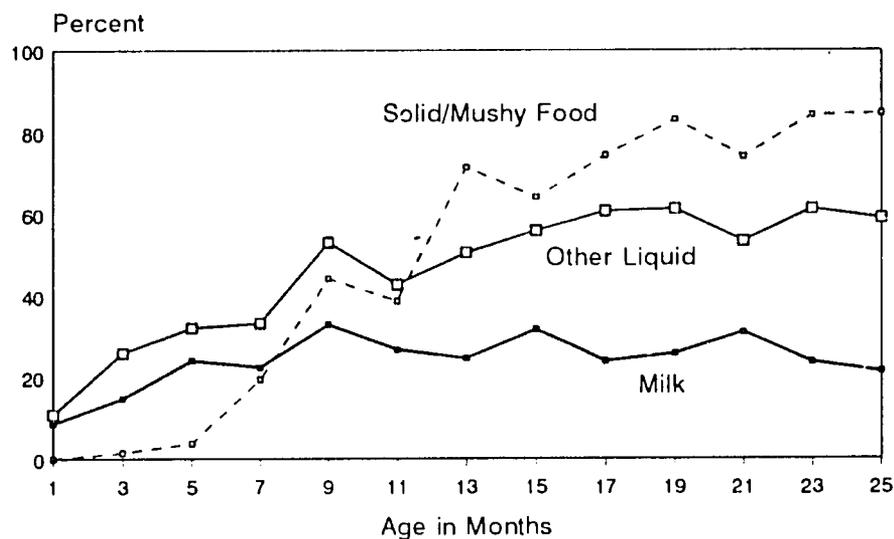
Percentage of last-born breastfeeding children receiving food supplementation by type and using a bottle with a nipple, according to child's age in months, Orissa, 1993

Age in months	Percentage of breastfeeding children who are:					Number of breast-feeding children
	Receiving supplement				Using bottle with a nipple	
	Infant formula	Other milk	Other liquid	Solid/mushy food		
0 - 1	--	8.5	10.7	--	6.4	54
2 - 3	3.5	14.7	25.9	1.4	16.1	83
4 - 5	11.1	24.1	32.1	3.7	19.1	94
6 - 7	10.3	22.4	33.3	19.4	12.7	95
8 - 9	17.2	33.0	53.1	44.2	15.1	84
10-11	9.3	26.7	42.7	38.7	4.7	87
12-13	8.4	24.6	50.6	71.5	5.8	89
14-15	11.0	31.7	55.9	64.1	4.8	84
16-17	7.7	23.9	60.7	74.4	4.3	68
18-19	12.0	25.8	61.3	83.1	6.4	72
20-21	6.0	31.0	53.4	74.1	6.0	67
22-23	2.9	23.7	61.3	84.2	7.9	58
24-25	6.0	21.4	59.0	84.6	0.8	68
26-29	4.0	20.3	56.1	90.5	1.4	86
30-33	4.0	23.1	57.1	91.1	2.0	85
34-39	3.8	18.9	65.9	90.9	1.5	76
40-47	4.0	12.7	59.5	90.5	--	73

Note: Supplementation status refers to last 24 hours. Percentages by type of supplement among breastfeeding children may sum to more than 100.0 because children may have received more than one type of supplement.
 -- Less than 0.05 percent

The duration of breastfeeding is the most widely studied indicator of breastfeeding. Several statistics describing the length of breastfeeding (such as the median duration of exclusive breastfeeding, full breastfeeding and breastfeeding of any kind including partial breastfeeding) by selected background characteristics are shown in Table 10.4. Also shown is the percentage of children under 6 months of age who were breastfed six or more times in the 24 hours preceding the survey interview. The median length of breastfeeding overall is just under 28 months, or over two years. Supplementation begins early, however. The median length of exclusive breastfeeding is only 1.2 months, and the median length of full breastfeeding is 3.7 months. The mean length of breastfeeding (29 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

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, Orissa, 1993

as the average number of births per month (averaged over a 48-month period to overcome problems of the seasonality of births and possible reference period errors). For each measure of breastfeeding, the prevalence-incidence mean is very close to the means calculated in the conventional manner.

Children of more "modernized" women (urban women, educated women, those who are exposed to mass media) have slightly shorter durations of breastfeeding than other children, but children of women working outside the home have a slightly longer duration. It should be noted that working mothers come disproportionately from rural areas where breastfeeding durations are relatively long. In all cases, however, the differences are small. Female children are breastfed slightly longer than male children (28.4 months compared to 27.3 months). Other groups with relatively long breastfeeding durations include Hindus, scheduled castes, and children whose birth was not attended by a health professional or traditional birth attendant.

In addition to the length of breastfeeding, the frequency with which mothers breastfeed can affect the duration of postpartum amenorrhoea. The health and nutritional status of the child may also be influenced by the frequency of breastfeeding. There is a high intensity of breastfeeding in Orissa. Ninety-five percent of children under six months of age were breastfed six or more times on the day before the interview (Table 10.4).

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, Orissa, 1993

Background characteristic	Median durations (months) ¹			Number of children	Children under 6 months	
	Any breast-feeding	Exclusive breast-feeding	Full breast-feeding ²		Breastfed 6+ times in last 24 hours	Number of children
Sex of child						
Male	27.3	1.3	3.5	1200	95.5	127
Female	28.4	1.2	4.0	1062	94.7	108
Residence						
Urban	24.2	0.5	2.9	332	90.2	35
Rural	28.3	1.4	3.9	1931	96.0	200
Mother's education						
Illiterate	30.9	1.5	4.6	1476	97.4	158
Literate, < middle complete	27.2	1.0	2.9	545	94.5	53
Middle school complete	22.5	0.5	3.2	110	*	12
High school and above	21.2	1.4	2.2	132	*	12
Religion						
Hindu	27.7	1.3	3.6	2175	94.9	227
Muslim	12.5	0.4	0.4	52	*	5
Christian	(9.5)	(2.1)	(9.0)	30	*	3
Caste/tribe						
Scheduled caste	31.0	1.2	3.5	247	(100.0)	29
Scheduled tribe	27.9	2.2	7.3	501	98.2	64
Other	26.9	1.0	2.4	1514	92.7	142
Mother's work status						
Not working	27.4	1.2	3.5	1718	95.1	176
Working in family farm/business	25.2	2.5	10.8	85	*	9
Employed by someone else	30.0	1.3	2.1	357	(92.3)	38
Self-employed	27.3	0.4	0.4	102	*	12
Mother's exposure to media						
Exposed to media	24.5	1.2	2.5	886	93.2	93
Watches television weekly	22.3	0.6	2.2	298	(84.3)	29
Listens to radio weekly	24.7	1.5	2.8	782	94.1	78
Visits cinema/theatre monthly	21.2	1.2	2.8	195	(92.4)	30
Not exposed to any of the media	30.8	1.2	5.0	1377	96.3	142
Assistance at delivery						
Health professional	23.6	0.6	2.5	464	91.3	53
Traditional birth attendant	28.1	1.9	4.5	849	94.4	83
Other or none	30.1	0.7	3.9	930	97.7	99
Total	27.6	1.2	3.7	2262	95.1	235
Mean for all children ¹	29.0	3.7	6.8	NA	NA	NA
P/I for all children ³	28.3	2.8	5.9	NA	NA	NA

Note: For children under 4 years, total includes 5 children belonging to other religions; for children under 6 months, total includes 18 children with missing information on assistance at delivery, who are not shown separately.

NA: Not applicable

() Based on 25-49 unweighted cases

* Percentage not shown; based on fewer than 25 unweighted cases

¹Median and mean based on current status

²Either exclusively breastfed or received breast milk and plain water only

³Prevalence-incidence mean

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 of each child was measured using a salter scale, which is a hanging spring balance. Children under two years of age were measured lying down on an adjustable measuring board, while those age two years and above were measured in a standing position. The guidelines given in the United Nations Manual, "How to Weigh and Measure children" (United Nations, 1986), were followed when training the field staff on measurement of 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 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:

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

The nutritional status of children calculated according to these measures is compared with the nutritional status of an international reference population that has been recommended by the World Health Organization (Dibley et al., 1987a, 1987b). The use of this reference population is based on the empirical finding that well-nourished children in all population groups for which data exist follow very similar growth patterns (Martorell and Habicht, 1986). A recent scientific report from the Nutrition Foundation of India (Agarwal et al., 1991) has concluded that the WHO standard is applicable to Indian children as well.

The three nutritional status indices are expressed in standard deviation units (z-scores) from the median for the international reference population. Children who fall more than two standard deviations below the reference median are considered to be *undernourished*, while those who fall more than three standard deviations below the reference median are considered to be *severely undernourished*.

Each of the indices provides somewhat different information about nutritional status of children. The height-for-age index measures linear growth retardation among children. Children who are more than two standard deviations below the median of the reference population in terms of height-for-age are considered short for their age or *stunted*. The percentage in this category indicates the prevalence of chronic undernutrition which often leads to chronic or recurrent diarrhoea. Stunting is typically associated with inadequate food intake resulting from poor feeding practices or from the lack of sufficient food, as well as the existence of adverse environmental conditions for an extended period of time. Height-for-age, therefore, is a measure of the long-term effects of undernutrition.

The weight-for-height index measures body mass in relation to body length. Children who are more than two standard deviations below the median of the reference population in terms of their weight-for-height are considered to be too thin or *wasted*. The percentage in this category indicates the prevalence of acute undernutrition. This condition is associated with the failure to receive adequate nutrition in the period immediately before the survey and may be the result of seasonal variations in food supply or recent episodes of illness (especially diarrhoea).

Weight-for-age is a composite measure which takes into account both chronic and acute undernutrition. Children who are more than two standard deviations below the reference median on this index are considered *underweight*.

The validity of these indices is determined by many factors, including the coverage of the population of children and accurate anthropometric measurements. In the Orissa NFHS, about 21 percent of living children under age four were not weighed and measured (see Table B.3 in Appendix B), usually because the child was not at home or because the mother refused to allow the measurements to be taken. In addition, two of the three indices (height-for-age and weight-for-age) are sensitive to misreporting of children's ages, including heaping on preferred digits. The weight-for-height index is the only one which does not depend on accurate age reporting.

Table 10.5 presents the percentage of children classified as undernourished according to weight-for-age, height-for-age, and weight-for-height by selected demographic characteristics. Both chronic and acute undernutrition are very common in Orissa. Slightly more than half (53 percent) of all children are underweight and slightly less than half (48 percent) are stunted. The proportion of children who are severely undernourished is also notable -- 23 percent in the case of weight-for-age and 25 percent in the case of height-for-age. Wasting is also quite evident in Orissa, affecting more than one in every five children.

All the measures of undernutrition vary substantially according to the child's age. There is a marked increase in the prevalence of undernutrition in the first year of life that continues on into the second year of life and, for some measures, into the third and fourth year as well. Undernutrition is lowest in the first six months of life, when most babies are being fully breastfed. As is indicated in Figure 10.3, the percentage of children who are underweight reaches its highest value (68 percent) at age 1 year and declines slightly thereafter. The prevalence of stunting, however, continues to grow, reaching a peak of about 57 percent among three-year-old children. The prevalence of wasting, on the other hand, reaches a maximum (36 percent) for children who are one year old and declines thereafter.

In light of the evidence seen earlier in this report for modest to moderate discrimination against girls in Orissa, it is noteworthy that female children appear to be no worse off, nutritionally, than male children, at least among those whose mothers were willing to have them measured. A child's birth order also does not make much difference for his or her nutritional status, except when the child is the youngest in a very large family (six children or more). Substantially higher proportions of these children than of other children are underweight and stunted. The pattern of undernourishment associated with the length of the preceding birth interval tends to be inconsistent, except in the case of weight-for-height where the children born after long birth intervals are more likely to be undernourished than those born after short intervals. Because this trend is the reverse of what one would expect were the nutritional status related to the preceding birth interval, it suggests the presence of a selection effect. In any case, the general lack of a strong association between birth intervals and nutritional status is surprising in view of the large differences in mortality according to the interval since the preceding birth seen in Chapter 3. Evidently, children who survive are not much disadvantaged by having been born shortly after an older sibling.

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, Orissa, 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	1.4	12.1	7.5	17.5	--	5.0	162
6-11 months	16.0	42.0	12.6	31.5	3.4	19.7	202
12-23 months	29.9	68.3	29.4	55.0	8.6	35.5	391
24-35 months	27.8	60.0	28.9	55.1	2.7	21.2	360
36-47 months	23.4	55.1	31.6	56.8	0.9	14.7	376
Sex							
Male	22.0	53.4	23.9	48.3	4.4	21.9	723
Female	23.6	53.2	26.6	48.1	2.7	20.7	709
Birth order							
1	20.1	50.4	22.5	48.3	3.0	18.6	383
2-3	20.9	51.9	24.9	47.2	4.1	20.2	679
4-5	25.2	54.8	26.2	46.0	3.2	25.4	285
6+	33.5	64.6	31.9	56.6	3.6	26.3	145
Previous birth interval²							
First birth	20.1	50.3	22.5	48.2	3.0	18.5	383
< 24 months	26.7	55.5	29.4	50.4	2.2	19.1	236
24-47 months	21.8	52.2	23.6	45.1	3.9	24.0	636
48+ months	25.7	58.7	29.6	54.3	5.1	21.0	236
Total	22.7	53.3	25.2	48.2	3.6	21.3	1492

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 deviations below the median of the International Reference Population (-3SD and -2SD) are shown according to selected characteristics.

-- Less than 0.05 percent

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

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

Table 10.6 shows nutritional status by selected background characteristics. Undernutrition is consistently higher in rural than in urban areas (Figure 10.4), but even the urban percentages are fairly high. It would thus appear that chronic malnutrition is a problem in urban as well as rural Orissa. The differentials in undernutrition by mother's educational level are very large. The percentage of children of illiterate mothers who are undernourished is two to three times higher than the percentage among children of mothers who completed high school. The other differentials in Table 10.6 are trivial. This suggests that socioeconomic status of the family and the mother's schooling are more important for children's nutritional status than is their place of residence, caste/tribe, or religion. Unfortunately, the great majority of young children (64 percent) in Orissa have mothers who are illiterate; they are consequently at high risk of suffering undernutrition. Programmes designed to alleviate poverty and to eliminate female illiteracy are likely to be important for improving the nutrition and survival of children in the state of Orissa.

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, Orissa, 1993

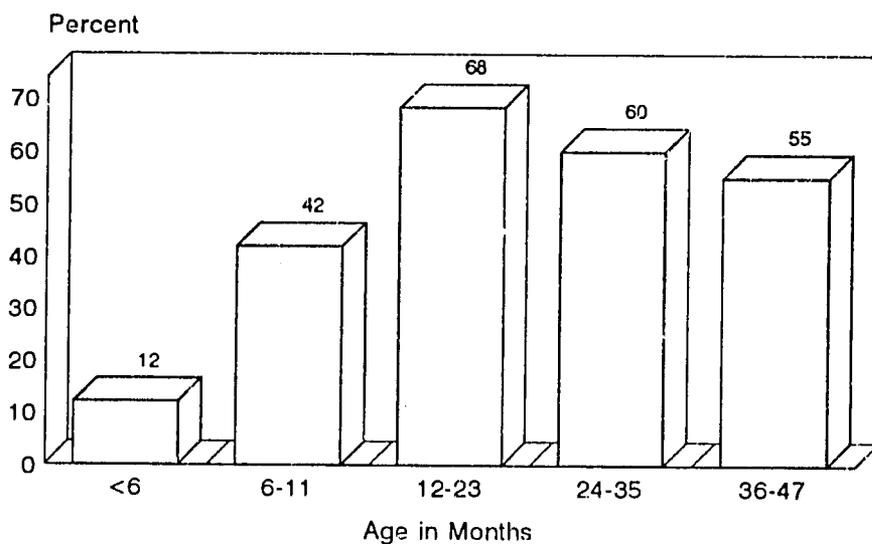
Background characteristic	Weight-for-age		Height-for-age		Weight-for-height		Number of children
	Percentage below -3 SD	Percentage below -2 SD ¹	Percentage below -3 SD	Percentage below -2 SD ¹	Percentage below -3 SD	Percentage below -2 SD ¹	
Residence							
Urban	13.9	44.3	16.1	34.8	3.3	15.9	226
Rural	24.3	54.9	26.8	50.6	3.7	22.3	1266
Mother's education							
Illiterate	26.3	58.8	27.8	53.5	3.5	23.8	957
Lit., < middle complete	19.0	49.8	24.4	44.9	4.1	18.6	363
Middle school complete	15.2	40.0	16.6	28.3	4.8	18.6	84
High school and above	6.5	20.1	8.5	22.8	1.3	8.5	88
Religion							
Hindu	23.2	53.3	25.4	48.6	3.6	21.4	1429
Muslim	13.0	47.8	23.2	44.9	1.4	17.4	40
Christian	(8.3)	(64.1)	(8.3)	(25.0)	(11.2)	(27.9)	21
Caste/tribe							
Scheduled caste	24.1	60.7	26.9	50.6	2.3	21.4	149
Scheduled tribe	29.8	60.5	27.0	52.4	5.1	25.2	315
Other	20.4	50.0	24.4	46.6	3.3	20.2	1029
Total	22.7	53.3	25.2	48.2	3.6	21.3	1492

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 deviations below the median of the International Reference Population (-3SD and -2SD) are shown according to selected characteristics. Total includes 21 Christian children and 2 children belonging to other religions, who are not shown separately.

(¹) Based on 25-49 unweighted cases

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

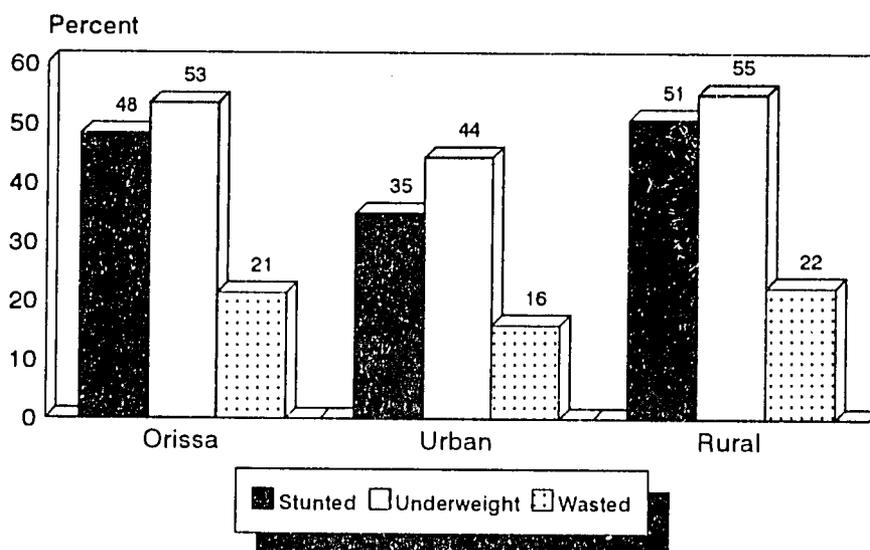
Figure 10.3
Percentage of Children Under Age Four
Who Are Underweight by Age



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

NFHS, Orissa, 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, Orissa, 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 *tehsil* 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 offices, 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. Based on the 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 103 villages in the NFHS Orissa sample.

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. In terms of proximity to towns and railway stations, the majority of villages in Orissa are relatively isolated. Twelve percent of the villages are within 5 km of the nearest town and 77 percent are more than 10 km away. The median distance to the nearest town is 16 km. The majority of villages (81 percent) are more than 10 km from the nearest railway station, with a median distance of 41 km. Bus service is somewhat more accessible to the villages than is rail service. Forty-four percent of the villages are less than 5 km from the nearest bus stand; and 29 percent are 10 km or farther from one. The median distance from the nearest bus stand is 6 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, Orissa, 1993

Distance	Nearest town	Nearest railway station	Nearest bus stand
< 5 km	11.8	7.6	44.4
5-9 km	10.0	7.9	25.8
10+ km	77.2	81.4	29.1
Don't know/missing	1.0	3.1	0.7
Total percent	100.0	100.0	100.0
Median distance	16.0	40.6	6.0

11.2 Availability of Educational Facilities

As indicated in 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 do illiterate women.

Most of the sample villages in Orissa have access to some form of educational facility (Table 11.2). The majority of villages (81 percent) have a primary school located within the village, and 87 percent have a middle school either within the village or within 5 km. Across all villages in the sample, the median distance to the nearest secondary school is 3.6 km. Educational institutions above the secondary level are located far from most villages, at a median distance of 10-14 km. Three-fifths of the villages are 10 km or more from the nearest college.

Table 11.2 Distance from nearest educational facility

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

Distance	Educational facility				
	Primary school	Middle school	Secondary school	Higher secondary school	College
Within village	81.4	32.9	11.8	3.2	1.4
< 5 km	18.6	54.4	53.4	24.6	21.7
5-9 km	--	12.7	19.2	22.8	16.8
10+ km	--	--	15.1	49.4	60.1
Don't know/missing	--	--	0.5	--	--
Total percent	100.0	100.0	100.0	100.0	100.0
Median distance	0.0	2.0	3.6	9.8	13.6

-- Less than 0.05 percent

11.3 Availability of Health Facilities

The availability of health facilities either within or close to a village is critical to the health and well-being of village mothers and their children. Table 11.3 shows the distance of villages from the nearest health facility and the percentage distribution of ever-married women in rural areas by distance from the nearest health facility. Less than one-half of all sample villages in Orissa have some form of health facility within the village. The most readily available type of facility is a sub-centre, which in 78 percent of the villages is located within the village. Eleven percent of villages have a Primary Health Centre (PHC) located in the village or within 5 km. The median distance to a PHC is 20 km. Surprisingly, the median distance between the sample villages and a hospital is smaller (11 km) than is the median distance to a PHC. This could be due to varying definitions of what a hospital is across informants.

The percent distribution of ever-married women according to the distance to the nearest health facility mirrors the distribution of villages in relation to health facilities. The majority of rural ever-married women have access to a health facility within their village, the most common facility being a sub-centre (78 percent). Most women (69 percent) would have to travel 10 km or more to reach the nearest Primary Health Centre.

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, Orissa, 1993						
Distance	Health facility					
	Primary Health Centre	Sub-centre	Either PHC/Sub-centre	Hospital	Dispensary/clinic	Any health facility
VILLAGES						
Within village	2.6	77.6	78.2	5.7	48.0	93.2
< 5 km	8.0	0.6	1.1	19.2	38.3	4.6
5-9 km	10.8	2.2	3.9	19.4	7.6	2.3
10+ km	76.4	7.1	16.8	52.5	6.1	--
Don't know/missing	2.1	12.4	--	3.1	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Median distance	20.2	0.0	0.0	10.8	1.0	0.0
EVER-MARRIED WOMEN						
Within village	5.3	77.9	78.9	10.1	63.4	96.1
< 5 km	10.9	0.7	1.5	17.5	28.7	3.1
5-9 km	13.3	2.5	3.9	21.9	4.4	0.8
10+ km	68.5	7.8	15.7	48.1	3.4	--
Don't know/missing	2.0	11.1	--	2.3	--	--
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Median distance	17.1	0.0	0.0	9.9	0.0	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 providers within the sample villages. Thirty-five percent of the villages have access to a mobile health unit, which is surprising, given that there are no mobile health units in the Government sector. It is possible that these mobile units are operated by nongovernmental organizations, or that camps organized by NGOs are reported as mobile service. Only 5 percent of villages have a traditional birth attendant, and none have a village health guide. Thus, the availability of health personnel within the sample villages is generally low.

Facility/services	Percentage
Anganwadi	41.7
Adult education classes	13.0
Jana Shikshana Nilayam	12.7
Trained birth attendant	4.9
Mobile health unit	34.3
Electricity	64.3
Bank	6.8
Cooperative society	10.9
Post office	2.3
Market/shop	1.0
Fair price shop	0.5
Mahila Mandal	18.2
Youth club	0.5
Integrated Rural Development Programme (IRDP)	51.8
National Rural Employment Programme (NREP)	17.0
Training the Youth for Self-employment (TRYSEM)	6.1

Table 11.4 also details the availability of various other facilities and services in the villages. Forty-two percent of the villages have an *Anganwadi* centre (a pre-school child care centre under the Integrated Child Development Scheme), and 13 percent have adult education centres and classes. Sixty-four percent of the villages have electricity, which matches the percentage found in official statistics for the state exactly (Directorate of Economics and Statistics, Orissa, 1993). Eleven percent of the sample villages have some type of cooperative society. Shops or markets are not available in most villages. Less than 1 percent of villages have a fair price shop, and only 1 percent have a market or other type of shops. Only 7 percent have a bank and 2 percent a post office. Fifty-two percent of villages are covered by the Integrated Rural Development Programme (IRDP) and 23 percent are covered under an employment programme for rural population (NREP) or by one specially aimed at youth (TRYSEM). Eighteen percent of villages have *Mahila Mandal* and only 0.5 percent have youth clubs.

REFERENCES

- Agarwal, K.N., D.K. Agarwal, D.G. Benakappa, S.M. Gupta, P.C. Khanduja, S.P. Khatua, K. Ramachandran, P.M. Udani and C. Gopalan. 1991. *Growth Performance of Affluent Indian Children (Under-fives): Growth Standard for Indian Children*. New Delhi: Nutrition Foundation of India.
- Bittles, Alan H., A.T. Eaton and L.B. Jorde. 1992. Consanguinity and fertility: A global perspective. *American Journal of Physical Anthropology* 87(Supplement 14):50.
- Black, R.E. 1984. Diarrheal Diseases and Child Mortality. In W. Henry Mosley and Lincoln C. Chen (eds.), *Child Survival: Strategies for Research, Population and Development Review*, Supplement to Volume 10.
- Central Bureau of Health Intelligence. 1991. *Health Information of India - 1991*. New Delhi: CBHI, Directorate General of Health Services, Ministry of Health and Family Welfare.
- Centre for Monitoring Indian Economy. 1993. *Basic Statistics Relating to the Indian Economy, States*. Bombay: Centre for Monitoring Indian Economy.
- Department of Health and Family Welfare, Orissa. 1993. Family Planning Strategy in Orissa. (Unpublished Resolution. Bhubaneswar: Government of Orissa.
- Dibley, M.J., J.B. Goldsby, N.W. Staehling and F.L. Trowbridge. 1987a. Development of normalized curves for the international growth reference: Historical and technical considerations. *American Journal of Clinical Nutrition* 46(5):736-748.
- Dibley, M.J., N.W. Staehling, P. Neiburg and F.L. Trowbridge. 1987b. Interpretation of z-score anthropometric indicators derived from the international growth reference. *American Journal of Clinical Nutrition* 46(5):749-762.
- Directorate of Census Operations, Orissa. 1988. *A Portrait of Population: Orissa*. Bhubaneswar.
- Directorate of Economics and Statistics, Orissa, 1993. *Statistical Handbook, Orissa*. Bhubaneswar: Government of Orissa.
- Foster, Stanley. 1984. Immunizable and Respiratory Diseases and Child Mortality. In W. Henry Mosley and Lincoln C. Chen (eds.), *Child Survival: Strategies for Research, Population and Development Review*, Supplement to Volume 10.
- Ghosh, Shanti. 1987. The female child in India: A struggle for survival. *Bulletin of the Nutrition Foundation of India*, Vol. 8, No. 4.
- Government of Orissa. 1991. *Orissa State Gazetteer, Vols. 1 & 2*, Bhubaneswar: Department of Revenue.

Govindasamy, Pavalavalli, M. Kathryn Stewart, Shea O. Rutstein, J. Ties Boerma and A. Elisabeth Sommerfelt. 1993. *High-risk Births and Maternity Care. DHS Comparative Studies No. 8.* Columbia, Maryland: Macro International.

Gupta, J.P. and Indira Murli. 1989. *National Review of Immunization Programme in India.* New Delhi: National Institute of Health and Family Welfare.

Hajnal, John. 1953. Age at marriage and proportions marrying. *Population Studies* 7(2):111-136.

Harrison, Kelsey A. 1990. The political challenge of maternal mortality in the Third World. *Maternal Mortality and Morbidity - A Call to Women for Action.* Special Issue, May 28, 1990.

Hobcraft, J., J. McDonald and S. Rutstein. 1983. Child-spacing effects on infant and early child mortality. *Population Index* 49(4):585-618.

Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding. 1990. Adopted by the WHO/UNICEF policymakers' meeting on "Breastfeeding in the 1990s: A Global Initiative", 30 July - 1 August, Innocenti, Florence, Italy.

Institute for Research in Medical Statistics 1993. *Causes of Infant Deaths in Orissa.* New Delhi: Indian Council of Medical Research.

International Institute for Population Sciences (IIPS), 1985. *Report on the Baseline Survey on Fertility Mortality and the Related Factors in Orissa.* Bombay: IIPS.

International Institute for Population Sciences (IIPS), 1994. *National Family Health Survey (MCH and Family Planning), India 1992-93, Introductory Report.* Bombay: IIPS.

Kanitkar, Tara. 1979. Development of Maternal and Child Health Services in India. In K. Srinivasan, P.C. Saxena and Tara Kanitkar (eds.), *Child in India.* Bombay: Himalaya Publishing House.

Kanitkar, Tara and B.N. Murthy. 1988, Factors Associated with Infant Mortality in Rajasthan and Orissa, In A.K. Jain and Pravin Visaria (eds.), *Infant Mortality in India - Differentials and Determinants.* New Delhi: Sage Publications.

Khlat, Miriam and Muin Khoury. 1991. Inbreeding and diseases: Demographic, genetic, and epidemiologic perspectives. *Epidemiologic Reviews* 13:28-41.

MacDonald Paul C. and Jack A. Pritchard. 1980. *Williams Obstetrics.* Sixteenth Edition. New York: Appleton-Century-Crofts.

Martorell, R. and J.P. Habicht. 1986. Growth in Early Childhood in Developing Countries. Pp. 241-262 in Frank Falkner and J.M. Tanner (eds.), *Human Growth: A Comprehensive Treatise,* Vol. 3. New York: Plenum Press.

Miller, Barbara D. 1981. *The Endangered Sex: Neglect of Female Children in Rural North India*. Ithaca, New York: Cornell University Press.

Ministry of Health and Family Welfare (MOHFW). 1978. *Manual for Health Worker (Female)*, Volume 1. New Delhi: MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1989. *Family Welfare Programme in India, Year Book, 1987-88*. New Delhi: Department of Family Welfare, MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1990. *State Profile Series-14, Orissa*. New Delhi: Department of Family Welfare, MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1991. *Family Welfare Programme in India, Year Book, 1989-90*. New Delhi: Department of Family Welfare, MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1992. *Family Welfare Programme in India, Year Book, 1990-91*. New Delhi: Department of Family Welfare, MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1993. *Annual Report 1992-93*, New Delhi: Department of Family Welfare, MOHFW.

Nutrition Foundation of India. 1993. *NFI Bulletin*, Vol. 14, No. 4.

Office of the Registrar General. 1982. *Sample Registration System 1970-75*. New Delhi: Office of the Registrar General, Ministry of Home Affairs.

Office of the Registrar General. 1985. *Sample Registration System 1981*. New Delhi: Office of the Registrar General, Ministry of Home Affairs.

Office of the Registrar General. 1992. *Sample Registration System 1989*. New Delhi: Office of the Registrar General, Ministry of Home Affairs.

Office of the Registrar General. 1993. *Sample Registration System: Fertility and Mortality Indicators 1991*. New Delhi: Office of the Registrar General, Ministry of Home Affairs.

Office of the Registrar General. 1994. *Sample Registration Bulletin*, Vol. XXVIII, No. 1, January. New Delhi: Office of the Registrar General, Ministry of Home Affairs.

Office of the Registrar General and Census Commissioner. 1974. *Census of India, 1971, Series-1, India, Part II-A(ii), Union Primary Census Abstract*. New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 1976. *Census of India, 1971, Series-1, India, Part II-C(ii), Social Cultural Tables*. New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner 1983. *Census of India 1981, Series-1, Part VII-B, The Physically Handicapped: Report and Tables*. New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 1984a. *Census of India, 1981, Series-1, India, Paper-2 of 1984, General Population and Population of Scheduled Castes and Scheduled Tribes*. New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 1984b. *Census of India, 1981, Series-1, India, Paper-5 of 1984, Age Tables based on 5 Percent Sample Data*, New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 1987. *Census of India, 1981, Series-1, India, Part IV-A(ii), Social Cultural Tables*. New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 1992. *Census of India, 1991, Series-1, India, Paper-2 of 1992, Final Population Totals, Brief Analysis of Primary Census Abstract*. New Delhi: Office of the Registrar General and Census Commissioner.

Operations Research Group. 1990. *Family Planning Practices in India: Third All India Survey*. Baroda: Operations Research Group.

Park, J.E. and K. Park. 1989. *Textbook of Preventive and Social Medicine*. Twelfth Edition. Jabalpur: M/S Banarsidas Bhanot Publishers.

Preston, Samuel H. 1990. Mortality in India. Pp. 81-86 in International Union for the Scientific Study of Population, *International Population Conference, New Delhi, 1989*, Vol. 4. Liege: IUSSP.

Ramachandran, Prema. 1992. Need of organization of antenatal and intrapartum care in India. *Demography India* 21(2):179-193.

Rao, P.S.S. and S.G. Inbaraj. 1977. Inbreeding in Tamil Nadu, South India. *Social Biology* 24:281.

Rao, P.S.S., S.G. Inbaraj and G. Jesudian. 1972. Rural-urban differentials in consanguinity. *Journal of Medical Genetics* 9:174-178.

Rutstein, Shea Oscar. 1984. *Infant and Child Mortality: Levels, Trends, and Demographic Differentials*. Revised edition. *WFS Comparative Studies No. 43*. Voorburg, Netherlands: International Statistical Institute.

Rutstein, Shea Oscar and George T. Bicego. 1990. Assessment of the Quality of Data Used to Ascertain Eligibility and Age in the Demographic and Health Surveys. In *An Assessment of DHS-I Data Quality*, 3-37, DHS Methodological Reports No.1. Columbia, Maryland: Institute

for Resource Development/Macro Systems Inc.

Shryock, Henry S. and Jacob S. Siegel. 1980. *The Methods and Materials of Demography*, Volume 1 (fourth edition, revised). Washington, D.C.: U.S. Bureau of the Census.

United Nations. 1955. *Methods of Appraisal of Quality of Basic Data for Population Estimates*. New York: United Nations.

United Nations. 1986. *How to Weigh and Measure Children: Assessing the Nutritional Status of Young Children in Household Surveys*. Department of Technical Co-operation for Development and Statistical Office, United Nations. New York: United Nations.

World Health Organization. 1991. *Indicators for Assessing Breast-feeding Practices: Report of an Informal Meeting*, 11-12 June, Geneva. Geneva: World Health Organization.

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, nonsampling errors 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 two-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 of r is computed using the formula given below, with the standard error being the square root of the variance:

$$\text{var}(r) = \frac{1-f}{x^2} \sum_{h=1}^H \left[\frac{m_h}{m_h-1} \left(\sum_{i=1}^{m_h} z_{hi}^2 - \frac{z_h^2}{m_h} \right) \right]$$

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, and 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 unweighted (N) and weighted (WN) cases, the standard error assuming a simple random sample (SER), the design effect (DEFT), the relative standard error (SE/R), and the 95 percent confidence limits ($R \pm 2SE$), for each variable.

Table A.1 List of selected variables for sampling errors, Orissa, 1993

VARIABLE	ESTIMATE	BASE POPULATION
Sex ratio	Ratio	Household <i>de facto</i> population
Illiterate	Proportion	Household <i>de facto</i> 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 inmarried 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, Orissa, 1993

Variable/residence	Value (R)	Standard error (SE)	Number of cases		Standard error assuming SRS (SER)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Unweighted (N)	Weighted (WN)				R-2SE	R+2SE
SEX RATIO (Household <i>de facto</i> population)									
Urban	906	20.9	3462	1965	18.744	1.116	0.023	864.0	947.7
Rural	984	12.3	8687	10159	11.476	1.068	0.012	959.7	1008.7
Total	972	10.7	12149	12125	9.771	1.095	0.011	950.1	992.9
ILLITERATE (Household <i>de facto</i> population, age 6 and over)									
Urban	0.252	0.025	5737	3257	0.009	2.833	0.100	0.202	0.302
Rural	0.484	0.014	14823	17335	0.006	2.214	0.029	0.456	0.513
Total	0.448	0.013	20560	20592	0.005	2.320	0.028	0.422	0.473
PIPED WATER AS SOURCE OF DRINKING WATER (Households)									
Urban	0.512	0.048	1296	736	0.014	3.491	0.095	0.415	0.609
Rural	0.018	0.005	3306	3866	0.002	1.989	0.252	0.009	0.028
Total	0.097	0.009	4602	4602	0.004	2.144	0.096	0.079	0.116
HANDPUMP WATER AS SOURCE OF DRINKING WATER (Households)									
Urban	0.232	0.034	1296	736	0.012	2.876	0.145	0.165	0.300
Rural	0.446	0.029	3306	3866	0.009	3.309	0.064	0.389	0.503
Total	0.412	0.025	4602	4602	0.007	3.392	0.060	0.363	0.461
WELL WATER AS SOURCE OF DRINKING WATER (Households)									
Urban	0.200	0.032	1296	736	0.011	2.897	0.161	0.135	0.264
Rural	0.341	0.030	3306	3866	0.008	3.638	0.088	0.281	0.401
Total	0.318	0.026	4602	4602	0.007	3.742	0.081	0.267	0.369
SURFACE WATER AS SOURCE OF DRINKING WATER (Households)									
Urban	0.052	0.027	1296	736	0.006	4.376	0.521	-0.002	0.106
Rural	0.194	0.026	3306	3866	0.007	3.853	0.137	0.141	0.247
Total	0.171	0.023	4602	4602	0.006	4.107	0.133	0.125	0.216
OTHER SOURCE OF DRINKING WATER (Households)									
Urban	0.005	0.002	1296	736	0.002	1.229	0.501	0.000	0.009
Rural	0.001	0.001	3306	3866	0.001	1.227	0.613	0.000	0.003
Total	0.002	0.001	4602	4602	0.001	1.185	0.417	0.000	0.003
ILLITERATE (Ever-married women age 13-49)									
Urban	0.451	0.036	1143	650	0.015	2.438	0.080	0.379	0.522
Rural	0.715	0.014	3114	3607	0.008	1.694	0.019	0.687	0.742
Total	0.674	0.013	4257	4257	0.007	1.804	0.019	0.649	0.700
WITH SECONDARY EDUCATION OR MORE (Ever-married women age 13-49)									
Urban	0.195	0.024	1143	650	0.012	2.078	0.125	0.146	0.244
Rural	0.036	0.005	3114	3607	0.003	1.396	0.130	0.027	0.045
Total	0.060	0.005	4257	4257	0.004	1.482	0.090	0.049	0.071
CURRENTLY MARRIED (Ever-married women age 13-49)									
Urban	0.947	0.007	1143	650	0.007	1.005	0.007	0.933	0.960
Rural	0.945	0.005	3114	3607	0.004	1.213	0.005	0.936	0.955
Total	0.946	0.004	4257	4257	0.003	1.259	0.005	0.937	0.954
MEAN NUMBER OF CHILDREN EVER BORN (Ever-married women age 13-49)									
Urban	3.065	0.064	1143	650	0.058	1.097	0.021	2.937	3.192
Rural	3.029	0.048	3114	3607	0.040	1.208	0.016	2.932	3.125
Total	3.034	0.042	4257	4257	0.034	1.251	0.014	2.950	3.118

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

Variable/residence	Value (R)	Standard error (SE)	Number of cases		Standard error assuming SRS (SER)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Unweighted (N)	Weighted (WN)				R-2SE	R+2SE
MEAN NUMBER OF CHILDREN SURVIVING (Ever-married women age 13-49)									
Urban	2.664	0.059	1143	650	0.050	1.200	0.022	2.545	2.783
Rural	2.462	0.035	3114	3607	0.032	1.081	0.014	2.393	2.531
Total	2.493	0.031	4257	4257	0.027	1.135	0.012	2.431	2.555
KNOW AT LEAST ONE CONTRACEPTIVE METHOD (Currently married women age 13-49)									
Urban	0.981	0.006	1082	615	0.004	1.426	^a 0.006	0.969	0.993
Rural	0.919	0.009	2944	3410	0.005	1.817	0.010	0.901	0.937
Total	0.929	0.008	4026	4025	0.004	1.931	0.008	0.913	0.944
KNOW SOURCE FOR ANY MODERN METHOD (Currently married women age 13-49)									
Urban	0.943	0.012	1082	615	0.007	1.727	0.013	0.916	0.966
Rural	0.799	0.013	2944	3410	0.007	1.721	0.016	0.772	0.823
Total	0.819	0.011	4026	4025	0.006	1.834	0.014	0.797	0.842
HAVE EVER USED ANY METHOD (Currently married women age 13-49)									
Urban	0.521	0.021	1082	615	0.015	1.358	0.040	0.480	0.563
Rural	0.382	0.012	2944	3410	0.009	1.368	0.032	0.358	0.407
Total	0.403	0.011	4026	4025	0.008	1.425	0.027	0.381	0.425
CURRENTLY USING ANY METHOD (Currently married women age 13-49)									
Urban	0.474	0.019	1082	615	0.015	1.225	0.039	0.437	0.511
Rural	0.342	0.012	2944	3410	0.009	1.331	0.034	0.319	0.366
Total	0.363	0.010	4026	4025	0.008	1.375	0.029	0.342	0.383
CURRENTLY USING ANY MODERN METHOD (Currently married women age 13-49)									
Urban	0.451	0.017	1082	615	0.015	1.109	0.037	0.417	0.485
Rural	0.327	0.011	2944	3410	0.009	1.320	0.035	0.304	0.350
Total	0.346	0.010	4026	4025	0.007	1.347	0.029	0.326	0.366
CURRENTLY USING PILLS (Currently married women age 13-49)									
Urban	0.025	0.007	1082	615	0.005	1.408	0.268	0.012	0.038
Rural	0.006	0.002	2944	3410	0.001	1.142	0.276	0.003	0.009
Total	0.009	0.002	4026	4025	0.001	1.174	0.197	0.005	0.012
CURRENTLY USING COPPER T/IUD (Currently married women age 13-49)									
Urban	0.032	0.007	1082	615	0.005	1.317	0.219	0.018	0.047
Rural	0.012	0.002	2944	3410	0.002	1.228	0.203	0.007	0.017
Total	0.015	0.002	4026	4025	0.002	1.224	0.155	0.011	0.020
CURRENTLY USING CONDOM (Currently married women age 13-49)									
Urban	0.022	0.004	1082	615	0.004	0.913	0.184	0.014	0.030
Rural	0.002	0.001	2944	3410	0.001	1.100	0.347	0.001	0.006
Total	0.006	0.001	4026	4025	0.001	0.940	0.186	0.004	0.009
CURRENTLY USING FEMALE STERILIZATION (Currently married women age 13-49)									
Urban	0.331	0.016	1082	615	0.014	1.125	0.049	0.299	0.363
Rural	0.273	0.011	2944	3410	0.008	1.339	0.040	0.251	0.295
Total	0.282	0.010	4026	4025	0.007	1.368	0.034	0.263	0.301
CURRENTLY USING MALE STERILIZATION (Currently married women age 13-49)									
Urban	0.041	0.007	1082	615	0.006	1.204	0.178	0.026	0.055
Rural	0.032	0.005	2944	3410	0.003	1.438	0.144	0.023	0.042
Total	0.034	0.004	4026	4025	0.003	1.449	0.122	0.026	0.042

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

Variable/residence	Value (R)	Standard error (SE)	Number of cases		Standard error assuming SRS (SER)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Unweighted (N)	Weighted (WN)				R-2SE	R+2SE
CURRENTLY USING PERIODIC ABSTINENCE (Currently married women age 13-49)									
Urban	0.012	0.004	1082	615	0.003	1.057	0.292	0.005	0.019
Rural	0.009	0.002	2944	3410	0.002	0.956	0.187	0.006	0.012
Total	0.009	0.002	4026	4025	0.002	0.992	0.161	0.006	0.012
USING PUBLIC SOURCE FOR CONTRACEPTIVE METHOD (Current users of modern methods)									
Urban	0.797	0.028	488	278	0.018	1.559	0.036	0.740	0.854
Rural	0.968	0.008	963	1115	0.006	1.432	0.008	0.952	0.984
Total	0.934	0.009	1451	1393	0.007	1.375	0.010	0.916	0.952
DO NOT WANT ANY MORE CHILDREN (Currently married women age 13-49)									
Urban	0.311	0.016	1082	615	0.014	1.105	0.050	0.279	0.342
Rural	0.250	0.011	2944	3410	0.008	1.373	0.044	0.228	0.272
Total	0.259	0.010	4026	4025	0.007	1.386	0.037	0.240	0.278
WANT TO DELAY BIRTH AT LEAST TWO YEARS (Currently married women age 13-49)									
Urban	0.151	0.011	1082	615	0.011	1.018	0.073	0.129	0.173
Rural	0.186	0.009	2944	3410	0.007	1.276	0.049	0.168	0.205
Total	0.181	0.008	4026	4025	0.006	1.313	0.044	0.165	0.197
IDEAL NUMBER OF CHILDREN (Ever-married women age 13-49)									
Urban	2.681	0.044	1004	571	0.030	1.463	0.016	2.593	2.769
Rural	3.073	0.033	2600	3012	0.023	1.479	0.011	3.006	3.139
Total	3.010	0.029	3604	3583	0.019	1.542	0.010	2.952	3.068
IDEAL NUMBER OF SONS (Ever-married women age 13-49)									
Urban	1.458	0.028	1000	569	0.024	1.193	0.019	1.401	1.515
Rural	1.765	0.025	2592	3002	0.017	1.519	0.014	1.714	1.815
Total	1.716	0.022	3592	3571	0.014	1.563	0.013	1.672	1.760
IDEAL NUMBER OF DAUGHTERS (Ever-married women age 13-49)									
Urban	1.056	0.027	1000	569	0.019	1.392	0.025	1.002	1.110
Rural	1.171	0.016	2592	3002	0.013	1.224	0.014	1.139	1.204
Total	1.153	0.014	3592	3571	0.011	1.279	0.012	1.125	1.181
RECEIVED NO ANTENATAL CARE (Births in last 4 years)									
Urban	0.224	0.023	581	330	0.021	1.137	0.098	0.192	0.286
Rural	0.397	0.023	1653	1915	0.013	1.690	0.055	0.364	0.455
Total	0.371	0.020	2234	2245	0.011	1.738	0.052	0.345	0.424
RECEIVED TETANUS TOXOID (2 DOSES)(Births in last 4 years)									
Urban	0.716	0.023	581	330	0.022	1.061	0.032	0.670	0.762
Rural	0.507	0.021	1653	1915	0.014	1.523	0.041	0.466	0.548
Total	0.538	0.018	2234	2245	0.012	1.581	0.034	0.501	0.575
RECEIVED MEDICAL ASSISTANCE AT DELIVERY (Births in last 4 years)									
Urban	0.487	0.030	581	330	0.024	1.238	0.061	0.428	0.546
Rural	0.156	0.016	1653	1915	0.010	1.564	0.099	0.126	0.188
Total	0.205	0.014	2234	2245	0.010	1.468	0.069	0.178	0.234
HAD DIARRHOEA IN THE LAST 24 HOURS (Children under 4 years of age)									
Urban	0.073	0.013	534	304	0.011	1.213	0.185	0.046	0.100
Rural	0.097	0.010	1478	1712	0.008	1.267	0.102	0.077	0.116
Total	0.093	0.009	2012	2016	0.007	1.326	0.093	0.076	0.111

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

Variable/residence	Value (R)	Standard error (SE)	Number of cases		Standard error assuming SRS (SER)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Unweighted (N)	Weighted (WN)				R-2SE	R+2SE
HAD DIARRHOEA IN THE LAST 2 WEEKS (Children under 4 years of age)									
Urban	0.161	0.016	534	304	0.016	1.023	0.101	0.129	0.194
Rural	0.223	0.013	1478	1712	0.011	1.146	0.057	0.198	0.249
Total	0.214	0.011	2012	2016	0.009	1.200	0.053	0.191	0.236
TREATED WITH ORS (Children with diarrhoea in the last 2 weeks)									
Urban	0.291	0.043	86	49	0.051	0.851	0.148	0.205	0.377
Rural	0.152	0.024	330	382	0.020	1.225	0.159	0.103	0.200
Total	0.167	0.022	416	431	0.018	1.222	0.132	0.123	0.212
CONSULTED MEDICAL PERSONNEL FOR DIARRHOEA (Children with diarrhoea in the last 2 weeks)									
Urban	0.593	0.050	86	49	0.054	0.929	0.084	0.493	0.693
Rural	0.455	0.028	330	382	0.028	1.019	0.062	0.398	0.511
Total	0.470	0.026	416	431	0.024	1.062	0.055	0.419	0.522
SHOWING VACCINATION CARD (Children age 12-23 months)									
Urban	0.416	0.046	137	78	0.042	1.091	0.110	0.324	0.508
Rural	0.417	0.035	369	427	0.026	1.372	0.084	0.347	0.488
Total	0.417	0.031	506	505	0.022	1.396	0.073	0.356	0.478
RECEIVED BCG VACCINATION (Children age 12-23 months)									
Urban	0.686	0.059	137	78	0.040	1.475	0.085	0.569	0.803
Rural	0.623	0.038	369	427	0.025	1.508	0.061	0.547	0.699
Total	0.633	0.033	506	505	0.021	1.562	0.053	0.566	0.700
RECEIVED DPT VACCINATION (3 DOSES) (Children age 12-23 months)									
Urban	0.577	0.053	137	78	0.042	1.243	0.091	0.472	0.682
Rural	0.561	0.040	369	427	0.026	1.560	0.072	0.480	0.642
Total	0.563	0.035	505	505	0.022	1.589	0.062	0.493	0.633
RECEIVED POLIO 3 (Children age 12-23 months)									
Urban	0.599	0.060	137	78	0.042	1.431	0.100	0.475	0.718
Rural	0.561	0.040	369	427	0.026	1.560	0.072	0.480	0.642
Total	0.567	0.035	506	505	0.022	1.603	0.062	0.496	0.637
RECEIVED MEASLES VACCINATION (Children age 12-23 months)									
Urban	0.482	0.051	137	78	0.043	1.195	0.106	0.380	0.584
Rural	0.388	0.036	369	427	0.025	1.424	0.093	0.315	0.460
Total	0.402	0.032	506	505	0.022	1.453	0.079	0.339	0.465
FULLY VACCINATED (Children age 12-23 months)									
Urban	0.438	0.044	137	78	0.042	1.030	0.100	0.351	0.525
Rural	0.347	0.036	369	427	0.025	1.462	0.104	0.274	0.419
Total	0.361	0.032	506	505	0.021	1.476	0.087	0.298	0.424

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

Variable/residence	Value (R)	Standard error (SE)	Relative error (SE/R)	Confidence limits	
				R-2SE	R+2SE
TOTAL FERTILITY RATE (Women age 15-49)					
Urban	2.529	0.136	0.054	2.257	2.801
Rural	2.997	0.115	0.038	2.767	3.227
Total	2.916	0.098	0.034	2.720	3.113
TOTAL FERTILITY RATE (Women age 15-44)					
Urban	2.529	0.136	0.054	2.257	2.801
Rural	2.997	0.115	0.038	2.767	3.227
Total	2.916	0.098	0.034	2.720	3.113
AGE-SPECIFIC FERTILITY RATE (Age group 15-19)					
Urban	0.070	0.009	0.130	0.052	0.088
Rural	0.089	0.005	0.058	0.078	0.099
Total	0.086	0.005	0.054	0.077	0.095
AGE-SPECIFIC FERTILITY RATE (Age group 20-24)					
Urban	0.182	0.011	0.060	0.160	0.204
Rural	0.209	0.009	0.041	0.191	0.226
Total	0.204	0.007	0.036	0.190	0.219
AGE-SPECIFIC FERTILITY RATE (Age group 25-29)					
Urban	0.147	0.016	0.108	0.115	0.178
Rural	0.166	0.009	0.053	0.149	0.184
Total	0.163	0.008	0.048	0.147	0.178
AGE-SPECIFIC FERTILITY RATE (Age group 30-34)					
Urban	0.084	0.012	0.140	0.061	0.108
Rural	0.089	0.009	0.098	0.072	0.107
Total	0.089	0.007	0.084	0.074	0.104
AGE-SPECIFIC FERTILITY RATE (Age group 35-39)					
Urban	0.012	0.005	0.403	0.002	0.021
Rural	0.036	0.007	0.183	0.022	0.049
Total	0.031	0.006	0.179	0.020	0.043
AGE-SPECIFIC FERTILITY RATE (Age group 40-44)					
Urban	0.011	0.006	0.494	0.000	0.022
Rural	0.010	0.004	0.361	0.003	0.017
Total	0.010	0.003	0.309	0.004	0.017
NEONATAL MORTALITY (5-year period preceding survey)					
Urban	42.424	7.678	0.181	27.069	57.780
Rural	68.561	6.891	0.101	54.780	82.342
Total	64.740	6.028	0.093	52.683	76.796
INFANT MORTALITY ${}_1q_0$ (5-year period preceding survey)					
Urban	84.481	11.418	0.135	61.646	107.316
Rural	116.889	9.008	0.077	98.874	134.905
Total	112.131	7.902	0.070	96.328	127.934

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

Variable/residence	Value (R)	Standard error (SE)	Relative error (SE/R)	Confidence limits	
				R-2SE	R+2SE
CHILD MORTALITY ${}_4q_1$ (5-year period preceding survey)					
Urban	24.834	5.464	0.220	13.905	35.763
Rural	20.590	3.730	0.181	13.130	28.051
Total	21.258	3.251	0.153	14.757	27.760
UNDER-FIVE MORTALITY ${}_5q_0$ (5-year period preceding survey)					
Urban	107.217	12.104	0.113	83.009	131.425
Rural	135.073	9.234	0.068	116.605	153.541
Total	131.006	8.095	0.062	114.816	147.196
CRUDE BIRTH RATE (Based on Household Questionnaire)					
Urban	21.861	1.569	0.074	18.723	24.999
Rural	25.003	0.942	0.039	23.119	26.889
Total	24.514	0.839	0.035	22.837	26.191
CRUDE DEATH RATE (Based on Household Questionnaire)					
Urban	7.365	0.811	0.113	5.744	8.985
Rural	11.626	0.642	0.056	10.342	12.911
Total	10.971	0.565	0.053	9.840	12.101
CRUDE RATE OF NATURAL INCREASE (Based on Household Questionnaire)					
Urban	14.497	1.580	0.112	11.336	17.658
Rural	13.378	1.060	0.080	11.257	15.498
Total	13.543	0.927	0.069	11.690	15.396
CRUDE BIRTH RATE (Based on birth history)					
Urban	23.866	1.217	0.051	21.432	26.301
Rural	26.985	0.861	0.032	25.264	28.707
Total	26.464	0.748	0.028	24.967	27.960

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 year 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 when there was a difference, because it was assumed that she would be better able than the household respondent to report her own age.

It is well documented that ages are poorly reported in most parts of India. Ages are of little relevance to much of the rural population in particular, and no amount of probing will ensure that ages are properly recorded. In interviewer training for the NFHS, a great deal of emphasis was placed on obtaining as accurate information as possible on ages and dates of events. Nevertheless, it is clear that age reporting in the NFHS shares the same problems inherent in all Indian censuses and surveys. Heaping on ages ending in 0 and 5 is severe, particularly in the older age groups, and 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). The age reporting for females appears to be particularly good during the childbearing years, when interviewed women reported their own ages. Another measure of the quality of the NFHS age data is the negligible number of persons whose ages were recorded as not known or missing. In Orissa, age was missing for only 3 persons out of a total of 23,904 persons listed on 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 Orissa.

Table B.1 Household age distribution

Single year age distribution of the *de facto* household population by sex (weighted), Orissa, 1993

Age	Male		Female		Age	Male		Female	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
< 1	268	2.2	243	2.1	38	127	1.0	120	1.0
1	277	2.3	244	2.1	39	56	0.5	94	0.8
2	279	2.3	251	2.1	40	371	3.1	145	1.2
3	280	2.3	267	2.3	41	31	0.3	93	0.8
4	259	2.1	218	1.8	42	81	0.7	97	0.8
5	346	2.9	378	3.2	43	42	0.3	81	0.7
6	317	2.6	295	2.5	44	32	0.3	81	0.7
7	295	2.4	349	3.0	45	308	2.5	115	1.0
8	350	2.9	291	2.5	46	25	0.2	56	0.5
9	261	2.2	258	2.2	47	37	0.3	52	0.4
10	362	3.0	322	2.7	48	54	0.4	57	0.5
11	214	1.8	186	1.6	49	20	0.2	60	0.5
12	362	3.0	337	2.9	50	288	2.4	147	1.3
13	222	1.8	233	2.0	51	25	0.2	62	0.5
14	243	2.0	233	2.0	52	59	0.5	107	0.9
15	278	2.3	279	2.4	53	33	0.3	66	0.6
16	241	2.0	250	2.1	54	27	0.2	30	0.3
17	185	1.5	275	2.3	55	207	1.7	241	2.0
18	292	2.4	319	2.7	56	24	0.2	54	0.5
19	142	1.2	236	2.0	57	36	0.3	40	0.3
20	286	2.4	326	2.8	58	66	0.5	64	0.5
21	149	1.2	240	2.0	59	28	0.2	18	0.1
22	261	2.2	260	2.2	60	313	2.6	335	2.8
23	173	1.4	204	1.7	61	20	0.2	8	0.1
24	141	1.2	210	1.8	62	68	0.6	61	0.5
25	411	3.4	246	2.1	63	20	0.2	23	0.2
26	174	1.4	189	1.6	64	14	0.1	10	0.1
27	154	1.3	177	1.5	65	233	1.9	178	1.5
28	231	1.9	204	1.7	66	17	0.1	10	0.1
29	77	0.6	180	1.5	67	6	0.1	6	--
30	447	3.7	258	2.2	68	23	0.2	20	0.2
31	60	0.5	161	1.4	69	7	0.1	6	0.1
32	174	1.4	169	1.4	70+	406	3.3	298	2.5
33	74	0.6	135	1.2	Don't				
34	76	0.6	142	1.2	know/				
35	515	4.3	144	1.2	missing	1	--	2	--
36	77	0.6	120	1.0					
37	64	0.5	112	0.9	Total	12125	100.0	11779	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 Orissa, the extent of missing information is very low on all of the measures shown except for the measurement of the height and weight of young children (Table B.3). The data are exceptionally complete for month and year of birth, age at death, age at first marriage, woman's education, child's size at birth and prevalence of diarrhoea in the two weeks preceding the NFHS. Data on height and weight are available for more than 78 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

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 (weighted), Orissa, 1993

Age	All women	Ever-married women	Interviewed women		Percent interviewed
			Number	Percent	
10-12	845	4	NA	NA	NA
13-14	466	10	10	0.2	99.2
15-19	1359	391	368	8.7	94.3
20-24	1241	897	858	20.2	95.7
25-29	996	936	894	21.0	95.5
30-34	866	846	809	19.0	95.6
35-39	589	580	552	13.0	95.1
40-44	497	491	460	10.2	93.6
45-49	339	338	306	7.2	90.3
50-54	412	410	NA	NA	NA
13-49	6354	4490	4257	100.0	94.8

Note: The *de facto* population includes all residents and nonresidents who slept in the household the night before the interview. To allow comparison of distributions, weights for both households and interviewed women are household weights.

NA: Not applicable

Table B.3 Completeness of reporting

Percentage of observations missing information for selected demographic and health questions (weighted), Orissa, 1993

Subject	Reference group	Percentage missing information	Number of cases
Birth date	Births in last 15 years		
Month only		1.21	8813
Month and year		0.07	8813
Age at death	Deaths to births in last 15 years	0.22	1284
Age at first marriage	Ever-married women	0.07	4257
Woman's education	Ever-married women	0.0	4257
Child's size at birth	All births in last 0-47 months	1.40	2262
Anthropometry¹	Living children age 0-47 months		
Height		21.11	2032
Weight		21.17	2032
Height or weight		21.40	2032
Diarrhoea in last 2 weeks	Living children age 0-47 months	0.31	2032

¹Child not measured

measured or the mother refused to allow the child to be measured because of cultural beliefs, and no amount of persuasion could change their mind.

Another measure of data quality is the completeness and accuracy of information on births. Table 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, 99 percent of living children listed in the birth history had complete birth dates recorded as did 95 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

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 (weighted), Orissa, 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	177	13	189	100.0	100.0	100.0	890	1204	908	NA	NA	NA
1992	538	70	608	100.0	96.7	99.6	845	531	802	NA	NA	NA
1991	507	50	556	100.0	97.7	99.8	890	830	884	100	77	97
1990	476	58	534	100.0	94.0	99.3	921	507	865	97	105	98
1989	477	62	539	99.6	94.4	99.0	1020	1099	1029	92	75	90
1988	563	107	670	99.7	97.3	99.3	946	927	943	105	136	109
1987	591	96	687	98.9	97.0	98.7	1040	864	1013	103	90	101
1986	584	106	690	99.6	94.0	98.7	946	1057	962	104	110	105
1985	528	96	624	98.9	89.1	97.4	953	1077	971	95	101	96
1984	530	84	614	98.4	96.6	98.1	916	921	917	104	84	101
1983	492	104	596	98.0	98.4	98.1	1117	915	1078	186	247	194
1988-1992	2561	347	2908	99.9	96.2	99.4	921	764	901	NA	NA	NA
1983-1987	2726	486	3212	98.8	95.0	98.2	990	965	986	NA	NA	NA
1978-1982	2208	469	2676	99.2	95.7	98.6	928	1017	943	NA	NA	NA
1973-1977	1559	422	1981	98.4	94.0	97.5	978	893	959	NA	NA	NA
1972 or earlier	1382	567	1949	98.5	92.9	96.8	926	761	875	NA	NA	NA
All	10612	2304	12916	99.1	94.6	98.3	948	877	935	NA	NA	NA

NA: Not applicable

¹Both year and month of birth given

² $(B_f/B_m) \times 1000$, where B_f and B_m are the numbers of female and male births, respectively

³ $[2B_x / (B_{x-1} + B_{x+1})] \times 100$, where B_x is the number of births in calendar year x

NFHS began; therefore, interviewer training stressed this issue to try to avoid any biases due to age displacement. In Orissa, 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 since 1988, although much of the decline in the number of deaths to children born after 1988 is undoubtedly real. The SRS shows only 7 percent decline in the infant mortality rate between 1988 and 1992 and nearly a 14 percent decline between 1985 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 Orissa, since the ratios of deaths under seven days to all neonatal deaths are quite high (a ratio of less than

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 (weighted), Orissa, 1993				
Age at death (days)	Years preceding survey			
	0-4	5-9	10-14	0-14
<1	32	35	26	92
1	20	29	21	70
2	8	21	14	44
3	21	24	12	57
4	14	8	12	34
5	14	10	16	41
6	3	12	12	27
7	7	9	12	28
8	16	8	8	32
9	0	2	3	5
10	6	6	3	16
11	2	4	3	10
12	6	5	3	14
14	1	2	2	5
15	3	2	9	14
16	1	1	4	6
17	3	0	2	5
18	1	7	4	12
19	0	0	1	1
20	3	5	3	12
21	9	3	6	18
22	2	2	3	8
23	2	1	0	3
24	1	1	2	3
25	2	5	1	8
26	0	1	1	2
27	1	2	0	3
28	1	0	1	2
29	1	1	0	2
30	0	2	2	5
0-30	182	209	188	579
Percent early neonatal ¹	62	67	60	63

¹Deaths during first 6 days divided by deaths during first 30 days

25 percent is often used as a guideline to indicate underreporting of early neonatal deaths). The ratios are almost the same for 0-4 years (62) and 10-14 years (60) prior to the survey. However, the ratio for the period 5-9 years prior to the survey is slightly higher (67). Although there was no severe underreporting of deaths in Orissa, there was some misreporting of age at death due to a preference for reporting the age at death at 3, 8, 10 and 21 days (see Table B.5).

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. Moreover, there is a slight increase over time from 48 to 61. One problem that is inherent in most retrospective surveys is heaping of the age at death on certain digits, e.g., 6, 12 and 18 months. Misreporting of age at death will bias estimates of the age pattern of mortality if the net result of misreporting is the transference of deaths between age segments for which the rates are calculated; for example, an overestimate of child mortality relative to infant mortality may result if children dying during the first year of life are reported as having died at age one or older. Thus, heaping at 12 months can bias the mortality estimates because a certain fraction of these deaths, which are reported to have occurred after infancy (that is, at age 12-23 months), may have actually occurred during infancy (that is, at age 0-11 months). In this case, heaping would bias the infant mortality rate downward and child mortality upward.

Examination of the distribution of deaths under age two years during the 15 years prior to the survey by month of death (Table B.6) indicates that the calculated infant mortality rates for the population of Orissa 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 strong emphasis during training, there were no deaths reported at age "one year", making any adjustment of infant and child mortality rates unnecessary.

This brief check on internal consistency of the Orissa 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 1988 is undoubtedly due to omission or misreporting. Although there is some evidence of heaping in age at death at certain ages, the bias in infant and child mortality rates arising from this heaping is negligible.

Table B.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 (weighted), Orissa, 1993

Age at death (months)	Years preceding survey			
	0-4	5-9	10-14	0-14
<1	182	209	188	579
1	20	27	28	75
2	17	17	25	59
3	12	23	30	64
4	14	12	13	38
5	5	14	8	27
6	9	16	14	39
7	3	12	12	27
8	10	13	19	42
9	4	14	10	28
10	12	21	23	56
11	14	26	23	63
12	4	7	6	17
13	2	1	1	5
14	0	1	1	2
15	0	1	0	1
17	0	1	0	1
18	3	1	6	10
19	1	0	0	1
20	0	0	1	1
21	1	0	0	1
22	1	0	0	1
0-11	301	403	392	1096
Percent neonatal ¹	61	52	48	53

¹Deaths during first month divided by deaths during first year

APPENDIX C

ORISSA NATIONAL FAMILY HEALTH SURVEY STAFF

Population Research Centre, Utkal University, Bhubaneswar

Prof. Satyananda Acharya
(Vice-Chancellor and
Ex-Officio Director)

Mr. Bipin Bihari Hota
(Project Coordinator)

Trainers of the Survey Staff

Mr. Bipin Bihari Hota
Ms. Kanakalata Devi
Ms. Basantilata Rath

Intermediate Supervisors

Ms. Kanakalata Devi
Ms. Basantilata Rath
Mr. Satya Narayana Swain

Office Assistance

Mr. Kumar Rout
Mr. Purna Chandra Sahoo
Mr. Pratap Chandra Rout

Centre for Management of Development Programmes, Hyderabad

Dr. G. Narayana
(Director, CMDP and
Chief Coordinator, NFHS)

Coordinators

Ms. Lakshmi Atluri
Ms. Madhavi C.

Mr. Ramana Kumar P.D.V.
Mr. Sukumar R.

Trainers of Survey Staff

Ms. Laxmi Atluri
Ms. Madhavi C.

Data Entry Supervisors

Ms. Madhavi Reddy M.

Data Entry Operators

Mr. Vijaya Kumar
Mr. Rajkumar P.

Ms. Vijaya C.
Ms. Madhavi G.

Household Listing Supervisors

Mr. Ravindra Kumar G.
Mr. Srinivas Rao A.

Mr. Pabitra Mohan Sahoo

Field Supervisors

Mr. Sabyasachi Baral
Mr. Ashok Kumar Dash
Mr. Prasant Mahapatra
Mr. Raghunatha Panda

Mr. Sourindra Udgata
Mr. Debendra Samal
Mr. Sanatan Swain

Field Editors

Ms. Rajashree Bahal
Ms. Sumita Biswas
Ms. Sharmistha Mahapatra
Ms. Pranati Mohanty

Ms. Anita Kumari Patnaik
Ms. Sucheta Patnaik
Ms. Snigdha Samantarai
Ms. Susama Satpathy

Interviewers

Ms. Jyotsna Rani Das
Ms. Sabita Das
Ms. Sabita L. Das
Ms. Sibani Das
Ms. Sikata Das
Ms. Tarulata Dash
Ms. Minati Dey
Ms. Kabita Dhar
Ms. Abanti Garanaik
Ms. Sipra Giri
Ms. Sarmistha Kar
Ms. Susama Khandai
Ms. Basumati Majhi
Ms. Saswati Mishra

Ms. Sikata Mohanty
Ms. Swayam Prabha Nanda
Ms. Puspalata Pati
Ms. Jasaswini Patnaik
Ms. Jayashree Patnaik
Ms. Rajashree Patnaik
Ms. Tapaswini Patnaik
Ms. Tejaswini Patnaik
Ms. Sandhyabati Pradhan
Ms. Bishnupriya Rath
Ms. Pratima Manjari Sahoo
Ms. Bishnupriya Sarangi
Ms. Soudamini Swain
Ms. Tanushree

Household Listers

Mr. Ramesh Chandra Bal
Mr. Abhiram Behra
Mr. Bibhudendra Mahapatra
Mr. Pradeep Kumar Mishra
Mr. Manoj Kumar Misra
Mr. Srimanta Mohanty
Mr. Bijoy Kumar Nanda
Mr. Basant Kumar Nayak
Mr. Bichitrananda Nayak

Mr. Arun Kumar Otta
Mr. Brahmananda Panigrahi
Mr. Jogeshwar Pradhan
Mr. Nirmal Kumar Pradhan
Mr. Deepak Kumar Rath
Mr. Bijoy Kumar Rout
Mr. Joel Kumar Sahoo
Mr. Surendra Kumar Sahoo
Mr. Hemanta Kumar Singh

International Institute for Population Sciences, Bombay

Prof. K. Srinivasan
Dr. K.B. Pathak
(Project Directors)

Prof. (Mrs.) Tara Kanitkar
Prof. T.K. Roy
(Project Coordinators)

Senior Research Officers

Dr. B.M. Ramesh
Dr. K.M. Sathyanarayana

Dr. B.P. Thiagarajan

Research Officers

Mr. Prakash Fulpagare
Dr. T.D. Jose
Dr. Dharendra Kumar
Mr. Suhas J. Narkhede
Mr. Damodar Sahu

Dr. T.S. Syamala
Mr. V.S. Sridhar
Dr. B. S. Singh
Mr. V. Jayachandran
Mr. R. Karikalan
Mrs. Y. Vaidehi

Administrative Staff

At IIPS, Bombay

Mr. Vijay G. Patkar (Office Assistant)
Mr. G. S. Hegde (Office Assistant)
Mr. Wilson M. George (Senior Accountant)
Mr. R. S. Hegde (Accountant)
Ms. Pushpa T. Sathe (Lower Division Clerk)
Ms. Shreeja R. (Lower Division Clerk)
Mr. Vivek D. Patil (Peon)
Mr. G.R. Kadam (Library Assistant)
Mr. Kanu Premji Chavda (Sweeper)

At MOHFW, New Delhi

Mr. B.R. Dohare
(Project Associate)

Mr. M.R. Sharma
(Private Secretary)

Consultants

Dr. Fred Arnold
Mr. David Cantor
Ms. Jeanne Cushing
Dr. Pavalavalli Govindasamy
Ms. Sandra Rowland

Mr. Sanjay Tiwari
Mr. O.P. Sharma
Ms. Thanh Le
Dr. Vijay K. Verma

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Ministry of Home Affairs

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Centre, by rotation

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Consulting Organization,
by rotation

Representative of United
States Agency for International
Development, New Delhi

Director, International Institute for
Population Sciences and Director
General, National Council of
Population Research (Member-
Secretary)

**Administrative and Financial Management Committee for the Project to Strengthen the
Survey Research Capabilities of the Population Research Centres in India**

Joint Secretary
Financial Advisor
Department of Family Welfare
Ministry of Health and Family Welfare
(Committee Chairperson)

Director (Marketing/Evaluation)
Department of Family Welfare
Ministry of Health and Family Welfare

Representative of United
States Agency for International
Development, New Delhi

Representative of East-West
Center, Honolulu, USA

Director
International Institute for
Population Sciences, Bombay

Joint Director (Evaluation)
Department of Family Welfare
Ministry of Health and Family
Welfare

Technical Advisory Committee for National Family Health Survey

Director
International Institute for
Population Sciences, Bombay
(Chairperson)

Director (Marketing/Evaluation)
Department of Family Welfare
Ministry of Health and Family Welfare

One representative from each
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Chief of the Population Research
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Centre, Delhi

Dr. P.P. Talwar
Professor and Head
Department of Statistics and Demography
National Institute of Health and Family
Welfare

Chief of the Population Research
Centre, Waltair

Representative of the United
States Agency for International
Development, New Delhi

Representative of the East-
West Center, Honolulu, USA

Prof. Tara Kanitkar and
Dr. T.K. Roy, IIPS
(Convenors)

Prof. M.K. Premi
President, Indian Association for
the Study of Population

LIST OF CONTRIBUTORS

Mr. Bipin Bihari Hota, Chief Executive, Population Research Centre, Department of Statistics, Utkal University, Vanivihar, Bhubaneswar - 751 005, India

Mrs. Basantilata Rath, Research Officer, Population Research Centre, Department of Statistics, Utkal University, Vanivihar, Bhubaneswar - 751 005, India

Dr. M. Guruswamy, Reader, Department of Development Studies, International Institute for Population Sciences, Govandi Station Road, Deonar, Bombay - 400 088

Dr. Karen Oppenheim Mason, Senior Fellow, Program on Population, The East-West Center, 1777 East-West Road, Honolulu, Hawaii 96848, United States of America

Dr. B. M. Ramesh, Lecturer, Department of Development Studies, International Institute for Population Sciences, Govandi Station Road, Deonar, Bombay - 400 088

APPENDIX D
SURVEY INSTRUMENTS

HOUSEHOLD SCHEDULE

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			
			Does (NAME) usually live here?	Did (NAME) stay here last night?			Marital Status**	Education		
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	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?***

LINE NO.	RELATIONSHIP TO HEAD OF HOUSEHOLD*	RESIDENCE		SEX	AGE	IF AGED 6 YEARS OR OLD			
		YES NO	YES NO			CM S W D NM	YES NO	YES NO	GRADE
01		1 2	1 2	M F	IN YEARS	1 2 3 4 5	1 2	1 2	GRADE
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 ?	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.

PERSON		AFTER COMPLETING COLUMNS 1-14 FOR ALL LISTED PERSONS, ASK:						ELIGIBILITY				
EDUCATIONAL SCHOOL	OCCUPATION	Does anyone listed suffer from:						CIRCLE LINE NUMBER OF WOMEN ELIGIBLE FOR INDIVIDUAL INTERVIEW (EVER MARRIED FEMALES AGED 13-49) (20)				
IF AGED LESS THAN 15 YEARS	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)						
YES NO		YES PARTIAL 1	YES COMPLETE 2	NO COMPLETE 3	YES NO 1 2	YES NO 1 2	YES HANDS 1	YES LEGS 2	YES BOTH 3	NO 4	YES NO 1 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

HOUSEHOLD SCHEDULE (CONTINUED)

(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
			YES NO	YES NO	M F	IN YEARS	CH S W D NM	YES NO	YES NO	GRADE
09			1 2	1 2	1 2		1 2 3 4 5	1 2	1 2	
10			1 2	1 2	1 2		1 2 3 4 5	1 2	1 2	
11			1 2	1 2	1 2		1 2 3 4 5	1 2	1 2	
12			1 2	1 2	1 2		1 2 3 4 5	1 2	1 2	
13			1 2	1 2	1 2		1 2 3 4 5	1 2	1 2	
14			1 2	1 2	1 2		1 2 3 4 5	1 2	1 2	
15			1 2	1 2	1 2		1 2 3 4 5	1 2	1 2	
16			1 2	1 2	1 2		1 2 3 4 5	1 2	1 2	
17			1 2	1 2	1 2		1 2 3 4 5	1 2	1 2	
18			1 2	1 2	1 2		1 2 3 4 5	1 2	1 2	

TICK HERE IF CONTINUATION SHEET USED

- 21 Just to make sure that I have a complete listing:
- 1) Are there any other persons such as small children or infants that we have not listed?
 - 2) In addition, are there any other people who may not be members of your family, such as domestic servants, lodgers or friends who usually live here?
 - 3) Do you have any guests or temporary visitors staying here, or anyone else who stayed here last night?

* CODES FOR Q.4

RELATIONSHIP TO HEAD OF HOUSEHOLD:

- | | | |
|----------------------------|-----------------------|------------------------------|
| 01= HEAD | 05= GRANDCHILD | 09= BROTHER OR SISTER-IN-LAW |
| 02= WIFE OR HUSBAND | 06= PARENT | 10= OTHER RELATIVE |
| 03= SON OR DAUGHTER | 07= PARENT-IN-LAW | 11= ADOPTED/FOSTER CHILD |
| 04= SON OR DAUGHTER-IN-LAW | 08= BROTHER OR SISTER | 12= NOT RELATED |
| | | 98= DK |

(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
YES NO		YES YES NO PART COMP IAL LETE	YES NO	YES NO	YES YES YES NO HAN LEGS BO DS TH	YES NO	
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	09
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	10
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	11
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	12
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	13
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	14
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	15
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	16
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	17
1 2		1 2 3	1 2	1 2	1 2 3 4	1 2	18

TOTAL NUMBER OF ELIGIBLE WOMEN

YES → ENTER EACH IN TABLE NO

YES → ENTER EACH IN TABLE NO

YES → ENTER EACH IN TABLE NO

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

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

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
22	<p>What is the main source of water your household uses for bathing and washing?</p>	<p>PIPED WATER PIPED INTO RESIDENCE/YARD/PLOT.....11 → 24 PUBLIC TAP.....12</p> <p>GROUND WATER HANDPUMP IN YARD/PLOT.....21 → 24 PUBLIC HANDPUMP.....22</p> <p>WELL WATER WELL IN RESIDENCE/YARD/PLOT...23 → 24 PUBLIC WELL.....24</p> <p>SURFACE WATER SPRING.....31 RIVER/STREAM.....32 POND/LAKE.....33 DAM.....34</p> <p>RAINWATER.....41 TANKER TRUCK.....51 OTHER.....81 (SPECIFY)</p>	
23	<p>How long does it take to go there, get water, and come back in one trip?</p>	<p>MINUTES..... <input type="text"/> <input type="text"/> <input type="text"/></p>	
24	<p>Does your household get drinking water from this same source?</p>	<p>YES.....1 → 26 NO.....2</p>	
25	<p>What is the main source of drinking water for members of your household?</p>	<p>PIPED WATER PIPED INTO RESIDENCE/YARD/PLOT.....11 PUBLIC TAP.....12</p> <p>GROUND WATER HANDPUMP IN YARD/PLOT.....21 PUBLIC HANDPUMP.....22</p> <p>WELL WATER WELL IN RESIDENCE/YARD/PLOT...23 PUBLIC WELL.....24</p> <p>SURFACE WATER SPRING.....31 RIVER/STREAM.....32 POND/LAKE.....33 DAM.....34</p> <p>RAINWATER.....41 TANKER TRUCK.....51 BOTTLED WATER.....61 OTHER.....81 (SPECIFY)</p>	
26	<p>What kind of toilet facility does your household have?</p>	<p>FLUSH TOILET OWN FLUSH TOILET.....11 SHARED FLUSH TOILET.....12 PUBLIC FLUSH TOILET.....13</p> <p>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)</p>	

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 <u>non-irrigated</u> land under cultivation, in acres?	ACRES..... <input type="text"/> <input type="text"/> <input type="text"/> NONE.....000 LESS THAN ONE.....996																																																	
38	What is the size of <u>irrigated</u> land under cultivation, in acres?	ACRES..... <input type="text"/> <input type="text"/> <input type="text"/> 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? A clock or watch? A sofa set? A fan? A radio or transistor? A refrigerator? A television? A VCR or VCP? A bicycle? A motorcycle or scooter? A car? A bullock cart? A thresher? A tractor? A water pump?	<table border="1"> <thead> <tr> <th></th> <th>YES</th> <th>NO</th> </tr> </thead> <tbody> <tr> <td>SEWING MACHINE.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>CLOCK/WATCH.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>SOFA SET.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>FAN.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>RADIO/TRANSISTOR.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>REFRIGERATOR.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>TELEVISION.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>VCR/VCP.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>BICYCLE.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>MOTORCYCLE/SCOOTER.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>CAR.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>BULLOCK CART.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>THRESHER.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>TRACTOR.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>WATER PUMP.....</td> <td>1</td> <td>2</td> </tr> </tbody> </table>		YES	NO	SEWING MACHINE.....	1	2	CLOCK/WATCH.....	1	2	SOFA SET.....	1	2	FAN.....	1	2	RADIO/TRANSISTOR.....	1	2	REFRIGERATOR.....	1	2	TELEVISION.....	1	2	VCR/VCP.....	1	2	BICYCLE.....	1	2	MOTORCYCLE/SCOOTER.....	1	2	CAR.....	1	2	BULLOCK CART.....	1	2	THRESHER.....	1	2	TRACTOR.....	1	2	WATER PUMP.....	1	2	
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WATER PUMP.....	1	2																																																	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
43	<p>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.</p> <p>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?</p>	<p>YES.....1</p> <p>NO.....2</p>	45
44	How many births took place?	TOTAL BIRTHS..... <input type="text"/>	
45	Did any visitor to this household give birth to a child since (Pongal/Makar Sankranti/January) 1991?	<p>YES.....1</p> <p>NO.....2</p>	47
46	How many births took place?	TOTAL BIRTHS..... <input type="text"/>	
47	CHECK 44 AND 46:	<p>ONE OR MORE BIRTHS <input type="checkbox"/></p> <p>NO BIRTHS <input type="checkbox"/></p>	58

RECORD NAMES OF BIRTHS SINCE JANUARY 1991 IN 48. RECORD TWINS AND TRIPLETS ON SEPARATE LINES.

48	49	50	51	52	53	54	55	56
What name was given to the baby born (first/next)?	Was the mother a usual resident of the household or a visitor?	RECORD LINE NUMBER OF MOTHER IN THE HOUSEHOLD SCHEDULE.	How old was the mother at the time of birth of (NAME)? RECORD AGE IN COMPLETED YEARS.	RECORD SINGLE OR MULTIPLE BIRTH STATUS.	Is (NAME) a boy or a girl?	In what month and year was (NAME) born? PROBE: What is his/her birthday? OR: In what season was he/she born?	Is (NAME) still alive?	IF DEAD: How old was he/she when he/she died? IF "1 YEAR", PROBE: How many months old was (NAME)? RECORD DAYS IF LESS THAN ONE MONTH

01 _____ (NAME)	RESIDENT..1 VISITOR...2	LINE NUMBER <input type="text"/> <input type="text"/> MOTHER DIED.....95 LEFT HH..96	AGE OF MOTHER <input type="text"/> <input type="text"/>	SINGLE..1 MULT....2	BOY...1 GIRL..2	MONTH.. <input type="text"/> <input type="text"/> YEAR... <input type="text"/> <input type="text"/>	YES...1 (GO TO NEXT BIRTH) NO...2	DAYS...1 <input type="text"/> <input type="text"/> MONTHS..2 <input type="text"/> <input type="text"/>
02 _____ (NAME)	RESIDENT..1 VISITOR...2	LINE NUMBER <input type="text"/> <input type="text"/> MOTHER DIED.....95 LEFT HH..96	AGE OF MOTHER <input type="text"/> <input type="text"/>	SINGLE..1 MULT....2	BOY...1 GIRL..2	MONTH.. <input type="text"/> <input type="text"/> YEAR... <input type="text"/> <input type="text"/>	YES...1 (GO TO NEXT BIRTH) NO...2	DAYS...1 <input type="text"/> <input type="text"/> MONTHS..2 <input type="text"/> <input type="text"/>
03 _____ (NAME)	RESIDENT..1 VISITOR...2	LINE NUMBER <input type="text"/> <input type="text"/> MOTHER DIED.....95 LEFT HH..96	AGE OF MOTHER <input type="text"/> <input type="text"/>	SINGLE..1 MULT....2	BOY...1 GIRL..2	MONTH.. <input type="text"/> <input type="text"/> YEAR... <input type="text"/> <input type="text"/>	YES...1 (GO TO NEXT BIRTH) NO...2	DAYS...1 <input type="text"/> <input type="text"/> MONTHS..2 <input type="text"/> <input type="text"/>
04 _____ (NAME)	RESIDENT..1 VISITOR...2	LINE NUMBER <input type="text"/> <input type="text"/> MOTHER DIED.....95 LEFT HH..96	AGE OF MOTHER <input type="text"/> <input type="text"/>	SINGLE..1 MULT....2	BOY...1 GIRL..2	MONTH.. <input type="text"/> <input type="text"/> YEAR... <input type="text"/> <input type="text"/>	YES...1 (GO TO NEXT BIRTH) NO...2	DAYS...1 <input type="text"/> <input type="text"/> MONTHS..2 <input type="text"/> <input type="text"/>
05 _____ (NAME)	RESIDENT..1 VISITOR...2	LINE NUMBER <input type="text"/> <input type="text"/> MOTHER DIED.....95 LEFT HH..96	AGE OF MOTHER <input type="text"/> <input type="text"/>	SINGLE..1 MULT....2	BOY...1 GIRL..2	MONTH.. <input type="text"/> <input type="text"/> YEAR... <input type="text"/> <input type="text"/>	YES...1 (GO TO NEXT BIRTH) NO...2	DAYS...1 <input type="text"/> <input type="text"/> MONTHS..2 <input type="text"/> <input type="text"/>
06 _____ (NAME)	RESIDENT..1 VISITOR...2	LINE NUMBER <input type="text"/> <input type="text"/> MOTHER DIED.....95 LEFT HH..96	AGE OF MOTHER <input type="text"/> <input type="text"/>	SINGLE..1 MULT....2	BOY...1 GIRL..2	MONTH.. <input type="text"/> <input type="text"/> YEAR... <input type="text"/> <input type="text"/>	YES...1 (GO TO NEXT BIRTH) NO...2	DAYS...1 <input type="text"/> <input type="text"/> MONTHS..2 <input type="text"/> <input type="text"/>

57 COMPARE SUM OF 44 AND 46 WITH NUMBER OF BIRTHS IN 48 AND MARK:

NUMBERS ARE SAME NUMBERS ARE DIFFERENT → PROBE AND RECONCILE

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
58	<p>Now I would like to ask you about the deaths of any member of your household or visitor during the last two years.</p>	<p>YES.....1 NO.....2</p>	60
59	How many persons died?	TOTAL DEATHS..... <input type="text"/>	
60	<p>Did any visitor to this household die since (Pongal/Makar Sankranti/January) 1991?</p>	<p>YES.....1 NO.....2</p>	62
61	How many deaths took place?	TOTAL DEATHS..... <input type="text"/>	
62	<p>CHECK 59 AND 61:</p> <p>ONE OR MORE DEATHS <input type="checkbox"/> NO DEATHS <input type="checkbox"/></p>		75

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 13-45 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.. <input type="text"/> YEAR... <input type="text"/>	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	<input type="text"/> SYMPTOMS
02 _____ (NAME)	RESIDENT...1 VISITOR...2	MALE.....1 FEMALE...2	DAYS....1 MONTHS..2 YEARS...3	MONTH.. <input type="text"/> YEAR... <input type="text"/>	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	<input type="text"/> SYMPTOMS
03 _____ (NAME)	RESIDENT...1 VISITOR...2	MALE.....1 FEMALE...2	DAYS....1 MONTHS..2 YEARS...3	MONTH.. <input type="text"/> YEAR... <input type="text"/>	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	<input type="text"/> SYMPTOMS

74 COMPARE SUM OF 59 AND 61 WITH NUMBER OF DEATHS IN 63 AND MARK:

NUMBERS ARE SAME NUMBERS ARE DIFFERENT PROCBE AND RECONCILE

75 RECORD THE TIME.

HOUR.....
MINUTES.....

NATIONAL FAMILY HEALTH SURVEY
(MCH AND FAMILY PLANNING)
WOMAN'S QUESTIONNAIRE

CONFIDENTIAL
For Research
Purposes Only

INDIA 1992-1993

IDENTIFICATION																						
NAME OF STATE _____	<table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table>																					
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 _____	<table border="1" style="width: 20px; height: 20px; border-collapse: collapse;"> <tr><td style="width: 10px; height: 10px;"></td><td style="width: 10px; height: 10px;"></td></tr> </table>																					
ADDRESS OF HOUSEHOLD _____	<table border="1" style="width: 20px; height: 20px; border-collapse: collapse;"> <tr><td style="width: 10px; height: 10px;"></td><td style="width: 10px; height: 10px;"></td></tr> </table>																					

INTERVIEWER VISITS								
	1	2	3	FINAL VISIT				
DATE	_____	_____	_____	DAY <table border="1" style="width: 20px; height: 20px; border-collapse: collapse;"><tr><td style="width: 10px; height: 10px;"></td><td style="width: 10px; height: 10px;"></td></tr></table>				
				MONTH <table border="1" style="width: 20px; height: 20px; border-collapse: collapse;"><tr><td style="width: 10px; height: 10px;"></td><td style="width: 10px; height: 10px;"></td></tr></table>				
INTERVIEWER'S NAME	_____	_____	_____	YEAR <table border="1" style="width: 20px; height: 20px; border-collapse: collapse;"><tr><td style="width: 10px; height: 10px;"></td><td style="width: 10px; height: 10px;"></td></tr></table>				
RESULT*	_____	_____	_____	NAME <table border="1" style="width: 20px; height: 20px; border-collapse: collapse;"><tr><td style="width: 10px; height: 10px;"></td><td style="width: 10px; height: 10px;"></td></tr></table>				
	_____	_____	_____	RESULT <table border="1" style="width: 20px; height: 20px; border-collapse: collapse;"><tr><td style="width: 10px; height: 10px;"></td><td style="width: 10px; height: 10px;"></td></tr></table>				
NEXT VISIT: DATE TIME	_____	_____	<table border="1" style="width: 20px; height: 20px; border-collapse: collapse;"><tr><td style="width: 10px; height: 10px;"></td><td style="width: 10px; height: 10px;"></td></tr></table>			TOTAL NUMBER OF VISITS <table border="1" style="width: 20px; height: 20px; border-collapse: collapse;"><tr><td style="width: 10px; height: 10px;"></td><td style="width: 10px; height: 10px;"></td></tr></table>		

*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 | |

NAME DATE	SPOT- CHECKED BY	FIELD EDITED BY	OFFICE EDITED BY	KEYED BY	KEYED BY		
_____	_____	_____	_____	_____	<table border="1" style="width: 20px; height: 20px; border-collapse: collapse;"> <tr><td style="width: 10px; height: 10px;"></td><td style="width: 10px; height: 10px;"></td></tr> </table>		

SECTION 1. RESPONDENT'S BACKGROUND

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
101	RECORD THE TIME.	HOUR..... <input type="text"/> <input type="text"/> MINUTES..... <input type="text"/> <input type="text"/>	
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..... <input type="text"/> <input type="text"/> 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..... <input type="text"/> <input type="text"/> DK MONTH.....98 YEAR..... <input type="text"/> <input type="text"/> 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..... <input type="text"/> <input type="text"/>	
107	What is your current marital status?	CURRENTLY MARRIED.....1 SEPARATED.....2 WIDOWED.....3 DIVORCED.....4 NEVER MARRIED.....5	→ 111 → END
108	Are you living with your husband now or is he staying elsewhere?	LIVING WITH HIM.....1 STAYING ELSEWHERE.....2	→ 111

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
109	During the last four weeks, did you stay with your husband at any time?	YES.....1 NO.....2	111
110	For how long have you and your husband not been living together? RECORD MONTHS OR YEARS.	MONTHS.....1 YEARS.....2	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
111	Now I would like to ask you some questions on your marriage. Have you been married only once or more than once?	ONCE.....1 MORE THAN ONCE.....2	115
112	How old were you at the time of your <u>first</u> marriage?	AGE IN COMPLETED YEARS.....	<input type="text"/> <input type="text"/>
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	<input type="text"/> <input type="text"/>
114	How old were you when your first marriage dissolved?	AGE IN COMPLETED YEARS.....	<input type="text"/> <input type="text"/>
115	How old were you at the time of your [current] marriage?	AGE IN COMPLETED YEARS.....	<input type="text"/> <input type="text"/>
116	How old were you when you started living with your [current] husband?	AGE IN COMPLETED YEARS..... GAUNA HAS NOT TAKEN PLACE.....96	END

I.D.	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..... <input type="text"/> <input type="text"/> DK.....98	
120	What is the minimum legal age at marriage for a boy in India?	AGE IN YEARS..... <input type="text"/> <input type="text"/> DK.....98	
121	Have you ever attended school?	YES.....1 NO.....2	124
122	What is the highest grade you completed?	GRADE..... <input type="text"/> <input type="text"/>	
123	CHECK 122:	GRADE 0-5 <input type="checkbox"/> GRADE 6-12 <input type="checkbox"/> GRADE 13+ <input type="checkbox"/>	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)	

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	201						
	THE WOMAN INTERVIEWED IS A USUAL RESIDENT <input type="checkbox"/>	THE WOMAN INTERVIEWED IS A USUAL RESIDENT <input type="checkbox"/>							
130	How long have you been visiting in this house?	DAYS.....1 MONTHS.....2 YEARS.....3	<table border="1"> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> </table>						
131	How much longer do you intend to stay here?	DAYS.....1 MONTHS.....2 YEARS.....3 DK.....998	<table border="1"> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> </table>						
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							

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
134	<p>In which state do you usually live?</p>	<p>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</p>	
135	<p>Now I would like to ask about the household in which you usually live.</p> <p>What is the main source of water your household uses for bathing and washing?</p>	<p>PIPED WATER PIPED INTO RESIDENCE/YARD/PLOT.....11 → 137 PUBLIC TAP.....12</p> <p>GROUND WATER HANDPUMP IN YARD/PLOT.....21 → 137 PUBLIC HANDPUMP.....22</p> <p>WELL WATER WELL IN RESIDENCE/YARD/PLOT...23 → 137 PUBLIC WELL.....24</p> <p>SURFACE WATER SPRING.....31 RIVER/STREAM.....32 PCND/LAKE.....33 DAM.....34</p> <p>RAINWATER.....41 TANKER TRUCK.....51 OTHER.....81 (SPECIFY)</p>	
136	<p>How long does it take to go there, get water, and come back in one trip?</p>	<p>MINUTES..... <input type="text"/> <input type="text"/> <input type="text"/></p>	
137	<p>Does your household get drinking water from this same source?</p>	<p>YES.....1 → 139 NO.....2</p>	

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?	_____ (NAME)	→ 149
148	To which caste does the head of the household belong?	_____ (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	

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?	<table border="1"> <thead> <tr> <th></th> <th>YES</th> <th>NO</th> </tr> </thead> <tbody> <tr> <td>SEWING MACHINE.....1</td> <td>1</td> <td>2</td> </tr> <tr> <td>CLOCK/WATCH.....1</td> <td>1</td> <td>2</td> </tr> <tr> <td>SOFA SET.....1</td> <td>1</td> <td>2</td> </tr> <tr> <td>FAN.....1</td> <td>1</td> <td>2</td> </tr> <tr> <td>RADIO/TRANSISTOR.....1</td> <td>1</td> <td>2</td> </tr> <tr> <td>REFRIGERATOR.....1</td> <td>1</td> <td>2</td> </tr> <tr> <td>TELEVISION.....1</td> <td>1</td> <td>2</td> </tr> <tr> <td>VCR/VCP.....1</td> <td>1</td> <td>2</td> </tr> <tr> <td>BICYCLE.....1</td> <td>1</td> <td>2</td> </tr> <tr> <td>MOTORCYCLE/SCOOTER.....1</td> <td>1</td> <td>2</td> </tr> <tr> <td>CAR.....1</td> <td>1</td> <td>2</td> </tr> <tr> <td>BULLOCK CART.....1</td> <td>1</td> <td>2</td> </tr> <tr> <td>TRACTOR.....1</td> <td>1</td> <td>2</td> </tr> <tr> <td>THRASHER.....1</td> <td>1</td> <td>2</td> </tr> <tr> <td>WATER PUMP.....1</td> <td>1</td> <td>2</td> </tr> </tbody> </table>		YES	NO	SEWING MACHINE.....1	1	2	CLOCK/WATCH.....1	1	2	SOFA SET.....1	1	2	FAN.....1	1	2	RADIO/TRANSISTOR.....1	1	2	REFRIGERATOR.....1	1	2	TELEVISION.....1	1	2	VCR/VCP.....1	1	2	BICYCLE.....1	1	2	MOTORCYCLE/SCOOTER.....1	1	2	CAR.....1	1	2	BULLOCK CART.....1	1	2	TRACTOR.....1	1	2	THRASHER.....1	1	2	WATER PUMP.....1	1	2	
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THRASHER.....1	1	2																																																	
WATER PUMP.....1	1	2																																																	
156	How many people are there in your household?	NUMBER OF PERSONS.....	<input type="text"/>																																																

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.....	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>				
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.....	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>				
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.....	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>				
208	SUM ANSWERS TO 203, 205, AND 207, AND ENTER TOTAL. IF NONE RECORD '00'.	TOTAL.....	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>				

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
209	<p>CHECK 208:</p> <p>Just to make sure that I have this right: you have had in TOTAL ___ births during your life. Is that correct?</p> <p>YES <input type="checkbox"/> NO <input type="checkbox"/> → PROBE AND CORRECT 201-208 AS NECESSARY</p> <p style="margin-left: 100px;">↓</p>		
210	<p>Have you ever had a stillbirth?</p>	<p>YES.....1</p> <p>NO.....2 → 212</p>	
211	<p>How many stillbirths have you had?</p>	<p>NUMBER OF STILLBIRTHS..... <input type="text"/></p>	
212	<p>Have you ever had an abortion?</p> <p>PROBE FOR SPONTANEOUS AND INDUCED ABORTIONS.</p>	<p>YES.....1</p> <p>NO.....2 → 214</p>	
213	<p>How many abortions have you had?</p> <p>PROBE FOR NUMBER OF SPONTANEOUS AND INDUCED ABORTIONS. IF NONE, RECORD '0'.</p>	<p>SPONTANEOUS ABORTIONS..... <input type="text"/></p> <p>INDUCED ABORTIONS..... <input type="text"/></p>	
214	<p>CHECK 208:</p> <p>ONE OR MORE BIRTHS <input type="checkbox"/> NO BIRTHS <input type="checkbox"/> → 226</p> <p style="margin-left: 100px;">↓</p>		

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	217	218	219	220	221	222	223
What name was given to your (first, next) baby?	RECORD SINGLE OR MULTIPLE BIRTH STATUS.	Is (NAME) a boy or a girl?	In what month and year was (NAME) born? PROBE: What is his/her birthday? OR: In what season was he/she born?	Is (NAME) still alive?	How old was (NAME) at his/her last birthday? RECORD AGE IN COMPLETED YEARS.	Is (NAME) living with you?	How old was he/she when he/she died? IF "1 YEAR", PROBE: How many months old was (NAME)? RECORD DAYS IF LESS THAN 1 MONTH, MONTHS IF LESS THAN TWO YEARS, OR YEARS.
01 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. <input type="text"/> YEAR... <input type="text"/>	YES...1 NO....2 ↓ 223	AGE IN YEARS <input type="text"/>	YES.....1 NO.....2 ↓ (GO TO NEXT BIRTH)	DAYS...1 MONTHS..2 YEARS...3 <input type="text"/>
02 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. <input type="text"/> YEAR... <input type="text"/>	YES...1 NO....2 ↓ 223	AGE IN YEARS <input type="text"/>	YES.....1 NO.....2 ↓ (GO TO NEXT BIRTH)	DAYS...1 MONTHS..2 YEARS...3 <input type="text"/>
03 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. <input type="text"/> YEAR... <input type="text"/>	YES...1 NO....2 ↓ 223	AGE IN YEARS <input type="text"/>	YES.....1 NO.....2 ↓ (GO TO NEXT BIRTH)	DAYS...1 MONTHS..2 YEARS...3 <input type="text"/>
04 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. <input type="text"/> YEAR... <input type="text"/>	YES...1 NO....2 ↓ 223	AGE IN YEARS <input type="text"/>	YES.....1 NO.....2 ↓ (GO TO NEXT BIRTH)	DAYS...1 MONTHS..2 YEARS...3 <input type="text"/>
05 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. <input type="text"/> YEAR... <input type="text"/>	YES...1 NO....2 ↓ 223	AGE IN YEARS <input type="text"/>	YES.....1 NO.....2 ↓ (GO TO NEXT BIRTH)	DAYS...1 MONTHS..2 YEARS...3 <input type="text"/>
06 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. <input type="text"/> YEAR... <input type="text"/>	YES...1 NO....2 ↓ 223	AGE IN YEARS <input type="text"/>	YES.....1 NO.....2 ↓ (GO TO NEXT BIRTH)	DAYS...1 MONTHS..2 YEARS...3 <input type="text"/>
07 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH.. <input type="text"/> YEAR... <input type="text"/>	YES...1 NO....2 ↓ 223	AGE IN YEARS <input type="text"/>	YES.....1 NO.....2 ↓ (GO TO NEXT BIRTH)	DAYS...1 MONTHS..2 YEARS...3 <input type="text"/>

216	217	218	219	220	221 IF ALIVE:	222 IF ALIVE:	223 IF DEAD:
What name was given to your next baby?	RECORD SINGLE OR MULTIPLE BIRTH STATUS.	Is (NAME) a boy or a girl?	In what month and year was (NAME) born? PROBE: What is his/her birthday? OR: In what season was he/she born?	Is (NAME) still alive?	How old was (NAME) at his/her last birthday? RECORD AGE IN COMPLETED YEARS.	Is (NAME) living with you?	How old was he/she when he/she died? IF "1 YEAR", PROBE: How many months old was (NAME)? RECORD DAYS IF LESS THAN 1 MONTH, MONTHS IF LESS THAN TWO YEARS, OR YEARS.

08 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL...2	MONTH... YEAR... <input type="text"/> <input type="text"/>	YES...1 NO...2 ↓ 223	AGE IN YEARS <input type="text"/> <input type="text"/>	YES...1 NO...2 ↓ (GO TO NEXT BIRTH)	DAYS...1 MONTHS...2 YEARS...3 <input type="text"/> <input type="text"/> <input type="text"/>
09 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL...2	MONTH... YEAR... <input type="text"/> <input type="text"/>	YES...1 NO...2 ↓ 223	AGE IN YEARS <input type="text"/> <input type="text"/>	YES...1 NO...2 ↓ (GO TO NEXT BIRTH)	DAYS...1 MONTHS...2 YEARS...3 <input type="text"/> <input type="text"/> <input type="text"/>
10 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL...2	MONTH... YEAR... <input type="text"/> <input type="text"/>	YES...1 NO...2 ↓ 223	AGE IN YEARS <input type="text"/> <input type="text"/>	YES...1 NO...2 ↓ (GO TO NEXT BIRTH)	DAYS...1 MONTHS...2 YEARS...3 <input type="text"/> <input type="text"/> <input type="text"/>
11 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL...2	MONTH... YEAR... <input type="text"/> <input type="text"/>	YES...1 NO...2 ↓ 223	AGE IN YEARS <input type="text"/> <input type="text"/>	YES...1 NO...2 ↓ (GO TO NEXT BIRTH)	DAYS...1 MONTHS...2 YEARS...3 <input type="text"/> <input type="text"/> <input type="text"/>
12 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL...2	MONTH... YEAR... <input type="text"/> <input type="text"/>	YES...1 NO...2 ↓ 223	AGE IN YEARS <input type="text"/> <input type="text"/>	YES...1 NO...2 ↓ (GO TO NEXT BIRTH)	DAYS...1 MONTHS...2 YEARS...3 <input type="text"/> <input type="text"/> <input type="text"/>

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 <input type="checkbox"/> WIDOWED <input type="checkbox"/> DIVORCED <input type="checkbox"/> SEPARATED <input type="checkbox"/>		232
227	Are you pregnant now?	YES.....1 NO.....2 UNSURE.....8	230
228	How many months pregnant are you?	MONTHS..... <input type="text"/>	
229	At the time you became pregnant, did you want to become pregnant <u>then</u> , did you want to wait until <u>later</u> , or did you <u>not want</u> to become pregnant at all?	THEN.....1 LATER.....2 NOT AT ALL.....3	232
230	Are you currently menstruating?	YES1 NO IN MENOPAUSE.....2 NO IN AMENORRHOEA.....3 NEVER MENSTRUATED.....4	232
231	When did your last menstrual period start?	MONTH..... <input type="text"/> YEAR..... <input type="text"/>	
232	How old were you when you experienced your first monthly period?	AGE IN YEARS..... <input type="text"/>	

SECTION 3. CONTRACEPTION

301			
<p>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?</p> <p>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.</p>			
	302	303	304
	Have you ever heard of (METHOD)? READ DESCRIPTION OF EACH METHOD.	Have you ever used (METHOD)?	Do you know where a person could go to get (METHOD)?
01	YES/SPONTANEOUS.....1 YES/PROBED.....2 <u>Pill</u> Women can take a pill every day. NO.....3	YES.....1 NO.....2	YES.....1 NO.....2
02	YES/SPONTANEOUS.....1 YES/PROBED.....2 <u>Loop or Copper I</u> Women can have a loop or coil placed inside them by a doctor or a nurse. NO.....3	YES.....1 NO.....2	YES.....1 NO.....2
03	YES/SPONTANEOUS.....1 YES/PROBED.....2 <u>Injections</u> Women can have an injection given by a doctor or nurse which stops them from becoming pregnant for several months. NO.....3	YES.....1 NO.....2	YES.....1 NO.....2
04	YES/SPONTANEOUS.....1 YES/PROBED.....2 <u>Condom or Nirodh</u> Men can use a rubber sheath during sexual intercourse. NO.....3	YES.....1 NO.....2	YES.....1 NO.....2
05	YES/SPONTANEOUS.....1 YES/PROBED.....2 <u>Female sterilization</u> Women can have an operation to avoid having any more children. NO.....3	Have you ever had an operation to avoid having any more children? YES.....1 NO.....2	YES.....1 NO.....2

	302	303	304
	Have you ever heard of (METHOD)? READ DESCRIPTION OF EACH METHOD.	Have you ever used (METHOD)?	Do you know where a person could go to get (METHOD)?
06	YES/SPONTANEOUS.....1 YES/PROBED.....2 NO.....3 <u>Male sterilization</u> Men can have an operation to avoid having any more children.	Has your husband ever had an operation to avoid having any more children? YES.....1 NO.....2	YES.....1 NO.....2
07	YES/SPONTANEOUS.....1 YES/PROBED.....2 NO.....3 <u>Rhythm or Periodic abstinence</u> Couples can avoid having sexual intercourse on certain days of the month when the woman is more likely to become pregnant.	YES.....1 NO.....2	Do you know where a person can obtain advice on how to practice periodic abstinence? YES.....1 NO.....2
08	YES/SPONTANEOUS.....1 YES/PROBED.....2 NO.....3 <u>Withdrawal</u> Men can be careful and pull out before climax.	YES.....1 NO.....2	
09	Have you heard of any other ways or methods that women or men can use to avoid pregnancy? 1 _____ (SPECIFY) 2 _____ (SPECIFY) 3 _____ (SPECIFY)	YES/SPONTANEOUS.....1 NO.....3 YES.....1 NO.....2 YES.....1 NO.....2 YES.....1 NO.....2	

305 CHECK 303: NOT A SINGLE "YES" (NEVER USED) AT LEAST ONE "YES" (EVER USED) → SKIP TO 308

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..... <input type="checkbox"/> NO..... <input type="checkbox"/>	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..... <input type="text"/>	
309	CHECK 107:	CURRENTLY MARRIED <input type="checkbox"/> WIDOWED <input type="checkbox"/> DIVORCED <input type="checkbox"/> SEPARATED <input type="checkbox"/>	352
310	CHECK 227:	NOT PREGNANT OR UNSURE <input type="checkbox"/> PREGNANT <input type="checkbox"/>	345
311	CHECK 303:	NEITHER STERILIZED <input type="checkbox"/> HE OR SHE STERILIZED <input type="checkbox"/>	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	Which method are you using?	PILL.....01 LOOP/COPPER T.....02 → 321 INJECTION.....03 → 328 CONDOM/NIRODH.....04 → 330 FEMALE STERILIZATION.....05 MALE STERILIZATION.....06 → 332 RHYTHM/PERIODIC ABSTINENCE.....07 WITHDRAWAL.....08 → 341 OTHER.....09 (SPECIFY)	
313A	CIRCLE '05' FOR FEMALE STERILIZATION. CIRCLE '06' FOR MALE STERILIZATION.		
314	For how many months have you been using the pill continuously? IF LESS THAN 1 MONTH, RECORD '00'.	MONTHS..... <input type="text"/> <input type="text"/> 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
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..... <input type="text"/> <input type="text"/> 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..... <input type="text"/> <input type="text"/> 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, alright, 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, alright, not so good, or very bad?	EXCELLENT.....1 VERY GOOD.....2 ALLRIGHT.....3 NOT SO GOOD.....4 VERY BAD.....5 DK.....8	
338	After the sterilization, did (you/your husband) go to consult a medical or health person about the sterilization?	YES.....1 NO.....2 DK.....8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
339	(Have you/Has your husband) had any problems as a result of the sterilization (operation)?	YES.....1 NO.....2	352
340	What problems (have you/has he) had? RECORD ALL PROBLEMS MENTIONED	FEVER.....A PAIN/BACKACHE.....B SEPSIS.....C WEAKNESS/INABILITY TO WORK.....D FAILURE/GOT PREGNANT.....E LOSS OF SEXUAL POWER.....F OTHER.....G (SPECIFY)	352
341	For how many months have you been using (CURRENT METHOD) continuously? IF LESS THAN 1 MONTH, RECORD '00'.	MONTHS..... <input type="text"/> <input type="text"/> 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

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:	<table border="0"> <tr> <td>CURRENTLY MARRIED</td> <td><input type="checkbox"/></td> <td>WIDOWED DIVORCED SEPARATED</td> <td><input type="checkbox"/></td> <td>→352</td> </tr> </table>		CURRENTLY MARRIED	<input type="checkbox"/>	WIDOWED DIVORCED SEPARATED	<input type="checkbox"/>	→352
CURRENTLY MARRIED	<input type="checkbox"/>	WIDOWED DIVORCED SEPARATED	<input type="checkbox"/>	→352				
345	Do you intend to use a method to delay or avoid pregnancy at any time in the future?	YES.....1 →347 NO.....2 DK.....8 →352						
346	What is the main reason you do not intend to use a method?	WANTS CHILDREN.....01 WANTS A SON.....02 WANTS A DAUGHTER.....19 LACK OF KNOWLEDGE.....03 AFRAID OF STERILIZATION.....04 CAN'T WORK AFTER STERILIZATION.....05 COST TOO MUCH.....06 WORRY ABOUT SIDE EFFECTS.....07 HARD TO GET METHODS.....08 AGAINST RELIGION.....09 →350 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)						
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/NIROOH.....04 FEMALE STERILIZATION.....05 MALE STERILIZATION.....06 RHYTHM/PERIODIC ABSTINENCE.....07 WITHDRAWAL.....08 OTHER.....09 →350 (SPECIFY) UNSURE.....98						

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
349	<p>Where can you get (METHOD MENTIONED IN 348)?</p> <p>_____</p> <p>(NAME OF HOSPITAL IF CODE 11 OR 21)</p>	<p>PUBLIC SECTOR</p> <p>GOVT./MUNICIPAL HOSPITAL.....11</p> <p>PRIMARY HEALTH CENTRE.....12</p> <p>SUB-CENTRE.....13</p> <p>FAMILY PLANNING CLINIC.....14</p> <p>MOBILE CLINIC.....15</p> <p>GOVERNMENT PARAMEDIC.....16</p> <p>PRIVATE MEDICAL SECTOR</p> <p>PRIVATE HOSPITAL OR CLINIC....21</p> <p>PHARMACY/DRUGSTORE.....22</p> <p>PRIVATE DOCTOR.....23</p> <p>MOBILE CLINIC.....24</p> <p>FIELD WORKER.....25</p> <p>OTHER PRIVATE SECTOR</p> <p>SHOP.....31</p> <p>FRIENDS/RELATIVES.....32</p> <p>OTHER _____ 41</p> <p>(SPECIFY)</p> <p>DK.....98</p>	352
350	<p>Do you know of a place where you can obtain a method of family planning?</p>	<p>YES.....1</p> <p>NO.....2</p>	352
351	<p>Where is that?</p> <p>_____</p> <p>(NAME OF HOSPITAL IF CODE 11 OR 21)</p>	<p>PUBLIC SECTOR</p> <p>GOVT./MUNICIPAL HOSPITAL.....11</p> <p>PRIMARY HEALTH CENTRE.....12</p> <p>SUB-CENTRE.....13</p> <p>FAMILY PLANNING CLINIC.....14</p> <p>MOBILE CLINIC.....15</p> <p>GOVERNMENT PARAMEDIC.....16</p> <p>PRIVATE MEDICAL SECTOR</p> <p>PRIVATE HOSPITAL OR CLINIC....21</p> <p>PHARMACY/DRUGSTORE.....22</p> <p>PRIVATE DOCTOR.....23</p> <p>MOBILE CLINIC.....24</p> <p>FIELD WORKER.....25</p> <p>OTHER PRIVATE SECTOR</p> <p>SHOP.....31</p> <p>FRIENDS/RELATIVES.....32</p> <p>OTHER _____ 41</p> <p>(SPECIFY)</p>	
352	<p>In the last month, have you heard a message about family planning on:</p> <p>the radio?</p> <p>television?</p>	<p>YES NO</p> <p>RADIO.....1 2</p> <p>TELEVISION.....1 2</p>	
353	<p>Is it acceptable or not acceptable to you for family planning information to be provided on the radio or television?</p>	<p>ACCEPTABLE.....1</p> <p>NOT ACCEPTABLE.....2</p> <p>DK.....8</p>	

SECTION 4A. PREGNANCY AND BREASTFEEDING

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.)

LINE NUMBER FROM Q. 216	<input type="text"/>	<input type="text"/>	<input type="text"/>
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FROM Q. 216 AND Q. 220	LAST BIRTH NAME ALIVE <input type="checkbox"/> DEAD <input type="checkbox"/>	NEXT-TO-LAST BIRTH NAME ALIVE <input type="checkbox"/> DEAD <input type="checkbox"/>	SECOND-FROM-LAST BIRTH NAME ALIVE <input type="checkbox"/> DEAD <input type="checkbox"/>
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403

At the time you became pregnant with (NAME), did you want to become pregnant <u>then</u> , did you want to wait until <u>later</u> or did you want <u>no (more)</u> children at all?	THEN.....1 (SKIP TO 405) ←	THEN.....1 (SKIP TO 405) ←	THEN.....1 (SKIP TO 405) ←
	LATER.....2	LATER.....2	LATER.....2
	NO MORE.....3 (SKIP TO 405) ←	NO MORE.....3 (SKIP TO 405) ←	NO MORE.....3 (SKIP TO 405) ←

404

How much longer would you like to have waited?	MONTHS.....1 <input type="text"/>	MONTHS.....1 <input type="text"/>	MONTHS.....1 <input type="text"/>
	YEARS.....2 <input type="text"/>	YEARS.....2 <input type="text"/>	YEARS.....2 <input type="text"/>
	DK.....998	DK.....998	DK.....998

405

When you were pregnant with (NAME), did any health worker visit you at home for an antenatal check-up?	YES.....1	YES.....1	YES.....1
	NO.....2 (SKIP TO 408) ←	NO.....2 (SKIP TO 408) ←	NO.....2 (SKIP TO 408) ←

406

How many months pregnant were you when a health worker first visited you?	MONTHS..... <input type="text"/>	MONTHS..... <input type="text"/>	MONTHS..... <input type="text"/>
---------------------------------------------------------------------------	----------------------------------	----------------------------------	----------------------------------

	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____	
407	How many times did she visit you? NO. OF VISITS..... <input type="text"/>	NO. OF VISITS..... <input type="text"/>	NO. OF VISITS..... <input type="text"/>	
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 PROFFSNL...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 PROFFSNL...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 PROFFSNL...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..... <input type="text"/>	MONTHS..... <input type="text"/>	MONTHS..... <input type="text"/>	
411	How many times did you go for an antenatal check-up? NO. OF TIMES..... <input type="text"/> (SKIP TO 413)←	NO. OF TIMES..... <input type="text"/> (SKIP TO 413)←	NO. OF TIMES..... <input type="text"/> (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)

	NAME _____ LAST BIRTH	NAME _____ NEXT-TO-LAST BIRTH	NAME _____ SECOND-FROM-LAST BIRTH
413	<p>Were you given any iron folic tablets during this pregnancy?</p> <p>YES.....1 NO.....2</p>	<p>YES.....1 NO.....2</p>	<p>YES.....1 NO.....2</p>
414	<p>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?</p> <p>YES.....1 NO.....2 (SKIP TO 416)← DK.....8</p>	<p>YES.....1 NO.....2 (SKIP TO 416)← DK.....8</p>	<p>YES.....1 NO.....2 (SKIP TO 416)← DK.....8</p>
415	<p>During this pregnancy how many times did you get this injection?</p> <p>TIMES..... <input type="text"/> DK.....8</p>	<p>TIMES..... <input type="text"/> DK.....8</p>	<p>TIMES..... <input type="text"/> DK.....8</p>
416	<p>Where did you give birth to (NAME)?</p> <p>HOME YOUR HOME.....11 PARENTS' HOME.....12 OTHER HOME.....13</p> <p>PUBLIC SECTOR GVT./MUNICIPAL HOSPITAL..21 PRIMARY HEALTH CENTRE..22 SUB-CENTRE.....23</p> <p>PRIVATE SECTOR PRIVATE HOSPITAL/ CLINIC/MATERNITY HOME..31 OTHER.....41 (SPECIFY)</p>	<p>HOME YOUR HOME.....11 PARENTS' HOME.....12 OTHER HOME.....13</p> <p>PUBLIC SECTOR GVT./MUNICIPAL HOSPITAL..21 PRIMARY HEALTH CENTRE..22 SUB-CENTRE.....23</p> <p>PRIVATE SECTOR PRIVATE HOSPITAL/ CLINIC/MATERNITY HOME..31 OTHER.....41 (SPECIFY)</p>	<p>HOME YOUR HOME.....11 PARENTS' HOME.....12 OTHER HOME.....13</p> <p>PUBLIC SECTOR GVT./MUNICIPAL HOSPITAL..21 PRIMARY HEALTH CENTRE..22 SUB-CENTRE.....23</p> <p>PRIVATE SECTOR PRIVATE HOSPITAL/ CLINIC/MATERNITY HOME..31 OTHER.....41 (SPECIFY)</p>

	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____	
417	<p>Who assisted with the delivery of (NAME)?</p> <p>Anyone else?</p> <p>PROSE FOR THE TYPE OF PERSON AND RECORD ALL PERSONS ASSISTING.</p>	<p>HEALTH PROFESSIONAL</p> <p>DOCTOR.....A</p> <p>AYURVEDIC DOCTOR/VAID...B</p> <p>NURSE/MIDWIFE.....C</p> <p>ANM/LHV.....D</p> <p>OTHER PERSON</p> <p>TRAINED (TRADITIONAL) BIRTH ATTENDANT.....E</p> <p>TRADITIONAL BIRTH ATTENDANT.....F</p> <p>RELATIVE/FRIEND.....G</p> <p>OTHER.....H</p> <p>(SPECIFY)</p> <p>NO ONE.....I</p>	<p>HEALTH PROFESSIONAL</p> <p>DOCTOR.....A</p> <p>AYURVEDIC DOCTOR/VAID...B</p> <p>NURSE/MIDWIFE.....C</p> <p>ANM/LHV.....D</p> <p>OTHER PERSON</p> <p>TRAINED (TRADITIONAL) BIRTH ATTENDANT.....E</p> <p>TRADITIONAL BIRTH ATTENDANT.....F</p> <p>RELATIVE/FRIEND.....G</p> <p>OTHER.....H</p> <p>(SPECIFY)</p> <p>NO ONE.....I</p>	<p>HEALTH PROFESSIONAL</p> <p>DOCTOR.....A</p> <p>AYURVEDIC DOCTOR/VAID...B</p> <p>NURSE/MIDWIFE.....C</p> <p>ANM/LHV.....D</p> <p>OTHER PERSON</p> <p>TRAINED (TRADITIONAL) BIRTH ATTENDANT.....E</p> <p>TRADITIONAL BIRTH ATTENDANT.....F</p> <p>RELATIVE/FRIEND.....G</p> <p>OTHER.....H</p> <p>(SPECIFY)</p> <p>NO ONE.....I</p>
418	<p>Was (NAME) born on time or prematurely?</p>	<p>ON TIME.....1</p> <p>PREMATURELY.....2</p> <p>DK.....8</p>	<p>ON TIME.....1</p> <p>PREMATURELY.....2</p> <p>DK.....8</p>	<p>ON TIME.....1</p> <p>PREMATURELY.....2</p> <p>DK.....8</p>
419	<p>Were there any complications in the delivery of (NAME)?</p>	<p>YES.....1</p> <p>NO.....2</p> <p>(SKIP TO 421) ←</p>	<p>YES.....1</p> <p>NO.....2</p> <p>(SKIP TO 421) ←</p>	<p>YES.....1</p> <p>NO.....2</p> <p>(SKIP TO 421) ←</p>
420	<p>What were the complications?</p> <p>RECORD ALL MENTIONED.</p>	<p>CAESARIAN SECTION.....A</p> <p>USE OF FORCEPS.....B</p> <p>EXCESSIVE BLEEDING.....C</p> <p>LONG PERIOD OF LABOR.....D</p> <p>DELAYED DELIVERY OF PLACENTA.....E</p> <p>OTHER.....F</p> <p>(SPECIFY)</p>	<p>CAESARIAN SECTION.....A</p> <p>USE OF FORCEPS.....B</p> <p>EXCESSIVE BLEEDING.....C</p> <p>LONG PERIOD OF LABOR.....D</p> <p>DELAYED DELIVERY OF PLACENTA.....E</p> <p>OTHER.....F</p> <p>(SPECIFY)</p>	<p>CAESARIAN SECTION.....A</p> <p>USE OF FORCEPS.....B</p> <p>EXCESSIVE BLEEDING.....C</p> <p>LONG PERIOD OF LABOR.....D</p> <p>DELAYED DELIVERY OF PLACENTA.....E</p> <p>OTHER.....F</p> <p>(SPECIFY)</p>
421	<p>When (NAME) was born, was he/she: large, average or small?</p>	<p>LARGE.....1</p> <p>AVERAGE.....2</p> <p>SMALL.....3</p> <p>DK.....8</p>	<p>LARGE.....1</p> <p>AVERAGE.....2</p> <p>SMALL.....3</p> <p>DK.....8</p>	<p>LARGE.....1</p> <p>AVERAGE.....2</p> <p>SMALL.....3</p> <p>DK.....8</p>
422	<p>Was (NAME) weighed at birth?</p>	<p>YES.....1</p> <p>NO.....2</p> <p>(SKIP TO 424) ←</p>	<p>YES.....1</p> <p>NO.....2</p> <p>(SKIP TO 425) ←</p>	<p>YES.....1</p> <p>NO.....2</p> <p>(SKIP TO 425) ←</p>

	NAME	LAST BIRTH	NAME	NEXT-TO-LAST BIRTH	NAME	SECOND-FROM-LAST BIRTH		
423	How much did (NAME) weigh?		GRAMS.....1 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> POUNDS.....2 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> DK.....99998		GRAMS.....1 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> POUNDS.....2 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> DK.....99998		GRAMS.....1 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> POUNDS.....2 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> DK.....99998	
424	Has your period returned since the birth of (NAME)?		YES1 (SKIP TO 426) ←		NO2 (SKIP TO 427) ←			
425	Did your period return between the birth of (NAME) and your next pregnancy?		YES1 NO2 (SKIP TO 429) ←		YES1 NO2 (SKIP TO 429) ←			
426	For how many months after the birth of (NAME) did you <u>not</u> have a period?		MONTHS..... <input type="text"/> <input type="text"/> DK.....98		MONTHS..... <input type="text"/> <input type="text"/> DK.....98		MCNTHS..... <input type="text"/> <input type="text"/> DK.....98	
427	CHECK 227: RESPONDENT PREGNANT?		NOT PREGNANT <input type="checkbox"/> PREGNANT OR UNSURE <input type="checkbox"/> (SKIP TO 429) ↓					
428	Have you resumed sexual relations since the birth of (NAME)?		YES.....1 NO2 (SKIP TO 430) ←					
429	For how many months after the birth of (NAME) did you <u>not</u> have sexual relations?		MONTHS..... <input type="text"/> <input type="text"/> DK.....98		MONTHS..... <input type="text"/> <input type="text"/> DK.....98		MONTHS..... <input type="text"/> <input type="text"/> DK.....98	

	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____	
430	YES.....1 (SKIP TO 432) ← NO.....2	YES.....1 (SKIP TO 440) ← NO.....2	YES.....1 (SKIP TO 440) ← NO.....2	
431	Did you ever 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 <input type="text"/> <input type="text"/> DAYS.....2 <input type="text"/> <input type="text"/>		
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 <input type="checkbox"/> DEAD <input type="checkbox"/> (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 <input type="text"/>		
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 <input type="text"/>		

	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
443	<p>Was (NAME) ever given water or anything else to drink or eat (other than breastmilk)?</p> <p>YES.....1 NO.....2 (SKIP TO 447)←</p>	<p>YES.....1 NO.....2 (SKIP TO 447)←</p>	<p>YES.....1 NO.....2 (SKIP TO 447)←</p>
444	<p>How many months old was (NAME) when you started giving the following on a regular basis?</p> <p>Plain water? AGE IN MONTHS..... <input type="text"/> <input type="text"/> NOT GIVEN.....96</p> <p>Formula or milk other than breastmilk? AGE IN MONTHS..... <input type="text"/> <input type="text"/> NOT GIVEN.....96</p> <p>Other liquids? AGE IN MONTHS..... <input type="text"/> <input type="text"/> NOT GIVEN.....96</p> <p>Any solid or mushy food? AGE IN MONTHS..... <input type="text"/> <input type="text"/> NOT GIVEN.....96</p> <p>IF LESS THAN 1 MONTH, RECORD '00'</p>	<p>AGE IN MONTHS..... <input type="text"/> <input type="text"/> NOT GIVEN.....96</p> <p>(SKIP TO 447)</p>	<p>AGE IN MONTHS..... <input type="text"/> <input type="text"/> NOT GIVEN.....96</p> <p>(SKIP TO 447)</p>
445	<p>CHECK 220: CHILD ALIVE?</p> <p>ALIVE <input type="checkbox"/> DEAD <input type="checkbox"/> (SKIP TO 447)</p>		
446	<p>Did (NAME) drink anything from a bottle with a nipple yesterday or last night?</p> <p>YES.....1 NO.....2 DK.....8</p>		
447	<p>GO BACK TO 403 FOR NEXT BIRTH; OR, IF NO MORE BIRTHS, GO TO FIRST COLUMN OF 448.</p>		

SECTION 4B. IMMUNIZATION AND HEALTH

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	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/> <input style="width: 20px; height: 20px; border: 1px solid black;" type="text"/>
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FROM Q. 216 AND Q. 220	LAST BIRTH NAME _____ ALIVE <input type="checkbox"/> DEAD <input type="checkbox"/>	NEXT-TO-LAST BIRTH NAME _____ ALIVE <input type="checkbox"/> DEAD <input type="checkbox"/>	SECOND-FROM-LAST BIRTH NAME _____ ALIVE <input type="checkbox"/> DEAD <input type="checkbox"/>
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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
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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
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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.	<table style="width:100%; border-collapse: collapse;"> <tr><th colspan="3" style="text-align: center;">DAY MO YR</th></tr> <tr><td style="border: none;">BCG</td><td style="border: none;">DAY</td><td style="border: none;">MO</td><td style="border: none;">YR</td></tr> <tr><td style="border: none;">BCG</td><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="border: 1px solid black; width: 20px; height: 20px;"></td></tr> <tr><td style="border: none;">PD</td><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="border: 1px solid black; width: 20px; height: 20px;"></td></tr> <tr><td style="border: none;">D1</td><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="border: 1px solid black; 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	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____	
452	<p>Has (NAME) received any vaccinations that are not recorded on this card?</p> <p>RECORD 'YES' ONLY IF RESPONDENT MENTIONS BCG, DPT 1-3, POLIO 0-3 AND/OR MEASLES VACCINE(S).</p>	<p>YES.....1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 451) ←</p> <p>(SKIP TO 455) ←</p> <p>NO.....2</p> <p>DK.....8 (SKIP TO 455) ←</p>	<p>YES.....1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 451) ←</p> <p>(SKIP TO 455) ←</p> <p>NO.....2</p> <p>DK.....8 (SKIP TO 455) ←</p>	<p>YES.....1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 451) ←</p> <p>(SKIP TO 455) ←</p> <p>NO.....2</p> <p>DK.....8 (SKIP TO 455) ←</p>
453	<p>Did (NAME) ever receive any vaccinations to prevent him/her from getting diseases?</p>	<p>YES.....1</p> <p>NO.....2 (SKIP TO 455) ←</p> <p>DK.....8</p>	<p>YES.....1</p> <p>NO.....2 (SKIP TO 455) ←</p> <p>DK.....8</p>	<p>YES.....1</p> <p>NO.....2 (SKIP TO 455) ←</p> <p>DK.....8</p>
454	<p>Please tell me if (NAME) (has) received any of the following vaccinations:</p>			
	<p>A BCG vaccination against tuberculosis, that is, an injection in the left shoulder that caused a scar?</p>	<p>YES.....1</p> <p>NO.....2</p> <p>DK.....8</p>	<p>YES.....1</p> <p>NO.....2</p> <p>DK.....8</p>	<p>YES.....1</p> <p>NO.....2</p> <p>DK.....8</p>
	<p>A vaccination against diphtheria, whooping cough and tetanus given as an injection?</p> <p>IF YES:</p> <p>How many times?</p>	<p>YES.....1</p> <p>NO.....2</p> <p>DK.....8</p> <p>NUMBER OF TIMES..... <input type="text"/></p>	<p>YES.....1</p> <p>NO.....2</p> <p>DK.....8</p> <p>NUMBER OF TIMES..... <input type="text"/></p>	<p>YES.....1</p> <p>NO.....2</p> <p>DK.....8</p> <p>NUMBER OF TIMES..... <input type="text"/></p>
	<p>Polio vaccine, that is, drops in the mouth?</p> <p>IF YES:</p> <p>How many times?</p> <p>IF YES:</p>	<p>YES.....1</p> <p>NO.....2</p> <p>DK.....8</p> <p>NUMBER OF TIMES..... <input type="text"/></p>	<p>YES.....1</p> <p>NO.....2</p> <p>DK.....8</p> <p>NUMBER OF TIMES..... <input type="text"/></p>	<p>YES.....1</p> <p>NO.....2</p> <p>DK.....8</p> <p>NUMBER OF TIMES..... <input type="text"/></p>
	<p>When was the first polio vaccine given -- just after birth or later?</p>	<p>JUST AFTER BIRTH.....1</p> <p>LATER.....2</p> <p>DK.....8</p>	<p>JUST AFTER BIRTH.....1</p> <p>LATER.....2</p> <p>DK.....8</p>	<p>JUST AFTER BIRTH.....1</p> <p>LATER.....2</p> <p>DK.....8</p>
	<p>An injection against measles?</p>	<p>YES.....1</p> <p>NO.....2</p> <p>DK.....8</p>	<p>YES.....1</p> <p>NO.....2</p> <p>DK.....8</p>	<p>YES.....1</p> <p>NO.....2</p> <p>DK.....8</p>

	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
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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
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456	Did (NAME) ever have:	YES NO	YES NO	YES NO
	Whooping cough?	WHOOPIING COUGH.... 1 2	WHOOPIING COUGH.... 1 2	WHOOPIING 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 <input type="checkbox"/> DEAD <input type="checkbox"/> ↓ (SKIP TO 459)	ALIVE <input type="checkbox"/> DEAD <input type="checkbox"/> ↓ (SKIP TO 459)	ALIVE <input type="checkbox"/> DEAD <input type="checkbox"/> ↓ (SKIP TO 459)
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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
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460	Has (NAME) been ill with a cough at any time in the last 2 weeks?	YES.....1 NO.....2 DK.....8 (SKIP TO 464) ←	YES.....1 NO.....2 DK.....8 (SKIP TO 464) ←	YES.....1 NO.....2 DK.....8 (SKIP TO 464) ←
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461	Has (NAME) been ill with a cough in the last 24 hours?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
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	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____	
462	For how many days (has the cough lasted/did the cough last)? IF LESS THAN 1 DAY, RECORD '00'	DAYS..... <input type="text"/> <input type="text"/>	DAYS..... <input type="text"/> <input type="text"/>	
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	
464	CHECK 459 AND 460: FEVER OR COUGH?	"YES" IN EITHER 459 OR 460 <input type="checkbox"/> OTHER (SKIP TO 469)	"YES" IN EITHER 459 OR 460 <input type="checkbox"/> 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) ←	
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	

	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
468	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	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	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
472	DAYS..... <input type="text"/> <input type="text"/> IF LESS THAN 1 DAY, RECORD '00'	DAYS..... <input type="text"/> <input type="text"/>	DAYS..... <input type="text"/> <input type="text"/>
473	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 <input type="checkbox"/> NO <input type="checkbox"/> (SKIP TO 477)		
475	YES.....1 NO.....2 (SKIP TO 477)←		
476	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	
478	Did you seek advice or treatment for the diarrhoea?	YES.....1 NO.....2 (SKIP TO 480)←	YES.....1 NO.....2 (SKIP TO 480)←	
479	Where did you seek advice or treatment? Anywhere else? RECORD ALL MENTIONED.	PUBLIC SECTOR GVT/MUNICIPAL HOSPITAL..A PRIMARY HEALTH CENTRE...B SUB-CENTRE.....C MOBILE CLINIC.....D VILLAGE HEALTH GUIDE...E GOVERNMENT PARAMEDIC...F PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC...G PHARMACY/DRUGSTORE...H PRIVATE DOCTOR.....I MOBILE CLINIC.....J COMMUNITY HEALTH WORKER.K OTHER PRIVATE SECTOR SHOP.....L TRADITIONAL PRACTITIONER.....M OTHER.....N (SPECIFY)	PUBLIC SECTOR GVT/MUNICIPAL HOSPITAL..A PRIMARY HEALTH CENTRE...B SUB-CENTRE.....C MOBILE CLINIC.....D VILLAGE HEALTH GUIDE...E GOVERNMENT PARAMEDIC...F PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC...G PHARMACY/DRUGSTORE...H PRIVATE DOCTOR.....I MOBILE CLINIC.....J COMMUNITY HEALTH WORKER.K OTHER PRIVATE SECTOR SHOP.....L TRADITIONAL PRACTITIONER.....M OTHER.....N (SPECIFY)	PUBLIC SECTOR GVT/MUNICIPAL HOSPITAL..A PRIMARY HEALTH CENTRE...B SUB-CENTRE.....C MOBILE CLINIC.....D VILLAGE HEALTH GUIDE...E GOVERNMENT PARAMEDIC...F PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC...G PHARMACY/DRUGSTORE...H PRIVATE DOCTOR.....I MOBILE CLINIC.....J COMMUNITY HEALTH WORKER.K OTHER PRIVATE SECTOR SHOP.....L TRADITIONAL PRACTITIONER.....M OTHER.....N (SPECIFY)
480	Was anything given to treat the diarrhoea?	YES.....1 NO.....2 (SKIP TO 482)← DK.....8	YES.....1 NO.....2 (SKIP TO 482)← DK.....8	
481	What was given to treat the diarrhoea? Anything else? RECORD ALL MENTIONED.	ORS FLUID FROM PACKET...A RECOMMENDED HOME FLUID...B ANTIBIOTIC (PILL OR SYRUP).....C OTHER PILL OR SYRUP.....D INJECTION.....E (I.V.) INTRAVENOUS.....F HOME REMEDIES/ HERBAL MEDICINES.....G OTHER.....H (SPECIFY)	ORS FLUID FROM PACKET...A RECOMMENDED HOME FLUID...B ANTIBIOTIC (PILL OR SYRUP).....C OTHER PILL OR SYRUP.....D INJECTION.....E (I.V.) INTRAVENOUS.....F HOME REMEDIES/ HERBAL MEDICINES.....G OTHER.....H (SPECIFY)	ORS FLUID FROM PACKET...A RECOMMENDED HOME FLUID...B ANTIBIOTIC (PILL OR SYRUP).....C OTHER PILL OR SYRUP.....D INJECTION.....E (I.V.) INTRAVENOUS.....F HOME REMEDIES/ HERBAL MEDICINES.....G OTHER.....H (SPECIFY)

	NAME	LAST BIRTH	NEXT-TO-LAST BIRTH	SECOND-FROM-LAST BIRTH			
482	CHECK 481: ORS FLUID FROM PACKET MENTIONED?	YES, ORS FLUID MENTIONED <input type="checkbox"/> (SKIP TO 484)	NO, ORS FLUID NOT MENTIONED <input type="checkbox"/> ↓	YES, ORS FLUID MENTIONED <input type="checkbox"/> (SKIP TO 484)	NO, ORS FLUID NOT MENTIONED <input type="checkbox"/> ↓	YES, ORS FLUID MENTIONED <input type="checkbox"/> (SKIP TO 484)	NO, ORS FLUID NOT MENTIONED <input type="checkbox"/> ↓
483	Was (NAME) given fluid made from an ORS packet when he/she had the diarrhoea?	YES.....1 NO.....2 (SKIP TO 485) DK.....8	YES.....1 NO.....2 (SKIP TO 485) DK.....8	YES.....1 NO.....2 (SKIP TO 485) DK.....8	YES.....1 NO.....2 (SKIP TO 485) DK.....8	YES.....1 NO.....2 (SKIP TO 485) DK.....8	YES.....1 NO.....2 (SKIP TO 485) DK.....8
484	For how many days was (NAME) given the ORS fluid? IF LESS THAN 1 DAY, RECORD '00'	DAYS..... <input type="text"/> <input type="text"/> DK......98	DAYS..... <input type="text"/> <input type="text"/> DK......98	DAYS..... <input type="text"/> <input type="text"/> DK......98	DAYS..... <input type="text"/> <input type="text"/> DK......98	DAYS..... <input type="text"/> <input type="text"/> DK......98	DAYS..... <input type="text"/> <input type="text"/> DK......98
485	CHECK 481: RECOMMENDED HOME FLUID MENTIONED?	YES, HOME FLUID MENTIONED <input type="checkbox"/> (SKIP TO 487)	NO, HOME FLUID NOT MENTIONED <input type="checkbox"/> ↓	YES, HOME FLUID MENTIONED <input type="checkbox"/> (SKIP TO 487)	NO, HOME FLUID NOT MENTIONED <input type="checkbox"/> ↓	YES, HOME FLUID MENTIONED <input type="checkbox"/> (SKIP TO 487)	NO, HOME FLUID NOT MENTIONED <input type="checkbox"/> ↓
486	Was (NAME) given a recommended home fluid made from sugar, salt and water when he/she had the diarrhoea?	YES.....1 NO.....2 (SKIP TO 488) DK.....8	YES.....1 NO.....2 (SKIP TO 488) DK.....8	YES.....1 NO.....2 (SKIP TO 488) DK.....8	YES.....1 NO.....2 (SKIP TO 488) DK.....8	YES.....1 NO.....2 (SKIP TO 488) DK.....8	YES.....1 NO.....2 (SKIP TO 488) DK.....8
487	For how many days was (NAME) given the fluid made from sugar, salt and water? IF LESS THAN 1 DAY, RECORD '00'	DAYS..... <input type="text"/> <input type="text"/> DK......98	DAYS..... <input type="text"/> <input type="text"/> DK......98	DAYS..... <input type="text"/> <input type="text"/> DK......98	DAYS..... <input type="text"/> <input type="text"/> DK......98	DAYS..... <input type="text"/> <input type="text"/> DK......98	DAYS..... <input type="text"/> <input type="text"/> DK......98
488	GO BACK TO 449 FOR NEXT BIRTH; OR, IF NO MORE BIRTHS, GO TO 489.						

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TC
489	<p>CHECK 481 AND 483 (ALL COLUMNS):</p> <p>ORS FLUID FROM PACKET <input type="checkbox"/> → 492</p> <p>GIVEN TO ANY CHILD</p> <p>ORS FLUID FROM PACKET NOT GIVEN TO ANY CHILD OR 481 AND 483 NOT ASKED <input type="checkbox"/> ↓</p>		
490	<p>Have you ever heard of a special product called CRS you can get for the treatment of diarrhoea?</p>	<p>YES.....1 → 492</p> <p>NO.....2</p>	
491	<p>Have you ever seen a packet like one of these before?</p> <p>SHOW BOTH THE W.H.O. AND A COMMERCIAL PACKET.</p>	<p>YES.....1</p> <p>NO.....2 → 496</p>	
492	<p>Have you ever prepared a solution with one of these packets to treat diarrhoea for yourself or someone else?</p> <p>SHOW BOTH THE W.H.O. AND A COMMERCIAL PACKET.</p>	<p>YES.....1</p> <p>NO.....2 → 495</p>	
493A	<p>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)?</p>	<p>FREE WHO PACKET.....1</p> <p>ALTERNATIVE COMMERCIAL PACKET....2</p>	
493	<p>The last time you prepared the ORS, did you prepare the whole packet at once or only part of the packet?</p>	<p>WHOLE PACKET AT ONCE.....1</p> <p>PART OF PACKET.....2</p> <p>DK.....8 → 495</p>	
494	<p>How much water did you use to prepare ORS the last time you made it?</p>	<p>200 ML. GLASSES.....! <input type="checkbox"/></p> <p>1 1/2 LITER.....901</p> <p>1 LITER.....902</p> <p>1 1/7 LITERS.....903</p> <p>2 LITERS.....904</p> <p>FOLLOWED PACKAGE INSTRUCTIONS.905</p> <p>OTHER _____ 906</p> <p>(SPECIFY)</p> <p>DK.....998</p>	
495	<p>Where can you get the ORS packet?</p> <p>PROBE: Anywhere else?</p> <p>RECORD ALL PLACES MENTIONED.</p>	<p>PUBLIC SECTOR</p> <p>GVT/MUNICIPAL HOSPITAL.....A</p> <p>PRIMARY HEALTH CENTRE.....B</p> <p>SUB-CENTRE.....C</p> <p>MOBILE CLINIC.....D</p> <p>VILLAGE HEALTH GUIDE.....E</p> <p>GOVERNMENT PARAMEDICF</p> <p>PRIVATE MEDICAL SECTOR</p> <p>PVT. HOSPITAL/CLINIC.....G</p> <p>PHARMACY/DRUGSTORE.....H</p> <p>PRIVATE DOCTOR.....I</p> <p>MOBILE CLINIC.....J</p> <p>COMMUNITY HEALTH WORKER.....K</p> <p>OTHER PRIVATE SECTOR</p> <p>SHOP.....L</p> <p>TRADITIONAL PRACTITIONER.....M</p> <p>OTHER _____ N</p> <p>(SPECIFY)</p>	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
496	CHECK 481 AND 486 (ALL COLUMNS):		
	HOME-MADE FLUID GIVEN TO ANY CHILD	HOME-MADE FLUID NOT GIVEN TO ANY CHILD OR 481 AND 486 NOT ASKED	501

497

Where did you learn to prepare the recommended home fluid made from sugar, salt and water given to (NAME) when he/she had diarrhoea?

PUBLIC SECTOR	
GVT/MUNICIPAL HOSPITAL.....	11
PRIMARY HEALTH CENTRE.....	12
SUB-CENTRE.....	13
MOBILE CLINIC.....	14
VILLAGE HEALTH GUIDE.....	15
GOVERNMENT PARAMEDIC	16
PRIVATE MEDICAL SECTOR	
PVT. HOSPITAL/CLINIC.....	21
PHARMACY/DRUGSTORE.....	22
PRIVATE DOCTOR.....	23
MOBILE CLINIC.....	24
COMMUNITY HEALTH WORKER.....	25
OTHER PRIVATE SECTOR	
SHOP.....	31
TRADITIONAL FRACTITIONER.....	32
MASS MEDIA	
TELEVISION.....	41
RADIO.....	42
PRINTED MATERIAL.....	43
OTHER _____	51
(SPECIFY)	

41

SECTION 5. FERTILITY PREFERENCES

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
501	<p>CHECK 107:</p> <p>CURRENTLY MARRIED <input type="checkbox"/> WIDOWED DIVORCED SEPARATED <input type="checkbox"/></p>		514
502	<p>CHECK 313:</p> <p>NEITHER STERILIZED <input type="checkbox"/> HE OR SHE STERILIZED <input type="checkbox"/></p>		508
503	<p>CHECK 227:</p> <p>NOT PREGNANT OR UNSURE <input type="checkbox"/> PREGNANT <input type="checkbox"/></p> <p>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?</p> <p>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?</p>	<p>HAVE A (ANOTHER) CHILD.....1 NO MORE/NONE.....2 SAYS SHE CAN'T GET PREGNANT....3 UP TO GOD.....4 UNDECIDED OR DK.....8</p>	510
504	<p>Would you prefer your next child to be a boy or a girl or doesn't it matter?</p>	<p>BOY.....1 GIRL.....2 DOESN'T MATTER.....3 UP TO GOD.....4</p>	
505	<p>CHECK 227:</p> <p>NOT PREGNANT OR UNSURE <input type="checkbox"/> PREGNANT <input type="checkbox"/></p> <p>How long would you like to wait from now before the birth of (a/another) child?</p> <p>How long would you like to wait after the birth of the child you are expecting before the birth of another child?</p>	<p>MONTHS.....1 <input type="text"/><input type="text"/></p> <p>YEARS.....2 <input type="text"/><input type="text"/></p> <p>SOON/NOW.....994</p> <p>SAYS SHE CAN'T GET PREGNANT...995</p> <p>OTHER _____ 996 (SPECIFY)</p> <p>DK.....998</p>	510

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
506	CHECK 220 AND 227: HAS LIVING CHILD(REN) OR PREGNANT? YES <input type="checkbox"/> NO <input type="checkbox"/>		510
507	CHECK 227: NOT PREGNANT OR UNSURE <input type="checkbox"/> PREGNANT <input type="checkbox"/> 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	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO						
513	<p>Do you think your husband wants the <u>same</u> number of children that you want, or does he want <u>more</u> or <u>fewer</u> than you want?</p>	<p>SAME NUMBER.....1 MORE CHILDREN.....2 FEWER CHILDREN.....3 DK.....0</p>							
514	<p>How long should a couple wait before starting sexual intercourse after the birth of a baby?</p>	<p>DAYS.....1 <table border="1"> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> </table> MONTHS.....2 YEARS.....3 UP TO COUPLE.....5 75 OTHER _____ 996 (SPECIFY)</p>							
515	<p>In general, do you approve or disapprove of couples using a method to avoid getting pregnant?</p>	<p>APPROVE.....1 DISAPPROVE.....2</p>							
516	<p>CHECK 220:</p> <p>HAS LIVING CHILD(REN) <input type="checkbox"/> NO LIVING CHILDREN <input type="checkbox"/></p> <p>v _____ v</p> <p>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?</p> <p>If you could choose exactly the number of children to have in your whole life, how many would that be?</p> <p>RECORD SINGLE NUMBER OR OTHER ANSWER.</p>	<p>NUMBER..... <table border="1"> <tr><td></td><td></td></tr> </table> OTHER ANSWER _____ 96 (SPECIFY)</p>			518				
517	<p>How many of these children would you like to be boys and how many would you like to be girls?</p>	<p>BOYS GIRLS EITHER</p> <p>NUMBER... <table border="1"> <tr><td></td><td></td></tr> </table> <table border="1"> <tr><td></td><td></td></tr> </table> <table border="1"> <tr><td></td><td></td></tr> </table> OTHER _____ 999996 (SPECIFY)</p>							
518	<p>In your opinion, what is the ideal interval between the birth of one child and the birth of the next child?</p>	<p>MONTHS.....1 <table border="1"> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> </table> YEARS.....2 OTHER _____ 996 (SPECIFY)</p>							

SECTION 6. HUSBAND'S BACKGROUND AND WOMAN'S WORK

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
601	<p>CHECK 107:</p> <p>CURRENTLY MARRIED <input type="checkbox"/> WIDOWED DIVORCED <input type="checkbox"/> SEPARATED <input type="checkbox"/></p> <p>ASK QUESTIONS ABOUT CURREN' OR MOST RECENT HUSBAND.</p>		603
602	How old was your husband on his last birthday?	AGE IN COMPLETED YEARS..... <input type="text"/>	
603	Did your (last) husband ever attend school?	YES.....1 NO.....2	606
604	What is the highest grade he completed?	GRADE..... <input type="text"/>	
605	<p>CHECK 604:</p> <p>GRADE 0-5 <input type="checkbox"/> GRADE 6-12 <input type="checkbox"/> GRADE 13+ <input type="checkbox"/></p>		608 607
606	(Can/Could) he read and write?	YES.....1 NO.....2	608
607	What is the highest degree he obtained?	DEGREE NOT COMPLETED.....01 NON-TECHNICAL DEGREE BACHELOR'S DEGREE.....02 MASTER'S DEGREE.....03 Ph.D.....04 TECHNICAL DEGREE BACHELOR'S DEGREE.....05 MASTER'S DEGREE.....06 TECHNICAL DIPLOMA/CERTIFICATE NOT EQUIVALENT TO DEGREE.....07 NON-TECHNICAL DIPLOMA/CERTIF. NOT EQUIVALENT TO DEGREE.....08 OTHER DEGREE _____09 (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
608	What kind of work does (did) your (last) husband mainly do?	<div style="text-align: right;"><input type="checkbox"/></div> <hr/> <hr/> <hr/>	
609	CHECK 608:	WORKS (WORKED) <input type="checkbox"/> IN AGRICULTURE DOES (DID) <input type="checkbox"/> 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?	<div style="text-align: right;"><input type="checkbox"/></div> <hr/> <hr/> <hr/>	
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 <input type="checkbox"/> NO <input type="checkbox"/>	620																		
618	While you are working, do you <u>usually</u> have (NAME OF YOUNGEST CHILD AT HOME) with you, <u>sometimes</u> have him/her with you, or <u>never</u> have him/her with you?	USUALLY.....1 SOMETIMES.....2 NEVER.....3	620																		
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 SCHCOL.....07 INSTITUTIONAL CHILDCARE.....08 OTHER _____ 09 (SPECIFY)																			
620	RECORD THE TIME	HOUR..... <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></table> MINUTES.....																			
621	PRESENCE OF OTHERS DURING MOST OF THE INTERVIEW TIME.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>YES</th> <th>NO</th> </tr> </thead> <tbody> <tr> <td>CHILDREN UNDER 10.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>HUSBAND.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>MOTHER-IN-LAW.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>OTHER MALES.....</td> <td>1</td> <td>2</td> </tr> <tr> <td>OTHER FEMALES.....</td> <td>1</td> <td>2</td> </tr> </tbody> </table>		YES	NO	CHILDREN UNDER 10.....	1	2	HUSBAND.....	1	2	MOTHER-IN-LAW.....	1	2	OTHER MALES.....	1	2	OTHER FEMALES.....	1	2	
	YES	NO																			
CHILDREN UNDER 10.....	1	2																			
HUSBAND.....	1	2																			
MOTHER-IN-LAW.....	1	2																			
OTHER MALES.....	1	2																			
OTHER FEMALES.....	1	2																			

SECTION 7. HEIGHT AND WEIGHT

701	CHECK 219/220: ONE OR MORE LIVING CHILDREN BORN SINCE JAN. 1989 <input type="checkbox"/>	NO LIVING CHILDREN BORN SINCE JAN. 1989 <input type="checkbox"/> → 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	<input type="text"/>	<input type="text"/>	<input type="text"/>
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..... <input type="text"/> <input type="text"/> MONTH..... <input type="text"/> <input type="text"/> YEAR..... <input type="text"/> <input type="text"/>	DAY..... <input type="text"/> <input type="text"/> MONTH..... <input type="text"/> <input type="text"/> YEAR..... <input type="text"/> <input type="text"/>	DAY..... <input type="text"/> <input type="text"/> MONTH..... <input type="text"/> <input type="text"/> YEAR..... <input type="text"/> <input type="text"/>
705 HEIGHT (in centimeters)	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/>
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)	<input type="text"/> <input type="text"/> . <input type="text"/>	<input type="text"/> <input type="text"/> . <input type="text"/>	<input type="text"/> <input type="text"/> . <input type="text"/>
708 DATE WEIGHED AND MEASURED	DAY..... <input type="text"/> <input type="text"/> MONTH..... <input type="text"/> <input type="text"/> YEAR..... <input type="text"/> <input type="text"/>	DAY..... <input type="text"/> <input type="text"/> MONTH..... <input type="text"/> <input type="text"/> YEAR..... <input type="text"/> <input type="text"/>	DAY..... <input type="text"/> <input type="text"/> MONTH..... <input type="text"/> <input type="text"/> YEAR..... <input type="text"/> <input type="text"/>
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: _____	<input type="text"/>	NAME OF ASSISTANT: _____	<input type="text"/>

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 _____	<table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table>																								
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	<input type="text"/>
Middle School	YES.....1 (GO TO NEXT FACILITY)] NO.....2	<input type="text"/>
Secondary School	YES.....1 (GO TO NEXT FACILITY)] NO.....2	<input type="text"/>
Higher Secondary School	YES.....1 (GO TO NEXT FACILITY)] NO.....2	<input type="text"/>
College	YES.....1 (GO TO NEXT FACILITY)] NO.....2	<input type="text"/>
Adult Education Classes	YES.....1 (GO TO NEXT FACILITY)] NO.....2	<input type="text"/>
Anganawadi	YES.....1 (GO TO NEXT FACILITY)] NO.....2	<input type="text"/>
Jana Sikshana Nilayam	YES.....1 NO.....2	<input type="text"/>

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	<input type="text"/> <input type="text"/>
Sub-Centre	YES.....1 (GO TO NEXT FACILITY) ← NO.....2	<input type="text"/> <input type="text"/>
Government Hospital	YES.....1 (GO TO NEXT FACILITY) ← NO.....2	<input type="text"/> <input type="text"/>
Hospital by NGO	YES.....1 (GO TO NEXT FACILITY) ← NO.....2	<input type="text"/> <input type="text"/>
Private Hospital	YES.....1 (GO TO NEXT FACILITY) ← NO.....2	<input type="text"/> <input type="text"/>
Dispensary/Clinic	YES.....1 (GO TO NEXT FACILITY) ← NO.....2	<input type="text"/> <input type="text"/>
Village Health Guide	YES.....1 (GO TO NEXT FACILITY) ← NO.....2	<input type="text"/> <input type="text"/>
Trained Birth Attendent	YES.....1 (GO TO NEXT FACILITY) ← NO.....2	<input type="text"/> <input type="text"/>
Family Planning/ Health by NGO	YES.....1 (GO TO NEXT FACILITY) ← NO.....2	<input type="text"/> <input type="text"/>
Mobile Health Unit/ Visit	YES.....1 NO.....2	<input type="text"/> <input type="text"/>

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:

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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:

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34. Rural Development Programmes :

Programme	Whether there are any beneficiaries in the village:	Total number of beneficiaries
Integrated Rural Development Programme (IRDP)	YES.....1	<input type="text"/> <input type="text"/>
	NO.....2 (GO TO NEXT PROGRAMME) ↙	
National Rural Employment Programme (NREP)	YES.....1	<input type="text"/> <input type="text"/>
	NO.....2 (GO TO NEXT PROGRAMME) ↙	
Training Rural Youth for Self Employment (TRYSEM)	YES.....1	<input type="text"/> <input type="text"/>
	NO.....2 (GO TO NEXT PROGRAMME) ↙	
Employment Guarantee Scheme	YES.....1	<input type="text"/> <input type="text"/>
	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:
