NFHS-2

Assam

National Family Health Survey India 1998-99

International Institute for Population Sciences

MEASURE *DHS+*
ORC MACRO

World Summit for Children Indicators: Assam, 1999		
BASIC INDICATORS		
Childhood mortality	Infant mortality rate	70 per 1,000
	Under-five mortality rate	90 per 1,000
Childhood malnutrition	Percent stunted (children 0–35 months)	50.2
	Percent wasted (children 0–35 months)	13.3
	Percent underweight (children 0–35 months)	36.0
Clean water supply	Percent of households within 15 minutes of a safe water supply[1]	55.7
Sanitary excreta disposal	Percent of households with flush toilet	14.6
Basic education	Percent of women age 15–49 with completed primary education	43.5
	Percent of men age 15–49 with completed primary education	60.1
	Percent of girls age 6–12 attending school	76.5
	Percent of boys age 6–12 attending school	81.1
	Percent of women age 15–49 who are literate	56.5
Children in especially difficult situations	Percent of children age 0–14 who live in single adult households	1.4
SUPPORTING INDICATORS		
Birth spacing	Percent of births within 24 months of a previous birth	28.1
Safe motherhood	Percent of births with medical antenatal care	59.9
	Percent of births with antenatal care in first trimester	30.7
	Percent of births with medical assistance at delivery	21.4
	Percent of births in a medical facility	17.6
	Percent of births at high risk	50.7
Family planning	Contraceptive prevalence rate (any method, currently married women)	43.3
	Percent of currently married women with an unmet need for family planning	17.0
	Percent of currently married women with an unmet need for family planning to avoid a high-risk birth	12.0
Maternal nutrition	Percent of women with low body mass index (BMI)	27.1
Low birth weight	Percent of births with low birth weight (of those reporting a numeric weight)	33.5
Breastfeeding	Percent of children under 4 months who are exclusively breastfed	42.5
Iodized salt intake	Percent of households that use iodized salt (at least 15 ppm)	79.6
Vaccinations	Percent of children whose mothers received tetanus toxoid vaccinations during pregnancy	60.2
	Percent of children 12–23 months with measles vaccination	24.6
	Percent of children 12–23 months fully vaccinated	17.0
Diarrhoea control	Percent of children with diarrhoea in the preceding 2 weeks who received ORS, sugar-salt-water solution, or gruel	44.1
Acute respiratory infection	Percent of children with acute respiratory infection in the preceding 2 weeks seen by medical personnel	41.7

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

B

NATIONAL FAMILY HEALTH SURVEY (NFHS-2)

INDIA

1998–99

ASSAM

International Institute for Population Sciences
Mumbai, India

MEASURE *DHS*+, ORC Macro
Calverton, Maryland, USA

July 2002

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NFHS-2 data sets for this state can be obtained from the website listed above.

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PREFACE

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

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

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

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

The survey used uniform questionnaires, sample designs, and field procedures to facilitate comparability of the data and to achieve a high level of data quality. Preliminary reports

with selected results were prepared earlier for each state and presented to policymakers and programme administrators responsible for improving health and family welfare programmes in most states.

The final state reports are based on a standard tabulation plan developed at a workshop held in Kodaikanal on 15–17 January 1999. IIPS finalized the tabulation plan according to the recommendations of the NFHS-2 Technical Advisory Committee and produced the tables and figures for the final reports. In most states, the final state reports were written by representatives of the Population Research Centres, faculty members from IIPS, representatives from ORC Macro and the East-West Center, and reputed researchers from other organizations in the field of population and health in India. Each report has been reviewed by an Indian expert in the field of population sciences.

We are happy to present the final NFHS-2 state report for Assam, which was covered in the second phase of the survey. We hope that the report will provide helpful insights into the changes that are taking place in the state and will provide policymakers and programme managers with up-to-date estimates of indicators that can be used for effective management of health and family welfare programmes, with an emphasis on reproductive health dimensions. The report should also contribute to the knowledge of researchers and analysts in the fields of population, health, and nutrition.

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ACKNOWLEDGEMENTS

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

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

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

We are grateful to the Directorate of Census Operations, Directorate of Health Services, and Office of the Integrated Child Development Scheme, Maharashtra, for their support in conducting training of the trainers for the houselisting operation and training of the health investigators.

We are thankful to the Department of Health and Family Welfare, Government of Assam, for helping the field organization by providing logistic assistance, whenever possible. Special thanks go to the local officials in all of the sample areas for facilitating the data collection.

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

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

Dr. K.B. Pathak was the Director of IIPS during the development of the project and throughout the first phase of data collection. His immense interest and great assistance to NFHS-2 are gratefully acknowledged. We also acknowledge the invaluable contribution and continuing interest of Dr. Arvind Pandey who helped coordinate the NFHS-2 project for most of the project period.

We appreciate and acknowledge the untiring efforts, interest and initiative taken by Dr. Fred Arnold, Dr. Sunita Kishor, Mr. Sushil Kumar, Ms. Donna Espeut, and Mr. Zaheer Ahmad Khan from ORC Macro and Dr. Robert D. Retherford and Dr. Vinod Mishra from the East-West Center. It is only due to their hard work that NFHS-2 could be completed successfully. Thanks go to Dr. Umesh Kapil, Additional Professor, Department of Human Nutrition, All India Institute of Medical Sciences, New Delhi, for organizing, in collaboration with IIPS, the training programme for the health component of the survey, and to Dr. Almaz Sharman of ORC Macro for assisting with the training programme. We also thank the health coordinators, Dr. Vikash Chandra, Dr. P.V. Kaushik, and Dr. Sanjeev P. Walokar, for their involvement in the NFHS-2 nutrition training programme and their sincere supervision of the nutrition component of the survey. We gratefully acknowledge Mr. O.P. Sharma for his able assistance in ensuring the timely printing and distribution of the survey reports.

ORC Macro made available the ISSA (Integrated System for Survey Analysis) computer package for data entry and tabulation. Special thanks go to Mr. Martin Wulfe of ORC Macro for his immense help in the data processing operation, data analysis, and preparation of the tables for NFHS-2 reports and to Dr. Rajib Acharya of ORC Macro for his assistance at every stage of the data processing operation and report writing and his maintenance of the NFHS website. Special thanks go to Mr. Somnath W. Choughule, Data Entry Operator, for designing the NFHS website. We gratefully acknowledge the valuable contribution of IIPS Senior Research Officers Dr. Rajeshri Chitanand, Dr. Damodar Sahu, and Dr. Yonah Bhutia, and Research Officers Dr. M. Hemanta Meitei, Mr. Praween Agrawal, and Ms. Y. Vaidehi. Thanks are also due to the other supporting staff of the project, as well as the Administrative, Accounts, and Library staff of IIPS, for their continuous cooperation during the entire project period.

The difficult task of data collection and data processing in the state of Assam was successfully carried out by ACNielsen Research Services Private Limited, New Delhi. Our special thanks are due to Mr. Jyoti Shankar Tewari, Survey Director, and the three survey coordinators (Mr. Anantha Rao, Dr. M.A. Vasudeva Rao, and Ms. Rupa Jakharia) for successfully coordinating the fieldwork and data processing for the state. Special thanks go to Ms. Shahina Begum, IIPS Research Officer, NFHS-2, for assisting during the training of the field staff and monitoring the data collection in Assam. This acknowledgement cannot be concluded without expressing appreciation for the hard work put in by the interviewers, health investigators, supervisors, and field editors in collecting data in Assam.

Thanks are due to Mr. C. Gogoi, Directorate of Health Services, Guwahati, Dr. U.S. Mishra, Centre for Development Studies, Trivandrum, and Dr. D. Nagdeve, International Institute for Population Sciences, Mumbai, for their contribution in report writing. We extend our sincere thanks to Dr. P.J. Bhattacharjee, for reviewing this report and giving his comments.

Last but not the least, credit goes to the 3,441 ever-married women of Assam and the household respondents who spent their time and responded to the rather lengthy questionnaires with tremendous patience and without any expectation from NFHS-2.

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FACT SHEET, ASSAM
NATIONAL FAMILY HEALTH SURVEY, 1999

Sample Size

Households	3,121
Ever-married women age 15–49	3,441

Characteristics of Households

Percent with electricity	26.4
Percent within 15 minutes of safe water supply[1]	55.7
Percent with flush toilet	14.6
Percent with no toilet facility	36.8
Percent using govt. health facilities for sickness	74.7
Percent using iodized salt (at least 15 ppm)	79.6

Characteristics of Women[2]

Percent urban	8.5
Percent illiterate	53.9
Percent completed high school and above	9.6
Percent Hindu	63.9
Percent Muslim	32.4
Percent Christian	2.3
Percent regularly exposed to mass media	52.7
Percent working in the past 12 months	20.2

Status of Women[2]

Percent involved in decisions about own health	65.1
Percent with control over some money	35.0

Marriage

Percent never married among women age 15–19	75.8
Median age at marriage among women age 20–49	18.3

Fertility and Fertility Preferences

Total fertility rate (for the past 3 years)	2.31
Mean number of children ever born to women 40–49	4.35
Median age at first birth among women age 25–49	19.9
Percent of births[3] of order 3 and above	43.8
Mean ideal number of children[4]	2.9
Percent of women with 2 living children wanting another child	25.5

Current Contraceptive Use[5]

Any method	43.3
Any modern method	26.6
Pill	6.3
IUD	1.9
Condom	1.8
Female sterilization	15.7
Male sterilization	1.0
Any traditional method	15.8
Rhythm/safe period	11.1
Withdrawal	4.7
Other traditional or modern method	0.8

Unmet Need for Family Planning[5]

Percent with unmet need for family planning	17.0
Percent with unmet need for spacing	7.0

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

Quality of Family Planning Services[6]

Percent told about side effects of method	13.0
Percent who received follow-up services	84.8

Childhood Mortality

Infant mortality rate[7]	69.5
Under-five mortality rate[7]	89.5

Safe Motherhood and Women's Reproductive Health

Percent of births[8] within 24 months of previous birth	28.1
Percent of births[3] whose mothers received:	
Antenatal check-up from a health professional	59.9
Antenatal check-up in first trimester	30.7
Two or more tetanus toxoid injections	51.7
Iron and folic acid tablets or syrup	55.0
Percent of births[3] whose mothers were assisted at delivery by a:	
Doctor	18.5
ANM/nurse/midwife/LHV	2.8
Traditional birth attendant	31.9
Percent[5] reporting at least one reproductive health problem	50.6

Awareness of AIDS

Percent of women[2] who have heard of AIDS	33.7

Child Health

Percent of children age 0–3 months exclusively breastfed	42.5
Median duration of breastfeeding (months)	29.8
Percent of children[9] who received vaccinations:	
BCG	53.5
DPT (3 doses)	37.5
Polio (3 doses)	37.9
Measles	24.6
All vaccinations	17.0
Percent of children[10] with diarrhoea in the past 2 weeks who received oral rehydration salts (ORS)	37.1
Percent of children[10] with acute respiratory infection in the past 2 weeks taken to a health facility or provider	41.7

Nutrition

Percent of women with anaemia[11]	69.7
Percent of women with moderate/severe anaemia[11]	26.5
Percent of children age 6–35 months with anaemia[11]	63.2
Percent of children age 6–35 months with moderate/severe anaemia[11]	32.2
Percent of children chronically undernourished (stunted)[12]	50.2
Percent of children acutely undernourished (wasted)[12]	13.3
Percent of children underweight[12]	36.0

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

SUMMARY OF FINDINGS

The second National Family Health Survey (NFHS-2), conducted in 1998–99, provides information on fertility, mortality, family planning, and important aspects of health, nutrition, and health care. The International Institute for Population Sciences (IIPS) coordinated the survey, which collected information from a nationally representative sample of more than 90,000 ever-married women age 15–49 from 26 states of India. These states comprise more than 99 percent of India's population.

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

In Assam, NFHS-2 field staff collected information from 3,121 households between 26 March 1999 and 15 June 1999, and interviewed 3,441 eligible women in these households. In addition, the survey collected information on 1,129 children born to eligible women in the three years preceding the survey. One health investigator on each survey team measured the height and weight of eligible women and young children to assess their nutritional status and took blood samples to assess the prevalence of anaemia.

Background Characteristics of the Survey Population

More than 90 percent of the population lives in rural areas. The age distribution is typical of populations that have recently experienced a fertility decline, with relatively low proportions in the younger and older age groups. Thirty-seven percent of the population is below age 15, and 3 percent is age 65 and above. The sex ratio is 954 females for every 1,000 males in rural areas and 989 females for every 1,000 males in urban areas.

The survey provides a variety of information on demographic and socioeconomic characteristics. In the state as a whole, 67 percent of household heads are Hindu, 29 percent are Muslim, and 2 percent are Christian. Hindus live disproportionately in urban areas, where they comprise 88 percent of household heads. Ten percent of household heads belong to scheduled castes, 21 percent belong to scheduled tribes, and 13 percent belong to other backward classes (OBCs). Slightly more than one-half of household heads do not belong to any of these groups.

Questions about housing conditions and the standard of living of household members indicate that there have been improvements in some areas, but not in others, since the time of NFHS-1. Twenty-six of households in Assam have electricity, and 11 percent have piped drinking water, compared with 20 percent and 11 percent, respectively, in NFHS-1. Thirty-seven percent of households do not have any toilet facility, compared with 50 percent in NFHS-1.

Three-quarters of males and 59 percent of females age six and above are literate, an increase of 5–8 percentage points from literacy rates at the time of NFHS-1. Seventy-seven percent of children age 6–14 currently attend school, an increase from 70 percent in NFHS-1.

The proportion of children attending school has increased for all age groups, particularly for girls, but girls still lag slightly behind boys in school attendance.

Women in Assam tend to marry at a somewhat older age than women in India as a whole. Twenty-four percent of women age 15–19 are already married (26 percent in rural areas and 9 percent in urban areas). Older women are more likely than younger women to have married at an early age: 20 percent of women who are now age 45–49 married before they were 15, compared with only 6 percent of women age 15–19. Although this finding indicates that the proportion of women who marry young has been declining, 41 percent of women in Assam still marry before reaching the legal minimum age of 18 years. On average, women are six years younger than the men they marry.

As part of an increasing emphasis on gender issues in NFHS-2, the survey asked women about their participation in household decisionmaking. In Assam, 95 percent of women are involved in decisionmaking on at least one of four selected topics. Only two-thirds of women (65 percent), however, are involved in making decisions about their own health care. Only 20 percent of women do work other than their own housework, but 90 percent of working women work for cash. Only 40 percent of women who earn cash can decide independently how to spend the money that they earn. More than one-half of women (52 percent) report that their earnings constitute at least half of total family earnings, including 18 percent who report that the family is entirely dependent on their earnings.

Fertility Preferences and Family Planning

The appropriate design of family planning programmes depends, to a large extent, on women's fertility preferences. Women may have large families because they want many children, or they may prefer small families but, for a variety of reasons, may have more children than they actually want. For 11 percent of births over the three years preceding NFHS-2, mothers report that they did not want the pregnancy at all, and for another 11 percent of births, mothers say that they would have preferred to delay the pregnancy. When asked about their preferred family size, almost one-third (31 percent) of women who already have three children and one-sixth of women with four or more children say that they consider the two-child family ideal. This gap between women's actual fertility experience and what they want or would consider ideal suggests a need for expanded or improved family welfare services to help women achieve their fertility goals. In Assam, almost all women want to have at least one son and one daughter (95 percent of women want at least one son and 91 percent want at least one daughter). However, A strong preference for sons among some women is indicated by the fact that 38 percent want more sons than daughters but only 3 percent want more daughters than sons.

If women in Assam are not using family planning, it is not due to lack of knowledge. Knowledge of contraception is nearly universal: 98 percent of currently married women know at least one modern family planning method. Women are most familiar with female sterilization (96 percent), followed by the pill (87 percent), male sterilization (85 percent), condoms (71 percent), and the IUD (70 percent). Knowledge of modern spacing methods is much higher than in NFHS-1.

Forty-three percent of married women are currently using some method of contraception, the same level as in NFHS-1. Contraceptive prevalence is higher in urban areas (53 percent) than in rural areas (42 percent). Female sterilization is the most popular method: 16 percent of

currently married women are sterilized, an increase from 12 percent at the time of NFHS-1. By contrast, only 1 percent of women report that their husbands are sterilized. Overall, sterilization accounts for 39 percent of total contraceptive use. A larger proportion of women use traditional methods in Assam (16 percent) than in any other state except West Bengal. Six percent of women in Assam use the pill. Use rates for the IUD and the condom remain very low, only 2 percent each.

Contraceptive prevalence varies widely among socioeconomic groups. Contraceptive use is much higher among women who have completed at least a high school education (56 percent) than among women who are illiterate (40 percent). Contraceptive use is much higher among Hindu women (49 percent) than among Christian women (37 percent) or Muslim women (34 percent). Contrary to the pattern for India as a whole, women from scheduled castes, scheduled tribes, and other backward classes all have higher rates of contraceptive use than women who do not belong to any of these groups. Women from households with a high standard of living are more likely than other women to use contraception. Traditional methods of contraception are most popular among urban women, women from households with a high standard of living, and women who have completed at least a middle school education.

Contraceptive use in Assam rises steadily with age to a maximum level of 60 percent for women age 35–39, and falls thereafter. Contraceptive use also rises with the number of children, peaking at 59 percent for women with three children. Son preference has a pronounced influence on contraceptive use in Assam. Women who have one or more sons are consistently more likely to use contraception than women who have the same number of children but do not have any sons. Yet son preference is not a major obstacle to contraceptive acceptance in Assam: Between 27 and 42 percent of women with all daughters and no sons are using some method of contraception.

Seven percent of currently married women are not using contraception but say that they want to wait at least two years before having another child. Another 10 percent are not using contraception although they do not want any more children. These women are described as having an 'unmet need' for family planning. The unmet need is highest for young women, many of whom are interested in spacing their births. These results underscore the need for strategies that provide spacing as well as terminal methods in order to meet the changing needs of women over their lifecycle.

For many years, the Government of India has been using electronic and other mass media to promote family planning. Exposure to mass media is lower in Assam than in India as a whole. Almost half of women in Assam are not regularly exposed to television, radio, newspapers, magazines, or cinema. Among the different types of media, radio has the broadest reach especially among rural women, illiterate women, and women from households with a low standard of living. Overall 41 percent of ever-married women listen to radio at least once a week. Sixty-one percent of women saw or heard a family planning message in the media during the few months preceding the survey. Women are more likely to have heard or seen a family planning message on radio or television than through any other type of media. Exposure to family planning messages is relatively low in rural areas, among illiterate women, among Muslim women, and among women from households with a low standard of living.

Sixty-four percent of women who use modern contraception obtained their method from the public medical sector. Only 32 percent obtained their method from the private medical sector. Both female and male sterilizations, as well as IUD insertions, are done primarily by providers in the public sector. The private medical sector is the major source of condoms and pills, however. For all users of modern methods, the private sector plays a much larger role in urban areas (where it is the source for 48 percent of users) than in rural areas (where it is the source for 31 percent of users).

An important indication of the quality of family planning services is the information that women receive when they obtain contraception and the extent to which they receive follow-up services after accepting contraception. In Assam, only 17 percent of users of modern contraceptives who were motivated by someone to use their method were told about any other method of contraception. Only 13 percent were told by a health or family planning worker about possible side effects of the method they adopted, at the time of adopting the method. Eighty-five percent of contraceptive users received follow-up services after accepting their method, compared with 69 percent for India as a whole.

Infant and Child Mortality

NFHS-2 provides estimates of infant and child mortality and factors associated with the survival of young children. During the five years preceding the survey, the infant mortality rate was 70 deaths at age 0–11 months per 1,000 live births, a decrease from the corresponding rate of 89 per 1,000 live births in NFHS-1. The child mortality rate is 21 deaths at age 1–4 years per 1,000 children reaching age one. Expressed differently, more than 1 in 14 children die in the first year of life, and 1 in 11 die before reaching age five. Child-survival programmes might usefully focus on specific groups of children with particularly high infant and child mortality rates, such as children who live in rural areas, children whose mothers are illiterate, and children from households with a low standard of living.

Along with various socioeconomic groups, efforts to promote child survival need to concentrate on very young mothers and mothers whose children are closely spaced. Infant mortality is 33 percent higher among children born to mothers under age 20 than among children born to mothers age 20–29 (72 deaths, compared with 54, per 1,000 live births). Infant mortality is more than twice as high among children born less than 24 months after a previous birth as among children born after a gap of 48 months or more (86 deaths, compared with 38, per 1,000 live births). Clearly, efforts to expand the use of modern temporary contraceptive methods for delaying and spacing births would help reduce infant mortality as well as fertility.

Health and Health Care

Promotion of maternal and child health is one of the most important components of the Reproductive and Child Health Programme of the Government of India. One goal is for each pregnant woman to receive at least three antenatal check-ups plus two tetanus toxoid injections and a full course of iron and folic acid supplementation. In Assam, mothers of 60 percent of the children born in the three years preceding NFHS-2 received at least one antenatal check-up, and mothers of 31 percent of these children received at least three antenatal check-ups. For 52 percent of these children, mothers received the recommended number of tetanus toxoid vaccinations, and for 55 percent of children, mothers received iron and folic acid supplementation. Coverage by each of the three interventions is lower for rural women, illiterate

women, Muslim women, and women living in households with a low standard of living. Coverage is also low for women who already have four or more children.

The Family Welfare Programme encourages women to deliver in a medical facility or, if at home, with assistance from a trained health professional and to receive at least three check-ups after delivery. During the three years preceding NFHS-2, only 18 percent of births in Assam were delivered in a medical facility. Among births delivered at home, only 5 percent were assisted by a health professional; 39 percent were assisted by a traditional birth attendant. Only one-quarter of births outside a medical facility were followed by a postpartum check-up within two months of delivery.

The Government of India recommends that breastfeeding should begin immediately after childbirth and that infants should be exclusively breastfed for about the first four months of life. Although breastfeeding is nearly universal in Assam, many children do not begin breastfeeding immediately after birth—45 percent begin breastfeeding in the first hour and 78 percent in the first day. Less than half of children under four months of age (43 percent) are exclusively breastfed. The median duration of breastfeeding is 30 months, and the median duration of exclusive breastfeeding is only one month. At age 6–9 months, all children should be receiving solid or mushy food in addition to breast milk. However, only 59 percent of children age 6–9 months receive the recommended combination of breast milk and solid/mushy foods.

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

Based on international standards, 36 percent of children under age three years are underweight, 50 percent are stunted, and 13 percent are wasted. Child nutritional status has improved in Assam since the time of NFHS-1, when 49 percent of young children were underweight. However, there have not been similar improvements in the level of stunting or wasting. Poor nutrition is still a serious problem in Assam. Undernutrition is much higher in rural areas than in urban areas and is particularly high among children from households with a low standard of living. The prevalence of undernutrition is about the same for girls as for boys. Nearly two-thirds (63 percent) of children age 6–35 months are anaemic, including a majority of children in almost every subgroup of the population. However, the level of anaemia among children is lower in Assam than in most other states.

Child immunization is an important component of child-survival programmes in India, with efforts focussing on six serious but preventable diseases—tuberculosis, diphtheria, pertussis, tetanus, polio, and measles. The objective of the Universal Immunization Programme (UIP), launched in 1985–86, was to extend immunization coverage against these diseases to at least 85 percent of infants by 1990. In Assam, only 17 percent of children age 12–23 months are fully vaccinated and 33 percent have not been vaccinated at all.

Full immunization coverage has not improved since NFHS-1, when 19 percent of children were fully vaccinated. However, the proportion of children who have not received any vaccinations decreased from 44 percent in NFHS-1 to 33 percent in NFHS-2. Fifty-four percent of children age 12–23 months have been vaccinated against tuberculosis, 38 percent have received three doses of DPT vaccine, and 38 percent have received three doses of polio vaccine. The largest increases in vaccination coverage between NFHS-1 and NFHS-2 are for the first two doses of the polio vaccine, undoubtedly because of the introduction of the Pulse Polio Immunization Campaign in 1995. Full immunization coverage is not as high as it might be primarily because only 25 percent of children have been vaccinated against measles. Dropout rates for the series of DPT and polio vaccinations are also a problem. Fifty-seven percent of children received the first DPT vaccination, but only 38 percent received all three doses; similarly, 62 percent received the first polio vaccination, but only 38 percent received all three doses. It is recommended that children under age five years should receive oral doses of vitamin A every six months starting at age nine months. However, only 15 percent of children age 12–35 months have received any vitamin A supplementation (only half the national level of 30 percent) and only 9 percent received a dose of vitamin A in the six months preceding the survey.

NFHS-2 collected information on the prevalence and treatment of three health problems that cause considerable mortality in young children—fever, acute respiratory infection (ARI), and diarrhoea. In Assam, 28 percent of children under age three were ill with fever during the two weeks preceding the survey, 18 percent were ill with ARI, and 8 percent had diarrhoea. Only 48 percent of the children who were ill with diarrhoea and 42 percent of the children who were ill with ARI were taken to a health facility or health-care provider, compared with more than 60 percent of children in India as a whole. Knowledge of the appropriate treatment for diarrhoea is inadequate. Only forty-three percent of mothers of children age less than three years know about oral rehydration salt (ORS) packets, and 22 percent of mothers incorrectly believe that when children are sick with diarrhoea, they should be given less to drink than usual. Fifty-four percent of children with diarrhoea received some form of oral rehydration therapy (ORT), including 37 percent who received ORS. The percentage of children with diarrhoea who received ORS has increased since NFHS-1, when it was only 25 percent, suggesting that there has been an improvement in the management of childhood diarrhoea.

Based on a weight-for-height measure (the body mass index), 27 percent of women in Assam are undernourished. Nutritional deficiency is particularly serious for illiterate women and women living in households with a low standard of living. Women who are undernourished themselves are also much more likely than other women to have children who are undernourished. Overall, 70 percent of women in Assam have some degree of anaemia (the highest level of any state), and 27 percent are moderately to severely anaemic. Anaemia is a serious problem among women in every population group, with prevalence rates ranging from 60 to 76 percent. Pregnant women are much more likely than nonpregnant women to be moderately to severely anaemic.

Four out of five households use cooking salt that is iodized at the recommended level of 15 parts per million, much higher than the all-India level of 49 percent. Rural households, households with a scheduled-tribe or scheduled-caste head, and households with a low standard of living are much less likely than other households to be using adequately iodized cooking salt.

Slightly more than half of currently married women in Assam report some type of reproductive-health problem, including abnormal vaginal discharge, symptoms of urinary tract infections, and pain or bleeding associated with intercourse, much higher than the all-India level of 39 percent. Among these women, only about one-quarter sought any advice or treatment. These results suggest a need to expand reproductive-health services and information programmes that encourage women to discuss their problems with a health-care provider.

In recent years, there has been growing concern about domestic violence in India. NFHS-2 found that in Assam, there is widespread acceptance among ever-married women that the beating of wives by husbands is justified under some circumstances. Two-thirds of women accept at least one of six reasons as a justification for a husband beating his wife. Domestic violence is also fairly common. One out of every six ever-married women in Assam have experienced beatings or physical mistreatment since age 15 and 9 percent experienced such violence in the 12 months preceding the survey. Most of these women have been beaten or physically mistreated by their husbands.

Overall, only 4 percent of women received a home visit from a health or family planning worker during the 12 months preceding the survey. A large majority of the women who received a home visit expressed satisfaction with the amount of time that the worker spent with them and with the way the worker talked to them.

The survey collected information on the prevalence of tuberculosis, asthma, malaria, and jaundice among all household members. Disease prevalence is based on reports from household heads and, therefore, it should be interpreted with caution. The survey found that 3 percent of the population suffers from asthma, 3 percent suffered from jaundice in the 12 months preceding the survey, and 3 percent suffered from malaria in the three months preceding the survey. Less than 1 percent of the population suffer from tuberculosis. Prevalence of all four conditions is higher in rural areas than in urban areas, although there is hardly any difference in the case of jaundice. Men are more likely than women to suffer from all of the conditions.

Most households in Assam (75 percent) use the public medical sector for treatment when a family member is ill. However, the private medical sector is used for treatment by more than half of all households in urban areas and by 42 percent of households that have a high standard of living. Most respondents are generally satisfied with the health care they receive.

NFHS-2 also collected information on selected lifestyle indicators for household members. According to household respondents, 32 percent of men and 3 percent of women smoke, 25 percent of men and 11 percent of women drink alcohol, and 48 percent of men and 25 percent of women chew *paan masala* or tobacco. All of these indicators except smoking among women are much higher in Assam than in India as a whole, although

Although the spread of HIV/AIDS is a major concern in India, Two-thirds of women in Assam have not heard of AIDS. Awareness of AIDS is particularly low among women in rural areas, women living in households with a low standard of living, Muslim women, women who are illiterate, and women who are not regularly exposed to any media. Among women who have heard of AIDS, 64 percent learned about the disease from television and 63 percent from the radio. Even among women who have heard of AIDS, however, more than half (52 percent) do not know of any way to avoid infection. Survey results suggest that health personnel could play a

much larger role in promoting AIDS awareness. In Assam, only 3 percent of women who know about AIDS received information about the disease from a health worker.

CHAPTER 1

INTRODUCTION

1.1 Background of the Survey

India's first National Family Health Survey (NFHS-1) was conducted in 1992–93 (International Institute for Population Sciences, 1995). The Ministry of Health and Family Welfare (MOHFW) subsequently designated the International Institute for Population Sciences (IIPS), Mumbai, as the nodal agency to initiate a second survey (NFHS-2), which was conducted in 1998–99. An important objective of NFHS-2 is to provide state-level and national-level information on fertility, family planning, infant and child mortality, reproductive health, child health, nutrition of women and children, and the quality of health and family welfare services. Another important objective is to examine this information in the context of related socioeconomic and cultural factors. The survey also provides estimates at the regional level for five states (Bihar, Jammu and Kashmir, Madhya Pradesh, Rajasthan, and Uttar Pradesh) and estimates for three metro cities (Chennai, Kolkata, and Mumbai), as well as slum areas in Mumbai. This information will assist policymakers and programme administrators in planning and implementing strategies for improving population, health, and nutrition programmes. Comparative state results from NFHS-2 have already been published (International Institute for Population Sciences and ORC Macro, 2000). The current report provides a more comprehensive picture of the findings for Assam.

The NFHS-2 national sample covers more than 99 percent of India's population living in all 26 states. It does not cover the union territories. NFHS-2 is a household survey with an overall sample size of 90,303 ever-married women in the age group 15–49 living in 92,486 households.

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

1.2 Basic Socioeconomic and Demographic Features of Assam

Assam acquired the status of a state within the Indian Union, with Shillong as its capital, on 26 January 1950, when the constitution of India came into force. The present capital of the state is Dispur (Guwahati). Assam is located in the heart of the country's northeastern region (known also as 'the land of seven sisters') with a total land area of 78,438 square kilometres. The state has 2.7 percent of the total population of the country. The state presently has 23 districts. Geographically, Assam can be divided into two distinct regions, namely the Bramhaputra Valley and the Barak Valley. There are two hilly districts in the state.

Assam is a predominantly agricultural state. The importance of various economic sectors in the economy has, however, been changing. The contribution of the agricultural sector to the state domestic product declined from 44 percent in 1980–81 to 35 percent in 1996–97. During the same period, the share of the manufacturing sector decreased from 7 to 6 percent, and the contribution of other sectors increased from 49 to 59 percent (EPW Research Foundation, 1998). At the time of the 1991 Census, the agricultural sector provided a livelihood for 63 percent of the labour force (Office of the Registrar General and Census Commissioner, 1992). Assam grows *kharif* and *rabi* crops, and the major agricultural products include rice, sugarcane, wheat, jute, mustard and pulses.

Industry in Assam is not well developed. The major industries include manufacturing of paper, cement, and fertilizer, as well as some oil refining. The tea industry in Assam contributes 51 percent of India's tea production. Assam's per capita income is lower than the national average, and in recent years this gap has widened. In 1998–99, per capita income was Rs. 14,682 for India as a whole and Rs. 8,393 for Assam (Directorate of Economics and Statistics, Assam, 2001).

Assam had a population of 14.6 million in the 1971 Census, 18.0 million in the 1981 Census, 22.4 million in the 1991 Census, and 26.6 million in the 2001 Census. The decadal growth rate decreased from 35 percent during 1961–71 to 23 percent during 1971–81, increased slightly to 24 percent during 1981–91, and then fell to 19 percent during 1991-2001. The 1981–91 intercensal increase of 24 percent was the same as that for the country as a whole, but the 1991-2001 increase of 19 percent was somewhat lower than the 21 percent increase for the country as a whole. In 2001, population density per km^2 in Assam was 340, compared with 324 in India as a whole.

Assam has been undergoing slow but steady urbanization. The percentage of the total population living in urban areas increased from 9 percent in 1971 to 11 percent in 1991 and 12 percent in 2001. The figure of 12 percent for 2001 in Assam compares with 28 percent for India as a whole in 2001. According to the 1991 Census, the proportion of the total population designated as scheduled caste is lower and the proportion designated as scheduled tribe is higher in Assam than in all India.[1] Between 1971 and 1991, the proportion of population classified as scheduled caste increased from 6 percent to 7 percent, while the proportion classified as scheduled tribe remained unchanged at 13 percent.

In terms of educational levels, Assam is near the average for India. According to the 1991 Census, the literacy rate among the population age 7 and above was 53 percent in Assam, compared with 52 percent in India as a whole. By sex, the literacy rates were 62 percent for males and 43 percent for females in Assam, compared with 64 percent for males and 39 percent for females in India as a whole. The 2001 Census indicates literacy rates of 64 percent for Assam and 65 percent for India. The literacy rate for females, however, is slightly higher in Assam (56 percent) than in all India (54 percent).

For 1999, the Sample Registration System estimates the infant mortality rate in Assam at 76 per 1,000 live births, somewhat higher than the rate of 70 for all India (Office of the Registrar General, 2001). For 1996–2001, life expectancy is projected to be 57.3 years for males

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

and 58.8 years for females in Assam, compared with 62.4 years for males and 63.4 years for females in all India (Office of the Registrar General, 1996). The sex ratio of the population (number of females per 1,000 males) in Assam has been increasing, from 896 in 1971 to 910 in 1981, 923 in 1991, and 932 in 2001 (compared with 933 for all India in 2001). The percentage of the population age 0–14 years declined from 48 percent in 1971 to 36 percent in 1991, and the percentage of the population age 65 and above declined very slightly from 2.9 percent in 1971 to 2.4 percent in 1991.

The couple protection rate (defined as the percentage of eligible couples effectively protected against pregnancy by various methods of contraception) is much lower in Assam than in India as a whole. In Assam, the couple protection rate, as estimated by the Ministry of Health and Family Welfare from service statistics, increased from 5 percent in 1971 to 28 percent in 1991 and then fell to 18 percent in 1998. By way of comparison, for all India in 1998, the couple protection rate is estimated to be 45 percent.

Between 1971 and 1999, fertility declined slowly in the state. According to estimates from the Sample Registration System (SRS), the crude birth rate declined from 39 per 1,000 population in 1971 to 31 in 1991, and then to 27 in 1999. The SRS also estimates that the total fertility rate declined from 5.7 in 1971 to 3.3 in 1997. Regarding mortality, the SRS estimates that the crude death rate declined from 18 to 10 per 1,000 population between 1971 and 1999 and the infant mortality rate declined from 139 to 76 infant deaths per 1,000 live births.

1.3 Questionnaires

NFHS-2 used three types of questionnaires: the Household Questionnaire, the Woman's Questionnaire, and the Village Questionnaire. The overall content and format of the questionnaires were determined through a series of workshops held at IIPS in Mumbai in 1997 and 1998. The workshops were attended by representatives of a wide range of organizations in the population and health fields, as well as experts working on gender issues. The questionnaires in Assam were bilingual, with questions in both Assamese and English.

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

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

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

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

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

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

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

Antenatal, delivery, and postpartum care: The questionnaire collects information on whether women received antenatal and postpartum care, who attended the delivery, and the nature of complications during pregnancy for the last two births since January 1996.

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

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

Status of women: The questionnaire asks about gender roles, women's autonomy, and violence against women.

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

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

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

1.4 Survey Design and Sample Implementation

Sample Size and Reporting Domains

The overall target sample size for Assam was 3,000 completed interviews with eligible women. The NFHS-1 nonresponse rates at the household and individual levels were used to estimate the sample size that would be required to achieve the target number of completed interviews in NFHS-2.

The sample was designed to provide estimates for the state as a whole and for its urban and rural areas separately. Due to security reasons, three districts (namely Kokrajhar, Darrang, and North Cachar Hills) were excluded from the survey. The sample is not large enough to provide reliable estimates for individual districts. The required sampling rates for urban and rural areas were determined by allocating the sample proportionally to the population of the two areas and taking into account their expected urban and rural nonresponse rates (based on the nonresponse rates in NFHS-1).

Sample Design

Within each of the two sampling domains (rural areas and urban areas), a systematic, multi-stage stratified sampling design was used. The rural sample was selected in two stages: the selection of Primary Sampling Units (PSUs), which are villages or groups of villages (in the case of small linked villages), with probability proportional to population size (PPS) in the first stage, followed by the selection of households using systematic sampling within each selected PSU in the second stage. In urban areas, a three-stage sampling procedure was followed. In the first stage, wards were selected with PPS. From each selected ward, one census enumeration block (CEB) was selected with PPS in the second stage, followed by selection of households using systematic sampling within each selected CEB in the third stage.

Sample Selection in Rural Areas

In rural areas, the 1991 Census list of villages served as the sampling frame. The list was stratified by a number of variables. The first level of stratification was geographic, with districts classified into contiguous regions. The district composition of the five geographic regions (based on the 23 districts in Assam at the time of the 1991 Census, without the three excluded districts mentioned above) is as follows:

Region I:	Goalpara, Kamrup, Marigaon, Nagaon
Region II:	Dhubri, Bongaigaon, Barpeta, Nalbari, Sonitpur
Region III:	Golaghat, Jorhat, Sibsagar, Dibrugarh, Tinsukia, Karimganj, Hailakandi, Cachar
Region IV:	Lakhimpur, Dhemaji
Region V:	Karbi Anglong

In each region, villages were further stratified by village size and the percentage of the population belonging to scheduled castes or scheduled tribes. Table 1.1 provides details of the sample stratification in rural areas along with the population of each stratum. The final level of stratification was implicit for all the strata, consisting of an ordering of villages within each stratum by level of female literacy (obtained from the 1991 Census Village Directory). From the list arranged in this way, villages were selected systematically with probability proportional to the 1991 Census population of the village. Small villages with 5–49 households were linked with one or more adjoining villages to form PSUs with a minimum of 50 households. Villages with fewer than five households were excluded from the sampling frame.

The domain sampling fraction, i.e., the probability of selecting a woman in rural Assam (f) was computed as:

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

where n = number of rural women to be interviewed (after adjusting upward to account for nonresponse and other loss),
N = projected rural population of eligible women in the state in May 1999.

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

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

where a = number of rural PSUs selected from the state,
s_i = population size of the i^{th} PSU,
Σs_i = total rural population of the state.

A mapping and household listing operation carried out in each sample area provided the necessary frame for selecting households at the second stage. The household listing operation involved preparing up-to-date notional and layout sketch maps of each selected PSU, assigning numbers to structures, recording addresses of these structures, identifying residential structures, and listing the names of heads of all the households in residential structures in the selected PSUs. Sample villages larger than 750 households were segmented into three or more segments, and two segments were selected randomly using the PPS method. Household listing in these PSUs was carried out only in the selected segments. The work was carried out by 10 teams, each comprising one lister and one mapper, under the supervision of one field supervisor and one field executive. The teams were trained from 22-24 February 1999 in Guwahati by officials from ACNielsen, New Delhi, who was earlier trained in a workshop conducted by IIPS. The mapping

Table 1.1 Sampling stratification

Sampling stratification procedure in rural areas, Assam

	Stratification variables			
Stratum	Region	Village size (population)	Percent SC/ST population	Population[1]
1	1	≤ 1,100	NU	1,207,274
2	1	> 1,100	≤ 4.0	1,576,287
3	1	> 1,100	> 4.0	1,470,447
4	2	≤ 1,400	≤ 4.0	1,366,231
5	2	≤ 1,400	> 4.0	1,259,970
6	2	> 1,400	≤ 4.0	1,561,435
7	2	> 1,400	> 4.0	1,316,664
8	3	≤ 1,300	≤ 3.0	1,669,295
9	3	≤ 1,300	> 3.0	1,392,290
10	3	> 1,300	≤ 3.0	1,562,146
11	3	> 1,300	> 3.0	1,674,426
12	4	NU	NU	1,171,051
13	5	NU	NU	588,367
Total	NA	NA	NA	17,815,883

Note: The level of female literacy is used for implicit stratification.
SC: Scheduled caste; ST: Scheduled tribe
NA: Not applicable
NU: Not used for stratification
[1]The population shown is the 1991 Census population, excluding persons living in villages with fewer than five households.

and household listing operation was carried out from March to June 1999. The households to be interviewed were selected with equal probability from the household list in each selected enumeration area using systematic sampling.

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

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

On average, 30 households were initially targeted for selection in each selected enumeration area. To avoid extreme variations in workload, minimum and maximum limits were put on the number of households that could be selected from any area, at 15 and 60, respectively. All the selected households were visited during the main survey, and no replacement was allowed if a selected household was absent during data collection. However, if a PSU was inaccessible, a replacement PSU with similar characteristics was selected by IIPS and provided to the field organization.

Sample Selection in Urban Areas

The 1991 Census list of urban wards was arranged according to districts and within districts by the level of female literacy, and a sample of wards was selected systematically with probability proportional to population size. Next, one census enumeration block (CEB), consisting of approximately 150–200 households, was selected from each selected ward using the PPS method. As in rural areas, a household listing operation was carried out in the selected CEBs and, on average, 30 households per block were targeted for selection.

The domain sampling fraction, i.e., the probability of selecting a woman in urban Assam (f), was computed as:

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

where n = number of urban women to be interviewed (after adjusting upward to account for nonresponse and other loss),
N = projected urban population of eligible women in the state in May 1999.

The probability of selecting an urban ward (f_1) was computed as:

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

where a = number of urban wards selected from the state,
s_i = population size of the i^{th} ward,
Σs_i = total urban population of the state.

The probability of selecting a CEB from a selected ward (f_2) was computed as:

$$f_2 = \frac{B_i}{\sum B_i}$$

where B_i = population size of the i^{th} block,
ΣB_i = total population of the ward.

A household listing operation carried out in each selected block provided the necessary frame for selecting households in the third stage of sample selection. 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

Sample weights for households and women are based on design weights, adjusted for the effect of differential nonresponse in different geographical areas. The method of calculating the weights is specified below.

Let R_{Hi} and R_{Wi} be the response rates for households and eligible women, respectively. Then the household weight (w_{Hi}) is calculated as follows:

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

where w_{Di} = the design weight for the i^{th} domain, calculated as the ratio of the overall sampling fraction ($F = n/N$) and the sampling fraction for the i^{th} domain ($f = n_i/N_i$). Note that $n = \Sigma n_i$ and $N = \Sigma N_i$.

An eligible woman's weight (w_{Wi}) is calculated as follows:

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

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 weights for households and eligible women are:

$$W_{Hi} = \frac{\sum n_i}{\sum w_{Hi} \times n_i} \times w_{Hi}$$

$$W_{Wi} = \frac{\sum n_i}{\sum w_{Wi} \times n_i} \times w_{Wi}$$

where n_i refers to the actual number of cases (households or eligible women) interviewed in the i^{th} domain.

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

Sample Implementation

A total of 100 PSUs were selected for the sample, of which 33 were urban and 67 were rural. Table 1.2 shows response rates for households and individuals and reasons for nonresponse. Nonresponse can occur at the stage of the household interview or at the stage of the woman's interview. The last row of the table shows the overall effect of nonresponse at the two stages. The survey achieved an overall response rate of 94 percent (88 percent in urban areas and 96 percent in rural areas).

Of the 3,291 households selected in Assam, interviews were completed in 95 percent of the cases, 3 percent of the selected households were absent for an extended period, and in 1 percent of the cases no household member or no competent respondent was at home at the time of interview (Table 1.2). The household response rate—the number of households interviewed per 100 occupied households—was 98 percent.

Table 1.2 Sample results

Sample results for households and ever-married women age 15–49 by residence, Assam, 1999

Result	Urban		Rural		Total	
	Number	Percent	Number	Percent	Number	Percent
Households selected	936	100.0	2,355	100.0	3,291	100.0
Households completed (C)	838	89.5	2,283	96.9	3,121	94.8
Households with no household member at home or no competent respondent at home at the time of interview (HP)	11	1.2	6	0.3	17	0.5
Households absent for extended period (HA)	44	4.7	42	1.8	86	2.6
Households postponed (P)	1	0.1	0	0.0	1	0.0
Households refused (R)	31	3.3	5	0.2	36	1.1
Dwelling vacant/address not a dwelling (DV)	9	1.0	10	0.4	19	0.6
Dwelling destroyed (DD)	1	0.1	2	0.1	3	0.1
Dwelling not found (DNF)	1	0.1	7	0.3	8	0.2
Households occupied	882	100.0	2,301	100.0	3,183	100.0
Households interviewed	838	95.0	2,283	99.2	3,121	98.1
Households not interviewed	44	5.0	18	0.8	62	1.9
Household response rate (HRR)[1]	NA	95.0	NA	99.2	NA	98.1
Eligible women	869	100.0	2,713	100.0	3,582	100.0
Women interviewed (EWC)	808	93.0	2,633	97.1	3,441	96.1
Women not at home (EWNH)	35	4.0	50	1.8	85	2.4
Women postponed (EWP)	0	0.0	1	0.0	1	0.0
Women refused (EWR)	15	1.7	15	0.6	30	0.8
Women partly interviewed (EWPC)	7	0.8	5	0.2	12	0.3
Other (EWO)	4	0.5	9	0.3	13	0.4
Eligible women's response rate (EWRR)[2]	NA	93.0	NA	97.1	NA	96.1
Overall response rate (ORR)[3]	NA	88.3	NA	96.3	NA	94.2

Note: Eligible women are defined as ever-married women age 15–49 who stayed in the household the night before the interview (including both usual residents and visitors). This table is based on the unweighted sample; all other tables are based on the weighted sample unless otherwise specified.
NA: Not applicable
[1]Using the number of households falling into specific response categories, the household response rate (HRR) is calculated as:

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

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

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

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

$$ORR = \frac{HRR \times EWRR}{100}$$

In the interviewed households, 3,582 women were identified as eligible for the individual interview. Interviews were successfully completed with 96 percent of the eligible women. Nonresponse at the individual level was primarily due to eligible women not being at home despite repeated household visits (2 percent). Only 1 percent of eligible women refused to be interviewed.

1.5 Recruitment, Training, and Fieldwork

Field staff for the main survey were trained in Guwahati by officials of ACNielsen, who were trained earlier in a Training of Trainers Workshop conducted by IIPS. Training in Assam

consisted of three weeks of classroom training, general lectures, and demonstration and practice interviews, as well as field practice and additional training for field editors and supervisors. The classroom training included instructions in interviewing techniques and survey field procedures, a detailed review of each item in the questionnaires, instruction and practice in weighing and measuring women and children, and mock interviews between participants. Special guest lectures on family planning and on child health were also arranged. Health investigators attached to interviewing teams were given additional specialized training on measuring height and weight and testing for anaemia in a centralized training programme conducted by IIPS in collaboration with the All India Institute of Medical Sciences (AIIMS), New Delhi. This specialized training took place at IIPS in Mumbai. It included classroom training and extensive field practice in schools, *anganwadis*, and communities.

Six interviewing teams conducted the main fieldwork in Assam, each team consisting of one field supervisor, one female field editor, four female interviewers, and one health investigator. The fieldwork was carried out between 26 March 1999 and 15 June 1999. Coordinators and senior staff of ACNielsen monitored and supervised the data collection operations. IIPS also deputed one research officer to help with monitoring throughout the training and fieldwork period in order to ensure that correct survey procedures were followed and data quality was maintained. From time to time, project coordinators, senior research officers, and other faculty members from IIPS, as well as staff members from ORC Macro and the East-West Center, visited the field sites to monitor the data collection operation. Medical health coordinators appointed by IIPS monitored the nutritional component of the survey. Field data were quickly entered into microcomputers, and field-check tables were produced to identify certain types of errors that might have occurred in eliciting information and filling out questionnaires. Information from the field-check tables was fed back to the interviewing teams and their supervisors so that they could improve their performance.

1.6 Data Processing

Completed questionnaires were sent to the office of ACNielsen in New Delhi for data processing, which consisted of office editing, coding, data entry, and machine editing, using the Integrated System for Survey Analysis (ISSA) software. Data entry was done in New Delhi by eight data-entry operators under the supervision of ACNielsen senior staff who were trained at a data-processing workshop in Hyderabad. Data entry and editing operations were completed by August 1999. Tabulations for the preliminary report as well as for the present final report were carried out at IIPS in Mumbai.

CHAPTER 2

BACKGROUND CHARACTERISTICS OF HOUSEHOLDS

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

2.1 Age-Sex Distribution of the Household Population

The NFHS-2 household population can be tabulated in two ways: *de facto* (the place each person stayed the night before the survey interview) or *de jure* (the place of usual residence). The *de facto* and *de jure* populations in Assam differ because of temporary population movements. Table 2.1 shows the *de facto* population in the NFHS-2 household sample for Assam, classified by age, residence, and sex. The total *de facto* sample population is 18,592. The sample is 8 percent urban and 92 percent rural.

Table 2.1 also shows that 37 percent of Assam's population is below 15 years of age, and only 3 percent of the population is age 65 or older. The proportion below age 15 is higher in rural areas (38 percent) than in urban areas (29 percent). The age distribution of the population in Assam is typical of a population in which fertility has recently begun to decline, with a smaller proportion of population at age 0–4 than at 5–9, as shown in the age pyramid in Figure 2.1. The age pyramid from NFHS-1 some six years earlier shows a similar pattern, however, suggesting that fertility already declined substantially during the five years or so before NFHS-1. But if fertility really declined substantially during those years, the age pyramid in NFHS-2 should show a smaller proportion at age 5–9 than at 10–14. This is not the case, however, suggesting that the smaller proportion at age 0–4 than at 5–9 is due mainly to exaggeration of children's ages, which moves some children out of the 0–4 age group into the 5–9 age group, and perhaps to some omission of young children as well.

Indeed, the single-year age distributions by sex in the *de facto* population (see Appendix Table B.1) indicate that there is substantial misreporting of ages, including considerable preference for ages ending in particular digits, especially 0 and 5. One of the most commonly used measures of digit preference in age reporting is Myers' Index (United Nations, 1955). This index provides an overall summary of preferences for, or avoidance of, each of the 10 digits, from 0 to 9. The index is often used as one indicator of the quality of age reporting on a survey. Values of Myers' Index computed for the age range 10–69 in the household sample population in Assam are 30.2 for males and 28.0 for females, close to the NFHS-1 values of 29.9 for males and 27.8 for females. The lower estimate for females is probably due to the emphasis during the interviewer training on obtaining accurate age information for women to correctly determine the eligibility of women for the individual interview. The similarity in Myers' Index for NFHS-1 and NFHS-2 is consistent with the similarity in the age pyramids for NFHS-1 and NFHS-2, which has already been noted.

Table 2.2 compares the age distributions by sex from the NFHS-2 *de jure* sample with the age distributions by sex from the Sample Registration System for 1997. The SRS baseline survey, which is *de jure*, counts all usual residents in a sample area (Office of the Registrar

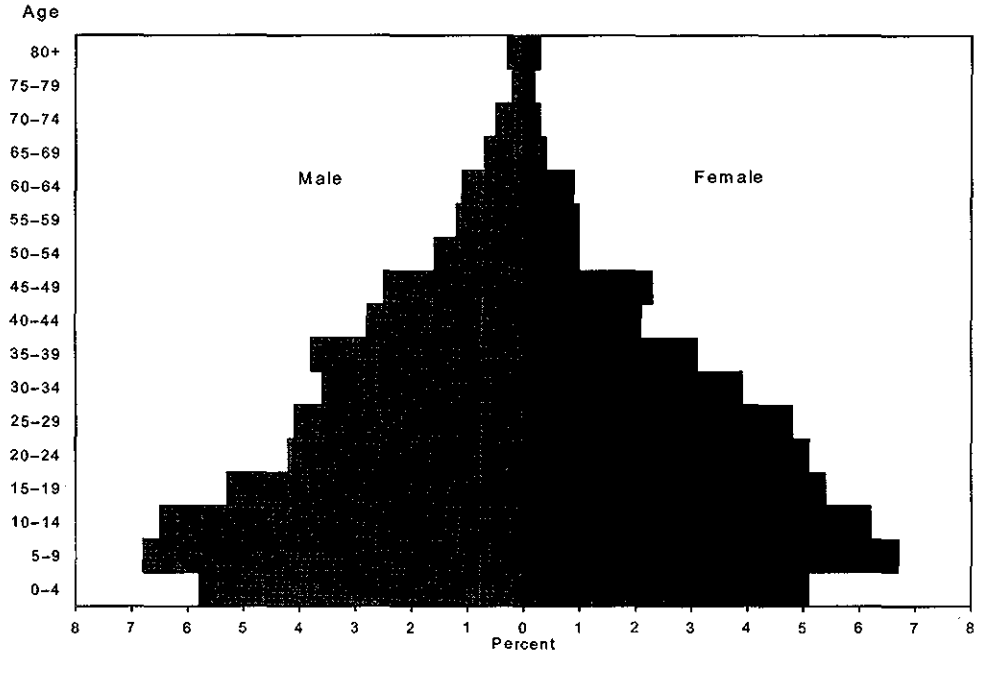
Table 2.1 Household population by age and sex

Percent distribution of the household population by age, according to residence and sex, Assam, 1999

Age	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
< 1	1.6	1.6	1.6	2.1	2.0	2.0	2.0	1.9	2.0
1–4	6.8	5.8	6.3	9.5	8.6	9.1	9.3	8.4	8.9
5–9	9.6	9.3	9.5	13.7	14.2	13.9	13.4	13.8	13.6
10–14	11.3	12.0	11.6	12.8	12.8	12.8	12.7	12.8	12.7
15–19	10.6	12.5	11.6	10.3	11.0	10.6	10.3	11.1	10.7
20–24	9.0	10.6	9.8	8.2	10.5	9.3	8.3	10.5	9.4
25–29	9.0	10.4	9.7	7.9	9.7	8.8	8.0	9.8	8.9
30–34	7.9	10.0	8.9	6.9	7.8	7.3	7.0	8.0	7.5
35–39	8.6	8.3	8.4	7.4	6.1	6.8	7.5	6.3	6.9
40–44	7.3	5.9	6.6	5.4	4.3	4.8	5.5	4.4	5.0
45–49	6.1	5.6	5.9	4.7	4.7	4.7	4.8	4.8	4.8
50–54	3.8	2.0	2.9	3.1	2.1	2.6	3.2	2.1	2.6
55–59	3.2	1.3	2.3	2.4	2.0	2.2	2.4	1.9	2.2
60–64	2.3	2.0	2.2	2.2	1.9	2.0	2.2	1.9	2.0
65–69	0.9	0.9	0.9	1.4	0.9	1.1	1.4	0.9	1.1
70–74	1.2	0.9	1.1	0.9	0.6	0.8	0.9	0.7	0.8
75–79	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80+	0.3	0.5	0.4	0.7	0.5	0.6	0.6	0.5	0.6
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of persons	745	737	1,482	8,758	8,352	17,110	9,503	9,089	18,592
Sex ratio[1]	NA	NA	989	NA	NA	954	NA	NA	956

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

Figure 2.1
Population Pyramid



NFHS-2, Assam, 1999

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

Percent distribution of population by age and sex from the SRS and NFHS-2, Assam, 1997 and 1999

	SRS (1997)		NFHS-2 (1999)		
Age	Male	Female	Male	Female	Sex ratio[1]
< 5	11.6	11.4	11.0	10.3	888
5–14	25.3	26.0	26.1	27.0	973
15–29	27.8	31.1	26.7	30.9	1,089
30–49	25.1	21.9	24.9	23.4	885
50–64	7.4	7.0	7.8	6.0	725
65+	2.8	2.8	3.4	2.4	667
Total	100.0	100.0	100.0	100.0	943
Median age	U	U	20.9	20.4	NA

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

General, 1999a). The NFHS-2 and SRS age distributions do not differ much for broad age groups, despite the misreporting of age that is evident in the NFHS-2 single-year age data. Tables 2.1 and 2.2 also present sex ratios (females per 1,000 males) in Assam from NFHS-2. The sex ratio of the *de facto* population is 956 (Table 2.1). The sex ratio of the *de jure* population (943) in Table 2.2 is slightly lower than the sex ratio of the *de facto* population (956). Table 2.1 shows that the sex ratio of the *de facto* population is 989 in urban areas and 954 in rural areas.

2.2 Marital Status

NFHS-2 includes information on the marital status of all household members age six and above. Table 2.3 shows the marital status distribution of the *de facto* household population, classified by age, residence, and sex. Among females age six and above, 48 percent are currently married and 43 percent have never been married. The proportion never married is higher for males (54 percent) than for females (43 percent) and is about the same in urban areas (53 percent for males and 44 percent for females) and rural areas (54 percent for males and 43 percent for females). The proportion divorced, separated, or deserted is small, and widowhood is quite limited until the older ages. Fifty percent of women age 50 or older are widowed, but only 7 percent of males in that age group are widowed.

Also of interest is the proportion of persons who marry young. At age 15–19, the proportions ever married are 3 percent for males and 24 percent for females (3 percent for males and 9 percent for females in urban areas, and 3 percent for males and 26 percent for females in rural areas). By age 25–29, 84 percent of women have ever been married (78 percent in urban areas and 85 percent in rural areas), but only 50 percent of males in this age group have ever been married (37 percent in urban areas and 51 percent in rural areas). Overall, the table shows that women in Assam marry at much younger ages than men, and that both men and women marry at much younger ages in rural areas than in urban areas. Eventually, virtually all men and women get married. At ages 50+, only 1 percent of men and 0.1 percent of women have never been married.

Table 2.3 Marital status of the household population

Percent distribution of the household population age 6 and above by marital status, according to age, residence, and sex, Assam, 1999

Age	Marital status							Total percent
	Never married	Currently married	Married, *gauna* not performed	Widowed	Divorced	Separated	Deserted	
URBAN								
Male								
6–12	98.6	1.4	0.0	0.0	0.0	0.0	0.0	100.0
13–14	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
15–19	97.1	2.5	0.4	0.0	0.0	0.0	0.0	100.0
20–24	94.3	5.7	0.0	0.0	0.0	0.0	0.0	100.0
25–29	62.7	36.8	0.0	0.0	0.0	0.0	0.5	100.0
30–49	12.7	86.4	0.0	0.6	0.0	0.3	0.0	100.0
50+	3.0	92.0	0.0	5.0	0.0	0.0	0.0	100.0
Total	52.6	46.3	0.1	0.9	0.0	0.1	0.0	100.0
Female								
6–12	98.5	1.0	0.0	0.5	0.0	0.0	0.0	100.0
13–14	97.6	2.4	0.0	0.0	0.0	0.0	0.0	100.0
15–19	91.3	8.3	0.4	0.0	0.0	0.0	0.0	100.0
20–24	55.3	42.0	0.0	0.0	1.8	0.5	0.4	100.0
25–29	22.1	75.2	0.0	2.3	0.0	0.4	0.0	100.0
30–49	4.2	84.3	0.0	10.2	0.5	0.5	0.5	100.0
50+	0.7	37.4	0.0	59.5	0.0	1.3	1.2	100.0
Total	43.8	46.2	0.1	8.9	0.4	0.4	0.3	100.0
RURAL								
Male								
6–12	98.4	1.4	0.2	0.0	0.0	0.0	0.0	100.0
13–14	99.3	0.7	0.0	0.0	0.0	0.0	0.0	100.0
15–19	97.4	2.6	0.0	0.0	0.0	0.0	0.0	100.0
20–24	81.2	18.6	0.0	0.0	0.0	0.0	0.2	100.0
25–29	49.1	50.8	0.0	0.2	0.0	0.0	0.0	100.0
30–49	9.3	88.9	0.0	1.4	0.2	0.1	0.1	100.0
50+	1.1	92.1	0.0	6.8	0.0	0.0	0.0	100.0
Total	54.1	44.4	0.0	1.3	0.1	0.0	0.0	100.0
Female								
6–12	97.9	1.9	0.0	0.1	0.0	0.0	0.2	100.0
13–14	98.1	1.6	0.0	0.0	0.3	0.0	0.0	100.0
15–19	74.2	25.0	0.3	0.1	0.3	0.0	0.1	100.0
20–24	33.6	63.3	0.1	1.4	0.8	0.3	0.4	100.0
25–29	15.5	81.9	0.2	1.2	0.5	0.3	0.5	100.0
30–49	3.1	86.5	0.1	8.9	0.6	0.4	0.4	100.0
50+	0.0	48.7	0.2	49.0	0.2	1.6	0.3	100.0
Total	43.1	48.3	0.1	7.5	0.4	0.3	0.3	100.0

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

Percent distribution of the household population age 6 and above by marital status, according to age, residence, and sex, Assam, 1999

Age	Marital status							Total percent
	Never married	Currently married	Married, *gauna* not performed	Widowed	Divorced	Separated	Deserted	
				TOTAL				
				Male				
6–12	98.4	1.4	0.1	0.0	0.0	0.0	0.0	100.0
13–14	99.4	0.6	0.0	0.0	0.0	0.0	0.0	100.0
15–19	97.4	2.6	0.0	0.0	0.0	0.0	0.0	100.0
20–24	82.3	17.5	0.0	0.0	0.0	0.0	0.2	100.0
25–29	50.3	49.5	0.0	0.2	0.0	0.0	0.0	100.0
30–49	9.7	88.6	0.0	1.4	0.2	0.1	0.1	100.0
50+	1.3	92.1	0.0	6.6	0.0	0.0	0.0	100.0
Total	54.0	44.6	0.0	1.3	0.1	0.0	0.0	100.0
				Female				
6–12	98.0	1.8	0.0	0.1	0.0	0.0	0.1	100.0
13–14	98.0	1.6	0.0	0.0	0.3	0.0	0.0	100.0
15–19	75.8	23.4	0.3	0.1	0.2	0.0	0.1	100.0
20–24	35.4	61.6	0.1	1.3	0.9	0.3	0.4	100.0
25–29	16.1	81.3	0.1	1.3	0.4	0.3	0.4	100.0
30–49	3.2	86.3	0.1	9.0	0.6	0.4	0.4	100.0
50+	0.1	47.8	0.2	49.8	0.2	1.6	0.4	100.0
Total	43.2	48.1	0.1	7.6	0.4	0.3	0.3	100.0

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

Table 2.4 shows estimates of the singulate mean age at marriage (SMAM), which can be calculated from age-specific proportions single in a census or household survey. SMAM is calculated from the *de jure* population in NFHS-2 in order to arrive at estimates that are more comparable to those derived from the censuses, which are modified *de jure* counts. According to the SMAM measure, men in Assam tend to marry women who are about six years younger than themselves. The censuses indicate that the mean age at marriage increased between 1971 and 1991 for both men and women, but slightly faster for women than for men. There has been, however, very little change in the mean age at marriage in the six years between NFHS-1 and NFHS-2. In NFHS-2, the mean age at marriage is higher in urban areas than in rural areas, with urban men and women marrying 1.6 to 2.1 years later than their rural counterparts. As estimated from NFHS-2, SMAM in Assam is 21.7 for females (23.6 in urban areas and 21.5 in rural areas) and 27.8 for males (29.3 in urban areas and 27.7 in rural areas).

Table 2.4 Singulate mean age at marriage

Singulate mean age at marriage from selected sources, Assam, 1961–1999

Source	Singulate mean age at marriage (SMAM)		
	Male	Female	Difference
1961 Census	25.9	18.6	7.3
1971 Census	25.8	18.7	7.1
1981 Census	U	U	U
1991 Census	27.0	20.9	6.1
1992–93 NFHS-1			
Urban	29.2	23.0	6.3
Rural	27.7	21.4	6.3
Total	27.9	21.6	6.3
1999 NFHS-2			
Urban	29.3	23.6	5.7
Rural	27.7	21.5	6.2
Total	27.8	21.7	6.2

Note: Table is based on the *de jure* population. The male SMAM minus the female SMAM may not correspond exactly to the difference in SMAM due to rounding.
U: Not available

2.3 Household Composition

Table 2.5 shows the percent distribution of households by various characteristics of the household head (sex, age, religion, and caste/tribe), as well as by household type and the number of usual household members, according to residence. The table is based on the *de jure* population because household type and the number of usual household members pertain to the usual-resident population. The table shows that 88 percent of urban household heads and 92 percent of rural household heads are male. The median age of household heads is 44 years in urban areas and 42 years in rural areas. Nearly three-quarters (74 percent) of household heads are age 30–59, and only 9 percent are less than age 30. Sixty-seven percent of household heads are Hindu, 29 percent are Muslim, 2 percent are Christian, and less than 1 percent belong to any other religion. Muslims constitute 31 percent of rural household heads, but only 10 percent of urban household heads. Ten percent of household heads belong to scheduled castes, 21 percent to scheduled tribes, and 13 percent to other backward classes (OBC[1]). The proportion of household heads belonging to scheduled tribes is much lower in urban areas (6 percent) than in rural areas (23 percent).

More than half of all households (58 percent) are nuclear family households (consisting of an unmarried adult living alone or a married person or couple and their unmarried children, if any). Nuclear households are slightly more common in urban areas (61 percent) than in rural areas (57 percent). The average household size is 5.9 persons (6.0 in rural areas and 4.9 in urban areas).

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

Table 2.5 Household characteristics

Percent distribution of households by selected characteristics of the household head, household type, and household size, according to residence, Assam, 1999

Characteristic	Urban	Rural	Total
Sex of household head			
Male	87.9	92.0	91.6
Female	12.1	8.0	8.4
Age of household head			
< 30	9.0	9.3	9.3
30–44	41.6	42.8	42.7
45–59	33.4	30.6	30.8
60+	16.0	17.3	17.1
Median age	44.0	42.4	42.6
Religion of household head			
Hindu	87.6	64.7	66.9
Muslim	10.1	31.4	29.4
Christian	0.8	2.6	2.4
Sikh	0.2	0.0	0.0
Buddhist/Neo-Buddhist	0.1	0.2	0.2
Jain	0.5	0.0	0.0
No religion	0.1	0.0	0.1
Other	0.2	0.3	0.3
Missing	0.3	0.8	0.7
Caste/tribe of household head			
Scheduled caste	13.7	9.5	9.9
Scheduled tribe	5.8	22.9	21.3
Other backward class	12.0	12.5	12.5
Other	67.5	52.6	54.0
Don't know/missing	1.0	2.5	2.4
Household type			
Nuclear household	61.3	57.1	57.5
Non-nuclear household	38.5	42.9	42.5
Household with no usual members	0.2	0.0	0.0
Number of usual members			
0	0.2	0.0	0.0
1	5.0	1.4	1.7
2	6.5	4.2	4.4
3	13.6	8.7	9.2
4	24.1	15.7	16.5
5	19.7	18.7	18.8
6	13.0	17.8	17.4
7	8.0	11.4	11.1
8	3.9	7.7	7.4
9+	5.9	14.3	13.5
Mean household size	4.9	6.0	5.9
Total percent	100.0	100.0	100.0
Number of households	300	2,821	3,121

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

Table 2.6 Educational level of the household population

Percent distribution of the household population age 6 and above by literacy and level of education, and median number of completed years of schooling, according to age, residence, and sex, Assam, 1999

Age	Educational level[1]							Total percent	Number of persons	Median number of years of schooling
	Illiterate	Literate, < primary school complete	Primary school complete	Middle school complete	High school complete	Higher secondary complete and above	Missing			
					URBAN					
					Male					
6–9	7.8	90.2	2.0	0.0	0.0	0.0	0.0	100.0	54	1.7
10–14	7.1	29.0	52.3	11.6	0.0	0.0	0.0	100.0	84	5.7
15–19	7.1	4.4	15.0	46.7	22.0	4.4	0.4	100.0	79	9.4
20–29	6.3	9.1	9.7	20.8	15.6	38.2	0.3	100.0	134	10.4
30–39	11.7	9.3	8.3	16.9	14.1	39.6	0.0	100.0	123	10.3
40–49	11.9	7.6	6.5	15.8	16.7	41.6	0.0	100.0	100	10.6
50+	13.0	11.1	14.8	17.0	17.8	26.0	0.4	100.0	91	9.5
Total	9.4	17.8	15.0	19.0	13.3	25.3	0.2	100.0	665	9.2
					Female					
6–9	12.3	85.6	2.1	0.0	0.0	0.0	0.0	100.0	51	1.9
10–14	10.0	28.0	45.1	16.5	0.4	0.0	0.0	100.0	89	5.7
15–19	9.9	8.0	12.5	43.9	21.1	4.2	0.4	100.0	92	9.3
20–29	12.4	6.7	9.0	22.8	15.4	33.4	0.2	100.0	155	10.0
30–39	15.6	10.5	10.6	20.8	15.4	27.0	0.0	100.0	135	9.5
40–49	27.3	11.0	18.5	13.4	12.3	17.4	0.0	100.0	85	7.2
50+	31.9	20.6	16.9	16.9	7.4	6.3	0.0	100.0	59	4.8
Total	16.0	18.3	16.0	21.0	11.9	16.6	0.1	100.0	665	8.0
					Total					
6–9	10.0	88.0	2.1	0.0	0.0	0.0	0.0	100.0	105	1.8
10–14	8.6	28.5	48.6	14.1	0.2	0.0	0.0	100.0	173	5.7
15–19	8.6	6.3	13.6	45.2	21.5	4.3	0.4	100.0	171	9.3
20–29	9.6	7.8	9.3	21.9	15.5	35.7	0.3	100.0	289	10.1
30–39	13.7	9.9	9.5	18.9	14.8	33.0	0.0	100.0	257	9.8
40–49	19.0	9.2	12.0	14.7	14.7	30.5	0.0	100.0	185	9.6
50+	20.5	14.8	15.6	17.0	13.7	18.2	0.2	100.0	149	7.8
Total	12.7	18.0	15.5	20.0	12.6	21.0	0.1	100.0	1,330	8.7

2.4 Educational Level

The level of education of household members may affect reproductive behaviour, contraceptive use, the health of children, and proper hygienic practices. Table 2.6 shows the percent distribution of the *de facto* household population by literacy and educational level, according to age, residence, and sex. (This table and all subsequent tables and figures in this report are based on the *de facto* sample, unless otherwise specified.)

In Assam, 41 percent of females and 25 percent of males age six and above are illiterate. Comparable figures from NFHS-1 are 49 percent of females and 30 percent of males, indicating

Table 2.6 Educational level of the household population (contd.)

Percent distribution of the household population age 6 and above by literacy and level of education, and median number of completed years of schooling, according to age, residence, and sex, Assam, 1999

Age	Educational level[1]							Total percent	Number of persons	Median number of years of schooling
	Illiterate	Literate, < primary school complete	Primary school complete	Middle school complete	High school complete	Higher secondary complete and above	Missing			
RURAL										
Male										
6–9	24.7	74.7	0.0	0.0	0.0	0.0	0.6	100.0	945	1.3
10–14	13.6	43.9	37.0	5.3	0.2	0.0	0.0	100.0	1,125	4.6
15–19	19.5	12.1	23.0	34.6	8.1	2.8	0.0	100.0	899	7.5
20–29	21.1	11.5	14.3	22.0	12.5	18.6	0.0	100.0	1,415	8.7
30–39	33.0	17.1	11.0	17.8	8.3	12.8	0.0	100.0	1,253	5.1
40–49	37.9	19.3	11.2	17.7	6.8	7.1	0.0	100.0	882	4.3
50+	41.3	25.4	12.1	10.4	6.3	4.5	0.0	100.0	965	3.4
Total	26.8	28.1	15.8	15.5	6.4	7.4	0.1	100.0	7,487	4.5
Female										
6–9	23.8	75.4	0.1	0.0	0.0	0.0	0.7	100.0	919	1.2
10–14	22.0	36.5	33.2	8.3	0.0	0.0	0.0	100.0	1,070	4.4
15–19	28.4	12.6	15.4	33.5	8.5	1.3	0.3	100.0	915	7.1
20–29	40.6	13.6	11.8	18.2	8.0	7.8	0.1	100.0	1,687	4.5
30–39	57.1	12.9	8.3	13.3	5.5	2.9	0.1	100.0	1,162	0.0
40–49	64.6	14.9	7.6	8.5	3.1	1.3	0.0	100.0	750	0.0
50+	81.3	11.2	4.1	2.0	0.9	0.2	0.4	100.0	697	0.0
Total	43.2	24.6	12.2	13.0	4.2	2.6	0.2	100.0	7,199	2.0
Total										
6–9	24.2	75.0	0.1	0.0	0.0	0.0	0.7	100.0	1,863	1.3
10–14	17.7	40.3	35.1	6.8	0.1	0.0	0.0	100.0	2,195	4.5
15–19	24.0	12.4	19.2	34.0	8.3	2.0	0.1	100.0	1,813	7.3
20–29	31.7	12.7	12.9	19.9	10.0	12.7	0.0	100.0	3,102	6.6
30–39	44.6	15.1	9.7	15.6	6.9	8.0	0.1	100.0	2,415	3.6
40–49	50.1	17.3	9.6	13.4	5.1	4.4	0.0	100.0	1,633	1.3
50+	58.1	19.5	8.7	6.8	4.0	2.7	0.1	100.0	1,662	0.0
Total	34.9	26.3	14.0	14.3	5.3	5.0	0.2	100.0	14,686	3.5

a substantial increase in literacy during the six years between the two surveys.[2] The literacy gap between males and females has narrowed over time, but even at age 10–14 there is still a gap of 8 percentage points (up from 6 percentage points in NFHS-1). The rapid increases in educational attainment over time can also be seen by examining differences in educational levels by age. For example, the proportion of males completing at least high school rises from 14 percent at age 50 and above to 33 percent at ages 20–29. For females, the proportion completing at least high school is negligible (only 2 percent) at age 50 and above but reaches 19 percent at ages 20–29.

[2]Although the number of years of education at each level (primary school, middle school, secondary school, and higher secondary school) is different in different states, to facilitate comparisons of educational attainment among states, the NFHS-2 tabulations use the same levels in all states (five years of primary school, three years of middle school, two years of secondary school, and two years of higher secondary school). In NFHS-1, tabulations followed the actual educational system in Assam (four years of primary school, three years of middle school, three years of secondary school, and two years of higher secondary school), so that the educational levels in NFHS-1 and NFHS-2 published tables are not strictly comparable.

Table 2.6 Educational level of the household population (contd.)

Percent distribution of the household population age 6 and above by literacy and level of education, and median number of completed years of schooling, according to age, residence, and sex, Assam, 1999

Age	Educational level[1]							Total percent	Number of persons	Median number of years of schooling
	Illiterate	Literate, < primary school complete	Primary school complete	Middle school complete	High school complete	Higher secondary complete and above	Missing			
TOTAL										
Male										
6–9	23.8	75.5	0.1	0.0	0.0	0.0	0.6	100.0	999	1.3
10–14	13.1	42.9	38.0	5.8	0.2	0.0	0.0	100.0	1,209	4.6
15–19	18.5	11.4	22.4	35.5	9.2	2.9	0.0	100.0	978	7.8
20–29	19.8	11.3	13.9	21.9	12.8	20.3	0.0	100.0	1,549	9.0
30–39	31.1	16.4	10.8	17.7	8.8	15.2	0.0	100.0	1,376	5.9
40–49	35.2	18.1	10.8	17.5	7.8	10.6	0.0	100.0	983	4.6
50+	38.9	24.2	12.4	10.9	7.2	6.3	0.0	100.0	1,056	4.0
Total	25.4	27.2	15.7	15.8	6.9	8.9	0.1	100.0	8,152	4.7
Female										
6–9	23.2	75.9	0.2	0.0	0.0	0.0	0.7	100.0	970	1.3
10–14	21.1	35.8	34.1	8.9	0.0	0.0	0.0	100.0	1,159	4.5
15–19	26.7	12.2	15.1	34.5	9.6	1.6	0.3	100.0	1,007	7.4
20–29	38.2	13.0	11.5	18.6	8.6	9.9	0.1	100.0	1,841	4.9
30–39	52.8	12.7	8.5	14.1	6.5	5.4	0.1	100.0	1,297	0.0
40–49	60.8	14.5	8.7	9.0	4.1	2.9	0.0	100.0	835	0.0
50+	77.5	12.0	5.1	3.1	1.4	0.7	0.3	100.0	755	0.0
Total	40.9	24.0	12.5	13.7	4.9	3.8	0.2	100.0	7,864	2.5
Total										
6–9	23.5	75.7	0.2	0.0	0.0	0.0	0.6	100.0	1,969	1.3
10–14	17.0	39.4	36.1	7.3	0.1	0.0	0.0	100.0	2,368	4.6
15–19	22.6	11.8	18.7	35.0	9.4	2.2	0.2	100.0	1,985	7.6
20–29	29.8	12.2	12.6	20.1	10.5	14.7	0.1	100.0	3,390	7.1
30–39	41.6	14.6	9.7	15.9	7.7	10.4	0.0	100.0	2,673	4.2
40–49	47.0	16.5	9.8	13.6	6.1	7.1	0.0	100.0	1,817	2.8
50+	55.0	19.1	9.3	7.7	4.8	4.0	0.2	100.0	1,811	0.0
Total	33.0	25.7	14.1	14.7	5.9	6.4	0.2	100.0	16,015	4.0

Note: This table and all subsequent tables (unless otherwise indicated) are based on the *de facto* population. Illiterate persons may have been to school, but they cannot read and write. Total includes 3 males from rural areas with missing information on age, who are not shown separately.

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

A higher percentage of males than of females have completed each level of schooling. The median number of years of schooling is 4.7 for males and 2.5 for females. The proportion illiterate is lowest at age 10–14 and highest at age 50 and above for both females and males.

Education levels are much higher in urban areas than in rural areas. The proportion illiterate is approximately three times higher for rural females (43 percent) and rural males (27 percent) than for urban females (16 percent) and urban males (9 percent).

Table 2.7 and Figure 2.2 show school attendance rates for the school-age household population by age, sex, and residence. In Assam as a whole, 77 percent of children age 6–14 are

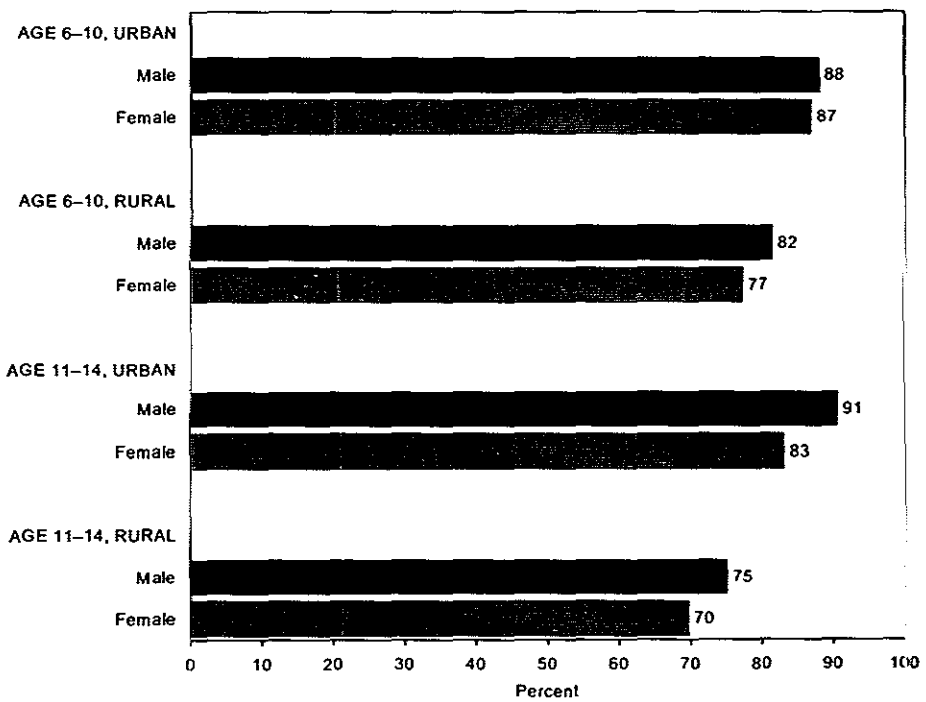
attending school, up from 70 percent in NFHS-1. The attendance rate drops off to 53 percent at age 15–17. For the age group 6–17, the attendance rate is 74 percent for males, 70 percent for females, and 72 percent for the state as a whole. Overall, attendance rates for both males and females are considerably higher in urban areas than in rural areas.

Table 2.7 School attendance

Percentage of the household population age 6–17 years attending school by age, sex, and residence, Assam, 1999

	Male			Female			Total		
Age	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
6–10	88.1	81.5	81.8	87.0	77.3	77.9	87.6	79.5	79.9
11–14	90.6	75.1	76.3	83.1	69.8	70.8	86.9	72.5	73.6
15–17	79.9	51.7	54.0	71.7	50.5	52.6	75.4	51.1	53.3
6–14	89.3	78.9	79.6	85.2	74.3	75.0	87.2	76.7	77.3
6–17	86.8	73.3	74.2	81.1	69.0	69.9	83.8	71.2	72.1

Figure 2.2
School Attendance by Age, Sex, and Residence



NFHS-2, Assam, 1999

Table 2.8 Reasons for children not attending school

Percent distribution of children age 6–17 years who never attended school by the main reason for never attending school and percent distribution of children age 6–17 years who have dropped out of school by the main reason for not currently attending school, according to residence and sex, Assam, 1999

	Urban		Rural		Total	
Reason	Male	Female	Male	Female	Male	Female
Main reason for never attending school[1]						
School too far away	(0.0)	0.0	3.5	2.1	3.4	2.0
Transport not available	(0.0)	0.0	1.9	0.4	1.8	0.4
Education not considered necessary	(4.2)	6.9	14.8	18.9	14.4	18.5
Required for household work	(5.7)	17.4	7.9	17.2	7.9	17.2
Required for work on farm/family business	(2.8)	1.7	1.9	1.8	1.9	1.8
Required for outside work for payment in cash or kind	(22.3)	15.4	7.3	3.9	7.8	4.4
Costs too much	(37.8)	38.0	27.2	25.2	27.5	25.7
No proper school facilities for girls	(0.0)	1.7	0.0	2.3	0.0	2.3
Required for care of siblings	(0.0)	0.0	1.9	4.6	1.8	4.4
Not interested in studies	(20.2)	11.6	25.2	17.7	25.0	17.5
Other	(7.0)	3.7	3.5	3.8	3.6	3.8
Don't know/missing	(0.0)	3.6	5.1	2.0	4.9	2.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of children	12	20	391	541	403	562
Main reason for not currently attending school[2]						
School too far away	(0.0)	(3.0)	1.4	1.2	1.3	1.4
Transport not available	(0.0)	(0.0)	0.5	0.6	0.4	0.6
Further education not considered necessary	(9.1)	(5.1)	1.9	5.5	2.1	5.5
Required for household work	(5.5)	(20.7)	8.9	19.8	8.8	19.9
Required for work on farm/family business	(11.1)	(2.6)	6.2	1.8	6.3	1.9
Required for outside work for payment in cash or kind	(15.4)	(3.1)	8.5	2.5	8.8	2.5
Costs too much	(33.5)	(28.6)	20.9	30.2	21.3	30.1
No proper school facilities for girls	(0.0)	(2.5)	0.0	0.0	0.0	0.2
Required for care of siblings	(0.0)	(0.0)	1.9	3.1	1.8	2.9
Not interested in studies	(14.6)	(16.7)	32.8	11.2	32.2	11.5
Repeated failures	(3.7)	(6.4)	4.2	5.5	4.2	5.6
Got married	(0.0)	(2.6)	0.5	9.2	0.5	8.8
Other	(0.0)	(8.6)	1.9	0.6	1.9	1.1
Don't know/missing	(7.2)	(0.0)	10.5	8.7	10.4	8.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of children	9	13	260	200	270	213

( ) Based on 25–49 unweighted cases
[1]For children who never attended school
[2]For children who have dropped out of school

Table 2.8 shows reasons for children never attending school or not currently attending school (for those who have dropped out of school), as reported by the respondent to the Household Questionnaire. For both boys and girls, the main reasons for never attending school are that school costs too much, the children are not interested in studies, and education is not considered to be necessary. For children who used to attend school but have dropped out, the main reasons for not currently attending school are that the child is not interested in studies, that school costs too much, and that the child (especially in the case of girls) is needed for household work. Nine percent of boys and 20 percent of girls are not currently attending school because they are required for household work. In Assam, the need for children to remain out of school in order to work on a family farm or in a family business or to work outside for payment in cash or

kind is not mentioned frequently as the main reason for never attending school or not currently attending school for either boys or girls. Some girls are not in school because they got married, but this is cited as the main reason for not currently attending school for only 1 in 11 girls who have dropped out of school.

2.5 Housing Characteristics

Table 2.9 provides information on housing characteristics by residence. Twenty-six percent of households in Assam have electricity (up from 20 percent in NFHS-1). The proportion of households with electricity is 77 percent in urban areas and 21 percent in rural areas.

Water sources and sanitation facilities may have an important influence on the health of household members, especially children. NFHS-1 and NFHS-2 included questions on sources of drinking water and types of sanitation facilities. NFHS-2 found that 11 percent of households use piped drinking water (the same percentage as in NFHS-1), 49 percent drink water from hand pumps, and 29 percent drink water from wells. As in the case of electricity, there are large urban-rural differences in sources of drinking water. The proportion of households with piped drinking water is 48 percent in urban areas but only 7 percent in rural areas. Most households have fairly easy access to drinking water. Eighty percent of households have a source of drinking water that is in the residence, yard, or plot or is accessible in 15 minutes or less, including the time to go to the source, get water, and come back. Forty-one percent of households purify their drinking water (68 percent in urban areas and 38 percent in rural areas). The most common methods of water purification are filtration (mainly in urban areas) and boiling.

Regarding sanitation facilities, only 15 percent of households have a flush toilet (using either piped water or water from a bucket for flushing), 48 percent have a pit toilet or latrine, and 37 percent have no facility. Again there are large urban-rural differences: For example, the proportion of households that have a flush toilet is 58 percent in urban areas but only 10 percent in rural areas.

Several types of fuel are used for cooking in Assam, with wood as the most common type. In the state as a whole, 85 percent of households rely mainly on wood and 11 percent on liquid petroleum gas. Again there are large urban-rural differences. Fifty-three percent of urban households rely mainly on liquid petroleum gas, whereas 91 percent of rural households rely mainly on wood and 6 percent on liquid petroleum gas.

Regarding type of house construction, 51 percent of households live in houses that are *kachha* (made with mud, thatch, or other low-quality materials), 38 percent live in semi-*pucca* houses (using partly low-quality and partly high-quality materials), and 11 percent live in *pucca* houses (made with high-quality materials throughout, including the roof, walls, and floor). Forty-two percent of households in urban areas live in *pucca* houses, compared with 8 percent of households in rural areas.

Crowded housing conditions may affect health as well as the quality of life. Twenty percent of households in Assam live in houses with three or more persons per room. The mean number of persons per room is 2.1 (down from 2.4 in NFHS-1).

Table 2.9 Housing characteristics

Percent distribution of households by housing characteristics, according to residence, Assam, 1999

Housing characteristic	Urban	Rural	Total
Electricity			
Yes	76.6	21.1	26.4
No	23.4	78.9	73.6
Total percent	100.0	100.0	100.0
Source of drinking water			
Piped	47.8	7.1	11.0
Hand pump	34.8	50.6	49.1
Well water	16.9	30.4	29.1
Surface water	0.2	11.8	10.7
Other	0.3	0.1	0.1
Total percent	100.0	100.0	100.0
Time to get drinking water			
Percentage < 15 minutes	89.5	79.4	80.4
Method of drinking water purification[1]			
Strains water by cloth	0.7	1.2	1.1
Uses alum	1.7	3.3	3.1
Uses water filter	54.5	13.3	17.3
Boils water	22.8	24.2	24.0
Uses electronic purifier	2.3	0.7	0.9
Uses other method	0.1	0.8	0.7
Does not purify water	31.7	61.9	59.0
Sanitation facility			
Flush toilet	57.8	10.0	14.6
Pit toilet/latrine	37.1	49.6	48.4
Other	0.0	0.2	0.2
No facility	5.1	40.2	36.8
Total percent	100.0	100.0	100.0
Main type of fuel used for cooking			
Wood	30.6	90.9	85.1
Crop residues	0.0	1.6	1.5
Dung cakes	0.0	0.6	0.5
Coal/coke/lignite/charcoal	1.0	0.0	0.1
Kerosene	13.9	0.3	1.6
Liquid petroleum gas	52.9	6.0	10.5
Biogas	1.5	0.6	0.6
Missing	0.1	0.1	0.1
Total percent	100.0	100.0	100.0
Type of house			
Kachha	15.2	54.8	51.0
Semi-*pucca*	43.1	37.4	37.9
Pucca	41.5	7.6	10.9
Missing	0.3	0.2	0.2
Total percent	100.0	100.0	100.0
Persons per room			
< 3	82.8	79.2	79.5
3–4	12.4	15.6	15.3
5–6	3.9	3.5	3.5
7+	0.9	1.6	1.5
Don't know/missing	0.1	0.2	0.2
Total percent	100.0	100.0	100.0
Mean number of persons per room	1.8	2.1	2.1
Number of households	300	2,821	3,121

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

Table 2.10 Household ownership of agricultural land, house, and livestock

Percent distribution of households owning agricultural land and percentage owning a house and livestock by residence, Assam, 1999

Asset	Urban	Rural	Total
No agricultural land	82.7	45.4	49.0
Irrigated land only			
< 1 acre	0.2	1.1	1.0
1–5 acres	1.1	1.9	1.8
6+ acres	0.1	0.3	0.2
Nonirrigated land only			
< 1 acre	3.0	16.3	15.0
1–5 acres	8.2	29.5	27.4
6+ acres	2.4	2.2	2.2
Both irrigated and nonirrigated land			
< 1 acre	0.0	0.3	0.2
1–5 acres	0.7	1.6	1.5
6+ acres	0.4	1.0	0.9
Missing	1.3	0.6	0.7
Total percent	100.0	100.0	100.0
Percentage owning a house	78.0	87.4	86.5
Percentage owning livestock	17.0	57.6	53.7
Number of households	300	2,821	3,121

Table 2.10 shows a number of measures related to the socioeconomic status of the household (ownership of land, house, and livestock). Overall, 49 percent of households do not own any agricultural land, about the same percentage as in NFHS-1. Forty-five percent of households in rural areas do not own agricultural land, compared with 83 percent in urban areas. In rural areas, among those who own agricultural land, 11 percent have at least some irrigated land. The proportion of households owning a house is 78 percent in urban areas, 87 percent in rural areas, and 87 percent overall. The proportion of households owning livestock is 17 percent in urban areas, 58 percent in rural areas, and 54 percent overall.

The possession of durable goods is another indicator of a household's socioeconomic level, although these goods may also have other benefits. For example, having access to a radio or television may expose household members to innovative ideas or important information about health and family welfare; a refrigerator prolongs the wholesomeness of food; and a means of transportation allows greater access to many services outside the local area. Table 2.11 shows that the majority of households in Assam have a cot or bed (78 percent), a chair (66 percent), a table (65 percent), a clock or watch (58 percent), and a bicycle (50 percent). Other durable goods often found in households are mattresses (46 percent), radios/transistors (35 percent), electric fans (22 percent), black and white televisions (16 percent), pressure cookers (15 percent), and sewing machines (11 percent), with smaller proportions owning motorcycles or scooters or mopeds (6 percent), refrigerators (4 percent), colour televisions (4 percent), and telephones (3 percent). Urban households are more likely than rural households to own all of these durable goods except for bullock carts. Fifty-four percent of households use mainly aluminium

kitchenware, and 41 percent use stainless steel kitchenware. Stainless steel kitchenware is more popular in urban areas (57 percent) than in rural areas (39 percent).

Table 2.11 shows a summary household measure called the standard of living index (SLI), which is calculated by adding the following scores:

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

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

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

Table 2.11 Household ownership of durable goods and standard of living

Percentage of households owning selected durable goods and percent distribution of households by type of kitchenware and the standard of living index, according to residence, Assam, 1999

Asset	Urban	Rural	Total
Durable goods			
Mattress	83.0	41.7	45.7
Pressure cooker	61.8	9.7	14.7
Chair	85.2	63.7	65.7
Cot/bed	96.0	76.3	78.1
Table	86.4	62.9	65.2
Clock/watch	85.4	54.7	57.7
Electric fan	68.8	16.6	21.6
Bicycle	53.5	50.1	50.4
Radio/transistor	51.7	33.3	35.0
Sewing machine	38.9	8.1	11.1
Telephone	18.7	1.1	2.8
Refrigerator	24.8	1.7	3.9
Television (black and white)	44.8	13.0	16.1
Television (colour)	21.7	2.2	4.1
Moped/scooter/motorcycle	22.2	3.7	5.5
Car	7.1	1.0	1.6
Water pump	5.9	3.0	3.3
Bullock cart	0.7	1.7	1.6
Thresher	0.2	0.1	0.1
Tractor	0.4	0.2	0.2
None of the above	2.1	12.2	11.2
Main type of kitchenware used			
Clay	0.1	0.3	0.2
Aluminium	37.8	55.5	53.8
Cast iron	3.3	3.2	3.3
Brass/copper	1.5	1.4	1.4
Stainless steel	57.2	39.3	41.0
Don't know/missing	0.1	0.3	0.3
Total percent	100.0	100.0	100.0
Standard of living index			
Low	19.4	48.4	45.6
Medium	37.8	40.8	40.5
High	39.5	7.8	10.8
Missing	3.4	3.0	3.0
Total percent	100.0	100.0	100.0
Number of households	300	2,821	3,121

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

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

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

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

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

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

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

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

Index scores range from 0–14 for a low SLI to 15–24 for a medium SLI to 25–67 for a high SLI. By this measure, 46 percent of households in Assam have a low standard of living, 41 percent have a medium standard of living, and 11 percent have a high standard of living. The proportion with a low standard of living is much lower in urban areas (19 percent) than in rural areas (48 percent), and the proportion with a high standard of living is much higher in urban areas (40 percent) than in rural areas (8 percent).

2.6 Lifestyle Indicators

The NFHS-2 Household Questionnaire asked about certain aspects of the lifestyle of household members. Table 2.12 shows the percentages of men and women age 15 and above who chew *paan masala* or tobacco, drink alcohol, or smoke. These lifestyle indicators are of considerable interest because the use of *paan masala*, tobacco, and alcohol all have detrimental effects on health.

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

At ages 15 and above, 48 percent of men and 25 percent of women chew *paan masala* or tobacco. For males this proportion rises steadily with age from 16 percent at age 15–19 to 66 percent at age 40–49 and declines thereafter to 54 percent at age 60 and above. For females the proportion chewing *paan masala* or tobacco increases from 6 percent age 15–19 to 49 percent at age 50–59 and then declines slightly at age 50 and above. Chewing of *paan masala* or tobacco is

Table 2.12 Lifestyle indicators

Percentage of usual household members age 15 and above who chew *paan masala* or tobacco, drink alcohol, currently smoke, or have ever smoked by selected background characteristics and sex, Assam, 1999

Background characteristic	Chew *paan masala* or tobacco	Drink alcohol	Currently smoke	Ever smoked[1]	Number of household members
		MALE			
Age					
15–19	16.1	8.4	5.2	5.5	974
20–24	31.2	13.9	15.5	16.4	785
25–29	48.8	21.7	27.0	28.9	768
30–39	59.6	32.1	39.2	42.5	1,370
40–49	65.9	36.3	44.6	49.2	987
50–59	63.8	33.7	50.2	56.7	527
60+	53.9	27.9	48.8	57.0	532
Residence					
Urban	36.9	12.8	26.2	28.1	529
Rural	49.3	26.1	32.2	35.6	5,414
Education					
Illiterate	59.9	32.5	45.5	49.5	1,686
Literate, < middle school complete	52.6	27.4	35.8	39.9	1,762
Middle school complete	38.4	21.1	19.9	21.7	1,207
High school complete and above	36.2	15.2	19.0	21.3	1,287
Standard of living index					
Low	57.3	33.2	44.0	47.8	2,202
Medium	46.0	22.5	26.5	29.6	2,773
High	32.8	13.5	16.8	19.2	778
Total	48.2	24.9	31.7	34.9	5,944
		FEMALE			
Age					
15–19	6.1	4.8	0.4	0.5	986
20–24	13.9	5.9	0.4	0.5	909
25–29	19.4	9.8	0.8	0.8	857
30–39	27.5	12.7	1.4	1.8	1,261
40–49	41.2	17.3	5.3	5.5	825
50–59	49.0	21.2	11.0	11.7	365
60+	44.1	14.6	9.7	11.6	384
Residence					
Urban	20.1	1.0	1.1	1.1	506
Rural	25.3	12.1	2.9	3.3	5,082
Education					
Illiterate	35.0	17.1	4.6	5.2	2,698
Literate, < middle school complete	22.1	7.9	1.6	1.8	1,282
Middle school complete	11.6	4.7	0.5	0.5	951
High school complete and above	7.6	1.8	0.2	0.2	650
Standard of living index					
Low	32.0	16.1	3.3	3.7	2,177
Medium	22.8	9.9	2.9	3.1	2,498
High	13.0	0.5	0.6	1.0	742
Total	24.9	11.1	2.7	3.1	5,588
Total male and female	36.9	18.2	17.6	19.5	11,531

Note: Total includes 1 male and 7 females with missing information on education and 190 males and 172 females with missing information on the standard of living index, who are not shown separately.
[1]Includes household members who currently smoke

more common in rural areas than in urban areas, particularly for men. It is inversely related to both education and the standard of living index.

The proportion of persons age 15 and above who drink alcohol is 25 percent for men and 11 percent for women. The proportion of men who drink alcohol rises with age up to age 40–49, where it reaches a high of 36 percent, then falls to 28 percent among those age 60 and above. The proportion of men who drink is twice as high in rural areas (26 percent) as in urban areas (13 percent). Alcohol consumption is much higher among illiterate men than among literate men. Men in households with a low standard of living are more than twice as likely to drink alcohol as men in households with a high standard of living.

Among men age 15 and above, 32 percent currently smoke. This proportion rises from 5 percent at age 15–19 to 50 percent at age 50–59 and then falls off slightly. Smoking among men is much more common in rural areas (32 percent) than urban areas (26 percent). Smoking is more than twice as prevalent among illiterate men as among men who have completed at least middle school, and is also more than twice as prevalent among men with a low standard of living as among men with a high standard of living. Ninety-one percent of men who ever smoked were still smokers at the time of the survey. The pattern of differentials for ever-smokers closely resembles the pattern for current smokers. Among women age 15 and above, 3 percent are reported to have ever smoked, and among them 87 percent currently smoke.

2.7 Availability of Facilities and Services to the Rural Population

The NFHS-2 Village Questionnaire collected information from the *sarpanch*, other village officials, or other knowledgeable persons in the village on facilities and services in the village. One important set of questions was on the distance of the village from various types of health facilities, including Primary Health Centres (PHCs), sub-centres, hospitals, and dispensaries or clinics. Table 2.13 summarizes findings on distance from a health facility. The unit of analysis is ever-married women age 15–49 who reside in rural areas. Only 1 percent of rural women live in

Table 2.13 Distance from the nearest health facility

Percent distribution of ever-married rural women age 15–49 by distance from the nearest health facility, Assam, 1999

	Health facility					
Distance	Primary Health Centre	Sub-centre	Either PHC or sub-centre	Hospital[1]	Dispensary/ clinic	Any health facility
Within village	1.4	9.0	9.0	6.2	3.2	18.4
< 5 km	33.1	70.2	73.3	24.7	46.0	68.8
5–9 km	30.2	11.2	8.1	24.5	19.3	7.7
10+ km	33.7	8.0	8.0	44.0	31.5	5.1
Don't know/missing	1.5	1.5	1.5	0.6	0.0	0.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Median distance (in km)	6.3	2.0	2.0	8.4	5.1	1.2

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

a village with a Primary Health Centre, 9 percent live in a village with a sub-centre, and 9 percent live in a village with either a PHC or a sub-centre. The proportions who live in a village with other health facilities are 6 percent for hospitals and 3 percent for dispensaries or clinics. Eighteen percent of women live in a village that has some kind of health facility. Median distances from particular health facilities are 6.3 km from a Primary Health Centre, 8.4 km from a hospital, and 5.1 km from a dispensary or a clinic. Thirteen percent of rural women need to travel at least 5 kilometres to reach the nearest health facility.

Table 2.14 shows the proportion of residents of rural areas of Assam who live in villages that have various facilities and services. Fifty-seven percent of rural residents live in villages that have a primary school, 32 percent live in villages with a middle school, 11 percent live in villages that have a secondary school, and 8 percent live in villages with a higher secondary school. Forty-one percent of rural residents live in villages that have an *anganwadi,*[3] and 23 percent live in villages with an adult education centre. Twenty-three percent of rural residents live in villages that have a private doctor, and 36 percent live in villages with a visiting doctor. Two-thirds live in villages that are at least partly electrified.

Although only 7 percent live in villages with an STD booth (for long-distance telephoning within India), 35 percent live in villages that have at least one household with a private telephone. Only 4 percent of rural residents live in villages that have cable television service (compared with 28 percent nationwide), and 8 percent live in villages that have a community television set, providing further evidence that exposure to electronic mass media is low in rural Assam. Forty-three percent of rural residents live in villages with a *mahila mandal*, a women's community group. Other facilities that are available in villages where more than half of rural residents live are weekly markets, fair price shops, *paan* shops, and youth clubs. The most widely available rural development programmes as reported by the respondents to the Village Questionnaire are the Indira Awas Yojana and the Integrated Rural Development Programme.

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

Table 2.14 Availability of facilities and services

Percentage of rural residents living in villages that have selected facilities and services, Assam, 1999

Facility/service	Percentage of residents	Facility/service	Percentage of residents
Primary school	57.0	At least one village household has a telephone	34.7
Middle school	31.9	Mill/small-scale industry	46.0
Secondary school	10.7	Credit cooperative society	19.2
Higher secondary school	8.4	Agricultural cooperative society	13.0
College	1.8	Fishermen's cooperative society	5.0
		Milk cooperative society	1.2
Anganwadi	40.5	*Kirana*/general market shop	35.6
Adult education centre	22.7	Weekly market	55.5
		Fair price shop	84.4
Primary Health Centre	1.4	*Paan* shop	79.5
Sub-centre	8.9	Pharmacy/medical shop	32.7
Hospital[1]	6.2	*Mahila mandal*	42.9
Dispensary/clinic	3.5	Youth club	66.2
		Community centre	9.1
Private doctor	23.3	Community television set	8.1
Visiting doctor	36.0	Cable connection	4.3
Village health guide	30.2		
Traditional birth attendant	56.3	Integrated Rural Development Programme (IRDP)	20.0
Mobile health unit	7.6	National Rural Employment Programme (NREP)	8.6
		Training Rural Youth for Self-Employment (TRYSEM)	4.9
Electricity	66.0	Employment Guarantee Scheme (EGS)	0.0
Bank	9.3	Development of Women and Children of Rural Areas (DWACRA)	5.4
Post office	16.6	Indira Awas Yojana (IAY)	29.9
Telegraph office	4.8	Sanjay Gandhi Niradhar Yojana (SGNY)	2.4
STD (Subscriber Trunk Dialling) phone booth	6.8	Total population	16,916

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

CHAPTER 3

BACKGROUND CHARACTERISTICS OF RESPONDENTS

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

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

3.1 Background Characteristics

Table 3.1 presents the percentage distribution of ever-married women age 15–49 by age, marital status, co-residence with husband, education, religion, caste/tribe, work status, and husband's education. The proportion of respondents in five-year age groups increases from 9 percent in the age group 15–19 years to 20 percent in the age group 25–29 years, and then decreases to 10 percent in the age group 45–49 years. The initial increase reflects large increases in proportions married up to the age of 30. By age 30 most women are already married, so that the decline in proportions ever-married after age 30 reflects the normal pyramid shape of the population's age distribution. Somewhat less than half of the respondents are below 30 years of age. The proportion below 30 is higher in rural areas than in urban areas.

Ninety-two percent of respondents are currently married, 6 percent are widowed, and the remaining 2 percent are either divorced, separated, or deserted. The distribution of respondents by marital status varies little by urban-rural residence. Ninety-one percent of respondents live with their husband. Comparison of this percentage with the 92 percent who are currently married indicates that spousal separation is rare among currently married couples, especially in rural areas.

The educational levels of respondents and their husbands have an important influence on their demographic and health-seeking behaviour. Fifty-four percent of ever-married women age 15–49 in Assam are illiterate, compared with 58 percent in India as a whole. Between NFHS-1 and NFHS-2, women's illiteracy declined in Assam from 59 to 54 percent (from 63 to 57 percent among rural women and from 31 to 24 percent among urban women). Among literate women,

the largest education subgroup comprises women who have completed middle school but not high school. Only 10 percent have completed at least high school, up slightly from 7 percent in NFHS-1. Thirty-five percent of urban respondents in NFHS-2 have attained that level of education, compared with only 7 percent of rural respondents.

Although 54 percent of women are illiterate, only 37 percent of their husbands are illiterate (the same as in NFHS-1). In NFHS-2, the proportion of respondents with illiterate husbands is more than twice as high in rural areas (39 percent) as in urban areas (14 percent). At

Table 3.1 Background characteristics of respondents

Percent distribution of ever-married women age 15–49 by selected background characteristics, according to residence, Assam, 1999

Background characteristic	Residence			Number of women	
	Urban	Rural	Total	Weighted	Unweighted
Age					
15–19	2.9	9.9	9.3	320	284
20–24	12.4	18.3	17.8	611	582
25–29	20.0	19.5	19.6	673	674
30–34	21.9	18.8	19.1	657	673
35–39	17.5	13.5	13.8	475	495
40–44	12.8	10.3	10.5	361	374
45–49	12.5	9.7	10.0	343	359
Marital status					
Currently married	90.7	92.5	92.4	3,179	3,169
Widowed	7.4	5.6	5.7	197	206
Divorced	0.1	0.3	0.3	11	10
Separated	0.7	0.6	0.6	20	21
Deserted	1.1	1.0	1.0	34	35
Co-residence with husband					
Living with husband	87.6	91.2	90.9	3,128	3,110
Not living with husband	3.1	1.3	1.5	51	59
Not currently married	9.3	7.5	7.6	262	272
Education					
Illiterate	23.9	56.7	53.9	1,856	1,686
Literate, < primary school complete	7.3	12.4	11.9	410	384
Primary school complete	13.0	10.2	10.5	360	373
Middle school complete	20.7	13.4	14.1	484	524
High school complete	13.9	4.6	5.4	186	236
Higher secondary complete and above	21.1	2.6	4.2	145	238
Religion					
Hindu	87.7	61.7	63.9	2,200	2,333
Muslim	10.3	34.4	32.4	1,114	995
Christian	0.6	2.4	2.3	79	65
Sikh	0.3	0.0	0.0	1	2
Buddhist/Neo-Buddhist	0.1	0.2	0.2	7	7
Jain	0.6	0.0	0.1	2	4
Other	0.2	0.4	0.4	14	13
Missing	0.2	0.8	0.7	25	22
Caste/tribe					
Scheduled caste	13.2	9.9	10.2	349	372
Scheduled tribe	6.2	21.5	20.2	695	598
Other backward class	11.6	11.6	11.6	398	407
Other	68.2	54.6	55.8	1,919	1,992
Missing	0.9	2.5	2.3	80	72

Contd...

Table 3.1 Background characteristics of respondents (contd.)

Percent distribution of ever-married women age 15–49 by selected background characteristics, according to residence, Assam, 1999

Background characteristic	Residence			Number of women	
	Urban	Rural	Total	Weighted	Unweighted
Work status					
Working in family farm/business	3.6	4.9	4.8	166	155
Employed by someone else	7.4	11.2	10.8	373	352
Self-employed	5.9	4.4	4.5	155	161
Not worked in past 12 months	83.1	79.5	79.8	2,747	2,773
Husband's education					
Illiterate	14.3	38.7	36.6	1,259	1,134
Literate, < primary school complete	8.5	17.0	16.3	561	520
Primary school complete	9.3	12.1	11.9	409	395
Middle school complete	16.4	16.3	16.3	560	559
High school complete	15.2	7.7	8.3	286	325
Higher secondary complete and above	35.7	7.7	10.1	348	491
Missing	0.6	0.5	0.5	16	17
Total percent	100.0	100.0	100.0	NA	NA
Number of women					
Weighted	294	3,147	3,441	3,441	NA
Unweighted	808	2,633	3,441	NA	3,441

NA: Not applicable

the other educational extreme, 18 percent of women have husbands who have completed at least high school (up from 16 percent in NFHS-1), and the percentage is much higher in urban areas (51 percent) than in rural areas (15 percent). By contrast, there are small differences by residence in the proportion of women with husbands who have completed primary or middle school.

Sixty-four percent of respondents in Assam are Hindu, 32 percent are Muslim, 2 percent are Christian, and only 1 percent belong to other religious groups. The proportion of women who are Muslim is much higher in rural areas (34 percent) than in urban areas (10 percent).

Twenty percent of respondents belong to scheduled tribes, 12 percent to other backward classes (OBC), and 10 percent to scheduled castes. Fifty-six percent do not belong to any of these groups. Disproportionately large proportions of women from scheduled tribes are found in rural areas, but urban-rural differences in the proportion who are scheduled caste or OBC are small or nonexistent.

Four-fifths (80 percent) of respondents in Assam did not participate in work other than their regular housework during the 12 months preceding the survey. This proportion is slightly higher in urban areas than in rural areas. Five percent of women work on a family farm or in a family business, 5 percent are self-employed, and 11 percent are employed by someone else.

3.2 Educational Level

Table 3.2 presents the percent distribution of ever-married women age 15–49 by highest level of education attained, according to age, religion, caste/tribe, and husband's education. The educational distribution of women in each age group illustrates progress in the spread of education over a period of about three decades. As expected, the level of illiteracy declines with

Table 3.2 Respondent's level of education by background characteristics

Percent distribution of ever-married women age 15–49 by highest level of education attained, according to selected background characteristics, Assam, 1999

Background characteristic	Respondent's level of education: Illiterate	Literate, < primary school complete	Primary school complete	Middle school complete	High school complete	Higher secondary complete and above	Total percent	Number of women
Age								
15–19	51.9	12.4	15.2	17.4	3.1	0.0	100.0	320
20–24	44.7	13.6	15.2	18.1	4.4	3.9	100.0	611
25–29	50.4	10.8	7.5	14.8	8.9	7.6	100.0	673
30–34	56.7	12.0	8.1	13.3	5.8	4.1	100.0	657
35–39	57.1	10.3	10.1	13.6	4.5	4.5	100.0	475
40–44	59.5	14.8	7.7	9.4	5.4	3.3	100.0	361
45–49	63.6	9.9	11.3	9.2	3.1	3.0	100.0	343
Religion								
Hindu	49.6	11.1	10.9	16.5	6.2	5.7	100.0	2,200
Muslim	63.7	13.6	9.4	8.5	3.4	1.5	100.0	1,114
Christian	42.7	12.3	11.4	23.3	8.8	1.5	100.0	79
Other	(43.7)	(0.0)	(11.0)	(23.3)	(11.7)	(10.3)	100.0	24
Caste/tribe								
Scheduled caste	54.2	13.6	14.5	11.7	4.3	1.8	100.0	349
Scheduled tribe	64.0	10.7	9.4	12.4	2.6	0.8	100.0	695
Other backward class	28.3	9.4	11.7	30.9	8.2	11.6	100.0	398
Other	54.7	12.8	10.1	11.9	6.1	4.5	100.0	1,919
Husband's education								
Illiterate	87.1	7.3	3.4	2.1	0.0	0.1	100.0	1,259
Literate, < primary school complete	63.1	21.3	8.1	6.6	0.9	0.0	100.0	561
Primary school complete	47.5	19.0	21.3	10.6	0.9	0.6	100.0	409
Middle school complete	28.8	17.0	20.2	28.0	4.9	1.0	100.0	560
High school complete	11.8	4.8	16.1	43.4	18.1	5.7	100.0	286
Higher secondary complete and above	2.3	2.7	6.3	26.5	27.9	34.3	100.0	348
Total	53.9	11.9	10.5	14.1	5.4	4.2	100.0	3,441

Note: Total includes 25, 80, and 16 women with missing information on religion, caste/tribe, and husband's education, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

declining age, from 64 percent at age 45–49 to 45 percent at age 20–24, but rises to 52 percent at age 15–19 (undoubtedly because illiterate women are more likely than literate women to marry at young ages). Thus, even though illiteracy is declining, approximately half of ever-married women age 15–24 are illiterate. At the other end of the educational spectrum, the proportion of women who have completed at least high school varies from 6 percent at age 45–49 to 17 percent at age 25–29. The level of illiteracy is higher for Muslims (64 percent) than Hindus (50 percent) or Christians (43 percent). The proportion of women who are illiterate is 64 percent for scheduled-tribe women, 54 percent for scheduled-caste women, 28 percent for women from other backward classes, and 55 percent for women who do not belong to any of these groups.

Eighty-seven percent of women with illiterate husbands are themselves illiterate. At the other end of the educational spectrum, the proportion illiterate is 12 percent among women whose husbands have completed high school (but not higher secondary school) and 2 percent among women whose husbands have completed higher secondary school. The table shows that

husbands at each level of education are more likely to have wives with a lower level of education than with an equal or higher level of education. Specifically, the proportion of women who have less education than their husbands is 63 percent for women whose husbands are literate but have not completed primary school, 67 percent for women whose husbands have completed primary school but have not completed middle school, 66 percent for women whose husbands have completed middle school but not high school, 76 percent for women whose husbands have completed high school but not higher secondary school, and 66 percent for women whose husbands have completed higher secondary school.

3.3 Age at First Marriage

Table 3.3 provides information on age at first marriage for all women. The table shows the percentage of women who first married by specified exact ages and the median age at first marriage and first cohabitation by current age and residence. The median age at first

Table 3.3 Age at first marriage

Percentage of women married by specific exact ages, median age at first marriage, and median age at first cohabitation with husband, according to current age and residence, Assam, 1999

Current age[1]	Percentage ever married by exact age						Median age at first marriage	Median age at first cohabitation with husband
	13	15	18	20	22	25		
URBAN								
15–19	0.0	0.9	NA	NA	NA	NA	NC	NC
20–24	0.0	3.8	22.3	33.1	NA	NA	NC	NC
25–29	1.2	5.7	23.7	37.6	50.0	64.3	22.0	22.2
30–34	2.0	8.6	39.1	49.5	60.1	69.9	20.1	20.2
35–39	2.7	8.5	36.7	54.7	63.8	75.5	19.1	19.4
40–44	1.8	10.0	34.9	67.9	78.2	87.7	18.7	18.9
45–49	0.9	11.0	34.3	57.1	69.0	83.7	18.9	19.2
20–49	1.4	7.4	30.8	47.0	57.2	68.3	NC	NC
25–49	1.7	8.3	33.2	50.8	61.7	73.8	19.9	20.0
RURAL								
15–19	1.3	6.9	NA	NA	NA	NA	NC	NC
20–24	2.0	10.1	42.2	58.6	NA	NA	18.8	18.9
25–29	2.5	13.5	45.9	61.8	72.2	80.1	18.4	18.6
30–34	2.7	12.8	51.5	69.0	79.0	87.5	17.9	18.0
35–39	3.2	13.4	52.1	72.2	83.1	90.6	17.8	18.0
40–44	4.3	16.3	52.5	71.4	84.0	91.9	17.7	17.9
45–49	8.1	21.2	57.3	71.6	84.0	93.0	17.2	17.5
20–49	3.2	13.5	48.7	65.7	75.8	82.7	18.1	18.3
25–49	3.6	14.7	50.8	68.1	79.0	87.1	17.9	18.1
TOTAL								
15–19	1.2	6.4	NA	NA	NA	NA	NC	NC
20–24	1.8	9.6	40.7	56.7	NA	NA	18.9	19.0
25–29	2.3	12.8	43.9	59.7	70.3	78.8	18.7	18.8
30–34	2.6	12.5	50.4	67.2	77.3	85.9	18.0	18.1
35–39	3.1	12.9	50.4	70.3	81.1	89.0	18.0	18.1
40–44	4.0	15.7	50.7	71.0	83.4	91.4	17.9	18.1
45–49	7.3	20.1	54.9	70.1	82.4	92.0	17.5	17.7
20–49	3.0	13.0	47.0	64.0	74.2	81.5	18.3	18.4
25–49	3.4	14.1	49.1	66.4	77.4	85.9	18.1	18.2

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

marriage/cohabitation with husband for a cohort of women is the age by which 50 percent of the cohort marries/cohabits. The table provides evidence of a rise in the age at first marriage. The proportion married before reaching age 15 falls from 20 percent for women age 45–49 to 6 percent for women age 15–19. The decline in the proportion of women married by age 15 is large in both urban and rural areas. In rural areas the proportion declines from 21 percent among women age 45–49 to 7 percent among women age 15–19, and in urban areas it declines from 11 percent among women age 45–49 to 1 percent among women age 15–19. The practice of very early marriage (by age 13) has virtually disappeared in both urban and rural areas.

The median age at first marriage has also risen over the past three decades. In rural areas, the median age at first marriage is 1.6 years higher for women age 20–24 than for women age 45–49, and in urban areas it is 3.1 years higher for women age 25–29 than for women age 45–49. (The median age at first marriage cannot be calculated for women age 15–19 and 20–24 in urban areas and for women age 15–19 in rural areas because more than half of the women in these age groups were not married at the time of the survey). For women age 25–29, the median age at first marriage is 3.6 years higher in urban areas than in rural areas.

Despite the evidence of rising age at marriage in Assam, Table 3.3 shows that almost half (47 percent) of women age 20–49 in Assam married before reaching the legal minimum age at marriage of 18 years for women, as set by the Child Marriage Restraint Act of 1978. Even among younger women age 20–24, 41 percent married before reaching the legal minimum age at marriage (42 percent in rural areas and 22 percent in urban areas).

Table 3.3 also provides information on the median age at first cohabitation with husband. This, along with age at first marriage, shows the gap between formal marriage and the time when a wife starts living with her husband, which typically takes place after the *gauna* ceremony or which might be delayed due to other cultural practices. In Assam, the gap between marriage and first cohabitation is on average very small—only one-tenth of a year for women age 20–49. The gap declines from 0.2 year for women age 45–49 to 0.1 year for women age 20–24.

3.4 Exposure to Mass Media

In a state like Assam, where a large majority of women are illiterate or have little formal education, informal channels such as the mass media can play an important role in bringing about modernization. In NFHS-2, women were asked questions about whether they read a newspaper or magazine, watch television, or listen to the radio at least once a week, and whether they visit the cinema or theatre at least once a month. Table 3.4 gives information on women's exposure to these forms of mass media by selected background characteristics.

In Assam, slightly less than half of women (47 percent) are not regularly exposed to any of these media. As expected, the proportion not regularly exposed to the media is much higher among rural women, illiterate women, and women with a low standard of living than among other women. Sixty-four percent of illiterate women are not exposed to any media, compared with only 5 percent of women who have completed at least a high school education. Similarly, 73 percent of women with a low standard of living are not exposed to any media, compared with 5 percent of women with a high standard of living. The rural-urban difference is somewhat smaller but still substantial: 50 percent of rural women are not regularly exposed to any media, compared with 15 percent of urban women. There are no consistent differences in media exposure by age. The proportion of women not regularly exposed to any media is 59 percent for

Table 3.4 Exposure to mass media

Percentage of ever-married women age 15–49 who usually read a newspaper or magazine, watch television, or listen to the radio at least once a week, who usually visit a cinema/theatre at least once a month, or who are not regularly exposed to any of these media by selected background characteristics, Assam, 1999

Background characteristic	Exposure to mass media					Number of women
	Reads a newspaper or magazine at least once a week	Watches television at least once a week	Listens to the radio at least once a week	Visits the cinema/theatre at least once a month	Not regularly exposed to any media	
Age						
15–19	11.6	21.9	36.1	9.8	52.1	320
20–24	16.0	25.1	39.8	5.8	49.2	611
25–29	19.0	30.3	42.2	6.5	45.5	673
30–34	17.2	27.9	42.9	5.8	45.7	657
35–39	16.9	32.0	38.0	5.7	49.6	475
40–44	18.0	34.5	44.8	3.1	42.7	361
45–49	13.6	29.5	39.7	1.4	48.3	343
Residence						
Urban	45.0	76.2	56.2	9.3	14.9	294
Rural	13.9	24.3	39.3	5.2	50.4	3,147
Education						
Illiterate	0.0	13.7	27.7	3.6	64.1	1,856
Literate, < middle school complete	13.0	29.3	42.5	4.7	43.6	770
Middle school complete	43.6	53.1	62.3	7.1	18.3	484
High school complete and above	77.7	76.4	78.7	16.7	4.6	331
Religion						
Hindu	20.5	35.6	43.9	6.1	41.9	2,200
Muslim	8.3	14.9	33.6	4.3	59.0	1,114
Christian	25.4	29.8	51.6	7.8	36.7	79
Other	(17.2)	(47.7)	(46.2)	(9.8)	(40.6)	24
Caste/tribe						
Scheduled caste	10.0	23.2	35.8	3.8	52.7	349
Scheduled tribe	9.1	21.3	35.6	6.0	53.1	695
Other backward class	33.3	46.7	59.3	6.4	25.9	398
Other	17.5	29.2	40.0	5.7	48.1	1,919
Standard of living index						
Low	2.1	8.4	20.9	4.0	72.7	1,468
Medium	18.8	32.8	51.8	5.0	33.7	1,471
High	60.5	87.2	73.1	13.6	4.6	398
Total	16.5	28.8	40.8	5.6	47.4	3,441

Note: Total includes 25, 80, and 104 women with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

Muslim women, 42 percent for Hindu women, and 37 percent for Christian women. The proportion not regularly exposed to any media is 53 percent for scheduled castes and scheduled tribes and 26 percent for other backward classes, compared with 48 percent for women not belonging to any of these groups.

Regarding the different types of mass media, 41 percent of women listen to the radio at least once a week, 29 percent watch television at least once a week (up from 18 percent in NFHS-1), 6 percent visit a cinema or theatre at least once a month, and 17 percent read a newspaper or magazine at least once a week. Television has the greatest reach of any type of media in urban areas, whereas radio has the greatest reach in rural areas.

Although mass media can be an important means of spreading health and family welfare messages, as well as exposing women to modern views in general, innovative programmes are clearly needed to reach the large proportion of women who are not regularly exposed to any form of mass media.

3.5 Women's Employment

Labour force participation not only gives women an opportunity to earn income but also exposes them to the outside world and to authority structures and networks other than kin-based ones (Dixon-Mueller, 1993). In a developing country such as India, however, where women's workforce participation is often motivated by poverty, these benefits are likely to be mediated by the social context of women's work and their total work burden (Bardhan, 1985; Desai and Jain, 1994). In addition, the empowering effects of employment for women are likely to depend on their occupation, the continuity of their workforce participation, and whether they earn income. It is generally expected that women who work at a regular job, who earn money, and who perceive that their contribution is a substantial part of total family earnings are more likely to be empowered than other employed and unemployed women (Youssef, 1982; Sen, 1990; Mahmud and Johnston, 1994). The National Population Policy adopted by the Government of India in 2000 (Ministry of Health and Family Welfare, 2000) explicitly recognizes the importance of women's paid employment in achieving the goal of population stabilization in India and also specifies measures that will encourage paid employment and self-employment of women.

Table 3.5 provides information on these aspects of women's employment for ever-married women age 15–49 according to residence. In Assam, four out of five women (80 percent) report that they did not work during the 12 months preceding the survey, aside from doing their own housework. Current employment of women increased slightly from 18 percent in NFHS-1 to 20 percent in NFHS-2. Twenty-one percent of rural women and 17 percent of urban women worked at any time in the 12 months preceding the survey. Among women who worked during that period, the majority of women (58 percent) worked throughout the year. Although a smaller proportion of women in urban areas than in rural areas work, urban women who do work are more likely to work throughout the year. In rural areas, where women are predominantly engaged in agricultural activity, 42 percent of working women are engaged in seasonal work. One-half of rural working women (51 percent) are agricultural workers. Occupational diversity is much greater in urban areas, where 35 percent of urban working women are professionals and 16 percent are production workers.

A large majority of working women are paid only in cash for their work. Eighty-three percent are paid only in cash, 2 percent are paid only in kind, and 7 percent receive both cash and in-kind payments. Nine percent of women are not paid for their work at all. In urban areas, 97 percent of working women receive at least some cash for their work, compared with 89 percent in rural areas.

A significant feature of women's work participation in Assam is their substantial contribution to family earnings. In NFHS-2, women who earned cash for their work in the past 12 months were asked how much their earnings contribute to total family earnings. Eighteen percent (21 percent in urban areas and 18 percent in rural areas) say the family is entirely dependent on their earnings. Another 33 percent report that they contribute at least half of total

Table 3.5 Employment

Percent distribution of ever-married women age 15–49 by employment characteristics, according to residence, Assam, 1999

Employment characteristic	Urban	Rural	Total
Employment status			
Currently working	16.5	19.8	19.5
Worked in past 12 months (not currently working)	0.5	0.7	0.7
Not worked in past 12 months	83.1	79.5	79.8
Continuity of employment[1]			
Throughout the year	92.7	55.5	58.2
Seasonally/part of the year	6.4	41.9	39.3
Once in a while	0.9	2.6	2.5
Type of earnings[1]			
Cash only	88.9	82.3	82.8
Cash and kind	7.7	6.9	7.0
Kind only	0.0	1.7	1.6
Not paid	3.4	9.1	8.7
Occupation[1]			
Professional	35.0	7.0	9.0
Sales worker	5.8	5.4	5.4
Service worker	3.5	0.2	0.4
Production worker	15.7	13.2	13.4
Agricultural worker	0.7	51.1	47.5
Other worker	36.1	21.6	22.7
Missing	3.2	1.4	1.6
Earnings contribution to total family earnings[2]			
Almost none	8.4	8.6	8.6
Less than half	32.9	39.4	38.9
About half	21.6	22.6	22.5
More than half	16.6	10.4	10.9
All	20.5	18.0	18.2
Missing	0.0	1.0	0.9
Total percent	100.0	100.0	100.0
Number of women	294	3,147	3,441
Number of employed women[1]	50	644	694
Number of women earning cash	48	575	623

[1]For currently working women and women who have worked in the past 12 months
[2]For women earning cash

family earnings. Thirty-nine percent contribute less than half of family earnings, and 9 percent say their earnings contribute almost nothing to family earnings.

3.6 Women's Autonomy

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

In order to measure women's participation in household decisionmaking, NFHS-2 asked women to report who in their households makes decisions about the following: what items to cook, obtaining health care for themselves, purchasing jewellery or other major household items, and their going and staying with parents or siblings. The survey also asked women who earn cash who decides how the money they earn is spent. Table 3.6 gives the percent distribution of ever-married women by the person (or persons) who makes each of the specified household decisions, according to residence.

As expected, ever-married women in Assam are most likely to participate in the decision about what items to cook: 74 percent of women make this decision on their own, and another 15 percent make this decision jointly with their husband or someone else in the household (see

Table 3.6 Household decisionmaking

Percent distribution of ever-married women by person who makes specific household decisions, according to residence, Assam, 1999

Household decision	Respondent only	Husband only	Respondent with husband	Others in household only	Respondent with others in household	Missing	Total percent
URBAN							
What items to cook	75.8	3.0	7.4	3.8	9.9	0.0	100.0
Obtaining health care for herself	49.4	29.5	16.8	1.7	2.6	0.0	100.0
Purchasing jewellery or other major household items	6.2	30.9	51.2	5.8	5.9	0.0	100.0
Going and staying with her parents or siblings	9.7	34.7	43.9	5.3	6.5	0.0	100.0
How the money she earns will be used[1]	49.1	11.4	34.3	0.0	5.2	0.0	100.0
RURAL							
What items to cook	73.3	4.6	6.1	7.4	8.6	0.0	100.0
Obtaining health care for herself	49.1	32.9	13.5	2.3	2.0	0.0	100.0
Purchasing jewellery or other major household items	5.1	38.8	41.0	7.7	7.3	0.1	100.0
Going and staying with her parents or siblings	9.4	48.0	27.1	7.9	7.6	0.1	100.0
How the money she earns will be used[1]	39.2	23.9	33.6	0.4	2.3	0.6	100.0
TOTAL							
What items to cook	73.6	4.5	6.2	7.0	8.7	0.0	100.0
Obtaining health care for herself	49.2	32.6	13.8	2.3	2.1	0.0	100.0
Purchasing jewellery or other major household items	5.2	38.1	41.9	7.5	7.2	0.1	100.0
Going and staying with her parents or siblings	9.4	46.8	28.5	7.7	7.5	0.1	100.0
How the money she earns will be used[1]	39.9	23.0	33.7	0.4	2.5	0.5	100.0

[1]For women earning cash

Figure 3.1
Percentage of Women Participating in Different Household Decisions and Percentage with Access to Money

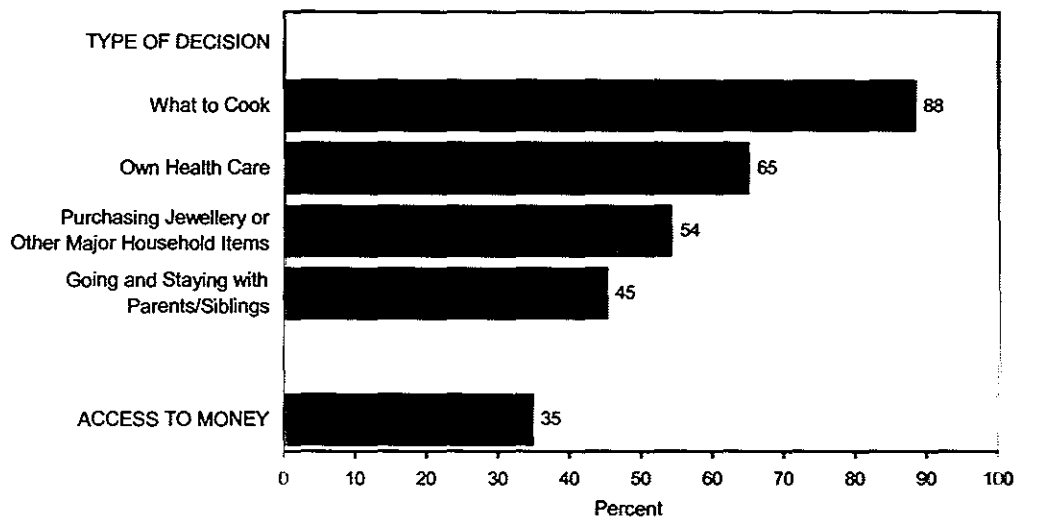


Figure 3.1). Twelve percent of women, however, are not involved at all in decisions about what to cook. Substantial proportions of women are not involved at all in decisions about seeking health care (35 percent), purchasing jewellery or other major household items (46 percent), and going and staying with parents or siblings (55 percent). Among these three types of decisions, the decision that women are most likely to take on their own is the decision about their own health care (49 percent). There are no substantial differences by residence in the proportion of women participating in the different types of decisions.

Almost one-quarter (23 percent) of women who earn cash report that only their husbands or only others in the household make the decision about how the money they earn will be used. Forty percent of the women make that decision on their own, and 36 percent make the decision together with their husband or someone else. The proportion of women who do not participate at all in the decision about how the money they earn will be used is substantially higher in rural areas (24 percent) than in urban areas (11 percent), and the proportion who make this decision alone is much higher in urban areas (49 percent) than in rural areas (39 percent).

Women's involvement in decisionmaking, alone or jointly with others in the household, generally increases with age, suggesting that autonomy also increases with age (Table 3.7). Among women age 20 and over, only 2–5 percent do not participate in any decisionmaking, compared with 9 percent of women age 15–19. Participation in each of the four specified decisions increases more or less steadily with age, usually peaking at age 40–44 before falling off slightly at 45–49.

Urban women are somewhat more likely to participate in decisionmaking than rural women. The proportion of women not involved in any decisionmaking does not vary much by education, religion, caste/tribe, or the standard of living, although women who have completed at least high school or who live in households with a high standard of living are somewhat more

Table 3.7 Women's autonomy

Percentage of ever-married women involved in household decisionmaking, percentage with freedom of movement, and percentage with access to money by selected background characteristics, Assam, 1999

Background characteristic	Percentage not involved in any decision-making	Percentage involved in decisionmaking on:				Percentage who do not need permission to:		Percentage with access to money	Number of women
		What to cook	Own health care	Purchasing jewellery, etc.	Staying with her parents/ siblings	Go to the market	Visit friends/ relatives		
Age									
15–19	9.3	76.1	55.4	49.1	40.4	3.3	4.5	27.8	320
20–24	4.7	84.6	65.8	53.6	44.0	9.0	9.9	32.6	611
25–29	3.9	88.4	66.9	53.8	44.2	9.4	10.5	36.3	673
30–34	5.3	89.2	63.8	53.6	44.9	12.5	11.6	33.0	657
35–39	4.8	93.3	62.9	57.0	49.5	17.8	19.3	40.9	475
40–44	2.0	93.9	71.0	57.0	48.1	20.8	22.4	38.0	361
45–49	2.3	92.6	68.4	55.8	47.0	24.0	24.7	35.9	343
Residence									
Urban	2.7	93.2	68.8	63.3	60.1	19.4	20.1	57.8	294
Rural	4.8	88.0	64.7	53.4	44.0	12.6	13.3	32.9	3,147
Education									
Illiterate	5.5	87.7	64.2	50.9	42.3	12.9	13.6	26.9	1,856
Literate, < middle school complete	3.1	89.5	67.3	53.7	44.5	12.0	13.0	33.4	770
Middle school complete	4.8	87.0	64.2	59.3	47.7	14.4	15.1	46.4	484
High school complete and above	2.7	91.9	66.0	67.1	61.2	15.7	16.1	67.8	331
Religion									
Hindu	3.0	91.0	67.2	56.8	48.6	15.8	16.0	40.5	2,200
Muslim	7.4	83.8	61.4	49.6	39.2	7.6	9.3	24.4	1,114
Christian	9.8	80.8	61.1	52.1	45.0	20.7	20.8	38.4	79
Other	(2.0)	(91.6)	(63.6)	(48.6)	(33.3)	(10.2)	(20.2)	(22.9)	24
Caste/tribe									
Scheduled caste	1.7	93.3	72.1	50.3	46.3	13.8	14.6	30.9	349
Scheduled tribe	4.7	89.7	62.9	53.4	44.8	15.4	14.9	34.9	695
Other backward class	2.3	91.1	69.1	58.4	54.0	16.8	17.4	48.5	398
Other	5.7	86.3	63.6	53.6	42.6	11.5	12.7	33.1	1,919
Cash employment									
Working for cash	2.4	90.1	76.7	63.5	52.7	23.1	23.2	52.9	623
Working but not for cash	5.1	87.3	67.4	56.4	52.0	13.0	9.1	18.2	71
Not worked in past 12 months	5.1	88.1	62.4	52.1	43.5	10.9	12.0	31.4	2,747
Standard of living index									
Low	5.3	88.0	64.3	50.2	42.3	13.0	13.7	25.5	1,468
Medium	3.9	89.2	64.8	55.1	44.9	12.4	13.1	36.1	1,471
High	3.4	88.1	72.2	68.9	59.7	18.3	18.4	66.0	398
Total	4.6	88.4	65.1	54.3	45.4	13.2	13.9	35.0	3,441

Note: Total includes 25, 80, and 104 women with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

likely to participate in decisionmaking than other women. Women who worked for cash during the past year are usually somewhat more likely to be involved in each type of decision than working women who did not work for cash or women who were not employed at all.

NFHS-2 also collected information on two other dimensions of women's autonomy, namely women's freedom of movement and their access to money that they can spend as they wish. With regard to freedom of movement, respondents were asked whether they need

permission to go to the market or to visit friends or relatives. Women's access to spending money was measured by asking respondents, 'Are you allowed to have some money set aside that you can use as you wish?'

Table 3.7 shows that freedom of movement is limited for the majority of ever-married women in Assam. Only 13 percent of women say they do not need permission to go to the market, and only 14 percent say they do not need permission to visit friends or relatives. Freedom of movement increases substantially with age. For example, only 3 percent of women age 15–19 do not need permission to go to the market, compared with 24 percent of women age 45–49. Freedom of movement varies little by respondent's education. Freedom of movement is relatively high for urban women, Christian women, women who work for cash, and women living in households with a high standard of living. Freedom of movement does not vary much by caste or tribe. Even in the groups with the greatest freedom of movement (as specified in Table 3.7), the proportion who do not need permission to go to the market never exceeds 24 percent, and the proportion of women do not need permission to visit friends or relatives never exceeds 25 percent.

There is substantial variation in women's access to money by background characteristics. Overall, 35 percent of women say that they are allowed to have some money set aside that they can spend as they wish. Access to money increases with age, from 28 percent for women age 15–19 to 41 percent for women age 35–39 and then decreases to 36 percent for women age 45–49. The percentage of women with access to money is higher in urban areas (58 percent) than in rural areas (33 percent). Access to money also increases with education (from 27 percent for illiterate women to 68 percent for women who have completed at least a high school education) and with standard of living (from 26 percent for women with a low standard of living to 66 percent for women with a high standard of living). Hindu and Christian women have greater access to money than Muslim women. Women belonging to other backward classes have substantially greater access to money than other women. As expected, women who earn cash for their work have much greater access to money than other women.

3.7 Women's Educational Aspirations for Children

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

As shown in Table 3.8, 40 percent of women believe that a boy should be given as much education as he desires, compared with only 33 percent who believe that a girl should be given as much education as she desires. Twenty-five percent of women believe that an education above high school (higher secondary school, graduate and above, or professional degree) is appropriate for boys, whereas 17 percent feel that it is appropriate for girls. On the other hand, only 3 percent of women feel that girls should not be given any education or should be given less than a primary school education. Fourteen percent of women feel that girls should be given an education but not beyond middle school, compared with 6 percent in the case of boys. On the whole, educational aspirations for both girls and boys are quite similar in Assam and all India.

Table 3.8 Perceived educational needs of girls and boys

Percent distribution of ever-married women by their opinion on how much education should be given to girls and boys, according to residence, Assam, 1999

Educational level	Urban	Rural	Total
Education for girls			
No education	0.0	1.8	1.6
Less than primary school	0.4	2.0	1.9
Primary school	0.9	7.2	6.6
Middle school	1.7	6.1	5.8
High school	10.0	23.6	22.4
Higher secondary school	4.7	6.4	6.2
Graduate and above	11.6	8.0	8.3
Professional degree	5.8	2.1	2.4
As much as she desires	59.2	30.6	33.0
Depends	5.0	9.0	8.7
Don't know	0.5	3.2	2.9
Missing	0.3	0.1	0.1
Total percent	100.0	100.0	100.0
Education for boys			
No education	0.0	0.3	0.3
Less than primary school	0.0	1.0	0.9
Primary school	0.3	1.8	1.7
Middle school	1.3	4.0	3.7
High school	6.3	17.4	16.5
Higher secondary school	4.2	7.0	6.7
Graduate and above	11.2	13.3	13.1
Professional degree	8.3	4.5	4.9
As much as he desires	62.1	37.9	40.0
Depends	5.7	10.1	9.7
Don't know	0.3	2.6	2.4
Missing	0.3	0.1	0.1
Total percent	100.0	100.0	100.0

Table 3.8 indicates that there are sharp urban-rural differences in women's educational aspirations for girls and boys. Rural respondents are more likely than urban respondents to say that a child should be given less than a high school education. Rural respondents are also much less likely than urban respondents to say that girls and boys should be given as much education as they desire. It is notable, however, that even in rural areas 71 percent of women say that girls should be given at least a high school education or as much education as they desire.

3.8 Domestic Violence: Attitudes and Prevalence

In recent years, there has been increasing concern about violence against women in general, and domestic violence in particular, in both developed and developing countries (United Nations General Assembly, 1991). Not only has domestic violence against women been acknowledged worldwide as a violation of the basic human rights of women, but also an increasing amount of research highlights the health burdens, intergenerational effects, and demographic consequences of such violence (Heise et al., 1998; 1994; Jejeebhoy, 1998; Ramasubban and Singh, 1998; Rao and Bloch, 1993). In patriarchal societies such as India, not only are women socialized into being silent about their experience of violence, but also traditional norms teach them to accept, tolerate, and even rationalize domestic violence (Jaisingh, 1995; Hegde, 1996; Prasad, 1999). The recent IndiaSAFE multi-site study of family violence in India, conducted at about the same time as NFHS-2, finds violence by husbands to be fairly widespread (International Clinical Epidemiology Network, 2000). Both tolerance of and experience of domestic violence are

significant barriers to the empowerment of women, with consequences for women's health, their health-seeking behaviour, their adoption of a small family norm, and the health of their children. In NFHS-2, an attempt was made to assess whether women view wife-beating as justified and to measure the prevalence of violence against women including, but not limited to, violence committed by a woman's husband. Special training was provided to interviewers to sensitize them to the issue of domestic violence and impress upon them the necessity of ensuring privacy when asking these questions.

In order to assess women's attitudes towards wife-beating, before asking about personal experience with domestic violence, the survey asked all respondents whether they thought that a husband is justified in beating his wife for each of the following reasons: if he suspects her of being unfaithful; if her natal family does not give expected money, jewellery, or other items; if she shows disrespect for her in-laws; if she goes out without telling him; if she neglects the house or children; or if she does not cook food properly. These reasons, which range from reasons that involve suspicions about a wife's moral character to those that may be considered more trivial, such as not cooking properly, were chosen to provide variation in the perceived seriousness of behavioural-norm violation. Table 3.9 gives the percentages of ever-married women who agree with various reasons for wife-beating by background characteristics.

Two out of three women in Assam accept at least one reason as justification for wife-beating. Women are most likely to agree that wife-beating is justified if the wife neglects the house or children (44 percent), and least likely to agree that wife-beating is justified if her natal family does not give expected money or other items (8 percent). If the wife shows disrespect for in-laws or if she goes out without telling her husband, 39–41 percent of women say that the husband would be justified in beating her. Thirteen percent of respondents say that the husband is justified in beating his wife if she does not cook food properly.

Table 3.9 indicates that there are no sharp differences by age or marital duration in women's attitudes towards wife-beating. There are notable urban-rural differences in these attitudes, however. Not only do a higher proportion of rural women (69 percent) than urban women (37 percent) agree with at least one reason justifying wife-beating, but rural women are also more likely than urban women to agree with each specific reason. Agreement with at least one reason and with each of the different reasons for wife-beating declines sharply with education. Seventy-four percent of illiterate women agree with at least one reason justifying wife-beating, compared with 43 percent of women who have completed at least high school.

As expected, the proportion of women who agree that wife-beating is justified also declines sharply as the standard of living increases, ranging from 46 percent of women with a high standard of living to 74 percent of women with a low standard of living. However, the expectation that women who work, especially those who work for cash, would be less likely than other women to justify wife-beating, is not borne out. Overall, a majority of women in almost all groups agree with at least one reason for wife-beating. This finding attests to the widespread socialization of women to norms that give husbands the right to use force to discipline wives who are perceived to be violating traditional gender norms.

Table 3.9 Reasons given for justifying a husband beating his wife

Percentage of ever-married women who agree with specific reasons for justifying a husband beating his wife by selected background characteristics, Assam, 1999

Background characteristic	Percentage who agree with at least one reason	Percentage who agree with specific reasons: Husband suspects wife is unfaithful	Natal family does not give expected money or other items	Wife shows disrespect for in-laws	Wife goes out without telling husband	Wife neglects house or children	Wife does not cook food properly	Number of women
Age								
15–19	69.6	31.8	14.4	42.3	45.7	45.6	9.5	320
20–29	66.6	34.3	8.6	40.6	39.7	43.3	11.9	1,284
30–39	66.3	32.5	6.8	40.8	37.6	45.7	13.7	1,133
40–49	64.3	30.2	6.8	39.1	38.4	43.9	14.2	704
Marital duration (in years)								
< 5	64.9	29.0	9.3	37.6	40.7	42.3	10.6	701
5–9	64.0	33.0	9.2	41.3	37.3	43.0	11.0	695
10 or more	68.1	34.4	7.2	41.4	39.4	46.0	14.6	1,782
Not currently married	63.5	29.5	9.3	39.9	40.4	43.1	10.5	262
Residence								
Urban	37.2	12.2	2.6	20.5	17.9	23.5	4.9	294
Rural	69.0	34.6	8.7	42.4	41.3	46.4	13.5	3,147
Education								
Illiterate	73.7	37.8	9.3	46.8	46.9	49.9	15.3	1,856
Literate, < middle school complete	61.2	30.0	8.9	33.1	35.0	38.1	10.6	770
Middle school complete	62.0	26.8	6.5	38.8	30.7	44.1	10.4	484
High school complete and above	42.7	18.3	2.7	25.0	19.5	28.9	7.2	331
Religion								
Hindu	65.0	28.9	5.1	39.7	35.8	47.1	12.4	2,200
Muslim	70.7	41.6	14.3	44.3	48.1	41.0	13.8	1,114
Christian	51.4	21.1	10.5	24.6	22.0	30.6	8.5	79
Other	(39.9)	(16.9)	(0.0)	(15.1)	(13.7)	(25.0)	(12.0)	24
Caste/tribe								
Scheduled caste	61.8	21.8	3.6	37.0	37.7	44.0	14.4	349
Scheduled tribe	69.3	34.5	5.5	46.2	37.7	52.6	13.4	695
Other backward class	68.7	27.8	3.5	42.2	35.0	51.7	12.6	398
Other	65.3	34.9	11.0	38.1	40.8	39.7	12.1	1,919
Cash employment								
Working for cash	69.7	34.0	7.4	44.7	40.7	49.3	13.7	623
Working but not for cash	80.2	53.9	7.4	49.4	46.9	63.1	14.9	71
Not worked in past 12 months	65.2	31.8	8.4	39.3	38.8	42.8	12.5	2,747
Standard of living index								
Low	73.5	40.0	10.3	46.6	45.9	47.2	13.4	1,468
Medium	65.3	29.0	7.5	39.8	38.1	46.3	13.9	1,471
High	46.2	20.5	4.4	24.4	20.9	29.2	7.0	398
Total	66.3	32.6	8.2	40.5	39.3	44.4	12.8	3,441

Note: Total includes 25, 80, and 104 women with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

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

Table 3.10 presents results on the prevalence of beatings or physical mistreatment since age 15 by women's background characteristics. Prevalence is also shown according to the person(s) who beat or physically mistreated them—their husbands, their in-laws, or other persons.

According to the reports of respondents, 16 percent of women in Assam have experienced violence since age 15 (somewhat less than the national average of 21 percent), and 14 percent have been beaten or physically mistreated by their husbands. Less than 1 percent have been beaten or physically mistreated by in-laws and 2 percent by other persons. This implies that among women who were beaten, more than 9 out of 10 (91 percent) have been beaten by their husbands.

Women age 15–19 are less likely than older women to have been beaten, but because of their young age they have had less time to be exposed to the risk of being beaten since age 15. Similarly, women who have been married for less than five years are less likely to have been beaten (9 percent) than women who have been married longer (15–18 percent) or women who are not currently married (19 percent). Urban women (9 percent) are less likely than rural women (16 percent) to experience violence, and illiterate women (22 percent) are much more likely to have experienced violence than women who have completed at least high school (3 percent). The prevalence of domestic violence decreases substantially as the standard of living increases, from 23 percent of women with a low standard of living to 12 percent of women with a medium standard of living and 5 percent of women with a high standard of living. Women from nuclear households are more likely than women from non-nuclear households to experience domestic violence. A similar finding was reported by Visaria (1999) among women in rural Gujarat. Working women, a large proportion of whom are agricultural workers, are much more likely than non-working women to experience violence.

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

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

Table 3.10 Women's experience with beatings or physical mistreatment

Percentage of ever-married women who have been beaten or physically mistreated by their husband, in-laws, or other persons since age 15, according to selected background characteristics, Assam, 1999

Background characteristic	Percentage beaten or physically mistreated since age 15	Percentage beaten or physically mistreated since age 15 by:			Number of women
		Husband	In-laws	Other persons	
Age					
15–19	9.5	7.8	1.2	1.6	320
20–29	16.1	14.8	0.9	2.2	1,284
30–39	18.0	16.4	1.1	2.3	1,133
40–49	13.2	11.9	0.2	2.9	704
Marital duration (in years)					
< 5	8.5	7.2	0.4	1.5	701
5–9	15.1	14.2	0.7	1.7	695
10 or more	17.9	16.6	0.6	2.7	1,782
Not currently married	18.9	15.7	3.9	3.7	262
Residence					
Urban	8.8	7.4	0.5	1.2	294
Rural	16.1	14.7	0.9	2.4	3,147
Education					
Illiterate	21.5	19.8	1.0	3.4	1,856
Literate, < middle school complete	11.6	10.4	0.9	1.5	770
Middle school complete	6.9	6.1	0.6	1.0	484
High school complete and above	3.2	2.7	0.3	0.4	331
Religion					
Hindu	15.2	13.6	0.8	2.6	2,200
Muslim	15.9	15.0	1.1	1.8	1,114
Christian	21.3	19.7	0.0	1.6	79
Other	(5.1)	(5.1)	(0.0)	(0.0)	24
Caste/tribe					
Scheduled caste	18.7	17.7	0.4	1.9	349
Scheduled tribe	16.1	14.5	1.1	3.7	695
Other backward class	11.9	9.7	0.1	2.9	398
Other	15.4	14.1	1.0	1.8	1,919
Household type					
Nuclear household	19.6	18.1	0.7	2.6	1,626
Non-nuclear household	11.9	10.6	1.0	2.1	1,815
Cash employment					
Working for cash	27.7	25.5	2.0	4.3	623
Working but not for cash	20.0	18.2	0.0	1.8	71
Not worked in past 12 months	12.6	11.4	0.6	1.9	2,747
Standard of living index					
Low	22.7	20.8	1.1	3.4	1,468
Medium	11.8	10.9	0.6	1.4	1,471
High	4.8	3.6	0.6	1.6	398
Living children					
No living children	11.0	9.5	1.4	1.4	423
Only daughters	17.7	15.7	1.8	2.9	467
Only sons	10.3	9.7	0.2	1.7	694
Both daughters and sons	17.9	16.4	0.7	2.7	1,857
Total	15.5	14.1	0.8	2.3	3,441

Note: Total includes 1 woman belonging to a household with no usual residents, and 25, 80, and 104 women with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

characteristics. Nonetheless, it is notable that women who are not currently married (divorced, separated, deserted, or widowed) are more likely than currently married women to have been beaten by their in-laws.

NFHS-2 asked women who experienced violence since age 15 how often they were beaten or physically mistreated in the 12 months preceding the survey: many times, a few times, once, or not at all. Table 3.11 shows the frequency of beatings in the past 12 months for women who report beatings or physical mistreatment. Fifty-six percent of women who experienced violence were beaten at least once during the 12 months preceding the survey, and 44 percent were beaten more than once in this period. Among women who have been beaten or physically mistreated since age 15, younger women and women married less than five years are most likely to have been beaten at least once in the last 12 months.

Table 3.11 Frequency of beatings or physical mistreatment

Percent distribution of ever-married women who report being beaten or physically mistreated since age 15 by frequency of beatings or physical mistreatment in the 12 months preceding the survey, according to selected background characteristics, Assam, 1999

Background characteristic	Beaten or physically mistreated in past 12 months					Total percent	Number of women
	Many times	A few times	Once	Not beaten	Missing		
Age							
15–19	(10.6)	(42.0)	(16.0)	(27.5)	(3.8)	100.0	31
20–29	10.0	35.4	12.3	42.3	0.0	100.0	207
30–39	10.9	36.3	10.8	41.4	0.6	100.0	204
40–49	9.2	24.2	8.8	56.6	1.2	100.0	93
Marital duration (in years)							
< 5	7.2	46.9	16.2	27.9	1.9	100.0	60
5–9	6.7	35.5	14.0	43.7	0.0	100.0	105
10 or more	12.5	34.9	11.0	41.0	0.7	100.0	319
Not currently married	6.8	11.9	2.3	79.0	0.0	100.0	50
Residence							
Urban	13.9	33.5	8.1	44.5	0.0	100.0	26
Rural	10.0	34.2	11.5	43.6	0.7	100.0	507
Education							
Illiterate	12.4	35.5	11.3	40.2	0.6	100.0	400
Literate, < middle school complete	4.3	31.4	12.6	50.4	1.3	100.0	89
Middle school complete	(3.5)	(26.4)	(11.6)	(58.5)	(0.0)	100.0	33
Religion							
Hindu	9.3	30.6	10.2	49.9	0.0	100.0	334
Muslim	13.2	39.4	13.4	32.0	1.9	100.0	177
Caste/tribe							
Scheduled caste	12.8	32.3	2.8	52.1	0.0	100.0	65
Scheduled tribe	4.6	28.5	13.5	53.4	0.0	100.0	112
Other backward class	(7.6)	(19.5)	(14.8)	(58.1)	(0.0)	100.0	47
Other	12.3	38.3	12.4	35.9	1.2	100.0	295
Household type							
Nuclear household	10.8	32.5	12.9	43.1	0.7	100.0	318
Non-nuclear household	9.4	36.6	9.0	44.4	0.5	100.0	215

Contd...

Table 3.11 Frequency of beatings or physical mistreatment (contd.)

Percent distribution of ever-married women who report being beaten or physically mistreated since age 15 by frequency of beatings or physical mistreatment in the 12 months preceding the survey, according to selected background characteristics, Assam, 1999

Background characteristic	Beaten or physically mistreated in past 12 months					Total percent	Number of women
	Many times	A few times	Once	Not beaten	Missing		
Cash employment							
Working for cash	10.3	32.4	7.5	49.8	0.0	100.0	173
Not worked in past 12 months	10.6	35.4	12.6	40.4	1.0	100.0	346
Standard of living index							
Low	11.1	36.4	12.3	39.5	0.7	100.0	333
Medium	7.8	29.8	10.2	51.5	0.7	100.0	173
Living children							
No living children	(7.7)	(30.5)	(14.0)	(45.4)	(2.4)	100.0	47
Only daughters	5.0	41.8	15.6	36.2	1.4	100.0	82
Only sons	13.2	38.0	11.0	37.9	0.0	100.0	72
Both daughters and sons	11.2	32.0	10.0	46.4	0.3	100.0	333
Total	10.2	34.2	11.3	43.6	0.6	100.0	533

Note: Total includes 11 women who have completed at least high school, 17 Christian women, 1 woman belonging to an 'other' religion, 14 women who work but do not earn cash, 19 women from households with a high standard of living index, and 4, 14, and 9 women with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

As mentioned earlier, largely due to the inherent tendency to underreport domestic violence, these results need to be interpreted with caution. Nevertheless, the NFHS-2 estimates set a lower bound on the proportion of women experiencing domestic violence in Assam: *at least* 1 in 7 ever-married women in Assam have experienced domestic violence since age 15, and *at least* 1 in 12 have experienced domestic violence in the past 12 months.

CHAPTER 4

FERTILITY AND FERTILITY PREFERENCES

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

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

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

4.1 Age at First Cohabitation

The number of children that a woman will have in her lifetime is strongly influenced by the age at which she marries. In many parts of India, traditionally formal marriage is not always followed immediately by cohabitation. In some cases, the husband and the wife may begin to cohabit only after the *gauna* ceremony. Even if *gauna* is not practised, a marriage may not be consummated immediately if it occurs at a very young age. In Assam, however, cohabitation typically begins immediately after marriage. Accordingly, the median age at marriage in Assam (see Table 3.3) is about the same as the median age at first cohabitation. Age at consummation of marriage is, of course, what is relevant for fertility. NFHS-2 measured age at first cohabitation as a proxy for age at consummation of marriage. In Table 4.1, the median age at first cohabitation for a group of women is defined as the age by which half of the entire group began to cohabit, rather than the age by which half of all ever-cohabiting women in the group began to cohabit.

Table 4.1 Age at first cohabitation with husband

Median age at first cohabitation with husband among women age 20–49 years by current age and selected background characteristics, Assam, 1999

Background characteristic	Current age						
	20–24	25–29	30–34	35–39	40–49	20–49	25–49
Residence							
Urban	NC	22.2	20.2	19.4	19.0	NC	20.0
Rural	18.9	18.6	18.0	18.0	17.7	18.3	18.1
Education							
Illiterate	17.6	17.1	17.1	17.2	17.3	17.3	17.2
Literate, < middle school complete	18.3	18.2	17.7	17.3	17.6	17.8	17.7
Middle school complete	NC	20.1	19.9	19.3	18.8	19.8	19.6
High school complete and above	NC	24.7	23.8	24.1	21.6	NC	24.0
Religion							
Hindu	NC	20.0	18.7	18.6	18.4	19.0	18.8
Muslim	17.4	16.7	16.7	16.5	16.4	16.8	16.6
Christian	NC	*	*	*	*	NC	19.2
Caste/tribe							
Scheduled caste	18.2	19.3	17.6	(17.1)	16.8	17.9	17.8
Scheduled tribe	NC	19.3	18.3	19.1	19.2	19.1	18.9
Other backward class	NC	20.8	18.9	18.7	18.5	19.9	19.3
Other	19.2	18.3	18.0	17.6	17.6	18.2	17.9
Standard of living index							
Low	17.8	17.5	17.2	17.7	17.2	17.5	17.4
Medium	20.0	19.3	18.6	17.9	17.8	18.6	18.4
High	NC	23.2	21.1	21.1	18.9	NC	20.5
Total	19.0	18.8	18.1	18.1	17.9	18.4	18.2

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

Table 4.1 shows that, in Assam, the median age at first cohabitation with husband is 18.4 years for women age 20–49. The median age at first cohabitation increases from 17.9 for women age 40–49 to 19.0 for women age 20–24, suggesting an increase in the median age at first cohabitation, especially in recent years.

For rural women age 20–49, the median age at first cohabitation is 18.3 years. Because the median age at first cohabitation has risen faster in urban areas than in rural areas, the urban-rural gap in median age at first cohabitation has been widening over time. The median age at first cohabitation rises sharply with women's level of education. The median is substantially higher for Hindu women (19.0 years) than for Muslim women (16.8 years). The median age at first cohabitation is lower for scheduled-caste women (17.9 years) than for scheduled-tribe women (19.1 years), women from other backward classes (19.9 years), and women who do not belong to any of these groups (18.2 years). The median age at first cohabitation is more than one year higher for women living in households with a medium standard of living than for women living in households with a low standard of living.

4.2 Current Fertility Levels

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

Based on the three-year period before NFHS-2, the CBR for Assam is estimated at 21.8 live births per 1,000 population and the TFR at 2.31 births per woman, as shown in Table 4.2. These estimates are downwardly biased, however, partly because of omission of births but mainly because of substantial displacement of births from the three years before the survey to earlier years (Retherford and Mishra, 2001). Because the extent of bias may vary between groups and across surveys, the estimates of not only fertility levels but also fertility trends and differentials must be viewed cautiously and not accepted at face value.

Table 4.2 shows that the CBR is 29 percent lower in urban areas than in rural areas, and the urban TFR is 37 percent lower than the rural TFR. ASFRs are lower in urban areas than in rural areas at all ages, as shown in Figure 4.1. Sixty-five percent of total fertility in urban areas and 57 percent of total fertility in rural areas is concentrated in the prime childbearing ages 20–29. Fertility at age 15–19 accounts for 13 percent of total fertility in urban areas, 20 percent in rural areas, and 19 percent overall, indicating a modest amount of early childbearing. For the state as a whole, fertility at ages 35 and older accounts for 8 percent of total fertility.

Based on the three-year periods preceding NFHS-1 and NFHS-2, it is estimated that the CBR fell from 30.4 to 21.8 between the two surveys, a decline of 28 percent in approximately six years. Over the same period, the TFR fell from 3.53 to 2.31, a decline of 35 percent. Table 4.2 and Figure 4.2 show that age-specific fertility rates fell in all age groups. As already mentioned, these estimates of trend must be viewed cautiously because of bias introduced by age misreporting, which tends to exaggerate the extent of fertility decline. Another reason for not accepting the estimated fertility trend at face value is that the contraceptive use rate for Assam remained steady at 43 percent in both surveys. The absence of an upward trend in contraceptive use is inconsistent with the estimated sharply downward trend in fertility.

The NFHS-2 fertility estimates can be compared with estimates from the Sample Registration System (SRS), which is maintained by the Office of the Registrar General, India. Since the NFHS-2 rates refer to 1996–98, it is appropriate to compare them with the SRS estimates for 1997, which are also shown in Table 4.2. The NFHS-2 estimate of the CBR, at 21.8, is substantially lower than the SRS estimate of 28.2, and the NFHS-2 estimate of the TFR, at 2.31, is substantially lower than the SRS estimate of 3.22. The differences between the

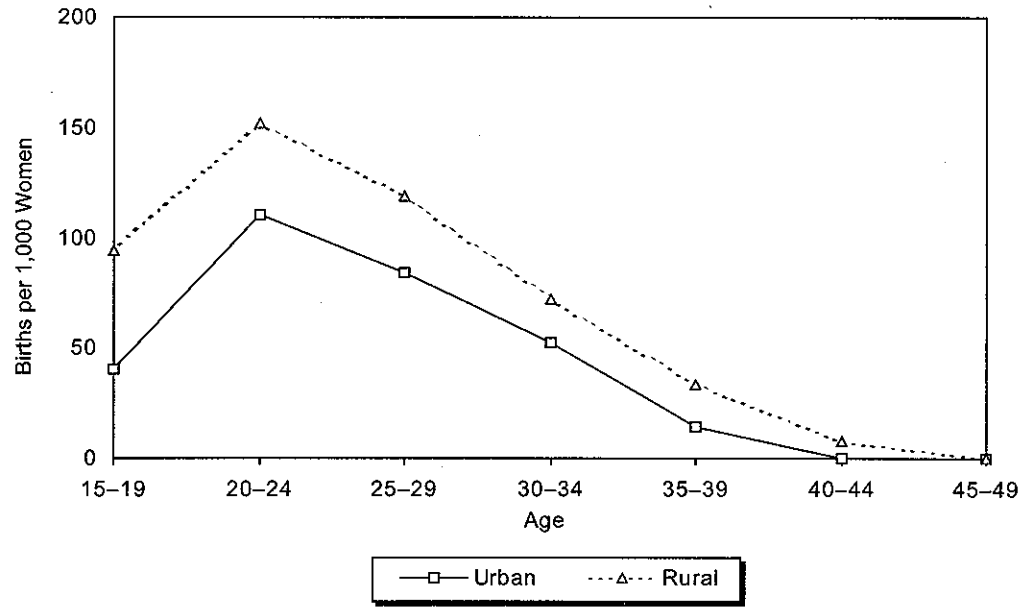
Table 4.2 Current fertility

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

	NFHS-1 (1990–92)	NFHS-2 (1996–98)			SRS (1997)		
Age	Total	Urban	Rural	Total	Urban	Rural	Total
15–19	0.116	0.040	0.094	0.089	0.023	0.058	0.055
20–24	0.200	0.110	0.152	0.149	0.144	0.188	0.183
25–29	0.195	0.084	0.119	0.116	0.137	0.184	0.179
30–34	0.117	0.052	0.072	0.070	0.074	0.140	0.132
35–39	0.055	0.014	0.033	0.031	0.029	0.073	0.067
40–44	0.021	0.000	0.008	0.007	0.003	0.026	0.023
45–49	0.000	(0.000)	0.000	0.000	0.000	0.006	0.005
TFR 15–44	3.53	1.50	2.39	2.31	2.10	3.35	3.20
TFR 15–49	3.53	1.50	2.39	2.31	2.10	3.38	3.22
CBR	30.4	15.8	22.3	21.8	20.7	29.0	28.2

Note: Rates from NFHS-1 and NFHS-2 are for the period 1–36 months preceding the survey. Rates for the age group 45–49 might be slightly biased due to truncation. Rates from the SRS are for one calendar year. Age-specific and total fertility rates are expressed per woman.
TFR: Total fertility rate
CBR: Crude birth rate, expressed per 1,000 population
( ) Based on 125–249 woman-years of exposure
Source for SRS: Office of the Registrar General, 1999a

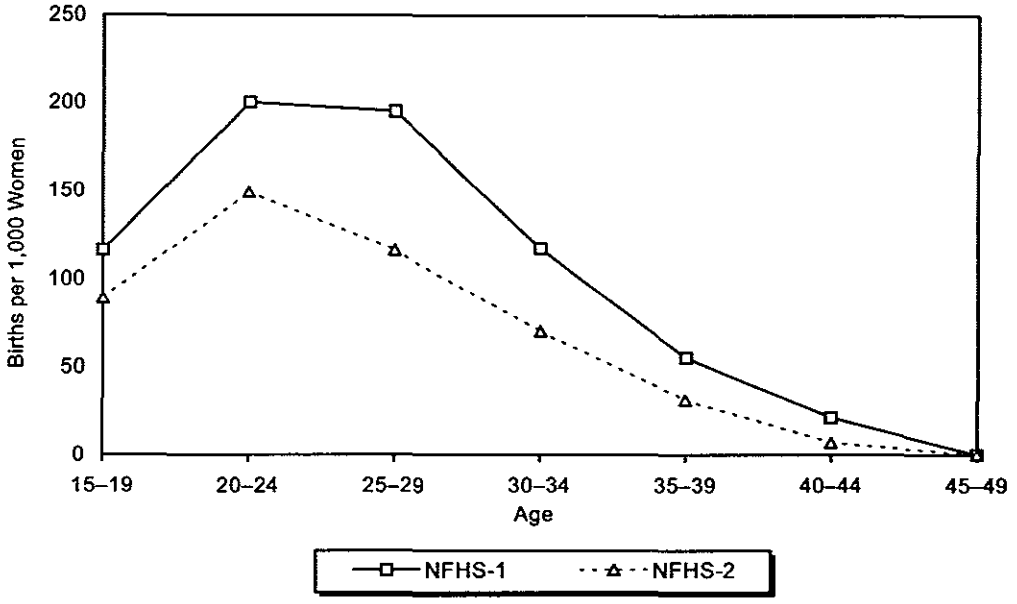
Figure 4.1
Age-Specific Fertility Rates by Residence



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

NFHS-2, Assam, 1999

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



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

Assam

NFHS-2 and SRS estimates occur mainly because of age misreporting in NFHS-2, which, as already mentioned, tends to result in displacement of births further into the past. Retrospective surveys, such as NFHS-1 and NFHS-2, are subject to such displacement, whereas the SRS, in which births are recorded during the year in which they occur, is not. Narasimhan et al. (1997) compared NFHS-1 and SRS estimates of fertility and concluded that both are probably underestimates. Retherford and Mishra's (2001) analysis indicates that even the SRS estimates of fertility for Assam are substantially too low. However, the SRS estimates are closer to the true level of fertility than either the NFHS-1 or NFHS-2 estimates.

4.3 Fertility Differentials and Trends

Table 4.3 and Figure 4.3 show how the TFR, the percentage currently pregnant, and the mean number of children ever born to women age 40–49 vary by selected background characteristics. By education, the TFR in Assam, as estimated from NFHS-2, ranges from 1.26 among women who have completed at least high school to 2.83 among illiterate women. Rather similarly, it ranges from 1.39 for women with a low standard of living to 2.96 for women with a high standard of living. Muslims have a much higher TFR (3.05) than Hindus (2.00) or Christians (1.69). The TFR is 1.54 for women from other backward classes, 2.10 for women from scheduled tribes, 2.57 for women from scheduled castes, and 2.35 for women who do not belong to any of these groups. It is noteworthy that in Assam, women from "other backward classes" are not at all backward in terms of their demographic behaviour. Again it should be noted that all of these estimates are downwardly biased by age misreporting, for reasons explained in the previous section.

Table 4.3 Fertility by background characteristics

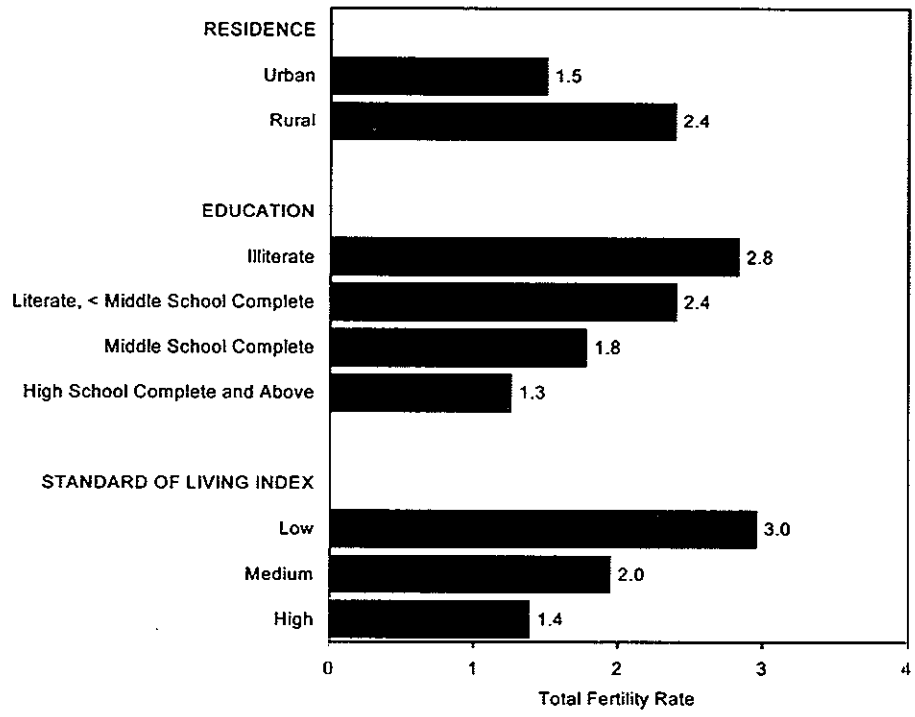
Total fertility rate for the three years preceding the survey, percentage of all women age 15–49 currently pregnant, and mean number of children ever born to all women age 40–49 by selected background characteristics, Assam, 1999

Background characteristic	Total fertility rate[1]	Percentage currently pregnant[2]	Mean number of children ever born to all women age 40–49 years
Residence			
Urban	1.50	4.2	3.49
Rural	2.39	5.9	4.45
Education			
Illiterate	2.83	6.4	4.56
Literate, < middle school complete	2.40	7.2	4.60
Middle school complete	1.78	4.1	3.80
High school complete and above	1.26	3.6	2.74
Religion			
Hindu	2.00	4.8	4.02
Muslim	3.05	8.2	5.33
Christian	1.69	3.1	*
Other	(1.42)	(0.0)	*
Caste/tribe			
Scheduled caste	2.57	5.6	4.56
Scheduled tribe	2.10	4.8	4.32
Other backward class	1.54	3.4	4.11
Other	2.35	5.9	4.37
Standard of living index			
Low	2.96	7.1	4.19
Medium	1.95	5.4	4.75
High	1.39	2.4	3.48
Total	2.31	5.8	4.35

Note: Total includes women with missing information on religion, caste/tribe, and the standard of living index, who are not shown separately.
( ) Based on 125–249 woman-years of exposure for the total fertility rate and 25–49 unweighted cases for the percentage currently pregnant
*Mean not shown; based on fewer than 25 unweighted cases
[1]Rate for women age 15–49 years
[2]For this calculation, it is assumed that women who are never married, widowed, divorced, separated, or deserted are not currently pregnant.

Fertility transitions in other countries have shown that fertility differentials typically diverge early in the transition and reconverge (though rarely completely) towards the end of the transition as fertility approaches the replacement level. Table 4.3 and Figure 4.3 indicate that in Assam there are still large fertility differentials, with the TFR and other fertility indicators varying widely among population groups. However, differentials are less pronounced for the mean number of children ever born to ever-married women age 40–49 than for the other two fertility variables in Table 4.3, undoubtedly because women in their forties had many of their births at an earlier stage of the fertility transition when fertility was fairly uniformly high and fertility differentials were relatively small.

Figure 4.3
Total Fertility Rate by Selected Background Characteristics



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

NFHS-2, Assam, 1999

Overall, 6 percent of women in Assam report that they are currently pregnant (the same percentage as in all India). For the most part, differentials in the percentage currently pregnant follow a pattern similar to that for differentials in the TFR, but there are some exceptions. These exceptions may be due partly to the fact that the TFR is not affected by the age structure of the population, whereas the percentage currently pregnant is affected by the age structure.

The last column of Table 4.3 shows the mean number of children ever born to ever-married women age 40–49 at the time of the survey. The average number of children ever born for these women, who are at the end of their childbearing years, is 4.35. The substantial decline in fertility in Assam over time is evident from the difference of 2.04 children between the average number of children ever borne by women who are currently in their forties and the number of children women would have in their lifetime if they were subject to current age-specific fertility rates (i.e., the difference between the last column and first column of Table 4.3). In most cases, the pattern of differentials in the mean number of children ever born parallels the pattern of differentials in the TFR. Exceptions can occur because the mean number of children ever born at age 40–49 reflects fertility in the past, whereas the TFR reflects fertility only in the three years preceding the survey.

The preceding section discussed fertility trends based on estimates from NFHS-1 and NFHS-2 for the three-year period preceding each survey. Table 4.4 shows fertility trends for five-year time periods preceding NFHS-2, estimated solely from NFHS-2 birth histories. It is not

Table 4.4 Fertility trends

Age-specific fertility rates for five-year periods preceding the survey by residence, Assam, 1999

Age	Years preceding survey			
	0–4	5–9	10–14	15–19
		URBAN		
15–19	0.051	0.080	0.085	0.123
20–24	0.122	0.132	0.201	0.266
25–29	0.101	0.122	0.171	0.176
30–34	0.052	0.072	0.101	[0.128]
35–39	0.013	0.028	[0.050]	U
40–44	0.000	[0.004]	U	U
45–49	[0.000]	U	U	U
		RURAL		
15–19	0.108	0.137	0.162	0.157
20–24	0.181	0.256	0.272	0.302
25–29	0.145	0.207	0.225	0.227
30–34	0.084	0.114	0.120	[0.163]
35–39	0.038	0.053	[0.065]	U
40–44	0.007	[0.024]	U	U
45–49	[0.002]	U	U	U
		TOTAL		
15–19	0.104	0.132	0.155	0.153
20–24	0.176	0.245	0.264	0.298
25–29	0.141	0.198	0.219	0.222
30–34	0.080	0.109	0.118	[0.159]
35–39	0.035	0.050	[0.063]	U
40–44	0.006	[0.022]	U	U
45–49	[0.002]	U	U	U

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

possible to show TFRs in this table because of progressively greater age truncation as one goes back in time. For example, for the period 5–9 years preceding the survey, it is not possible to compute an ASFR for age 45–49 because the women in question would be 50–54 at the time of the survey, whereas NFHS-2 only collected birth histories for women up to age 49. Similarly, for the period 10–14 years preceding the survey, it is not possible to compute ASFRs for women age 40–49, and for the period 15–19 years preceding the survey, it is not possible to compute ASFRs for women age 35–49. Thus Table 4.4 shows only truncated trends in ASFRs. Results are shown separately for urban and rural areas as well as for the entire state. These results show substantial fertility declines in all age groups. As mentioned earlier, however, these trends are distorted by displacement of births to earlier years, and this displacement tends to exaggerate the extent of fertility decline.

For the periods 0–4 years and 5–9 years before the survey, it is possible to calculate truncated TFRs (more appropriately called cumulative fertility rates, or CFRs) for the age range 15–39, based on the ASFRs shown in Table 4.4. This is done by summing ASFRs for the age groups 15–19 through 35–39 and multiplying the sum by five. For the state as a whole, CFR(15–39) declined from 3.67 to 2.68 between these two five-year periods, a decline of one child. The decline was 0.47 child for urban areas and 1.07 children for rural areas, indicating that the

Table 4.5 Fertility by marital duration

Fertility rates for ever-married women by duration since first cohabitation with husband (in years) and residence for five-year periods preceding the survey, Assam, 1999

Duration since first cohabitation (in years)	Years preceding survey			
	0–4	5–9	10–14	15–19
	URBAN			
< 5	0.256	0.306	0.357	0.362
5–9	0.115	0.139	0.205	0.276
10–14	0.062	0.078	0.118	0.110
15–19	0.016	0.026	0.023	*
20–24	0.004	0.020	*	*
25–29	0.000	*	*	U
	RURAL			
< 5	0.319	0.353	0.369	0.360
5–9	0.189	0.286	0.281	0.300
10–14	0.120	0.158	0.175	0.187
15–19	0.052	0.075	0.092	0.160
20–24	0.021	0.033	0.043	*
25–29	0.003	0.023	*	U
	TOTAL			
< 5	0.314	0.349	0.368	0.360
5–9	0.183	0.274	0.273	0.298
10–14	0.115	0.150	0.169	0.181
15–19	0.048	0.070	0.087	0.157
20–24	0.019	0.032	0.042	*
25–29	0.003	0.022	*	U

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

absolute level of fertility fell somewhat more rapidly in rural areas than in urban areas. However, this pattern could occur because of more age misreporting and displacement of births to earlier years in rural areas than in urban areas.

Another way of looking at fertility is to calculate fertility rates by the number of years since first cohabitation with husband. These rates are measures of marital fertility, i.e., fertility within marriage. Table 4.5 shows fertility rates by duration since first cohabitation for ever-married women over the entire 20-year period preceding the survey.[1] Fertility has declined at all durations, but more at longer durations than at shorter durations. It is also evident from Table 4.5 that marital fertility is lower in urban areas than in rural areas for almost all durations and time periods.

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

4.4 Children Ever Born and Living

The number of children a woman has ever borne is a cohort measure of fertility. Because it reflects fertility in the past, it provides a somewhat different picture of fertility levels, trends, and differentials than do period measures of fertility such as the CBR and the TFR. Table 4.6 shows the percent distribution of all women and currently married women by the number of children ever born (CEB). The table shows these distributions by the age of the woman at the time of the survey, as well as estimates of the mean number of children ever born and the mean number of living children.

Among women age 15–49, the mean number of children ever born is 2.2 for all women and 3.0 for currently married women. The mean number of children ever born increases steadily with women's age, reaching a high of 4.5 children among all women age 45–49 and 4.9 children among currently married women in this age group. The table also shows that early childbearing is fairly common in Assam. Fifteen percent of all women age 15–19 and 50 percent of currently married women age 15–19 have already had a child.

For women age 45–49, the number of children ever born is of particular interest because these women have virtually completed their childbearing. For all women in this age group, irrespective of marital status, the modal number of children ever born is four. Twenty-three percent of all women age 45–49 and of currently married women in this age group have reached the end of childbearing with four children ever born. Forty-nine percent of currently married women in this age group have had five or more live births. Only 3 percent of currently married women age 45–49 have never given birth, suggesting that primary infertility (which is the proportion of couples who are unable to have any children) is low in Assam.

For all women age 15–49, the average number of children who died is 0.19 per woman. For currently married women, the average number of dead children is 0.26, indicating that 9 percent of children ever born to currently married women have died. For currently married women, the proportion of children ever born who have died does not vary much by age. For example, it is 10 percent at both ages 15–19 and 45–49.

4.5 Birth Order

The distribution of births by birth order is yet another way to view fertility. Table 4.7 shows the distribution of births during the three-year period preceding the survey by birth order for selected background characteristics. Overall, as expected, the proportion of births at each order is larger than the proportion of births at the next higher order. Thirty-one percent of all births are first-order births, 25 percent are second-order births, and 16 percent are third-order births. The high proportion of births of order four or higher is the same as the national average of 28 percent.

Seventy-eight percent of births to women age 15–19 are first-order births, and 73 percent of births to women age 30–39 are births of order four or higher. The proportion of births that are of order four or higher is relatively large for births to rural women, illiterate women, Muslim women, scheduled-tribe and 'other' women, working women who are not self-employed, and women in households with a low standard of living. The range is particularly wide for education groups: 38 percent of births to illiterate women are of order four or higher, compared with 2 percent of births to women who have completed at least high school. The range is also wide in

Table 4.6 Children ever born and living

Percent distribution of all women and currently married women by number of children ever born (CEB) and mean number of children ever born and living, according to age, Assam, 1999

Age	Children ever born											Total percent	Number of women	Mean number of CEB	Mean number of living children
	0	1	2	3	4	5	6	7	8	9	10+				
ALL WOMEN															
15–19	84.8	12.1	2.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	1,043	0.19	0.17
20–24	43.5	22.7	21.9	8.7	2.8	0.4	0.0	0.1	0.0	0.0	0.0	100.0	894	1.06	0.98
25–29	21.9	14.3	22.8	21.0	11.3	5.6	2.7	0.2	0.1	0.0	0.1	100.0	805	2.16	1.98
30–34	11.3	8.9	19.2	17.6	18.2	11.1	7.8	4.7	0.9	0.0	0.3	100.0	701	3.19	2.91
35–39	7.3	5.2	11.3	19.7	21.4	14.4	9.7	6.8	2.4	1.4	0.5	100.0	493	3.87	3.49
40–44	4.6	3.4	11.1	18.8	21.2	18.4	10.3	5.3	3.4	2.2	1.3	100.0	371	4.18	3.80
45–49	5.1	4.7	8.9	14.3	22.5	12.5	14.1	4.9	5.5	4.9	2.6	100.0	349	4.53	4.06
Total	34.3	12.0	14.3	12.8	10.9	6.7	4.5	2.3	1.1	0.7	0.4	100.0	4,656	2.18	1.99
CURRENTLY MARRIED WOMEN															
15–19	49.8	39.5	8.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	311	0.63	0.57
20–24	16.7	32.9	32.7	12.9	4.3	0.4	0.0	0.2	0.0	0.0	0.0	100.0	580	1.58	1.46
25–29	6.5	16.7	26.5	25.9	13.8	6.8	3.3	0.2	0.1	0.0	0.2	100.0	648	2.61	2.40
30–34	5.1	8.2	20.1	19.2	19.5	12.4	8.6	5.3	1.1	0.0	0.4	100.0	615	3.48	3.19
35–39	3.0	4.2	11.5	20.7	23.6	14.6	10.0	7.5	2.7	1.6	0.5	100.0	443	4.11	3.72
40–44	1.8	3.3	9.6	19.2	22.7	20.3	10.8	4.8	3.7	2.7	1.2	100.0	309	4.36	3.97
45–49	2.7	3.4	6.9	15.5	22.7	13.2	14.8	5.7	5.7	6.2	3.2	100.0	272	4.86	4.37
Total	11.0	16.1	19.2	17.7	14.8	9.0	6.1	3.1	1.4	1.0	0.6	100.0	3,179	2.97	2.71

Table 4.7 Birth order

Percent distribution of births during the three years preceding the survey by birth order, according to selected background characteristics, Assam, 1999

Background characteristic	Birth order 1	2	3	4+	Total percent	Number of births
Mother's current age						
15–19	77.8	18.5	3.7	0.0	100.0	167
20–29	29.3	32.5	20.6	17.6	100.0	705
30–39	5.0	9.6	13.0	72.5	100.0	241
Residence						
Urban	39.0	34.8	13.0	13.1	100.0	66
Rural	30.5	24.6	16.5	28.4	100.0	1,063
Mother's education						
Illiterate	24.6	19.7	17.3	38.4	100.0	604
Literate, < middle school complete	31.9	29.6	15.9	22.5	100.0	261
Middle school complete	41.1	31.3	16.7	10.9	100.0	165
High school complete and above	50.8	37.5	9.9	1.9	100.0	99
Religion						
Hindu	32.3	28.2	17.2	22.3	100.0	645
Muslim	29.3	21.1	14.6	35.0	100.0	448
Caste/tribe						
Scheduled caste	31.8	35.1	15.8	17.2	100.0	127
Scheduled tribe	27.2	24.5	16.9	31.4	100.0	215
Other backward class	31.9	31.1	22.7	14.2	100.0	93
Other	32.0	23.2	14.8	29.9	100.0	671
Mother's work status						
Working in family farm/business	(13.6)	(19.8)	(25.1)	(41.5)	100.0	45
Employed by someone else	22.4	20.8	17.7	39.2	100.0	115
Self-employed	(29.0)	(34.6)	(14.0)	(22.4)	100.0	46
Not worked in past 12 months	33.0	25.6	15.8	25.7	100.0	923
Standard of living index						
Low	26.1	19.9	16.1	37.9	100.0	580
Medium	34.3	30.2	17.8	17.8	100.0	428
High	49.4	30.2	12.9	7.6	100.0	84
Total	31.0	25.2	16.3	27.5	100.0	1,129

Note: Total includes 16 births to mothers currently age 40–49, 21 births to Christian women, 5 births to women belonging to 'other' religions, and 10, 22, and 36 births with missing information on religion, caste/tribe, and the standard of living index respectively, which are not shown separately.
( ) Based on 25–49 unweighted cases

the case of standard of living: 38 percent of births to women in households with a low standard of living are of order four or higher, compared with 8 percent of births to women in households with a high standard of living. Only 22 percent of births to women who are self-employed are of order four or higher. This finding can be explained partly by the fact that self-employed women come disproportionately from urban areas, where fertility is relatively low.

4.6 Birth Intervals

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

Table 4.8 shows the percent distribution of births during the five years preceding the survey by birth interval according to selected demographic and socioeconomic background characteristics. In Assam, 12 percent of births occur within 18 months of a previous birth, and 28 percent occur within 24 months. Thirty-seven percent of births occur after an interval of three years or more.

Table 4.8 Birth interval

Percent distribution of births during the five years preceding the survey by interval since previous birth and median number of months since previous birth, according to selected background characteristics, Assam, 1999

Background 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+			
Mother's current age									
15–19	(3.1)	(18.1)	(24.7)	(42.3)	(8.8)	(3.0)	100.0	24.3	40
20–29	2.3	11.0	16.7	34.7	20.2	15.1	100.0	30.0	895
30–39	1.7	9.3	13.3	34.6	18.9	22.2	100.0	32.2	512
40–49	(0.0)	(0.8)	(16.2)	(36.7)	(12.0)	(34.2)	100.0	33.6	38
Residence									
Urban	1.1	8.9	14.8	25.9	21.2	28.2	100.0	35.7	72
Rural	2.1	10.4	15.8	35.4	19.1	17.2	100.0	30.4	1,414
Mother's education									
Illiterate	1.9	11.3	15.7	36.5	19.1	15.5	100.0	29.6	891
Literate, < middle school complete	2.2	8.6	17.5	32.5	22.4	16.7	100.0	30.9	323
Middle school complete	2.6	9.6	14.0	36.8	11.1	25.9	100.0	31.6	180
High school complete and above	1.7	8.7	13.2	24.5	25.0	26.9	100.0	36.9	92
Religion									
Hindu	2.0	10.2	15.7	35.3	18.5	18.4	100.0	30.4	837
Muslim	1.9	10.9	15.8	34.3	20.1	17.0	100.0	30.8	601
Christian	(3.9)	(0.0)	(16.6)	(52.5)	(15.5)	(11.6)	100.0	31.2	31
Caste/tribe									
Scheduled caste	4.2	7.9	12.7	30.7	23.4	21.1	100.0	34.0	142
Scheduled tribe	2.0	12.2	18.5	36.6	15.6	15.0	100.0	28.6	312
Other backward class	3.0	8.7	16.5	34.8	15.7	21.3	100.0	30.7	117
Other	1.6	10.5	14.8	35.1	20.2	17.8	100.0	31.2	880
Standard of living index									
Low	2.3	11.3	18.1	34.2	19.9	14.2	100.0	28.8	816
Medium	1.8	10.2	12.1	37.7	18.8	19.4	100.0	32.2	543
High	3.0	4.4	11.8	29.1	18.6	33.1	100.0	37.8	78

Contd...

Table 4.8 Birth interval (contd.)

Percent distribution of births during the five years preceding the survey by interval since previous birth and median number of months since previous birth, according to selected background characteristics, Assam, 1999

Background 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+			
Order of previous birth									
1	2.2	8.6	14.1	34.9	21.2	19.1	100.0	32.1	530
2	2.4	10.9	16.9	37.2	14.9	17.7	100.0	28.7	346
3	2.8	12.5	13.5	31.0	20.8	19.5	100.0	32.9	218
4+	1.3	11.0	18.1	35.2	19.4	14.9	100.0	29.1	392
Sex of previous birth									
Male	2.9	9.9	12.8	35.6	20.6	18.3	100.0	31.8	736
Female	1.3	10.8	18.6	34.3	17.8	17.1	100.0	29.6	750
Survival of previous birth									
Living	1.9	9.4	15.0	35.7	19.7	18.3	100.0	31.4	1,344
Dead	3.6	19.3	22.2	28.1	14.5	12.2	100.0	24.8	142
Total	2.1	10.3	15.7	34.9	19.2	17.7	100.0	30.6	1,486

Note: Table includes only second- and higher-order births. The interval for multiple births is the number of months since the preceding pregnancy that ended in a live birth. Total includes 4 births to mothers belonging to other religions and 13, 36, and 48 births with missing information on religion, caste/tribe, and the standard of living index, respectively, which are not shown separately.
( ) Based on 25–49 unweighted cases

The median birth interval in Assam is 31 months. The median birth interval ranges from 24 months for women age 15–19 to 34 months for women age 40–49. The relatively short birth interval for women age 15–19 may result partly from a selection effect: Only women who have had two or more births are included in the table, and women age 15–19 with more than one birth are likely to have shorter birth intervals due to high fecundity. Given the finding that the median birth interval increases with mother's age, it is surprising that it does not also increase with the order of the previous birth. Perhaps this is due to the absence of the selection effect just noted. There may also be another type of selection effect operating: Mothers of higher-order births may be more fecund, on average, than mothers of lower-order births.

The median birth interval is about two months longer if the previous birth was a boy than if it was a girl. This pattern may result partly from the shorter duration of breastfeeding for girls, which is indicative of son preference. The median birth interval is seven months shorter if the previous child died than if it survived. In part, this reflects the shortening of postpartum amenorrhoea that occurs when the preceding child dies in infancy and breastfeeding stops prematurely.

Birth intervals are five months longer for births to women in urban areas than for births to women in rural areas. Birth intervals increase with mother's education, ranging from 30 months for births to illiterate women to 37 months for births to women who have completed at least high school. The median birth interval varies little by religion. The median birth interval is five months longer for births to scheduled-caste women than for births to scheduled-tribe women.

The median birth interval is nine months longer for births to women with a high standard of living than for births to women with a low standard of living.

4.7 Age at First and Last Birth

The ages at which women start and stop childbearing are important demographic determinants of fertility. A higher median age at first birth and a lower median age at last birth are indicators of lower fertility. Table 4.9 shows the median age at first birth for various age groups by selected background characteristics. In this table, the median age at first birth for any group of women is defined as the age by which half of all women in the group have had a first birth, rather than the age by which half of all mothers in the group have had a first birth. If the median age at first birth calculated for an age group lies above the lower limit of that age group, it is not valid because some younger women in the age group who have not yet had a first birth will not have reached the median age by the time of the survey. In such cases, the estimate of the median is not shown.

Table 4.9 Median age at first birth

Median age at first birth among women age 25–49 years by current age and selected background characteristics, Assam, 1999

Background characteristic	Current age					
	25–29	30–34	35–39	40–44	45–49	25–49
Residence						
Urban	23.4	21.8	21.2	20.3	20.6	21.7
Rural	20.2	19.6	20.0	19.2	19.1	19.7
Education						
Illiterate	18.7	18.9	19.3	19.1	18.8	18.9
Literate, < middle school complete	19.9	19.0	18.9	18.5	19.4	19.2
Middle school complete	21.4	21.3	20.9	(20.0)	(20.0)	21.1
High school complete and above	NC	25.4	25.7	(22.0)	(23.7)	NC
Religion						
Hindu	21.4	20.2	20.3	19.8	19.8	20.4
Muslim	18.7	18.6	19.1	18.4	17.6	18.5
Christian	*	*	*	*	*	20.8
Caste/tribe						
Scheduled caste	20.7	19.4	(18.7)	(19.0)	(17.6)	19.2
Scheduled tribe	20.8	19.5	20.8	20.4	20.4	20.4
Other backward class	22.8	20.2	20.2	19.7	20.2	20.7
Other	20.2	19.8	19.9	19.2	19.1	19.7
Standard of living index						
Low	19.1	18.8	19.7	19.2	20.1	19.2
Medium	21.1	20.1	19.7	19.1	19.0	20.0
High	24.1	22.3	22.9	20.2	19.3	21.9
Total	20.4	19.7	20.1	19.4	19.3	19.9

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

As shown in the last row of the table, the median age at first birth in Assam has varied irregularly over time. The median age at first birth varies from 19.3 years for women age 45–49 to 20.4 years for women age 25–29, indicating some increase in the median age at first birth, despite the irregular trend. The median age at first birth is particularly low for rural women, illiterate women, Muslim women, scheduled-caste women, and women living in households with a low standard of living.

For older women, the age at last childbirth is an indicator of cessation of childbearing. Table 4.10 presents the distribution of ever-married women age 40–49 by age at last birth, as well as the median age at last birth. Although a few of these women may have another birth later on, the very low fertility rates for women in this age group suggest that childbearing is virtually complete by these ages. Fifty-seven percent of women in this age group had their last birth by age 30, 79 percent by age 35, and 94 percent by age 40. The median age at last birth is 28.6 years for women age 40–44 and 28.9 years for women age 45–49. The typical reproductive age span (calculated as the difference between the median age at last birth and the median age at first birth for women age 40–49 who have ever had a birth) is slightly shorter in Assam (9.6 years) than in India as a whole (9.9 years) [see International Institute for Population Sciences and ORC Macro, 2000: Table 4.15].

Table 4.10 Age at last birth

Percent distribution of ever-married women age 40–49 years by age at last birth and median age at last birth, according to current age, Assam, 1999

		Age at last birth									
Current age	No birth	< 20	20–24	25–29	30–34	35–39	40–44	45–49	Total percent	Median age at last birth	Number of women
40–44	2.0	2.0	21.7	35.3	22.3	14.7	2.0	NA	100.0	28.6	361
45–49	3.6	5.8	16.9	31.7	22.9	14.9	3.9	0.4	100.0	28.9	343
40–49	2.8	3.9	19.4	33.5	22.6	14.8	2.9	0.2	100.0	28.8	704

NA: Not applicable

4.8 Postpartum Amenorrhoea, Abstinence, Insusceptibility, and Menopause

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

Table 4.11 shows the percentage of births occurring during the three years preceding the survey whose mothers are postpartum amenorrhoeic, abstaining, or insusceptible, by the number of months since the birth. These distributions are based on current status information, that is, on the proportions of births occurring within the 36 months before the survey whose mothers were amenorrhoeic, abstaining, or insusceptible. In other words, the table is based on cross-sectional

Table 4.11 Postpartum amenorrhoea, abstinence, and insusceptibility

Percentage of births during the three years preceding the survey whose mothers are postpartum amenorrhoeic, abstaining, or insusceptible by number of months since birth, and median and mean durations, Assam, 1999

Months since birth	Percentage of births whose mothers are:			Number of births
	Amenorrhoeic	Abstaining	Insusceptible	
< 2	(97.1)	(79.8)	(97.1)	41
2–3	86.1	43.0	91.1	85
4–5	72.4	30.0	76.7	83
6–7	60.1	11.4	62.0	78
8–9	56.5	20.2	66.1	57
10–11	(38.5)	(16.1)	(50.7)	39
12–13	35.8	7.3	37.7	72
14–15	30.7	18.4	43.1	80
16–17	29.2	11.5	37.3	72
18–19	15.3	11.6	25.0	63
20–21	4.3	5.0	9.3	54
22–23	(13.1)	(9.6)	(19.5)	38
24–25	5.6	12.9	14.3	85
26–27	3.0	8.1	11.1	79
28–29	6.3	9.2	11.3	54
30–31	1.9	11.6	13.5	61
32–33	(0.0)	(0.8)	(0.8)	42
34–35	(0.0)	(7.5)	(7.5)	40
Median[1]	9.3	2.3	10.6	NA
Mean	11.4	6.6	13.7	NA
Prevalence/incidence mean	11.6	6.2	14.0	NA

Note: Median and mean durations are based on current status. Insusceptible is defined as amenorrhoeic, abstaining, or both.
NA: Not applicable
( ) Based on 25–49 unweighted cases
[1]Based on a three-period moving average of percentages

data and does not represent the experience of a real cohort of births over time. The data are grouped in two-month intervals to minimize fluctuations in the distributions. The table also shows median and mean durations of amenorrhoea, abstinence, and insusceptibility. The prevalence/incidence mean is obtained by dividing the number of mothers who are amenorrhoeic, abstaining, or insusceptible by the average number of births per month over the 36-month period.

Ninety-seven percent of women who had a birth less than two months before the survey and 86 percent of women who had a birth 2–3 months before the survey are still amenorrhoeic. The proportion amenorrhoeic gradually decreases as the number of months since the birth increases. Fifty-seven percent of all women who had a birth 8–9 months before the survey are still amenorrhoeic, and the proportion amenorrhoeic declines rapidly thereafter. The proportion of women abstaining from sexual intercourse within two months after a birth (80 percent) is fairly high but substantially lower than the proportion amenorrhoeic. Only 43 percent of women are still abstaining 2–3 months after a birth, and this percentage declines fairly rapidly thereafter, albeit rather irregularly. Overall, when amenorrhoea and abstinence are considered together, half of women are still insusceptible to pregnancy 10–11 months after giving birth, and 43 percent are insusceptible 14–15 months after giving birth.

The median and mean durations of insusceptibility are 11 and 14 months, respectively. Because the mean is affected by extreme values and the median is not, and because the distribution is skewed towards the higher durations, the mean is somewhat higher than the median. The median duration of amenorrhoea (9.3 months) is four times the median duration of abstinence (2.3 months). These results based on the median indicate that women in Assam remain insusceptible to pregnancy for 11 months after a birth, primarily due to the effect of postpartum amenorrhoea.

Menopause is a primary limiting factor of fertility. It is the culmination of a gradual decline in fecundity with increasing age. After age 30, the risk of pregnancy declines with age as an increasing proportion of women become infecund. In NFHS-2, menopause is defined as the absence of menstruation for six or more months preceding the survey among currently married women. Women who report that they are menopausal or that they have had a hysterectomy are also included in this category. Women who are pregnant or postpartum amenorrhoeic are assumed not to be menopausal. Table 4.12 presents data on menopause among women age 30–49 years. In Assam, menopause is not common among women in their thirties, but its incidence increases rapidly after age 40. By age 42–43, 30 percent of women are menopausal. The proportion menopausal rises to 56 percent by age 46–47 and to 73 percent by age 48–49.

Table 4.12 Menopause

Percentage of currently married women age 30–49 years who are in menopause by age and residence, Assam, 1999

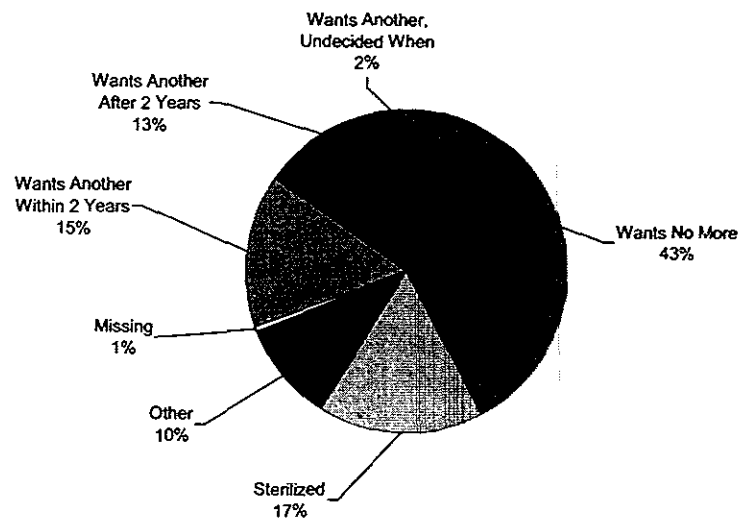
	Urban		Rural		Total	
Age	Percentage	Number	Percentage	Number	Percentage	Number
30–34	2.8	58	1.5	557	1.6	615
35–39	10.3	49	5.7	395	6.2	443
40–41	(7.8)	17	24.4	128	22.5	145
42–43	(31.7)	9	30.3	102	30.4	111
44–45	(37.8)	15	44.2	136	43.6	151
46–47	(54.5)	12	55.9	93	55.7	104
48–49	*	7	72.9	63	73.4	70
30–49	17.1	167	17.0	1,473	17.0	1,640

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

4.9 Desire for More Children

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

Figure 4.4
Fertility Preferences Among Currently Married Women



Note: Percents add to more than 100.0 due to rounding

NFHS-2, Assam, 1999

Table 4.13 and Figure 4.4 show future fertility preferences of currently married women. Forty-three percent of currently married women say that they do not want any more children, an additional 17 percent cannot have another child because either the wife or the husband has been sterilized, and 3 percent of women say that they cannot get pregnant (that is, they are 'declared infecund'). Thirty percent of women say that they would like to have another child (15 percent within two years, 13 percent after waiting at least two years, and 2 percent are undecided when they want the next child). Overall, 73 percent of women either want to space their next birth or do not want any more children, including women who are sterilized or whose husbands are sterilized. This proportion is 81 percent in urban areas and 72 percent in rural areas. Six percent of women say that the decision about having children is up to God.

The desire to have a child within two years drops rapidly with the number of living children, from 71 percent of women with no living children to 6 percent for women with three living children. For women with one living child, 43 percent (37 percent in urban areas and 44 percent in rural areas) want to wait at least two years before having the next child. And yet, as will be seen in Chapter 5, very few women in Assam use any modern temporary method of contraception. These findings suggest that encouraging the use of modern temporary methods would lower overall fertility and population growth, as well as provide health benefits to mothers and their children through increased birth spacing.

Forty-two percent of women who want another child say that they want the next child to be a boy, 23 percent say that they want a girl, and the rest say that the sex of the child either does not matter (18 percent) or is up to God (17 percent). Both the proportion of women expressing a desire for a child of a particular sex and the proportion expressing a desire for a son increase with the number of living children. Among women with no living children, 27 percent want their

Table 4.13 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, Assam, 1999

Desire for children	Number of living children[1] 0	1	2	3	4+	Total
URBAN						
Desire for additional child						
Wants another soon[2]	64.4	19.2	3.8	0.7	0.0	10.4
Wants another later[3]	8.0	36.5	6.7	0.6	0.7	11.3
Wants another, undecided when	0.0	1.6	0.0	0.0	0.0	0.4
Undecided	1.7	2.7	0.0	0.6	0.0	0.9
Up to God	24.2	5.6	2.7	2.7	0.7	4.5
Wants no more	0.0	27.1	69.7	62.3	60.4	51.5
Sterilized	0.0	1.9	16.3	31.1	33.4	18.1
Declared infecund	1.7	4.9	0.4	1.9	3.9	2.6
Missing	0.0	0.5	0.4	0.0	0.9	0.4
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	19	62	80	51	54	266
Preferred sex of additional child[4]						
Boy	(10.6)	37.2	*	*	*	36.6
Girl	(2.3)	31.4	*	*	*	20.4
Doesn't matter	(65.1)	18.8	*	*	*	29.0
Up to God	(22.0)	12.5	*	*	*	14.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more[4]	14	31	7	1	0	52
RURAL						
Desire for additional child						
Wants another soon[2]	71.3	29.0	12.6	6.9	0.9	15.8
Wants another later[3]	11.8	43.9	12.0	5.2	1.8	12.9
Wants another, undecided when	1.8	3.2	2.9	0.9	0.6	1.7
Undecided	1.3	1.4	1.6	0.4	1.0	1.1
Up to God	6.0	8.6	7.0	4.2	6.2	6.4
Wants no more	0.4	10.1	48.3	54.5	60.0	42.3
Sterilized	0.5	2.4	13.5	26.0	25.0	16.6
Declared infecund	6.9	0.9	1.8	1.0	3.8	2.6
Missing	0.0	0.5	0.4	0.8	0.8	0.6
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	264	513	612	573	950	2,912
Preferred sex of additional child[4]						
Boy	27.9	40.8	56.2	65.7	*	42.8
Girl	2.7	36.1	28.7	20.5	*	23.1
Doesn't matter	36.6	12.1	5.8	4.0	*	17.0
Up to God	32.9	11.1	9.3	9.7	*	17.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more[4]	224	309	144	65	24	765

Table 4.13 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, Assam, 1999

Desire for children	Number of living children[1]					Total
	0	1	2	3	4+	
			TOTAL			
Desire for additional child						
Wants another soon[2]	70.8	27.9	11.5	6.4	0.8	15.4
Wants another later[3]	11.5	43.1	11.4	4.8	1.7	12.8
Wants another, undecided when	1.7	3.0	2.6	0.8	0.6	1.6
Undecided	1.4	1.5	1.4	0.4	1.0	1.1
Up to God	7.2	8.3	6.5	4.1	5.9	6.2
Wants no more	0.4	11.9	50.7	55.1	60.0	43.0
Sterilized	0.4	2.3	13.8	26.4	25.4	16.7
Declared infecund	6.6	1.4	1.6	1.1	3.8	2.6
Missing	0.0	0.5	0.4	0.8	0.8	0.6
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	283	575	693	624	1,004	3,179
Preferred sex of additional child[4]						
Boy	26.9	40.4	57.2	66.1	*	42.4
Girl	2.6	35.7	27.9	20.3	*	22.9
Doesn't matter	38.2	12.7	5.8	3.9	*	17.8
Up to God	32.2	11.2	9.2	9.6	*	16.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more[4]	238	339	150	66	24	817

( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases
[1]Includes current pregnancy, if any
[2]Wants next birth within 2 years
[3]Wants to delay next birth for 2 or more years
[4]Excludes currently pregnant women

first child to be a son, 3 percent want a daughter, and 70 percent say that the sex of the child does not matter or is up to God. Among women with three living children, 66 percent want their next child to be a son, 20 percent want a daughter, and only 14 percent say that the sex of the child does not matter or is up to God.

Table 4.14 provides information about differentials in the desire to limit family size by selected background characteristics. In this table, women who are sterilized (or whose husbands are sterilized) are included among those who say that they want no more children. It is striking that 65 percent of women with two living children want no more children. As expected, older women are much more likely than younger women to want no more children. Already by age 25–34, 64 percent of women want no more children. At age 35 and above, 86 percent of women want no more children. The proportion who want no more children is higher among urban women (70 percent) than among rural women (59 percent). The proportion wanting no more children does not vary systematically with women's educational level (probably because more-educated women tend to be younger than less-educated women and also to have their children later in life). The proportion who want no more children is higher among Hindu women (66 percent) and Christian women (62 percent) than among Muslim women (48 percent). The

Table 4.14 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, Assam, 1999

Background characteristic	Number of living children[1]					Total
	0	1	2	3	4+	
Age						
15–24	0.0	5.8	47.4	62.5	*	23.0
25–34	0.0	18.9	68.9	78.5	80.8	64.2
35–49	(9.0)	64.2	83.9	93.1	89.0	86.1
Residence						
Urban	0.0	29.0	86.1	93.4	93.8	69.6
Rural	0.9	12.5	61.7	80.5	85.0	58.8
Education						
Illiterate	0.0	10.5	52.3	75.9	83.1	59.9
Literate, < middle school complete	3.9	12.5	63.6	84.9	90.4	61.0
Middle school complete	(0.0)	15.5	80.3	89.0	89.5	60.0
High school complete and above	0.0	23.6	78.4	96.4	(93.8)	55.7
Religion						
Hindu	1.4	18.2	71.7	88.6	91.3	65.8
Muslim	0.0	8.6	44.5	64.1	77.0	48.0
Christian	*	*	*	*	*	62.2
Caste/tribe						
Scheduled caste	*	9.7	66.9	89.2	90.3	65.6
Scheduled tribe	(0.0)	15.1	67.4	85.0	90.7	66.5
Other backward class	(0.0)	16.7	70.6	91.1	94.3	66.8
Other	1.4	14.5	62.1	76.7	82.6	55.7
Standard of living index						
Low	0.0	10.5	53.2	78.5	81.4	56.0
Medium	2.1	15.3	67.2	83.2	88.1	61.9
High	(0.0)	21.7	81.4	89.4	94.1	64.6
Number of living sons[2]						
0	0.8	16.5	44.3	(53.5)	(70.4)	18.9
1	NA	17.0	73.1	79.5	84.2	61.0
2	NA	NA	65.6	93.2	86.0	83.2
3+	NA	NA	NA	72.7	88.5	86.5
Number of living daughters[2]						
0	0.8	17.0	65.6	72.7	82.5	30.8
1	NA	16.5	73.1	93.2	91.4	69.7
2	NA	NA	44.3	79.5	86.2	77.2
3+	NA	NA	NA	(53.5)	84.9	82.1
Total	0.8	14.3	64.5	81.6	85.5	59.7

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

proportion wanting no more children ranges from 56 percent among women who do not belong to a scheduled caste, scheduled tribe, or other backward class (OBC) to 66 percent among scheduled-caste women and 67 percent among scheduled-tribe and OBC women. The proportion who want no more children increases with standard of living, from 56 percent for women living in households with a low standard of living to 65 percent for women living in households with a high standard of living.

The background characteristic with the strongest effect on women's desire to limit family size, however, is number of living sons. Only 19 percent of women with no living sons want no more children, compared with 87 percent of women with three or more living sons. Differences associated with the number of living daughters are also large, but not as large as differences associated with the number of living sons, again indicating a preference for sons. Thirty-one percent of women with no living daughters want no more children, compared with 82 percent of women with three or more living daughters. It is interesting to note that 44 percent of women with two daughters and no sons do not want a third child.

4.10 Ideal Number of Children

To assess women's ideal number of children, NFHS-2 asked each woman the number of children she would like to have if she could start over again. Women with no children were asked, 'If you could choose exactly the number of children to have in your whole life, how many would that be?' Women who already had children were asked, 'If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?' Some women found it difficult to answer these hypothetical questions, and hence the question sometimes had to be repeated to ensure that the meaning was understood. Yet 98 percent of women in Assam were able to give a numerical response.

Table 4.15 shows that 71 percent of ever-married women in Assam consider two or three to be the ideal number of children. Only 27 percent have an ideal that differs from two or three children. Among all women who gave a numeric response, the average number of children considered ideal is 2.9, ranging from 2.3–2.5 for women who have two or fewer children to 3.7 for women who have four or more children.

Asking a question on ideal family size is sometimes criticized on the grounds that women tend to adjust their ideal family size upward as their number of living children increases, in a process of rationalizing previously unwanted children as wanted. It is argued that the question on ideal family size prompts many women to state the actual number of children they already have as their ideal. It is evident from Table 4.15, however, that this is not so for many women in Assam. Among women with four or more living children, for example, 44 percent state that fewer than four children would be ideal. Similarly, among women with three living children, 32 percent state that their ideal family size is smaller than three children. It is evident from these results that a substantial proportion of women in Assam already have more children than they now consider ideal. This proportion may be taken as another indicator of surplus or unwanted fertility.

Table 4.15 Ideal and actual number of children

Percent distribution of ever-married women by ideal number of children, and mean ideal number of children, by number of living children, Assam, 1999

Ideal number of children	Number of living children[1]					Total
	0	1	2	3	4+	
0	0.1	0.0	0.0	0.0	0.0	0.0
1	6.4	7.1	1.4	0.3	0.2	2.4
2	52.1	60.0	61.4	31.2	15.7	40.3
3	28.3	24.9	25.2	47.5	28.3	30.7
4	8.5	5.7	8.5	15.9	36.4	18.1
5	1.9	0.8	1.7	3.5	7.9	3.8
6+	0.0	0.4	0.8	0.5	8.6	3.0
Non-numeric response	2.8	1.0	1.0	1.1	2.7	1.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	323	631	753	665	1,069	3,441
Mean ideal number[2]	2.5	2.3	2.5	2.9	3.7	2.9
Number of women giving numeric response	314	624	745	658	1,040	3,382

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

Table 4.16 shows the mean ideal number of children for ever-married women by age according to selected background characteristics. The mean ideal number of children increases gradually from 2.6 for women age 15–24 to 3.3 for women age 40–49. The average ideal number of children is lower in urban areas (2.3 children) than in rural areas (3.0 children). The mean ideal number of children is more than one child higher for illiterate women than for women who have completed at least high school. The pattern is similar according to the education level of the husband, although the effect is not as large. The mean ideal number of children is 2.8 for Hindus, 3.0 for Christians, and 3.2 for Muslims. It is about the same for the various caste/tribe groups, except that it is about half a child lower for women belonging to other backward classes than other groups. The mean ideal number of children ranges from 2.4 for women living in households with a high standard of living to 3.1 for women living in households with a low standard of living, and it is somewhat higher for women who are employed by someone else than for women in the other work-status groups shown in the table.

4.11 Sex Preference for Children

A strong preference for sons has been found to be pervasive in Indian society, affecting both attitudes and behaviour with respect to children (Arnold et al., 1998; Arnold, 1996; Basu, 1989; Das Gupta, 1987; Kishor, 1995; Koenig and Foo, 1992; Murthi et al., 1995; Nag, 1991; Parasuraman et al., 1994). In NFHS-2, women who gave a numerical response to the question on ideal number of children were asked how many of these children they would like to be boys, how many they would like to be girls, and for how many the sex would not matter. Table 4.17 shows women's mean ideal number of sons and daughters, the percentages who want more children of a particular sex, the percentage who want at least one son, and the percentage who want at least one daughter, according to selected background characteristics. The table shows a consistent

Table 4.16 Ideal number of children by background characteristics

Mean ideal number of children reported by ever-married women, according to current age and selected background characteristics, Assam, 1999

Background characteristic	Current age							Total
	15–19	20–24	25–29	30–34	35–39	40–44	45–49	
Residence								
Urban	*	2.2	2.0	2.2	2.4	2.7	2.7	2.3
Rural	2.6	2.6	2.8	3.0	3.2	3.3	3.4	3.0
Education								
Illiterate	2.7	2.8	3.1	3.3	3.5	3.5	3.5	3.2
Literate, < middle school complete	2.6	2.5	2.7	2.8	3.0	3.2	3.2	2.8
Middle school complete	2.2	2.3	2.4	2.3	2.4	(2.8)	(2.8)	2.4
High school complete and above	*	2.2	2.1	2.1	2.1	(2.2)	(2.5)	2.1
Religion								
Hindu	2.5	2.4	2.6	2.8	2.9	3.1	3.2	2.8
Muslim	2.7	2.8	3.0	3.3	3.6	3.8	4.0	3.2
Christian	*	*	*	*	*	*	*	3.0
Other	*	*	*	*	*	*	*	(3.0)
Caste/tribe								
Scheduled caste	(2.6)	2.5	2.7	3.0	(3.2)	(3.4)	(3.3)	2.9
Scheduled tribe	(2.6)	2.6	2.9	3.1	3.3	3.3	3.2	3.0
Other backward class	*	2.1	2.3	2.4	2.6	2.9	3.1	2.5
Other	2.6	2.7	2.8	3.0	3.1	3.3	3.5	2.9
Work status								
Working in family farm/business	*	*	*	(3.0)	(2.9)	*	*	2.9
Employed by someone else	(2.8)	(2.9)	2.9	3.2	3.5	(3.4)	(3.6)	3.2
Self-employed	*	*	(2.7)	(2.8)	(2.9)	*	*	2.8
Not worked in past 12 months	2.5	2.6	2.7	2.9	3.1	3.3	3.3	2.9
Standard of living index								
Low	2.8	2.7	3.0	3.3	3.5	3.5	3.3	3.1
Medium	2.4	2.5	2.6	2.7	3.0	3.3	3.5	2.8
High	*	2.2	2.1	2.4	2.3	2.6	2.9	2.4
Husband's education								
Illiterate	2.8	2.8	3.2	3.3	3.5	3.5	3.6	3.2
Literate, < primary school complete	(2.7)	2.7	2.7	3.1	3.2	3.4	3.5	3.0
Primary school complete	(2.4)	2.5	2.9	3.0	3.2	(3.3)	3.2	2.9
Middle school complete	(2.5)	2.5	2.6	2.6	2.8	3.2	(3.3)	2.7
High school complete	*	(2.4)	2.3	2.5	(2.6)	(3.2)	(3.0)	2.6
Higher secondary complete and above	*	2.1	2.2	2.1	2.1	2.4	(2.5)	2.2
Total	2.6	2.6	2.8	2.9	3.1	3.3	3.3	2.9

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

Table 4.17 Indicators of sex preference

Mean ideal number of sons, daughters, and children of either sex for ever-married women, percentage who want more sons than daughters, percentage who want more daughters than sons, percentage who want at least one son, and percentage who want at least one daughter by selected background characteristics, Assam, 1999

Background characteristic	Mean ideal number of: Sons	Daughters	Either sex	Percentage who want more sons than daughters	Percentage who want more daughters than sons	Percentage who want at least one son	Percentage who want at least one daughter	Number of women
Residence								
Urban	1.2	1.0	0.2	25.6	5.4	88.6	84.7	291
Rural	1.6	1.2	0.1	39.4	2.7	95.1	91.6	3,088
Education								
Illiterate	1.8	1.3	0.1	44.4	2.8	95.5	92.6	1,814
Literate, < middle school complete	1.5	1.1	0.1	39.6	1.9	94.5	91.3	756
Middle school complete	1.2	1.0	0.2	24.7	3.4	93.5	88.6	480
High school complete and above	1.1	0.9	0.1	20.6	5.2	90.8	85.1	329
Religion								
Hindu	1.5	1.1	0.2	34.4	3.0	93.1	89.1	2,173
Muslim	1.8	1.3	0.1	46.6	2.5	97.1	94.4	1,081
Christian	1.6	1.3	0.1	29.3	6.6	96.7	93.1	77
Other	(1.6)	(1.3)	(0.1)	(35.4)	(5.1)	(96.6)	(96.6)	24
Caste/tribe								
Scheduled caste	1.6	1.2	0.1	38.0	3.3	95.4	92.6	345
Scheduled tribe	1.6	1.2	0.2	40.7	3.8	94.9	92.2	685
Other backward class	1.3	1.0	0.2	29.0	3.2	92.8	87.1	396
Other	1.6	1.2	0.1	39.2	2.4	94.5	91.2	1,875
Work status								
Working in family farm/business	1.6	1.2	0.1	36.9	3.1	96.4	93.2	166
Employed by someone else	1.7	1.3	0.2	37.4	2.7	94.1	92.7	369
Self-employed	1.6	1.2	0.1	39.1	1.2	95.6	95.1	152
Not worked in past 12 months	1.6	1.2	0.1	38.3	3.1	94.4	90.5	2,692
Standard of living index								
Low	1.7	1.2	0.1	44.0	2.4	95.5	92.2	1,430
Medium	1.5	1.1	0.1	36.9	2.9	94.4	90.9	1,451
High	1.2	1.0	0.2	24.8	4.6	91.6	87.7	393
Husband's education								
Illiterate	1.8	1.3	0.1	44.6	2.7	96.9	94.5	1,232
Literate, < primary school complete	1.7	1.2	0.2	43.6	2.1	94.8	91.0	548
Primary school complete	1.6	1.1	0.2	38.4	1.9	91.8	88.7	406
Middle school complete	1.5	1.1	0.1	34.2	3.7	94.2	90.6	548
High school complete	1.3	1.0	0.2	29.2	2.6	93.5	87.5	285
Higher secondary complete and above	1.1	0.9	0.2	20.7	5.2	90.0	84.8	343
Total	1.6	1.2	0.1	38.2	2.9	94.5	91.0	3,379

Note: Table excludes women who gave non-numeric responses to the questions on ideal number of children or ideal number of sons and daughters. Total includes 24, 79, 104, and 16 women with missing information on religion, caste/tribe, the standard of living index, and husband's education, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

preference for sons over daughters. Overall, the average ideal family size of 2.9 children consists of 1.6 sons, 1.2 daughters, and 0.1 child of either sex. Thirty-eight percent of women want more sons than daughters, but only 3 percent want more daughters than sons.

The indicator that shows the percentage of women who want at least one son and the percentage who want at least one daughter exhibits the weakest son preference. Although most women in Assam want more sons than daughters, a large majority (91 percent) of women also want at least one daughter. One reason that a substantial proportion of women want to have at least one daughter is to fulfil the Hindu religious obligation of *kanyadan* (giving a daughter away at the time of her marriage), which is one of the acts that enable the parents to acquire the highest level of merit (*punya*).

Son preference is relatively weak among women who live in urban areas, women who have at least completed high school, women whose husbands have at least completed high school, and women living in households with a high standard of living. Son preference is higher for Muslim women than for Hindu women and is least for Christian women, according to the indices shown in the table. Women from other backward classes show slightly less son preference than do women in the other caste/tribe groups. Son preference varies little by work status. The overall picture is that son preference is strong in all the population groups shown in the table.

4.12 Fertility Planning

For each child born in the three years before the survey and for each current pregnancy, NFHS-2 asked women whether the pregnancy was wanted at that time (planned), wanted at a later time (mistimed), or not wanted at all. Because a woman may retrospectively describe an unplanned pregnancy as one that was wanted at that time, responses to these questions may lead to an underestimation of unplanned childbearing. Nevertheless, this information provides a potentially powerful indicator of the degree to which couples successfully control childbearing. It should be noted that the proportion of births that are unplanned is influenced not only by whether and how effectively couples use contraception, but also by the couple's ideal family size.

Table 4.18 shows the percent distribution of births during the three years preceding the survey and current pregnancies according to fertility planning status. Almost one-quarter (22 percent) of all pregnancies that resulted in live births in the three years before the survey (including current pregnancies) were unplanned (that is, unwanted at the time the woman became pregnant). Eleven percent were wanted later, and another 11 percent were not wanted at all. By mother's age at childbirth, the proportion of births that were unplanned ranges from 15 percent for women below age 20 to 45 percent for women age 35–39 (which is the oldest age group shown in the table). Within the unplanned category, the proportion of births that were wanted later varies irregularly, and the proportion that were not wanted at all rises as mother's age increases.

The proportion of births that were unplanned does not vary widely by socioeconomic characteristics, except for mother's education where the proportion ranges from 24 percent for illiterate women to 14 percent for women who have completed at least high school. Scheduled-caste women have a much higher level of unwanted pregnancies than any other caste/tribe group. Not surprisingly, higher order births are more likely than lower order births to be unplanned.

Table 4.18 Fertility planning

Percent distribution of births during the three years preceding the survey and current pregnancies by fertility planning status, according to selected background characteristics, Assam, 1999

Background characteristic	Planning status of pregnancy				Total percent	Number of births and current pregnancies
	Wanted then	Wanted later	Not wanted at all	Missing		
Mother's age at birth[1]						
< 20	84.2	12.7	2.4	0.7	100.0	339
20–24	79.1	11.0	9.4	0.5	100.0	495
25–29	74.8	9.7	14.7	0.7	100.0	334
30–34	72.5	6.2	20.4	0.9	100.0	165
35–39	54.6	15.8	29.0	0.6	100.0	54
Residence						
Urban	77.8	8.5	12.9	0.8	100.0	85
Rural	77.4	11.0	11.0	0.6	100.0	1,313
Mother's education						
Illiterate	75.2	10.5	13.5	0.7	100.0	743
Literate, < middle school complete	78.2	10.4	10.9	0.4	100.0	333
Middle school complete	79.4	12.7	7.2	0.6	100.0	203
High school complete and above	84.9	10.7	3.4	0.9	100.0	120
Religion						
Hindu	77.1	12.3	10.1	0.5	100.0	793
Muslim	78.7	8.7	11.8	0.8	100.0	560
Caste/tribe						
Scheduled caste	67.2	13.9	18.1	0.8	100.0	152
Scheduled tribe	76.6	11.7	11.1	0.6	100.0	262
Other backward class	78.5	16.0	5.5	0.0	100.0	114
Other	78.9	9.4	11.0	0.7	100.0	832
Standard of living index						
Low	75.0	10.8	13.4	0.9	100.0	709
Medium	81.6	9.1	8.9	0.4	100.0	541
High	76.1	14.8	9.1	0.0	100.0	99
Birth order[2]						
1	85.8	8.5	5.0	0.8	100.0	510
2	79.1	15.1	5.5	0.4	100.0	329
3	69.9	10.4	18.6	1.1	100.0	207
4+	68.0	10.6	20.9	0.4	100.0	352
Total	77.4	10.8	11.1	0.6	100.0	1,398

Note: Table includes the two most recent births in the three years preceding the survey and current pregnancies. Total includes 11 births to women age 40–44, 25 births to Christian women, 5 births to women belonging to 'other' religions, and 15, 37, and 48 births with missing information on religion, caste/tribe, and the standard of living index, respectively, which are not shown separately.

[1]For current pregnancy, estimated maternal age at birth

[2]Includes current pregnancy, if any

The proportion unplanned ranges from 14 percent for first-order births to 32 percent for births of order four or higher. The fact that 21 percent of births of order four or higher were not wanted at all indicates that the family welfare programme has failed to meet the contraceptive needs of higher-parity women who want no more births. The substantial proportions of women at all parities who would have liked to have had their births later also suggests that the family welfare programme needs to do more to promote spacing methods of contraception.

The impact of unwanted fertility can be measured by comparing the total wanted fertility rate with the total fertility rate (TFR). The total wanted fertility rate represents the level of fertility that theoretically would result if all unwanted births were prevented. A comparison of the TFR with the total wanted fertility rate indicates the potential demographic impact of the elimination of all unwanted births. The total wanted fertility rates presented in Table 4.19 are calculated in the same way as the TFR except that unwanted births are excluded from the numerator. In this case, a birth is considered unwanted if the number of living children at the time of conception was greater than or equal to the ideal number of children reported by the respondent at the time of the survey. Women who did not give a numeric response to the question on ideal number of children are assumed to have wanted all the births they had.

Table 4.19 Wanted fertility rates

Total wanted fertility rate and total fertility rate for the three years preceding the survey by selected background characteristics, Assam, 1999

Background characteristic	Total wanted fertility rate	Total fertility rate
Residence		
Urban	1.24	1.50
Rural	1.80	2.39
Education		
Illiterate	2.10	2.83
Literate, < middle school complete	1.72	2.40
Middle school complete	1.46	1.78
High school complete and above	1.21	1.26
Religion		
Hindu	1.65	2.00
Muslim	2.04	3.05
Christian	0.91	1.69
Other	(0.86)	(1.42)
Caste/tribe		
Scheduled caste	2.12	2.57
Scheduled tribe	1.66	2.10
Other backward class	1.27	1.54
Other	1.69	2.35
Standard of living index		
Low	2.11	2.96
Medium	1.55	1.95
High	1.24	1.39
Total	1.75	2.31

Note: Rates are based on births in the period 1–36 months preceding the survey to women age 15–49. The total fertility rates are the same as those presented in Table 4.3. Total includes women with missing information on religion, caste/tribe, and the standard of living index, who are not shown separately.
( ) Based on 125–249 woman-years of exposure

Overall, the total wanted fertility rate of 1.75 in Assam is lower by 0.56 child (i.e., by 24 percent) than the total fertility rate of 2.31. The table additionally indicates that if all unwanted births were eliminated, women in all population groups shown in the table would have fertility as low as or lower than the replacement level of fertility of 2.1 children per woman. These results must be interpreted cautiously, however, because, as mentioned earlier, total fertility rates in Assam for the three-year period before the survey (and also the wanted total fertility rates because of the way they are calculated) are biased downward by age misreporting and displacement of births backward in time. Were there no age misreporting, the wanted TFRs would probably be much closer to the substantially higher estimates of ideal family size.

CHAPTER 5

FAMILY PLANNING

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

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

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

5.1 Knowledge of Family Planning Methods

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

Table 5.1 Knowledge of contraceptive methods

Percentage of currently married women who know any contraceptive method by specific method and residence, Assam, 1999

Method	Urban	Rural	Total
Any method	99.9	98.3	98.4
Any modern method	99.9	98.2	98.3
Pill	96.2	86.5	87.3
IUD	86.6	68.8	70.3
Condom	89.0	69.5	71.2
Female sterilization	99.4	96.0	96.3
Male sterilization	94.6	84.1	85.0
Any traditional method	84.0	64.1	65.8
Rhythm/safe period	78.3	60.0	61.5
Withdrawal	66.2	48.8	50.3
Other methods[1]	3.1	6.1	5.9
Number of women	266	2,912	3,179

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

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

Table 5.1 shows the extent of knowledge of contraceptive methods among currently married women by specific method and urban-rural residence. Knowledge of contraceptive methods is nearly universal in Assam, with 98 percent of currently married women recognizing at least one method of contraception and at least one modern method of contraception.

Female sterilization is the most widely known method of contraception in Assam. Overall, 96 percent of currently married women know about female sterilization, and 85 percent know about male sterilization. There is little difference by residence in knowledge of female sterilization, but 95 percent of urban women know about male sterilization, compared with 84 percent of rural women. There is less knowledge about the officially-sponsored spacing methods (pill, IUD, and condom). The best-known spacing method is the pill (87 percent). The condom is known by 71 percent and the IUD by 70 percent of women. There are large differences in knowledge of spacing methods by residence. For example, only 69 percent of rural women know about the IUD, compared with 87 percent of urban women. Although knowledge of these spacing methods remains lower than knowledge of sterilization, knowledge of spacing methods has increased substantially since NFHS-1. At the time of the NFHS-1 in Assam (1992–93), only 73 percent of currently married women knew about pills, 59 percent knew about condoms, and 61 percent knew about IUDs.

In Assam, 66 percent of currently married women know at least one traditional method, down from 79 percent in NFHS-1. The rhythm/safe-period method is known more widely (62 percent) than withdrawal (50 percent). Knowledge of traditional methods is much higher in urban areas (84 percent) than in rural areas (64 percent). The reasons for the decline in knowledge of traditional methods between NFHS-1 and NFHS-2 are not clear.

5.2 Contraceptive Use

Ever Use of Family Planning Methods

NFHS-2 asked respondents if they had ever used each of the methods they knew about. Women who said they had not used any of the methods were asked if they had 'ever used anything or tried in any way to delay or avoid getting pregnant'. Table 5.2 presents the pattern of ever use of family planning methods for currently married women by age and residence.

Table 5.2 Ever use of contraception

Percentage of currently married women who have ever used any contraceptive method by specific method, according to age and residence, Assam, 1999

Age	Any method	Any modern method	Pill	IUD	Condom	Female sterilization	Male sterilization	Any traditional method	Rhythm/ safe period	Withdrawal	Other method[1]	Number of women
						URBAN						
15–19	*	*	*	*	*	*	*	*	*	*	*	8
20–24	51.9	31.9	15.1	3.6	13.6	2.9	1.0	28.5	13.6	19.7	1.2	35
25–29	69.5	45.1	24.5	6.1	12.0	8.9	0.0	30.2	20.3	20.1	2.0	56
30–34	71.3	45.2	19.2	6.3	13.0	13.9	0.0	37.7	27.6	19.3	2.1	58
35–39	75.0	53.6	17.7	4.7	8.9	30.7	0.0	39.6	29.8	17.0	1.6	49
40–44	82.3	53.4	11.1	2.1	3.9	38.4	1.0	37.5	29.9	19.7	2.1	32
45–49	67.0	43.2	7.6	2.3	14.4	22.5	0.0	37.0	23.4	20.6	0.0	28
Total	68.3	44.9	17.3	4.5	10.8	17.9	0.3	34.1	23.6	18.8	1.6	266
						RURAL						
15–19	19.3	8.2	6.3	0.4	2.3	0.0	0.0	12.6	5.9	8.7	0.0	303
20–24	39.3	18.5	13.0	2.2	2.6	1.8	0.2	24.1	18.8	12.5	0.5	545
25–29	55.8	37.0	19.8	5.4	6.3	11.3	0.0	27.5	20.6	13.6	1.8	592
30–34	64.0	45.0	22.3	5.8	4.2	18.9	0.0	29.1	22.0	14.6	2.8	557
35–39	67.1	49.6	16.9	4.2	3.6	31.5	1.2	26.2	22.0	10.6	2.4	395
40–44	67.4	45.0	11.2	2.5	0.8	28.4	5.6	33.1	28.2	14.6	2.2	278
45–49	59.4	42.6	11.6	2.1	1.1	27.2	3.9	23.1	20.7	8.8	1.0	244
Total	53.4	35.0	15.7	3.6	3.5	15.5	1.1	25.6	19.9	12.3	1.6	2,912
						TOTAL						
15–19	19.2	8.5	6.6	0.4	2.3	0.0	0.0	12.4	5.7	8.5	0.0	311
20–24	40.0	19.3	13.1	2.3	3.3	1.9	0.3	24.4	18.5	12.9	0.5	580
25–29	57.0	37.7	20.2	5.4	6.7	11.1	0.0	27.7	20.6	14.1	1.8	648
30–34	64.7	45.1	22.0	5.9	5.0	18.4	0.0	30.0	22.5	15.1	2.8	615
35–39	68.0	50.0	17.0	4.3	4.2	31.4	1.1	27.7	22.9	11.3	2.3	443
40–44	68.9	45.9	11.2	2.5	1.2	29.4	5.1	33.5	28.4	15.2	2.2	309
45–49	60.2	42.7	11.2	2.1	2.5	26.7	3.5	24.6	21.0	10.0	0.9	272
Total	54.7	35.9	15.8	3.7	4.1	15.7	1.0	26.3	20.2	12.9	1.6	3,179

*Percentage not shown; based on fewer than 25 unweighted cases
[1]Includes both modern and traditional methods that are not listed separately

Although nearly all currently married women in Assam know at least one method of contraception, only 55 percent have ever used a method, down from 63 percent at the time of NFHS-1. (Ever use of any modern method increased from 30 to 36 percent, and ever use of any traditional method declined from 51 to 26 percent. The reasons for the implausibly large decline in ever use of traditional methods are not clear.) The most commonly used modern methods are female sterilization and the pill (16 percent each), followed by the condom (4 percent). It is noteworthy that ever use of modern temporary methods (24 percent) substantially exceeds ever use of male and female sterilization (17 percent). The most commonly used traditional method is the rhythm/safe period method (20 percent), followed by withdrawal (13 percent). Only 1 percent have adopted male sterilization, and only 4 percent have ever used the IUD. Ever use of any method is higher in urban areas (68 percent) than in rural areas (53 percent), and this is true for every specific method except male sterilization.

Ever use of any method increases with woman's age up to age 40–44 (peaking at 69 percent) and then declines at age 45–49. The increase in contraceptive use up to age 40–44 reflects a life-cycle effect, with women increasingly adopting contraception as their fertility goals are met. Declining ever use of modern methods by older women reflects, at least in part, larger family size norms and lower levels of contraceptive prevalence in the past. In addition, some older women age 45–49 who were previously using some temporary method may have ceased using because they perceive themselves to be in menopause and no longer in need of contraception. The pattern of ever use by age is more or less similar for urban and rural areas, except that use is lower for rural women in every age group.

Current Use of Family Planning Methods

Table 5.3 provides information on current use of family planning among currently married women in Assam by age and urban-rural residence. Forty-three percent of currently married women in Assam currently use some method of contraception (compared with the national average of 48 percent). The NFHS-2 estimates of current use in Assam, for both overall use and use of specific methods, are close to those obtained by the Rapid Household Survey under the Reproductive and Child Health Project, which was carried out at about the same time as NFHS-2. For women age 15–44, the current use rate for any modern method was reported to be 26 percent in NFHS-2 and 28 percent in the RCH Survey, and the current use rate of any traditional method was reported to be 17 percent in NFHS-2 and 12 percent in the Rapid Household Survey.

Tables 5.2 and 5.3 show that 79 percent of ever users of contraception are current users. Sixty-one percent of current contraceptive users use a modern method. In Assam, traditional methods and female sterilization dominate the contraceptive method mix. Sixteen percent of currently married women are sterilized, and another 16 percent are using a traditional method (mainly the rhythm/safe-period method). Together, female sterilization and traditional methods account for 73 percent of total current contraceptive prevalence. Only 1 percent of women report male sterilization as their current method.

The three officially-sponsored spacing methods together account for less than one-quarter (23 percent) of contraceptive prevalence. Specifically, the pill is used by 6 percent of women, whereas the condom and the IUD are each used by only 2 percent of women. This is in contrast to the situation for ever use of contraception, discussed earlier in the context of Table 5.2. In that

Table 5.3 Current use of contraception

Percent distribution of currently married women by contraceptive method currently used, according to age and residence, Assam, 1999

Age	Any method	Any modern method	Pill	IUD	Condom	Female sterilization	Male sterilization	Any traditional method	Rhythm/ safe period	Withdrawal	Other method[1]	Not using any method	Total percent	Number of women
URBAN														
15–19	*	*	*	*	*	*	*	*	*	*	*	*	100.0	8
20–24	35.6	13.9	3.9	2.3	3.8	2.9	1.0	21.7	8.7	13.1	0.0	64.4	100.0	35
25–29	55.5	31.2	12.6	3.5	6.1	8.9	0.0	23.0	11.7	11.3	1.4	44.5	100.0	56
30–34	57.4	29.4	7.2	2.3	5.9	13.9	0.0	27.3	18.8	8.5	0.8	42.6	100.0	58
35–39	64.0	36.8	1.5	0.7	3.9	30.7	0.0	27.2	18.2	9.1	0.0	36.0	100.0	49
40–44	71.7	48.2	3.8	2.1	2.9	38.4	1.0	22.4	15.1	7.3	1.0	28.3	100.0	32
45–49	34.5	25.9	0.0	0.0	3.5	22.5	0.0	8.5	1.2	7.4	0.0	65.5	100.0	28
Total	53.4	30.6	6.0	1.9	4.5	17.9	0.3	22.2	13.0	9.3	0.6	46.6	100.0	266
RURAL														
15–19	13.3	5.0	3.1	0.4	1.5	0.0	0.0	8.3	4.7	3.6	0.0	86.7	100.0	303
20–24	26.5	10.5	5.9	1.1	1.5	1.8	0.2	15.8	11.4	4.4	0.2	73.5	100.0	545
25–29	44.1	26.4	8.9	3.6	2.6	11.3	0.0	16.5	10.6	5.9	1.2	55.9	100.0	592
30–34	53.8	33.1	9.6	3.1	1.5	18.9	0.0	19.2	13.5	5.7	1.5	46.2	100.0	557
35–39	59.9	41.3	5.8	1.5	1.2	31.5	1.2	17.2	13.2	3.9	1.5	40.1	100.0	395
40–44	54.2	37.8	2.5	0.8	0.4	28.4	5.6	15.5	12.8	2.6	0.9	45.8	100.0	278
45–49	41.7	34.9	2.9	0.5	0.5	27.2	3.9	6.7	6.2	0.5	0.0	58.3	100.0	244
Total	42.3	26.3	6.3	1.9	1.5	15.5	1.1	15.2	10.9	4.3	0.9	57.7	100.0	2,912
TOTAL														
15–19	13.4	5.3	3.5	0.4	1.5	0.0	0.0	8.0	4.6	3.5	0.0	86.6	100.0	311
20–24	27.1	10.7	5.8	1.2	1.6	1.9	0.3	16.1	11.2	4.9	0.2	72.9	100.0	580
25–29	45.1	26.8	9.2	3.5	2.9	11.1	0.0	17.0	10.7	6.3	1.2	54.9	100.0	648
30–34	54.1	32.7	9.4	3.0	1.9	18.4	0.0	20.0	14.0	5.9	1.4	45.9	100.0	615
35–39	60.4	40.8	5.4	1.4	1.5	31.4	1.1	18.3	13.8	4.5	1.3	39.6	100.0	443
40–44	56.0	38.8	2.7	1.0	0.7	29.4	5.1	16.2	13.1	3.1	0.9	44.0	100.0	309
45–49	40.9	34.0	2.6	0.4	0.8	26.7	3.5	6.9	5.7	1.2	0.0	59.1	100.0	272
Total	43.3	26.6	6.3	1.9	1.8	15.7	1.0	15.8	11.1	4.7	0.8	56.7	100.0	3,179

*Percentage not shown; based on fewer than 25 unweighted cases
[1]Includes both modern and traditional methods that are not listed separately

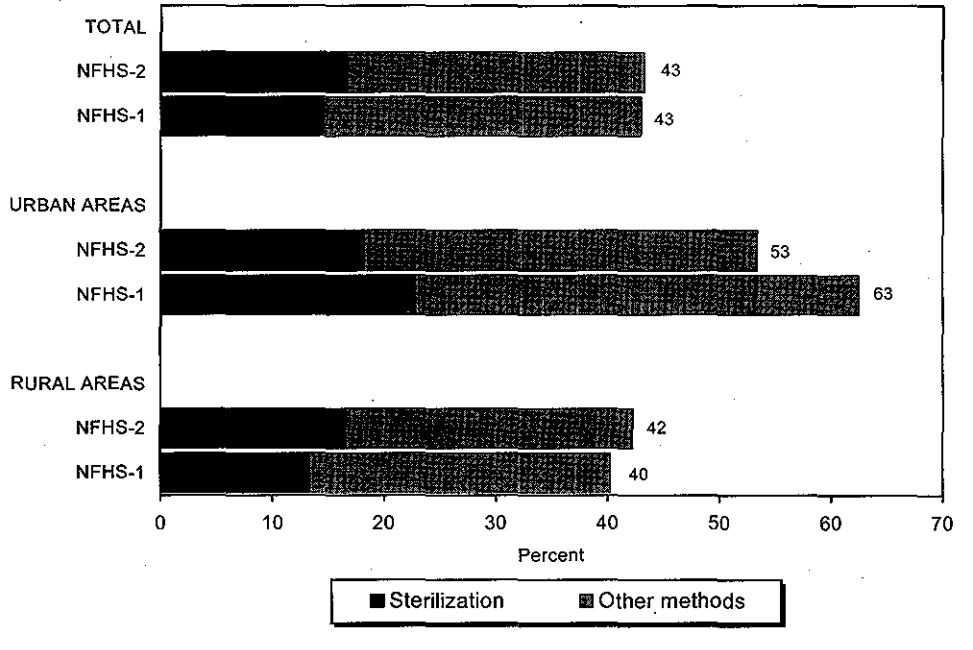
table, ever use of modern temporary methods exceeds ever use of sterilization. It appears that many women use modern temporary methods only briefly before switching ultimately (with perhaps one or more births in between) to female sterilization.

Table 5.3 shows that current use of contraceptive methods is higher in urban areas (53 percent) than in rural areas (42 percent). Current use of condoms and female sterilization is higher in urban than in rural areas. Differentials in current use by residence are most pronounced for traditional methods, which are used by 22 percent of urban women but only 15 percent of rural women. Because of this, female sterilization is slightly less prominent in the mix of methods used by women in urban areas (where it accounts for 34 percent of contraceptive prevalence) than in rural areas (where it accounts for 37 percent of contraceptive prevalence).

By age, current contraceptive use increases from 13 percent for women age 15–19 to 60 percent for women age 35–39 and then decreases for older women. The majority of contraceptive users in age groups below age 35–39 currently use either a modern spacing method or a traditional method, whereas the majority of current users age 35–49 use female sterilization. The pattern of variation by age in contraceptive use is similar in urban areas and rural areas. However, a majority of current users in every age group below age 40–44 in urban areas (the cut-off is age 35–39 in rural areas) use either a modern spacing method or a traditional method rather than sterilization.

The NFHS-2 contraceptive prevalence rate of 43 percent is unchanged from NFHS-1 (Figure 5.1). During this period, there has been an increase in use of modern methods (from 20 percent to 27 percent) and a decrease in the use of traditional methods (from 23 percent to 16

Figure 5.1
Current Use of Family Planning by Residence
NFHS-1 and NFHS-2



Assam

percent). In NFHS-1, modern methods accounted for 46 percent of current contraceptive prevalence, whereas in NFHS-2, modern methods account for 61 percent of current contraceptive use. Between NFHS-1 and NFHS-2 current use of female sterilization increased from 12 percent to 16 percent of women, use of the pill increased from 3 to 6 percent, use of the IUD increased from 1 to 2 percent, condom use remained constant at 2 percent, and use of male sterilization declined from 2 to 1 percent. Overall, use of the pill, IUD, or condom increased from 13 percent of current use to 23 percent of current use. In NFHS-2, contraceptive prevalence is the same in urban areas and rural areas for the pill and IUD, and is higher in urban areas than rural areas for the condom. These results suggest that the increased emphasis on contraceptive method choice and on modern spacing methods in the Reproductive and Child Health Programme have had some impact in Assam, although overall use of modern spacing methods is still comparatively low in both urban and rural areas.

Socioeconomic Differentials in Current Use of Family Planning Methods

Table 5.4 shows differences in current contraceptive use by background characteristics. The higher rate of contraceptive use in urban areas than in rural areas is due to higher rates of use of traditional methods, condoms, and female sterilization in urban areas. Current contraceptive use increases steadily with education from 40 percent among illiterate women to 56 percent among women who have completed at least high school, mainly due to greater use of traditional methods (especially the rhythm/safe-period method) and condoms among the more-educated women. On the other hand, use of female sterilization is lower among women who have completed at least high school than among illiterate women. Various studies based on NFHS-1 data have shown that even after controlling the effects of other factors, education is a key factor influencing contraceptive use in India (Retherford and Ramesh, 1996; Ramesh et al., 1996).

Contraceptive prevalence is higher among Hindu women (49 percent) than among Muslim women (34 percent), with Christian women in between (37 percent). The difference between Hindus and Muslims is due entirely to greater use of modern methods (mainly female sterilization) by Hindus. Use of traditional methods is slightly lower among Hindus than among Muslims. Twenty percent of Christians, 18 percent of Muslims, and 15 percent of Hindus use a traditional method. Withdrawal is used slightly more frequently than the rhythm/safe-period method by Christians, whereas the rhythm/safe-period method is used much more frequently than withdrawal by Hindus and Muslims.

By caste/tribe, contraceptive prevalence is highest for women who belong to other backward classes (51 percent) and lowest for women who do not belong to a scheduled caste, scheduled tribe, or other backward class (40 percent). Differences among the caste/tribe groups are accounted for mainly by differences in the percentage using female sterilization.

Contraceptive prevalence is much higher among women living in households with a high standard of living (56 percent) than among women living in households with a low standard of living (35 percent). All the specific methods shown in the table contribute to the higher contraceptive prevalence among women with a high standard of living.

Table 5.4 also shows differences in current use by the number and sex of living children. Contraceptive use increases sharply from 6 percent for women with no living children to 59 percent for women with three living children and then declines somewhat. The same pattern is

Table 5.4 Current use by background characteristics

Percent distribution of currently married women by contraceptive method currently used, according to selected background characteristics, Assam, 1999

Background characteristic	Any method	Any modern method	Pill	IUD	Condom	Female sterilization	Male sterilization	Any traditional method	Rhythm/ safe period	Withdrawal	Other method[1]	Not using any method	Total percent	Number of women
Residence														
Urban	53.4	30.6	6.0	1.9	4.5	17.9	0.3	22.2	13.0	9.3	0.6	46.6	100.0	266
Rural	42.3	26.3	6.3	1.9	1.5	15.5	1.1	15.2	10.9	4.3	0.9	57.7	100.0	2,912
Education														
Illiterate	39.5	25.9	5.1	1.6	0.7	17.5	1.0	12.5	8.3	4.2	1.1	60.5	100.0	1,669
Literate, < middle school complete	42.0	26.6	8.1	0.9	1.6	14.8	1.3	14.9	10.8	4.1	0.5	58.0	100.0	721
Middle school complete	50.2	28.2	8.8	3.2	2.0	13.8	0.5	21.4	15.7	5.7	0.5	49.8	100.0	468
High school complete and above	55.6	28.5	5.3	3.9	7.2	11.3	0.8	26.6	19.4	7.2	0.5	44.4	100.0	321
Religion														
Hindu	48.6	33.0	6.0	2.4	1.8	21.4	1.4	14.8	10.0	4.8	0.7	51.4	100.0	2,033
Muslim	33.5	14.9	6.8	0.9	1.9	5.1	0.2	17.5	13.3	4.2	1.1	66.5	100.0	1,026
Christian	37.2	15.2	7.3	0.0	0.0	8.0	0.0	20.1	9.2	10.9	1.9	62.8	100.0	74
Caste/tribe														
Scheduled caste	47.4	34.2	9.6	2.1	1.6	18.7	2.3	12.4	6.9	5.4	0.9	52.6	100.0	311
Scheduled tribe	47.5	32.0	6.3	3.3	0.7	20.2	1.5	14.6	10.5	4.1	0.9	52.5	100.0	660
Other backward class	51.3	34.2	5.3	4.0	1.4	21.9	1.6	16.7	11.3	5.4	0.4	48.7	100.0	372
Other	40.3	22.3	6.2	0.9	2.3	12.4	0.5	17.0	12.2	4.7	0.9	59.7	100.0	1,759
Standard of living index														
Low	34.8	21.9	5.5	1.6	0.7	13.6	0.4	11.8	8.0	3.8	1.1	65.2	100.0	1,344
Medium	48.1	29.6	7.5	1.9	1.5	17.1	1.6	17.9	13.1	4.8	0.7	51.9	100.0	1,366
High	56.2	34.2	6.0	3.4	5.8	18.3	0.6	22.0	14.6	7.4	0.0	43.8	100.0	370

Contd...

Table 5.4 Current use by background characteristics (contd.)

Percent distribution of currently married women by contraceptive method currently used, according to selected background characteristics, Assam, 1999

Background characteristic	Any method	Any modern method	Pill	IUD	Condom	Female ster-ilization	Male ster-ilization	Any traditional method	Rhythm/ safe period	With-drawal	Other method[1]	Not using any method	Total percent	Number of women
Number and sex of living children														
No children	6.4	1.9	0.6	0.0	1.0	0.0	0.3	4.5	3.1	1.4	0.0	93.6	100.0	383
1 child	29.2	12.3	5.8	1.0	3.0	2.0	0.5	16.7	10.3	6.5	0.2	70.8	100.0	545
1 son	30.7	11.3	6.2	0.7	2.7	1.7	0.0	19.0	10.9	8.1	0.4	69.3	100.0	316
No sons	27.2	13.6	5.3	1.3	3.5	2.4	1.1	13.7	9.4	4.3	0.0	72.8	100.0	229
2 children	50.9	29.5	9.6	3.0	2.6	13.5	0.8	21.0	14.5	6.5	0.4	49.1	100.0	671
2 sons	54.5	32.7	9.0	3.3	4.0	15.2	1.2	21.9	15.7	6.2	0.0	45.5	100.0	200
1 son	52.9	32.2	9.6	3.7	1.8	16.3	0.7	20.0	12.5	7.4	0.8	47.1	100.0	359
No sons	37.9	15.1	10.8	0.3	2.6	1.4	0.0	22.7	18.3	4.4	0.0	62.1	100.0	111
3 children	58.5	39.8	7.6	3.2	1.2	26.0	1.8	17.8	13.6	4.2	0.9	41.5	100.0	593
3 sons	52.9	33.3	7.3	1.7	1.0	19.9	3.4	17.8	6.2	11.5	1.8	47.1	100.0	67
2 sons	62.5	43.8	8.2	2.3	0.0	31.9	1.4	17.6	15.2	2.5	1.1	37.5	100.0	254
1 son	59.0	40.2	7.1	3.8	2.3	25.5	1.6	18.3	13.6	4.7	0.5	41.0	100.0	227
No sons	(41.7)	(25.6)	(7.8)	(7.1)	(2.5)	(5.5)	(2.6)	(16.2)	(15.5)	(0.7)	(0.0)	(58.3)	100.0	46
4+ children	51.0	34.4	5.8	1.6	1.1	24.7	1.2	14.9	10.8	4.1	1.8	49.0	100.0	987
2+ sons	52.1	36.2	5.5	1.4	1.4	26.6	1.3	13.9	10.5	3.4	2.1	47.9	100.0	771
1 son	50.3	29.9	8.1	2.6	0.2	17.7	1.3	19.6	13.3	6.3	0.9	49.7	100.0	182
No sons	(29.9)	(17.5)	(0.0)	(0.0)	(0.0)	(17.5)	(0.0)	(12.5)	(4.4)	(8.1)	(0.0)	(70.1)	100.0	34
Total	43.3	26.6	6.3	1.9	1.8	15.7	1.0	15.8	11.1	4.7	0.8	56.7	100.0	3,179

Note: Total includes 22 women belonging to other religions and 24, 76, and 99 women with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.

( ) Based on 25-49 unweighted cases

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

evident for female sterilization. Use of spacing methods (including traditional methods) is most common for women with two living children.

Prevalence rates by sex composition of living children indicate the existence of considerable son preference. At each parity beyond parity 1, women with no sons are much less likely than women with one or more sons to be using contraception. For example, among women with two children, only 38 percent with no sons are using contraception, compared with 55 percent with two sons. Most of the difference is accounted for by much lower use of female sterilization among women who have no sons. Comparisons with women who have three or more living children are not very meaningful because of the small numbers of women with no sons.

Number of Living Children at First Use of Contraception

In order to examine the timing of initial family planning use, NFHS-2 included a question on how many living children women had when they first used a method. Table 5.5 shows the distribution of ever-married women by the number of living children at the time of first

Table 5.5 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, Assam, 1999

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	*	*	*	*	*	*	100.0	9
20–24	49.6	12.7	27.0	9.7	1.0	0.0	100.0	37
25–29	32.8	5.6	31.7	19.4	8.7	1.9	100.0	59
30–34	32.5	5.4	24.7	16.1	14.7	6.7	100.0	64
35–39	28.1	5.1	19.1	19.9	9.0	18.6	100.0	51
40–44	27.4	4.5	14.3	10.4	16.1	27.3	100.0	38
45–49	36.7	4.5	13.0	15.3	9.9	20.7	100.0	37
Total	35.3	5.9	22.2	15.5	9.9	11.2	100.0	294
				RURAL				
15–19	81.2	9.2	8.4	1.1	0.0	0.0	100.0	311
20–24	62.4	5.2	18.5	9.8	3.7	0.4	100.0	575
25–29	45.9	5.3	17.4	13.3	10.8	7.4	100.0	614
30–34	38.6	3.6	11.1	15.3	11.9	19.5	100.0	593
35–39	35.1	1.1	9.0	10.0	14.5	30.3	100.0	424
40–44	37.1	3.0	8.5	7.0	15.4	29.0	100.0	324
45–49	45.0	4.0	7.2	5.1	8.6	30.1	100.0	307
Total	48.6	4.4	12.5	9.9	9.4	15.2	100.0	3,147
				TOTAL				
15–19	81.3	9.0	8.5	1.2	0.0	0.0	100.0	320
20–24	61.6	5.7	19.0	9.8	3.5	0.4	100.0	611
25–29	44.7	5.3	18.6	13.8	10.6	6.9	100.0	673
30–34	38.0	3.8	12.4	15.4	12.1	18.2	100.0	657
35–39	34.3	1.6	10.1	11.1	13.9	29.1	100.0	475
40–44	36.1	3.2	9.1	7.4	15.5	28.9	100.0	361
45–49	44.1	4.0	7.8	6.2	8.7	29.1	100.0	343
Total	47.4	4.6	13.3	10.4	9.4	14.9	100.0	3,441

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

contraceptive use, according to current age and residence. Only 5 percent of ever-married women (9 percent of ever-married women who have ever used contraception) began using contraception when they did not have any living children, and another 13 percent (25 percent of ever users) began using when they had one living child. Thirty-eight percent of ever-married women (72 percent of ever users) began using when they had three or fewer living children. The timing of first use is earlier for urban women than for rural women.

Problems with Current Method

Women who were using a contraceptive method were asked if they had experienced any problems with their current method. Table 5.6 shows the percentage of current contraceptive users who report specific problems. Overall, a large majority (86 percent) of current users report having no problems with their method. This may be an underestimate of the extent of problems, however, because women who have experienced problems with spacing methods may have stopped using contraception altogether, and these women are not represented in the table.

The analysis of method-specific problems reveals that 76 percent of sterilized women and 89 percent of women whose husbands are sterilized report having no problem with their method. The most common problems experienced by sterilized women are abdominal pain (14 percent),

Table 5.6 Problems with current method

Percentage of current users of specific contraceptive methods who have had problems in using the method, Assam, 1999

	Contraceptive method								
Problem	Pill	IUD	Condom	Female sterili-zation	Male sterili-zation	Rhythm/ safe period	With-drawal	Other methods[1]	Total
No problem	77.4	75.0	100.0	76.2	(88.5)	99.0	96.1	(90.9)	85.9
Weight gain	0.2	0.0	0.0	0.0	(0.0)	0.0	0.8	(0.0)	0.1
Weight loss	0.6	0.0	0.0	1.2	(0.0)	0.0	0.8	(0.0)	0.6
Too much bleeding	0.0	6.0	0.0	3.6	(3.7)	0.0	0.8	(0.0)	1.8
Hypertension	1.1	0.0	0.0	0.0	(0.0)	0.0	0.0	(0.0)	0.2
Headache/bodyache/backache	5.3	4.0	0.0	7.6	(0.0)	0.0	0.0	(0.0)	3.7
Nausea/vomiting	1.4	0.0	0.0	1.0	(0.0)	0.0	0.0	(0.0)	0.6
No menstruation	0.6	0.0	0.0	0.5	(0.0)	0.0	0.0	(0.0)	0.3
Weakness/tiredness	9.6	2.0	0.0	5.2	(3.9)	0.0	0.8	(4.5)	3.6
Dizziness	11.6	4.1	0.0	2.9	(0.0)	0.3	0.8	(4.6)	3.2
Fever	2.0	2.0	0.0	1.8	(0.0)	0.0	0.0	(4.5)	1.1
Cramps	2.4	0.0	0.0	1.2	(0.0)	0.0	0.0	(0.0)	0.8
Spotting	0.6	0.0	0.0	0.0	(0.0)	0.0	0.0	(0.0)	0.1
Inconvenient to use	0.0	0.0	0.0	0.1	(0.0)	0.0	0.0	(0.0)	0.0
Abdominal pain	3.8	14.1	0.0	14.4	(0.0)	0.0	0.0	(4.6)	6.5
White discharge	0.6	4.4	0.0	1.2	(0.0)	0.3	1.6	(0.0)	1.0
Irregular periods	0.6	0.0	0.0	0.2	(0.0)	0.3	0.0	(0.0)	0.3
Allergy	0.0	2.0	0.0	0.5	(0.0)	0.0	0.0	(0.0)	0.3
Reduced sexual satisfaction	0.0	0.5	0.0	0.0	(0.0)	0.7	2.3	(0.0)	0.5
Other	0.0	0.0	0.0	0.5	(3.8)	0.0	0.0	(0.0)	0.3
Number of users	201	60	56	499	32	352	150	27	1,376

Note: Percentages may add to more than 100.0 because multiple problems could be recorded.
( ) Based on 25–49 unweighted cases
[1]Includes both modern and traditional methods that are not listed separately

headache, bodyache, or backache (8 percent), weakness or tiredness (5 percent), too much bleeding (4 percent), dizziness (3 percent), and fever (2 percent). Among women whose husbands are sterilized and who report problems with the method, the most common complaint is weakness or tiredness. With regard to spacing methods, 23 percent of women had problems in using pills, 25 percent had problems using the IUD, but no one had a problem using condoms. The most common problems for pill users are dizziness, weakness/tiredness, and headache/ bodyache/backache. The most common problems for IUD users are abdominal pain, too much bleeding, white discharge, dizziness, and headache/bodyache/backache. These results point to a continuing need to strengthen post-operative care for sterilization acceptors and counselling and support for all categories of contraceptive acceptors except condom users.

5.3 Timing of Sterilization

Table 5.7 shows how many years before the survey women or their husbands were sterilized and how old the women were when the sterilization took place. Of 531 sterilizations reported, 94 percent are female sterilizations. Twenty-nine percent of the female sterilizations took place less than 6 years before the survey, another 25 percent took place 6–9 years before the survey, and 46

Table 5.7 Timing of sterilization

Percent distribution of currently married, sterilized women and wives of sterilized men by age at the time of sterilization and median age of the woman at the time of sterilization, according to the number of years since sterilization, Assam, 1999

Years since sterilization	Woman's age at the time of sterilization							Total percent	Number sterilized	Median age[1]
	< 20	20–24	25–29	30–34	35–39	40–44	45–49			
STERILIZED WOMEN										
< 2	(0.0)	(13.0)	(47.1)	(20.6)	(14.7)	(0.0)	(4.6)	100.0	33	(28.4)
2–3	2.9	30.0	45.7	14.6	6.8	0.0	0.0	100.0	52	27.0
4–5	4.2	34.1	35.3	20.4	4.0	2.1	0.0	100.0	59	25.7
6–7	5.9	23.5	26.6	33.7	8.2	2.0	U	100.0	60	27.4
8–9	0.6	29.2	47.9	14.7	7.7	0.0	U	100.0	64	26.7
10+	3.4	36.7	40.0	16.9	3.0	U	U	100.0	231	NC
Total	3.1	31.6	39.9	19.1	5.5	0.5	0.3	100.0	499	26.8
WIVES OF STERILIZED MEN										
Total	(3.6)	(46.3)	(42.6)	(3.6)	(3.8)	(0.0)	(0.0)	100.0	32	(25.0)
STERILIZED WOMEN AND WIVES OF STERILIZED MEN										
< 2	(0.0)	(13.0)	(47.1)	(20.6)	(14.7)	(0.0)	(4.6)	100.0	33	(28.4)
2–3	2.9	30.0	45.7	14.6	6.8	0.0	0.0	100.0	52	27.0
4–5	4.1	34.5	35.1	20.3	3.9	2.0	0.0	100.0	59	25.7
6–7	7.6	22.6	25.6	32.5	9.9	2.0	U	100.0	62	27.4
8–9	0.5	28.7	48.9	14.4	7.5	0.0	U	100.0	65	26.7
10+	3.0	38.3	40.4	15.6	2.7	U	U	100.0	258	NC
Total	3.2	32.4	40.1	18.1	5.4	0.5	0.3	100.0	531	26.7

NC: Not calculated due to censoring
U: Not available
( ) Based on 25–49 unweighted cases
[1]To avoid censoring, median age is calculated only for sterilizations that took place when the woman was less than 40 years old.

percent took place 10 or more years before the survey. By contrast, 88 percent of male sterilizations took place 10 or more years before the survey (data not shown), reflecting the general shift from male to female sterilization in India's family planning programme over the past few decades. The median age of the wife at the time of sterilization was 26.7 years, one year older than the median age of 25.7 years for India as a whole. Seventy-six percent of sterilized couples underwent sterilization before the wife was age 30, 94 percent before the wife was age 35, and only 1 percent when the wife was in her forties. Among sterilized couples, 75 percent of women said that they had not used any other method of contraception before the sterilization took place (data not shown).

Table 5.7 indicates that the median age of women at the time of sterilization increased slightly from 26.7 years in the period 8–9 years before the survey to 28.4 in the period 0–1 years before the survey. From NFHS-2 data it is not possible to assess the trend in the median age at sterilization for more than 10 years before the survey because only women age 15–49 years were interviewed. Women in their forties 10 or more years before the survey would have been age 50–59 years at the time of the survey and would, therefore, not have been interviewed. Examining NFHS-1 and NFHS-2 data together suggests that the median age at sterilization declined between 1983–84 (about 8–9 years before NFHS-1) and 1990-91 (about 8–9 years before NFHS-2), from 28.3 to 26.7.

5.4 Sources of Contraceptive Methods

Family planning methods and services in Assam are provided primarily through a network of government hospitals and urban family welfare centres in urban areas and Primary Health Centres (PHCs) and sub-centres in rural areas. Family planning services are also provided by private hospitals and clinics, as well as nongovernmental organizations (NGOs). Sterilizations and IUD insertions are carried out mostly in government hospitals and PHCs. Sterilization camps, organized from time to time, also provide sterilization services. Modern spacing methods such as the IUD, pill, and condom are available through both the government and private sectors.

To assess the relative importance of various sources of contraceptive methods, NFHS-2 included a question on where current contraceptive users obtained their methods. Table 5.8 and Figure 5.2 show the percent distribution of current users of modern contraceptives by the source from which they obtained their method most recently, according to specific method and residence. The public medical sector, consisting of government/municipal hospitals, government dispensaries, Primary Health Centres, and other governmental health infrastructure, is the source of contraception for 64 percent of current users of modern methods, down from 72 percent in NFHS-1. The private medical sector, including private hospitals or clinics, private doctors, private mobile clinics, private paramedics, pharmacies or drugstores, and traditional birth attendants, is the source for 32 percent of current users, up from 25 percent in NFHS-1. Only 2 percent of current users obtain their methods from shops and only 1 percent from NGO or trust sources. Government/municipal hospitals are the main source for female sterilization (40 percent), followed by community health centres, rural hospitals, or Primary Health Centres (28 percent) and private hospitals or clinics (14 percent). By contrast, private pharmacies or drugstores are the main source for condoms and pills (both 52 percent). Only 30 percent of current pill users and 15 percent of current condom users obtain their supply from the public medical sector. The public medical sector is, however, the main source for IUDs (84 percent).

Table 5.8 Source of modern contraceptive methods

Percent distribution of current users of modern contraceptive methods by most recent source, according to specific method and residence, Assam, 1999

Source	Contraceptive method					All modern methods
	Pill	IUD	Condom	Female sterilization	Male sterilization	
			URBAN			
Public medical sector	(6.3)	*	(8.3)	68.1	*	46.8
Government/municipal hospital	(2.1)	*	(8.3)	54.2	*	35.4
Government Dispensary	(0.0)	*	(0.0)	0.0	*	1.3
UHC/UHP/UFWC	(0.0)	*	(0.0)	2.2	*	1.3
CHC/rural hospital/PHC	(4.2)	*	(0.0)	3.9	*	4.3
Sub-centre	(0.0)	*	(0.0)	0.0	*	0.0
Government mobile clinic	(0.0)	*	(0.0)	0.0	*	0.0
Camp	(0.0)	*	(0.0)	0.7	*	0.4
Other public medical sector	(0.0)	*	(0.0)	7.2	*	4.2
NGO or trust	(0.0)	*	(0.0)	1.5	*	0.8
Hospital/clinic	(0.0)	*	(0.0)	1.5	*	0.8
NGO worker	(0.0)	*	(0.0)	0.0	*	0.0
Private medical sector	(89.2)	*	(77.2)	27.5	*	47.7
Private hospital/clinic	(9.4)	*	(14.7)	23.3	*	19.3
Private doctor	(2.1)	*	(0.0)	1.4	*	2.2
Private paramedic	(0.0)	*	(0.0)	0.0	*	0.0
Pharmacy/drugstore	(77.7)	*	(62.4)	0.0	*	24.5
Dai (TBA)	(0.0)	*	(0.0)	0.0	*	0.0
Other private medical sector	(0.0)	*	(0.0)	2.8	*	1.6
Other source						
Shop	(4.5)	*	(14.5)	0.0	*	3.0
Don't know[1]	(0.0)	*	(0.0)	0.0	*	0.0
Missing	(0.0)	*	(0.0)	2.9	*	1.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of users	16	5	12	48	1	81
			RURAL			
Public medical sector	31.9	(85.8)	(16.4)	79.7	(92.2)	65.5
Government/municipal hospital	6.4	(26.7)	(2.8)	38.6	(38.8)	28.0
Government Dispensary	2.6	(6.7)	(2.7)	0.0	(0.0)	1.3
UHC/UHP/UFWC	0.6	(0.0)	(0.0)	1.0	(0.0)	0.8
CHC/rural hospital/PHC	14.3	(37.3)	(5.4)	31.0	(42.3)	26.4
Sub-centre	7.8	(15.0)	(5.5)	0.0	(0.0)	3.3
Government mobile clinic	0.0	(0.0)	(0.0)	1.1	(0.0)	0.6
Camp	0.0	(0.0)	(0.0)	5.8	(11.1)	3.9
Other public medical sector	0.0	(0.0)	(0.0)	2.1	(0.0)	1.2
NGO or trust	0.0	(0.0)	(2.7)	1.4	(0.0)	1.0
Hospital/clinic	0.0	(0.0)	(0.0)	1.4	(0.0)	0.8
NGO worker	0.0	(0.0)	(2.7)	0.0	(0.0)	0.2
Private medical sector	63.5	(14.2)	(64.7)	17.9	(0.0)	30.6
Private hospital/clinic	8.9	(6.6)	(10.7)	13.3	(0.0)	11.0
Private doctor	2.7	(7.6)	(0.0)	0.3	(0.0)	1.3
Private paramedic	1.3	(0.0)	(2.7)	0.0	(0.0)	0.5
Pharmacy/drugstore	49.3	(0.0)	(48.7)	0.0	(0.0)	14.7
Dai (TBA)	0.7	(0.0)	(2.6)	0.0	(0.0)	0.3
Other private medical sector	0.7	(0.0)	(0.0)	4.4	(0.0)	2.7
Other source						
Shop	3.4	(0.0)	(16.2)	0.0	(0.0)	1.7
Don't know[1]	0.6	(0.0)	(0.0)	0.0	(0.0)	0.2
Missing	0.6	(0.0)	(0.0)	1.0	(7.8)	1.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of users	185	55	44	451	31	766

Table 5.8 Source of modern contraceptive methods (contd.)

Percent distribution of current users of modern contraceptive methods by most recent source, according to specific method and residence, Assam, 1999

Source	Contraceptive method					
	Pill	IUD	Condom	Female sterilization	Male sterilization	All modern methods
		TOTAL				
Public medical sector	29.8	83.5	14.7	78.6	(92.3)	63.7
Government/municipal hospital	6.1	26.1	4.0	40.1	(40.1)	28.7
Government Dispensary	2.4	7.9	2.1	0.0	(0.0)	1.3
UHC/UHP/UFWC	0.6	0.0	0.0	1.1	(0.0)	0.8
CHC/rural hospital/PHC	13.5	35.8	4.2	28.4	(41.4)	24.3
Sub-centre	7.2	13.7	4.3	0.0	(0.0)	3.0
Government mobile clinic	0.0	0.0	0.0	1.0	(0.0)	0.6
Camp	0.0	0.0	0.0	5.4	(10.8)	3.6
Other public medical sector	0.0	0.0	0.0	2.6	(0.0)	1.5
NGO or trust	0.0	0.0	2.1	1.4	(0.0)	0.9
Hospital/clinic	0.0	0.0	0.0	1.4	(0.0)	0.8
NGO worker	0.0	0.0	2.1	0.0	(0.0)	0.1
Private medical sector	65.6	16.5	67.4	18.8	(0.0)	32.2
Private hospital/clinic	8.9	8.2	11.6	14.2	(0.0)	11.8
Private doctor	2.7	8.3	0.0	0.4	(0.0)	1.4
Private paramedic	1.2	0.0	2.1	0.0	(0.0)	0.4
Pharmacy/drugstore	51.5	0.0	51.7	0.0	(0.0)	15.6
Dai (TBA)	0.6	0.0	2.1	0.0	(0.0)	0.3
Other private medical sector	0.6	0.0	0.0	4.2	(0.0)	2.6
Other source						
Shop	3.4	0.0	15.8	0.0	(0.0)	1.9
Don't know[1]	0.6	0.0	0.0	0.0	(0.0)	0.1
Missing	0.6	0.0	0.0	1.2	(7.7)	1.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of users	201	60	56	499	32	847

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

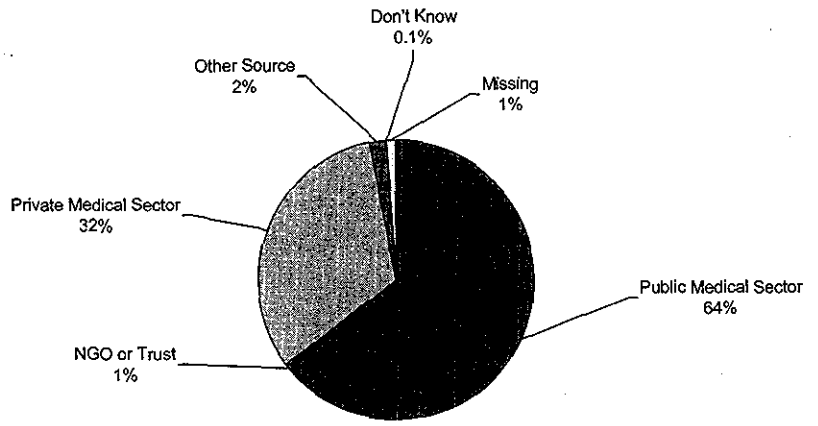
( ) Based on 25–49 unweighted cases

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

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

Sixty-six percent of rural users obtain their contraceptives from the public medical sector, compared with 47 percent of urban users. Although the public medical sector is the main source for female sterilizations in both urban and rural areas, in urban areas the private sector also plays a substantial role. Twenty-eight percent of female sterilizations were performed in the private medical sector in urban areas, compared with 18 percent in rural areas. For pills and condoms, the private medical sector is a more important source in urban areas than in rural areas. Most users of pills and condoms obtain their supply from private pharmacies, private drugstores, or shops in both urban and rural areas, and most users of IUDs use the public medical sector in rural areas.

Figure 5.2
Sources of Family Planning Among Current Users of Modern Contraceptive Methods



Note: Percents add to more than 100.0 due to rounding

NFHS-2, Assam, 1999

5.5 Reasons for Discontinuation/Non-Use of Contraception

Currently married, nonpregnant women who were not using a contraceptive method at the time of the survey fall into two categories with respect to their contraceptive experience: those who used contraception in the past and those who never used contraception. NFHS-2 asked women who had discontinued contraceptive use their main reason for discontinuing. The survey also asked women who had never used contraception the main reason they were not currently using a method. Table 5.9 shows that 295 nonpregnant women who ever used family planning methods have discontinued use. Among the group that discontinued contraception, the most commonly mentioned reason for discontinuing is that the couple wanted to have a child (24 percent). Other frequently cited reasons for discontinuing use are 'created health problem', 'created menstrual problem', 'did not like the method', and 'cost too much'. Urban and rural women gave similar reasons for discontinuing use, with both rural and urban women frequently mentioning desire for another child as the main reason for discontinuing use. However, menstrual and health problems were mentioned more frequently by urban women than by rural women as reasons for discontinuing.

Among women who never used contraception, the most commonly mentioned reason for not currently using a method is again the desire for more children (44 percent). Eight percent of currently married women mention as reasons for not currently using that they do not like existing methods, and another 7 percent of women are worried about side effects. Six percent of women say that they are menopausal or have had a hysterectomy. Five percent of women do not know a family planning source, another 5 percent say that they are postpartum or breastfeeding, and 4 percent say that their husbands are opposed to contraception. Another 3 percent of currently married women are either afraid of sterilization or say that they are not having sex or are subfecund/infecund. Only 2 percent mention not knowing a method as the main reason for not currently using contraception, and only 2 percent say that using contraception is against their

Table 5.9 Reasons for discontinuation/non-use

Percent distribution of nonpregnant, currently married women who stopped using contraception by main reason for stopping use and percent distribution of nonpregnant, currently married women who never used contraception by main reason for not currently using, according to residence, Assam, 1999

Reason	Urban	Rural	Total
REASON FOR STOPPING USE			
Method failed/got pregnant	1.0	3.3	3.0
Lack of sexual satisfaction	3.6	4.1	4.0
Created menstrual problem	22.3	10.6	11.9
Created health problem	18.9	14.6	15.1
Inconvenient to use	0.0	1.4	1.2
Hard to get method	0.0	2.7	2.4
Did not like the method	3.5	6.6	6.2
Wanted to have a child	22.2	23.9	23.7
Wanted to replace a dead child	0.0	1.9	1.7
Lack of privacy for use	1.0	0.9	0.9
Husband away	6.1	4.1	4.3
Costs too much	2.0	5.6	5.2
Other	19.4	18.2	18.3
Missing	0.0	2.2	2.0
Total percent	100.0	100.0	100.0
Number of women	33	262	295
REASON FOR NOT CURRENTLY USING			
Husband away	2.4	1.7	1.8
Fertility-related reasons	65.5	59.7	60.1
Not having sex	7.0	2.2	2.5
Infrequent sex	0.0	0.3	0.3
Menopausal/had hysterectomy	9.9	5.4	5.7
Subfecund/infecund	3.5	2.9	2.9
Postpartum/breastfeeding	1.6	5.2	5.0
Wants more children	43.5	43.8	43.7
Opposition to use	3.4	7.4	7.2
Opposed to family planning	0.0	1.0	1.0
Husband opposed	2.5	3.6	3.5
Other people opposed	0.4	0.3	0.3
Against religion	0.4	2.5	2.4
Lack of knowledge	3.0	6.8	6.5
Knows no method	0.0	1.7	1.6
Knows no source	3.0	5.1	5.0
Method-related reasons	23.2	21.6	21.7
Health concerns	4.1	1.1	1.3
Worry about side effects	6.8	6.5	6.5
Hard to get method	0.0	0.6	0.6
Costs too much	2.4	2.4	2.4
Inconvenient to use	0.0	0.2	0.2
Afraid of sterilization	2.6	3.1	3.1
Doesn't like existing methods	7.2	7.6	7.6
Other	2.0	0.8	0.9
Don't know/missing	0.4	1.9	1.8
Total percent	100.0	100.0	100.0
Number of women	73	1,167	1,240

religion. Another 2 percent say that their husband is away. There are no major urban-rural differences in reasons for not currently using contraception. However, 7 percent of urban women mention not having sex as the main reason, compared with only 2 percent of rural women. In addition, 10 percent of urban women report 'menopausal/had hysterectomy' as the main reason for not currently using contraception, compared with 5 percent of rural women.

5.6 Future Intentions Regarding Contraceptive Use

Currently married women who were not using any contraceptive method at the time of the survey (including those who were pregnant at the time of the survey) were asked about their intentions to use a method in the future. If they intended to use a method, they were asked about their preferred method. This type of information can help managers of family welfare programmes to identify potential groups of contraceptive users and to provide the types of contraception that are likely to be in demand. Table 5.10 gives women's responses to the questions on future use according to residence and number of living children.

Table 5.10 Future use of contraception

Percent distribution of currently married women who are not currently using any contraceptive method by intention to use in the future, according to number of living children and residence, Assam, 1999

Intention to use in the future	Number of living children[1]					Total
	0	1	2	3	4+	
			URBAN			
Intends to use in next 12 months	(2.1)	12.6	25.2	17.5	13.9	15.3
Intends to use later	(33.0)	27.4	21.3	13.3	4.9	20.4
Intends to use, unsure when	(0.0)	0.9	0.0	0.0	0.0	0.3
Unsure as to intention	(13.3)	5.3	1.0	4.4	1.4	4.5
Does not intend to use	(43.3)	52.8	49.9	64.7	79.8	57.4
Missing	(8.3)	1.0	2.5	0.0	0.0	2.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	17	34	32	18	23	124
			RURAL			
Intends to use in next 12 months	2.4	10.6	18.2	22.0	26.2	17.1
Intends to use later	21.1	32.7	26.1	20.6	6.5	20.5
Intends to use, unsure when	1.5	2.8	1.2	0.4	0.5	1.3
Unsure as to intention	20.2	12.8	4.6	3.9	5.0	8.7
Does not intend to use	54.3	39.9	49.2	52.5	61.3	51.8
Missing	0.5	1.2	0.7	0.5	0.5	0.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	241	382	319	259	478	1,679
			TOTAL			
Intends to use in next 12 months	2.4	10.7	18.8	21.8	25.6	17.0
Intends to use later	21.9	32.3	25.6	20.2	6.5	20.5
Intends to use, unsure when	1.4	2.6	1.1	0.4	0.5	1.2
Unsure as to intention	19.7	12.2	4.3	3.9	4.9	8.4
Does not intend to use	53.6	41.0	49.3	53.3	62.1	52.2
Missing	1.0	1.2	0.9	0.4	0.5	0.8
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	258	416	351	277	501	1,803

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

Only 39 percent of currently married women who are not currently using any contraceptive method express an intention to use a method in the future. Among women who intend to use contraception, 44 percent intend to use a method within the next 12 months, 53 percent intend to use later, and 3 percent are unsure when they will use contraception. The proportion of women who intend to use contraception at any time in the future increases from 26 percent for women with no living children to 46 percent for women with one living child and 46 percent for women with two living children. Thereafter it declines slightly with an increasing number of children to 42 percent for women with three living children and 33 percent for women with four or more living children. Sixty-two percent of women with four or more living children say they have no intention of using contraception at any time in the future. This percentage is higher for urban women (80 percent) than for rural women (61 percent).

The expressed timing of future use also varies by number of living children. The proportion of women who say that they intend to use contraception after 12 or more months falls steadily with number of living children from 32 percent among women with one child to 7 percent among those with four or more children. In contrast, the proportion expressing an intention to use contraception within the next 12 months increases from 2 percent among those with no children to 26 percent among those with four or more living children. The overall proportion of women who intend to use contraception at some time in the future does not differ much by residence.

The survey asked currently married women who were not using any method of contraception and who said that they did not intend to use a method at any time in the future why they did not intend to use contraception. This type of information is crucial for understanding the obstacles to further increases in contraceptive use and for designing effective information programmes. Table 5.11 shows that 53 percent of women mention a fertility-related reason for not intending to use contraception in the future, 10 percent mention opposition to use, 26 percent mention a method-related reason, and 7 percent mention a reason related to lack of knowledge. The most frequently mentioned reason given for not intending to use contraception is that the woman wants as many children as possible (28 percent). Other important fertility-related reasons are: the woman is menopausal or she has undergone a hysterectomy (14 percent), the woman does not like existing methods (10 percent), or she is worried about side effects (7 percent). Five percent of women say that they are subfecund/infecund, and another 5 percent say that their husbands are opposed to their using family planning.

Fifty percent of young women (age 15–29) mention the desire to have as many children as possible as the main reason for not intending to use contraception, compared with 11 percent of women age 30–49. Younger women are also much more likely than older women to give reasons relating to lack of knowledge of methods. Thirty-two percent of older women mention reasons related to menopause, hysterectomy, infecundity, or subfecundity, compared with only 2 percent of younger women.

Since women below age 30 account for 77 percent of total current fertility in Assam, the reasons they give for not intending to use contraception are extremely important from a policy perspective. Among these younger women, the non-fertility-related reasons given most often are, 'worry about side effects' (9 percent), 'doesn't like existing methods' (6 percent), and 'knows no source' (6 percent). In addition, 5 percent say that using contraception is against their religion, 5 percent say that they do not know of a method, and 4 percent say that their husbands are opposed

Table 5.11 Reasons for not intending to use contraception

Percent distribution of currently married women who are not using any contraceptive method and who do not intend to use any method in the future by main reason for not intending to use contraception, according to current age, Assam, 1999

Reason	Current age		Total
	15–29	30–49	
Fertility-related reasons	53.9	52.0	52.8
Not having sex	1.3	6.8	4.4
Infrequent sex	0.6	1.8	1.3
Menopausal/had hysterectomy	0.9	24.5	14.2
Subfecund/infecund	0.8	7.6	4.6
Wants as many children as possible	50.3	11.3	28.2
Opposition to use	10.0	9.4	9.7
Opposed to family planning	0.9	0.9	0.9
Husband opposed	4.1	5.8	5.0
Against religion	5.0	2.7	3.7
Lack of knowledge	10.7	3.9	6.9
Knows no method	5.1	1.9	3.3
Knows no source	5.6	2.0	3.6
Method-related reasons	22.0	29.7	26.3
Health concerns	1.5	3.4	2.6
Worry about side effects	8.7	6.3	7.3
Hard to get method	0.0	0.2	0.1
Costs too much	2.3	2.6	2.5
Inconvenient to use	0.4	0.1	0.2
Afraid of sterilization	3.0	4.7	4.0
Doesn't like existing methods	6.1	12.4	9.7
Other	0.6	2.1	1.4
Don't know/missing	2.9	3.0	2.9
Total percent	100.0	100.0	100.0
Number of women	409	531	941

to family planning. These findings suggest that improved quality of services and information programmes could enhance the success of the family welfare programme in Assam. Nevertheless, among younger women who are not using contraception, the desire to have as many children as possible remains the major reason for not intending to use contraception in the future.

NFHS-2 asked currently married women who were not using contraception but intended to use a method in the future which method of family planning they would prefer to use. Table 5.12 shows results according to the timing of intended use. Among women who intend to use contraception, 44 percent say they would prefer to use female sterilization, 30 percent say they would prefer to use the pill, and 10 percent are unsure about the method they would prefer to use. Only 4 percent say they would prefer to use the IUD, 2 percent would prefer to use the condom, and 1 percent would prefer that their husbands get sterilized. Five percent would prefer to use a traditional method, mostly the rhythm method. There are important differences in the choice of preferred methods by timing of intended use. Women who intend to use contraception within the next 12 months show a greater preference for the pill, whereas women who plan to

Table 5.12 Preferred method

Percent distribution of currently married women who are not currently using a contraceptive method but who intend to use a method in the future by preferred method, according to timing of intended use and residence, Assam, 1999

Preferred method	Timing of intended use: Next 12 months	Timing of intended use: Later	Total
URBAN			
Pill	24.9	19.4	21.6
IUD	3.4	1.3	2.2
Condom	12.7	14.4	13.6
Female sterilization	38.8	56.9	48.8
Male sterilization	0.0	0.0	0.0
Rhythm/safe period	9.9	1.4	5.0
Withdrawal	0.0	0.0	0.0
Other	1.9	0.0	0.8
Unsure	8.4	6.6	8.0
Total percent	100.0	100.0	100.0
Number	19	25	45
RURAL			
Pill	37.8	26.1	30.7
IUD	3.8	5.6	4.6
Condom	0.8	1.7	1.3
Female sterilization	38.4	49.0	44.0
Male sterilization	0.8	1.4	1.1
Rhythm/safe period	4.6	3.5	4.1
Withdrawal	1.3	0.7	1.1
Other	3.0	2.7	2.7
Unsure	9.5	9.4	10.4
Total percent	100.0	100.0	100.0
Number	287	343	652
TOTAL			
Pill	37.0	25.6	30.1
IUD	3.8	5.3	4.4
Condom	1.6	2.6	2.0
Female sterilization	38.4	49.6	44.3
Male sterilization	0.7	1.3	1.0
Rhythm/safe period	5.0	3.3	4.1
Withdrawal	1.2	0.7	1.0
Other	2.9	2.5	2.6
Unsure	9.4	9.2	10.3
Total percent	100.0	100.0	100.0
Number	306	369	696

Note: Total includes small numbers of women who are not sure about the timing of intended use, who are not shown separately.

use contraception later are more likely to prefer female sterilization. Specifically, 42 percent of women who intend to use contraception within the next 12 months would prefer to use a modern spacing method, compared with 34 percent of women who intend to use later. By contrast, 50 percent of women who intend to use contraception after at least 12 months would prefer to use female sterilization, compared with 38 percent of women who want to use contraception within 12 months. Results are similar for urban and rural areas with a few exceptions. Among women who intend to use a method within the next 12 months, a higher proportion of rural women (38 percent) than urban women (25 percent) prefer the pill, whereas a higher proportion of urban women (13 percent) than rural women (1 percent) prefer the condom. This pattern is also evident among women who intend to use later, but the differentials for the pill are smaller.

Overall, the mix of contraceptive methods that intended future users say they would prefer to use is very different from the methods currently being used. The results suggest a desire among intended future users to shift away from traditional methods in favour of the pill. While 37 percent of those who intend to use a method within 12 months and 30 percent of those who intend to use contraception any time in the future say that they would prefer to use the pill, only 15 percent of current users are actually using the pill (Table 5.3). These results suggest that there is a significant short-term, as well as a longer-term, potential demand for the pill.

5.7 Exposure to Family Planning Messages

For many years, the family planning programme has been using electronic and other mass media to promote family planning. Studies have confirmed that even after controlling the effect of residence and education, exposure to electronic mass media has a substantial effect on contraceptive use (Ramesh et al., 1996). Exposure to mass media has also been found to strengthen women's motivation to prevent unwanted fertility (Kulkarni and Choe, 1998). In order to explore the reach of family planning messages through various mass media, NFHS-2 asked women whether they had heard or seen any message about family planning in the past few months. Table 5.13 shows the proportions of currently married women who report having heard or seen a family planning message in the past few months, according to various background characteristics. Messages disseminated through the mass media over the past few months have reached about three-fifths (61 percent) of ever-married women in Assam. The most common sources of recent exposure to family planning messages are radio and television. Forty-nine percent of ever-married women report having heard a family planning message on the radio, and 31 percent report having seen a message on television. Other important sources of family planning messages are wall paintings or hoardings (23 percent), newspapers or magazines (15 percent), and cinema/film shows (10 percent). Only 3 percent have been recently exposed to a family planning message through a drama, folk dance, or street play.

Exposure to family planning messages varies little by age. Exposure is much higher in urban areas than in rural areas. Eighty-six percent of urban women report seeing or hearing a family planning message from at least one media source, compared with only 58 percent of women in rural areas. Urban women are also much more likely than rural women to have been exposed to a message through each form of mass media.

Exposure to family planning messages varies substantially by education. Ninety-six percent of women who have completed at least high school have heard or seen a family planning message from at least one media source in the past few months, compared with only 45 percent

Table 5.13 Exposure to family planning messages

Percentage of ever-married women who have heard or seen any message about family planning in the past few months by specific media source and selected background characteristics, Assam, 1999

Background characteristic	Source of family planning message							
	Radio	Television	Cinema/ film show	News-paper/ magazine	Wall painting/ hoarding	Drama/ folk dance/ street play	Any source	Number of women
Age								
15–24	46.0	25.9	8.3	10.6	21.9	2.5	59.1	931
25–34	50.7	31.6	11.8	17.4	24.3	3.2	62.9	1,330
35–49	48.0	33.2	8.6	14.5	23.4	3.6	59.8	1,180
Residence								
Urban	62.6	75.0	31.4	43.8	46.3	6.6	86.2	294
Rural	47.2	26.5	7.8	11.8	21.2	2.8	58.4	3,147
Education								
Illiterate	34.5	14.1	2.7	0.6	10.9	1.6	45.0	1,856
Literate, < middle school complete	52.3	30.8	7.2	8.7	27.3	2.1	67.4	770
Middle school complete	72.2	58.8	19.6	39.1	40.0	5.3	86.7	484
High school complete and above	83.7	81.7	41.4	70.9	59.5	11.4	96.0	331
Religion								
Hindu	51.8	38.2	12.6	19.3	25.2	3.8	64.7	2,200
Muslim	40.9	15.7	4.2	5.3	19.2	2.1	51.9	1,114
Christian	57.8	29.4	4.0	16.6	20.4	3.5	71.5	79
Other	(66.2)	(49.9)	(28.5)	(18.7)	(57.1)	(0.0)	(85.1)	24
Caste/tribe								
Scheduled caste	46.7	26.8	6.8	10.9	21.3	2.8	59.4	349
Scheduled tribe	45.8	24.5	5.7	7.0	20.2	2.8	59.3	695
Other backward class	66.9	52.7	19.1	35.1	35.9	4.3	76.9	398
Other	46.5	29.5	10.1	14.1	22.8	3.3	59.0	1,919
Standard of living index								
Low	30.0	10.6	2.8	1.6	11.9	1.5	39.9	1,468
Medium	59.8	35.7	9.8	15.9	27.1	2.6	72.3	1,471
High	74.3	84.4	34.2	55.8	50.1	9.5	95.7	398
Use of contraception								
Ever used	56.5	39.2	12.7	19.3	28.5	4.5	70.3	1,809
Never used	39.7	21.1	6.6	9.4	17.7	1.7	50.3	1,632
Total	48.5	30.6	9.8	14.6	23.3	3.2	60.8	3,441

Note: Total includes 25, 80, and 104 women with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

of illiterate women. Exposure to family planning messages through most specific media sources is as closely linked to education as is exposure in general. For example, 82 percent of women who have completed at least high school have heard or seen a family planning message on television, compared with only 14 percent of women who are illiterate.

Exposure to family planning messages also differs by religion, with Christian women more likely to be exposed to family planning messages than Hindu or Muslim women. Seven-

two percent of Christian women say they have heard or seen a family planning message through the media, compared with 52 percent of Muslim women and 65 percent of Hindu women.

Exposure to family planning messages does not vary much by caste/tribe, except that women from other backward classes (OBC) have substantially more exposure than women in the other caste/tribe groups. Fifty-nine percent of ever-married women belonging to a scheduled caste, a scheduled tribe, or the 'other' category have seen or heard a family planning message. In contrast, 77 percent of OBC women have been exposed to family planning messages.

Exposure to family planning messages rises dramatically as standard of living increases, both for media exposure in general and for exposure to each specific media source. Exposure to any source of family planning messages rises from 40 percent for women with a low standard of living to 96 percent for women with a high standard of living. The table also shows that women who have ever used contraception are much more likely to report hearing or seeing a media message on family planning (70 percent) than are women who have never used contraception (50 percent).

All of these differentials are likely to reflect some combination of the greater access to broadcast signals in urban areas, the greater ownership of radios and televisions among higher-income households, and variations in attentiveness to media messages associated with differing levels of education, leisure, and interest.

5.8 Discussion of Family Planning

Irrespective of whether they had ever used contraception, all currently married women were asked whether they had discussed family planning with their husband, friends, neighbours, or other relatives in the past few months. Information on whether women talk about family planning at all, and with whom they discuss it, sheds light on their level of interest in family planning and their familial and other sources of family planning information. Table 5.14 shows that only 25 percent of currently married women in Assam discussed family planning with their husbands, friends, neighbours, or other relatives in the past few months. Twenty-one percent of women discussed family planning with their husbands, and 11 percent discussed family planning with friends or neighbours. Discussion of family planning with relatives other than the husband is rare.

Women age 25–34 years are most likely to have discussed family planning with someone (32 percent), followed by women age 15–24 (28 percent) and women age 35–49 (15 percent). Urban women are slightly more likely than rural women to have discussed family planning. The proportion of women reporting such discussions generally rises with woman's education, husband's education, and the standard of living index. Muslim women and scheduled-caste women are more likely to have discussed family planning than women from other religions or castes/tribes. Women who have ever used contraception are more likely to have discussed family planning (30 percent) than women who have never used contraception (20 percent).

Table 5.14 Discussion of family planning

Percentage of currently married women who discussed family planning with their husbands, friends, neighbours, or other relatives in the past few months by selected background characteristics, Assam, 1999

Background characteristic	Person with whom discussed family planning							Any of these persons	Number of women
	Husband	Mother	Sister	Mother-in-law	Sister-in-law	Friend/ neighbour	Other relative		
Age									
15–24	24.2	0.9	0.4	1.5	1.1	11.8	0.0	28.3	891
25–34	26.2	1.0	0.7	0.7	1.0	13.6	0.1	32.0	1,263
35-49	10.3	0.8	0.4	0.1	0.1	8.0	0.0	14.6	1,025
Residence									
Urban	27.0	0.9	0.1	0.5	0.4	9.8	0.0	29.7	266
Rural	19.9	0.9	0.5	0.7	0.8	11.4	0.0	25.0	2,912
Education									
Illiterate	16.9	0.3	0.3	0.7	0.4	10.5	0.0	21.4	1,669
Literate, < middle school complete	21.3	1.5	0.7	0.8	0.9	10.9	0.0	26.6	721
Middle school complete	25.5	2.4	0.5	0.9	1.5	14.0	0.0	31.7	468
High school complete and above	29.9	0.2	0.7	0.6	0.7	12.9	0.4	33.8	321
Religion									
Hindu	19.4	0.8	0.4	0.6	0.7	10.4	0.0	23.6	2,033
Muslim	22.8	0.6	0.6	0.8	0.9	13.4	0.1	29.1	1,026
Christian	25.8	8.7	1.6	0.0	0.0	8.9	0.0	25.8	74
Caste/tribe									
Scheduled caste	25.3	1.3	0.4	1.0	0.4	11.7	0.0	29.4	311
Scheduled tribe	17.3	1.5	0.4	1.1	0.5	9.5	0.0	21.4	660
Other backward class	18.9	0.5	0.6	0.0	0.6	13.5	0.0	26.4	372
Other	21.7	0.7	0.6	0.7	0.9	11.8	0.1	26.6	1,759
Standard of living index									
Low	17.9	0.7	0.4	0.7	0.7	11.2	0.0	23.3	1,344
Medium	22.2	1.1	0.6	0.8	0.8	11.5	0.0	26.5	1,366
High	23.6	0.8	0.3	0.6	1.1	10.9	0.0	28.8	370
Use of contraception									
Ever used	24.1	1.0	0.5	0.7	1.1	13.6	0.1	29.7	1,737
Never used	16.2	0.7	0.4	0.7	0.3	8.6	0.0	20.1	1,441
Husband's education									
Illiterate	16.4	0.4	0.3	0.8	0.3	11.3	0.0	22.0	1,107
Literate, < middle school complete	19.1	0.9	0.5	0.4	0.8	10.1	0.0	23.0	912
Middle school complete	23.2	1.8	0.6	1.0	0.4	13.6	0.0	29.5	537
High school complete and above	27.5	0.9	0.4	1.0	1.7	10.8	0.2	31.1	609
Total	20.5	0.9	0.5	0.7	0.7	11.3	0.0	25.4	3,179

Note: Total includes 22 women belonging to other religions and 24, 76, 99, and 15 women with missing information on religion, caste/tribe, the standard of living index, and husband's education, respectively, who are not shown separately.

5.9 Need for Family Planning

Currently married women who are not using any method of contraception but who do not want any more children or want to wait two or more years before having another child are defined as having an unmet need for family planning. Current contraceptive users are said to have a met need for family planning. The total demand for family planning is the sum of the met need and the unmet need. Table 5.15 shows the unmet need, met need, and total demand for family planning, according to whether the need is for spacing or limiting births. The footnotes in the table provide detailed definitions of these concepts.

According to these definitions, 17 percent of currently married women in Assam have an unmet need for family planning. Unmet need is fairly equally divided between unmet need for spacing births (7 percent) and unmet need for limiting births (10 percent). If all women who say they want to space or limit their births were to use family planning, the contraceptive prevalence rate would increase from 43 percent to 60 percent in the state. This means that current programmes are meeting 72 percent of total demand for family planning (as shown in the last column of the Table 5.15). There has been a slight decline in unmet need since NFHS-1, when unmet need in Assam was estimated to be 22 percent. The proportion of demand satisfied increased during this period from 66 percent in NFHS-1 to 72 percent in NFHS-2.

Unmet need increases from 20 percent among women age 15–19 to 23 percent among women age 20–24 and then falls steadily to 5 percent among women age 45–49. For the youngest women (age 15–24) unmet need is more for spacing than for limiting. On the other hand, most of the unmet need for women age 25–29 is for limiting. The met and unmet need for contraception among women age 30 years and above is almost exclusively for limiting. Forty percent of the total demand for family planning is being met for married women age 15–19. This proportion rises steadily with women's age to 90 percent for women age 45–49.

Unmet need for family planning is slightly higher in rural areas (17 percent) than in urban areas (14 percent), and the percentage of demand satisfied is higher in urban areas (79 percent) than in rural areas (71 percent). Unmet need is highest among illiterate women (18 percent) and lowest among women who have completed at least high school (11 percent). Unmet need among women who have completed at least middle is evenly split between unmet need for spacing and unmet need for limiting, whereas most unmet need among illiterate women is for limiting. The percentage of demand satisfied increases with education from 69 percent among illiterate women to 84 percent among women who have completed at least high school.

Muslim women have higher unmet need for family planning (20 percent) than either Hindu women (15 percent) or Christian women (19 percent), and the percentage of total demand satisfied is higher for Hindu women (76 percent) than for Christian women (67 percent) or Muslim women (63 percent). Unmet need among women in all three religious groups is higher for limiting than for spacing. Unmet need does not vary much by caste/tribe, except that women from other backward classes have more unmet need for spacing than for limiting, unlike the other caste/tribe groups where the reverse is true.

Unmet need is higher for women with one or more living children than for women with no living children. Among women with living children, unmet need declines from 18 percent for

Table 5.15 Need for family planning services

Percentage of currently married women with unmet need, met need, and total demand for family planning (FP) services and percentage of total demand satisfied by selected background characteristics, Assam, 1999

Background characteristic	Unmet need for FP[1]			Met need (currently using)[2]			Total demand for FP			Percentage of demand satisfied
	For spacing	For limiting	Total	For spacing	For limiting	Total	For spacing	For limiting	Total	
Age										
15–19	18.7	1.6	20.3	12.6	0.8	13.4	31.3	2.3	33.6	39.8
20–24	15.8	7.3	23.1	14.9	12.2	27.1	30.7	19.5	50.2	53.9
25–29	7.1	13.5	20.6	12.8	32.3	45.1	19.9	45.8	65.7	68.6
30–34	2.4	15.6	18.0	6.3	47.8	54.1	8.7	63.4	72.1	75.0
35–39	2.0	12.2	14.2	0.8	59.6	60.4	2.8	71.8	74.6	80.9
40–44	0.8	6.4	7.2	0.3	55.7	56.0	1.0	62.1	63.2	88.6
45–49	0.0	4.5	4.5	0.4	40.5	40.9	0.4	45.0	45.4	90.1
Residence										
Urban	4.4	9.7	14.2	8.6	44.7	53.4	13.1	54.5	67.5	79.0
Rural	7.2	10.0	17.2	7.9	34.5	42.3	15.1	44.5	59.6	71.1
Education										
Illiterate	6.7	11.5	18.1	6.2	33.3	39.5	12.8	44.8	57.6	68.6
Literate, < middle school complete	7.8	9.7	17.6	6.6	35.4	42.0	14.5	45.1	59.6	70.5
Middle school complete	8.0	8.1	16.1	10.1	40.0	50.2	18.1	48.2	66.2	75.7
High school complete and above	5.3	5.5	10.8	16.9	38.7	55.6	22.2	44.2	66.4	83.7
Religion										
Hindu	6.1	9.2	15.2	6.7	41.9	48.6	12.8	51.0	63.8	76.1
Muslim	8.6	11.5	20.1	10.6	22.9	33.5	19.1	34.5	53.6	62.5
Christian	8.4	10.1	18.5	6.9	30.4	37.2	15.3	40.4	55.7	66.9
Caste/tribe										
Scheduled caste	7.7	9.6	17.3	6.3	41.2	47.4	14.0	50.8	64.7	73.3
Scheduled tribe	5.1	11.2	16.3	7.1	40.4	47.5	12.2	51.6	63.8	74.5
Other backward class	8.1	5.9	14.0	6.8	44.5	51.3	14.9	50.4	65.3	78.6
Other	7.3	10.5	17.8	8.9	31.3	40.3	16.2	41.8	58.1	69.3
Standard of living index										
Low	7.7	11.6	19.3	6.4	28.4	34.8	14.1	40.0	54.1	64.4
Medium	5.9	9.2	15.1	8.2	39.9	48.1	14.1	49.1	63.2	76.1
High	7.0	5.6	12.7	11.8	44.4	56.2	18.9	50.0	68.9	81.6
Number of living children										
0	11.3	0.5	11.8	6.1	0.3	6.4	17.4	0.8	18.2	35.1
1	14.3	3.7	18.0	20.6	8.7	29.2	34.8	12.4	47.2	61.9
2	8.4	9.4	17.8	10.2	40.7	50.9	18.6	50.1	68.7	74.1
3	3.5	12.4	15.8	4.7	53.8	58.5	8.2	66.2	74.3	78.7
4	4.0	13.6	17.6	2.7	54.0	56.8	6.7	67.7	74.4	76.3
5	1.8	16.1	17.9	0.9	48.9	49.8	2.7	65.0	67.7	73.5
6+	0.5	20.2	20.6	2.3	40.2	42.5	2.7	60.4	63.1	67.3
Total	7.0	10.0	17.0	7.9	35.3	43.3	14.9	45.3	60.2	71.8

Note: Total includes small numbers of women belonging to other religions and women with missing information on religion, caste/tribe, and the standard of living index, who are not shown separately.

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

[2]Met need for *spacing* refers to women who are using some method of family planning and say they want to have another child or are undecided whether to have another. Met need for *limiting* refers to women who are using some method and who want no more children. Note that *spacing* and *limiting* refer to the reason for using contraception rather than to the particular method used.

women with one living child to 16 percent for women with three living children and then rises again to 21 percent among women with six or more living children. Among women with no children or one child, unmet need is almost exclusively for spacing; in contrast, unmet need for limiting predominates for women with three or more children. For women with no living children, 35 percent of the total demand for family planning is satisfied, and for women with one child 62 percent of demand is satisfied. For women with two to five living children, about three-quarters of demand is satisfied. The percentage of demand satisfied then falls off slightly to 67 percent for women with six or more living children.

These results reveal moderate levels of unmet need among women in most subgroups and among women at all parities. The findings also suggest the need for further promoting spacing methods in the method mix offered to women. In Assam, a substantial proportion of women have an unmet need for spacing, especially before their first birth and between their first and second births. However, the high unmet need for limiting among older women suggests that many women who need permanent methods of contraception are not being served well by current programmes. Thus, there is also a need to strengthen sterilization services for couples who want to use sterilization and to provide women who want to stop childbearing but who do not wish to adopt sterilization with methods and options that they find acceptable for long-term use.

CHAPTER 6

MORTALITY, MORBIDITY, AND IMMUNIZATION

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

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

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

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

The information on child health and health-care practices was collected from mothers for children born since 1 January 1996. If a woman had more than two live births during that period, the information was collected for only the two most recent births. The information on child health presented in this chapter pertains to children born during the three years preceding the survey.

6.1 Crude Death Rates and Age-Specific Death Rates

Table 6.1 shows crude death rates (CDR) and age-specific death rates by sex for the usual-resident (*de jure*) population of Assam from NFHS-2 and the Sample Registration System (SRS). The table also presents crude death rates and age-specific death rates from NFHS-1 for the total population (both sexes combined). The SRS death rates are based on deaths to the usual-resident population in 1997. The NFHS-1 and NFHS-2 death rates are based on the average annual number of deaths occurring to usual residents of the household during the two-year period preceding the survey (approximately 1991–92 for NFHS-1 and 1997–98 for NFHS-2). The denominators for the NFHS-2 death rates are obtained by projecting the number of usual residents at the time of the survey backwards to the midpoint of the time period on the basis of the intercensal population growth rate in the state. The rural intercensal growth rate is applied to all rural age and sex groups, and the urban intercensal growth rate is applied to all urban age and sex groups.

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

Table 6.1 shows an estimated average annual CDR for Assam of 9.5 deaths per 1,000 population based on NFHS-2 data (covering roughly 1997–98), almost the same as the 1997 SRS rate of 9.9. This suggests that the completeness of reporting of deaths in NFHS-2 is about the same as in the SRS. NFHS-2 age-specific death rates are lower than the SRS rates below age 5, higher than the SRS rates at age 60 and above, and similar to the SRS rates at other ages.

Table 6.1 Age-specific death rates and crude death rates

Age-specific death rates and crude death rates (CDR) by sex from NFHS-1, NFHS-2, and the SRS, Assam

	NFHS-1 (1991–92)	NFHS-2 (1997–98)			SRS (1997)		
Age	Total	Male	Female	Total	Male	Female	Total
< 5	32.1	23.9	14.9	19.7	25.3	28.7	26.9
5–14	3.1	2.9	2.2	2.6	2.8	2.9	2.8
15–49	3.3	3.3	4.5	3.9	4.1	4.4	4.3
50–59	20.0	21.0	15.5	18.7	18.0	19.2	18.5
60+	59.6	72.1	78.1	74.6	61.1	57.8	58.2
CDR	11.3	10.3	8.6	9.5	9.8	9.9	9.9

Note: Age-specific death rates and crude death rates by sex from NFHS-1 and NFHS-2 are based on the annual number of deaths reported for the *de jure* population during the two years preceding the survey. The SRS rates are also *de jure*, based on deaths during 1997. Rates are specified on a per-thousand basis.
Source for SRS: Office of the Registrar General, 1999b

The NFHS-2 CDR estimate of 9.5 for Assam is slightly lower than the all-India NFHS-2 rate of 9.7 and lower than the corresponding NFHS-1 estimate of 11.3 for Assam (covering roughly 1991–92). Comparison of age-specific death rates from NFHS-1 and NFHS-2 indicates that death rates declined substantially in the youngest age group (under age 5 years), increased substantially at ages 60 and over, and did not change much in the other age groups.

In most countries, male death rates are higher than female death rates at nearly all ages. South Asia generally has been an exception in this respect, with higher death rates for females over much of the age span (Tabutin and Willems, 1995; Preston, 1989; Ghosh, 1987). Such a pattern is confirmed in SRS mortality estimates for 1997 for Assam, except at age 60 and over where males have slightly higher mortality than females. NFHS-2, however, shows a very different pattern, in which males have higher mortality than females at all ages except 15–49 and 60 and above. The reasons for these differences in the age pattern of mortality between NFHS-2 and the SRS are not clear.

6.2 Infant and Child Mortality

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

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

Assessment of Data Quality

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

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

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

mortality estimates are provided in Appendix A, this section describes the results of various checks for nonsampling errors—in particular, underreporting of deaths in early childhood (which would result in an underestimate of mortality) and misreporting of the date of birth or age at death (which could distort the age pattern of under-five mortality). Both problems are likely to be more pronounced for children born further in the past than for children born recently. Underreporting of infant deaths is usually most serious for deaths that occur very early in infancy. If deaths in the early neonatal period are selectively underreported, there will be an abnormally low ratio of deaths under seven days to all neonatal deaths and an abnormally low ratio of neonatal to infant deaths. 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 further in the past than for births that occurred more recently. Failure to report deaths will result in mortality figures that are too low and if underreporting is more severe for children born further in the past than children born recently, any decline in mortality will tend to be understated.

Results from Table B.5 (Appendix B) suggest that early neonatal deaths have not been seriously underreported in the Assam NFHS-2, since the ratios of deaths under seven days to all neonatal deaths are consistently high (between 64 and 84 percent) for the different time periods preceding the survey (a ratio of less than 25 percent is often used as a guideline to indicate underreporting of early neonatal deaths). The ratios of infant deaths that occurred during the neonatal period (Appendix Table B.6) are also consistently high (between 57 and 66 percent) for the different time periods preceding the survey.

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

In the Assam NFHS-2, there appears to be a preference for reporting age at death at 5, 7, 10, and 20 days (Table B.5 in Appendix B). An examination of the distribution of deaths under age two years during the 15 years preceding the survey by month of death (Appendix Table B.6) indicates a substantial heaping of deaths at 6, 12, and 18 months of age. The amount of heaping on 12 months is particularly pronounced, despite the strong emphasis on this problem during the training of interviewers for the NFHS-2 fieldwork.[2] Nevertheless, even if one-third of the deaths reported at age 12 months or 'one year' actually occurred at less than 12 months of age, the infant mortality rate for the five years before the survey would be underestimated by only about 1 percent.

An examination of the distribution of births and deaths since 1988 (Table B.4 in Appendix B) indicates a big drop in births between 1995 and 1996. Some interviewers may have omitted or moved births backward in time in order to avoid asking the large block of questions pertaining to children born during the three years before the survey. It is unclear, however, that

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

this problem produced bias in the estimates of infant mortality. The ratio of deaths to births decreased from 9 percent in 1993–95 to 7 percent in 1996–98. Some of this decrease may reflect a real reduction in mortality between the two periods (if in fact such a reduction occurred), and some reflects the fact that the younger children (corresponding to births during 1996–98) have had less exposure to the risk of mortality.

It is seldom possible to establish mortality levels with confidence for a period of more than 15 years before a survey. Even within the recent 15-year period considered here, apparent trends in mortality rates should be interpreted with caution for several reasons. First, there may be differences in the completeness of death reporting related to the length of time before the survey. Second, the accuracy of reports of age at death and of date of birth may deteriorate with time. Third, sampling variability of mortality rates tends to be high, especially for groups with relatively few births. Fourth, mortality rates are truncated as they go back in time because women currently age 50 or above who were bearing children during earlier periods were not included in the survey. This truncation affects mortality trends, in particular. For example, for the period 10–14 years before the survey, the rates do not include any births to women age 40–49 since these women were over age 50 at the time of the survey and were not eligible to be interviewed. Since these excluded births to older women were likely to be at a somewhat greater risk of dying than births to younger women, the mortality rates for the period may be slightly underestimated. Estimates for more recent periods are less affected by truncation bias since fewer older women are excluded. The extent of this bias depends on the proportion of births omitted. Table 4.18 (Chapter 4) shows that only 5 percent of children born in the three years before the survey were born to women age 35 and above. Given the small proportion of births excluded, selection bias for infant and child mortality statistics as far back as 15 years before the survey should be negligible.

Levels, Trends, and Differentials in Infant and Child Mortality

Table 6.2 and Figure 6.1 present various measures of infant and child mortality by residence for the three 5-year periods preceding the survey. According to NFHS-2, infant mortality in Assam increased from 57 deaths per 1,000 live births during 1984–88 (10–14 years before the survey) to 70 deaths per 1,000 live births during 1994–98 (0–4 years before the survey). Comparison of the infant mortality rate for the period 0–4 years before NFHS-2 with the infant mortality rate 0–4 years before NFHS-1 indicates, however, that infant mortality declined from 89 to 70. The reasons for this discrepancy are unclear. The other measures of infant and child mortality presented in Table 6.2 for Assam as a whole also increased during the past 15 years, except that mortality at age 1–4 declined. The estimated infant mortality rate of 70 per 1,000 in Assam for the five years before NFHS-2 is close to the national estimate of 68.

Table 6.2 also shows that infant and child mortality rates in Assam are considerably higher in rural areas than in urban areas, as expected. However, the estimates for 0–4, 5–9, and 10–14 years before NFHS-2 indicate that infant mortality increased not only for the state as a whole but also for urban and rural areas separately, which is not expected. Again, comparisons with corresponding estimates from NFHS-1 indicate that both urban and rural infant and child mortality decreased rather than increased, and again the reasons for the discrepancies are not clear.

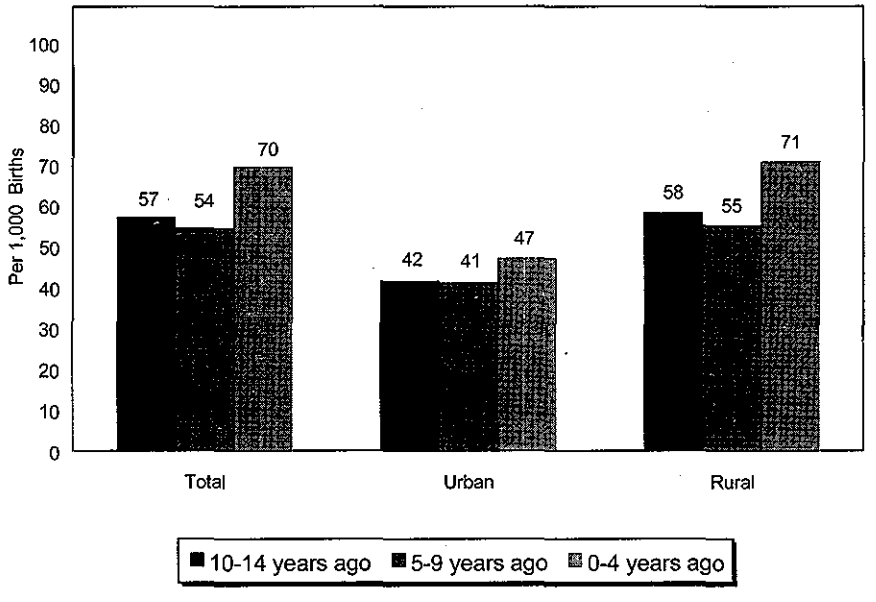
Table 6.2 Infant and child mortality

Neonatal, postneonatal, infant, child, and under-five mortality rates for five-year periods preceding the survey by residence, Assam, 1999

Years preceding the survey	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
			URBAN		
0–4	(36.0)	(11.1)	(47.1)	(8.3)	(55.0)
5–9	(29.5)	(11.6)	(41.1)	(14.3)	(54.8)
10–14	(18.1)	(23.5)	(41.6)	(13.5)	(54.5)
			RURAL		
0–4	45.2	25.8	70.9	22.2	91.6
5–9	30.4	24.8	55.2	17.4	71.6
10–14	38.0	20.4	58.4	25.2	82.1
			TOTAL		
0–4	44.6	24.9	69.5	21.4	89.5
5–9	30.3	24.1	54.4	17.1	70.6
10–14	36.5	20.6	57.1	24.2	79.9

Note: The first five-year period preceding the survey does not include the month in which the interview took place. Rates are specified on a per-thousand basis. See text for definition of rates.
( ) Based on 250–499 children surviving to the beginning of the age interval
[1]Computed as the difference between the infant and neonatal mortality rates

Figure 6.1
Infant Mortality Rates for Five-Year Periods by Residence



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

NFHS-2, Assam, 1999

The NFHS-2 infant mortality rate of 70 deaths per 1,000 live births for 1994–98 is close to the SRS infant mortality rate of 77 deaths per 1,000 live births for the same period (calculated by averaging SRS estimates for single calendar years between 1994 and 1998). The NFHS-2 and SRS estimates of the infant mortality rate for rural areas for the same period are also fairly close (71 deaths per 1,000 live births from NFHS-2, compared with 79 deaths per 1,000 live births from the SRS), as are the urban estimates (47 deaths per 1,000 live births from NFHS-2, compared with 49 deaths per 1,000 live births from the SRS). This close agreement suggests that the NFHS-2 estimates of infant and child mortality for the first 5-year period before the survey may be fairly accurate, and that the estimates for the second and third 5-year periods before the survey may be too low. Overall, however, the many inconsistencies in infant and child mortality estimates derived from NFHS-1, NFHS-2, and the SRS indicate the need for considerable caution in interpreting the NFHS-2 estimates.

Socioeconomic Differentials in Infant and Child Mortality

The probability of dying in early childhood is higher in some population groups than in others. Table 6.3 presents differentials in infant and child mortality rates for the 10-year period preceding the survey by selected background characteristics, according to NFHS-2.

Under-five mortality (the probability of dying before the fifth birthday) is substantially higher for rural children (81 deaths per 1,000 live births) than for urban children (55 deaths per 1,000 live births). It is especially high for children of illiterate women (90 per 1,000), children of women who do not belong to a scheduled caste, scheduled tribe, or other backward class (87 per 1,000), and children from households with a low standard of living (101 per 1,000). It is also somewhat higher for Muslim children (87 per 1,000) than for Hindu children (76 per 1,000).

Because infant mortality accounts for most of under-five mortality, the differentials in infant mortality by socioeconomic characteristics strongly resemble the differentials in under-five mortality by socioeconomic characteristics. The differentials in neonatal mortality (before most children are weaned) tend to be much smaller than the differentials in postneonatal mortality. Surprisingly, children of more-educated women have higher neonatal mortality than children of less-educated women.

All the infant and child mortality rates are lower for Hindu children than for Muslim children, although the difference between them in child mortality (age 1–4) is small. Mortality differentials by religion reflect influences other than religion alone. For example, a higher proportion of Hindus than Muslims in Assam live in urban areas, where mortality rates are generally low. Because of this, the difference in infant and child mortality rates between Hindu and Muslim children is smaller when other demographic and socioeconomic variables are controlled statistically (Pandey et al., 1998).

All indicators of infant and child mortality decline substantially with increases in the household standard of living.

Table 6.3 Infant and child mortality by background characteristics

Neonatal, postneonatal, infant, child, and under-five mortality rates for the 10-year period preceding the survey by selected background characteristics, Assam, 1999

Background characteristic	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
Residence					
Urban	32.5	11.4	43.9	11.4	54.8
Rural	37.3	25.3	62.6	19.7	81.1
Mother's education					
Illiterate	37.1	29.2	66.3	25.2	89.8
Literate, < middle school complete	30.0	24.7	54.8	15.5	69.4
Middle school complete	43.9	11.3	55.1	5.0	59.8
High school complete and above	(45.7)	(7.8)	(53.5)	(0.0)	(53.5)
Religion					
Hindu	35.2	21.8	57.1	19.7	75.6
Muslim	39.1	29.3	68.4	20.2	87.2
Caste/tribe					
Scheduled caste	(32.7)	(12.1)	(44.8)	(12.0)	(56.3)
Scheduled tribe	32.8	26.5	59.3	15.1	73.5
Other backward class	(34.3)	(12.4)	(46.7)	(26.9)	(72.4)
Other	40.5	27.6	68.2	20.1	86.9
Standard of living index					
Low	40.1	33.7	73.8	29.3	100.9
Medium	36.0	15.5	51.5	9.9	60.9
High	(27.9)	(14.2)	(42.1)	(5.1)	(46.9)
Total	37.0	24.5	61.5	19.2	79.5

Note: The 10-year period preceding the survey does not include the month in which the interview took place. Rates are specified on a per-thousand basis. See text for definition of rates. Total includes small numbers of children belonging to Christian and 'other' religions and children with missing information on religion, caste/tribe, and the standard of living index. Each of these categories is based on fewer than 250 children surviving to the beginning of the age interval. Mortality rates for these categories are not shown separately.
( ) Based on 250–499 children surviving to the beginning of the age interval
[1]Computed as the difference between the infant and neonatal mortality rates

Demographic Differentials in Infant and Child Mortality

Table 6.4 and Figure 6.2 present differentials in early childhood mortality for the 10 years preceding the survey by demographic characteristics of the child and the mother. The demographic indicators include sex of the child, mother's age at childbirth, birth order, length of the previous birth interval, medical care received by the mother during pregnancy, delivery, and the early postpartum period, and the size of the child at the time of birth.

Table 6.4 shows that the under-five mortality rate is considerably higher for boys (87 deaths per 1,000 live births) than for girls (72 deaths per 1,000 live births). Excess male mortality occurs in every age group, although postneonatal mortality is almost the same for the two sexes. According to NFHS-2, Assam does not conform to the usual Indian pattern of excess female child mortality at age 1–4 (International Institute for Population Sciences and ORC Macro, 2000; Das Gupta, 1987; Basu, 1989).

For both social and biological reasons, infant mortality rates and child mortality rates often exhibit a U-shaped pattern with respect to mother's age at childbirth, with children of the youngest and oldest mothers experiencing higher mortality rates than children whose mothers are

Table 6.4 Infant and child mortality by demographic characteristics

Neonatal, postneonatal, infant, child, and under-five mortality rates for the 10-year period preceding the survey by selected demographic characteristics, Assam, 1999

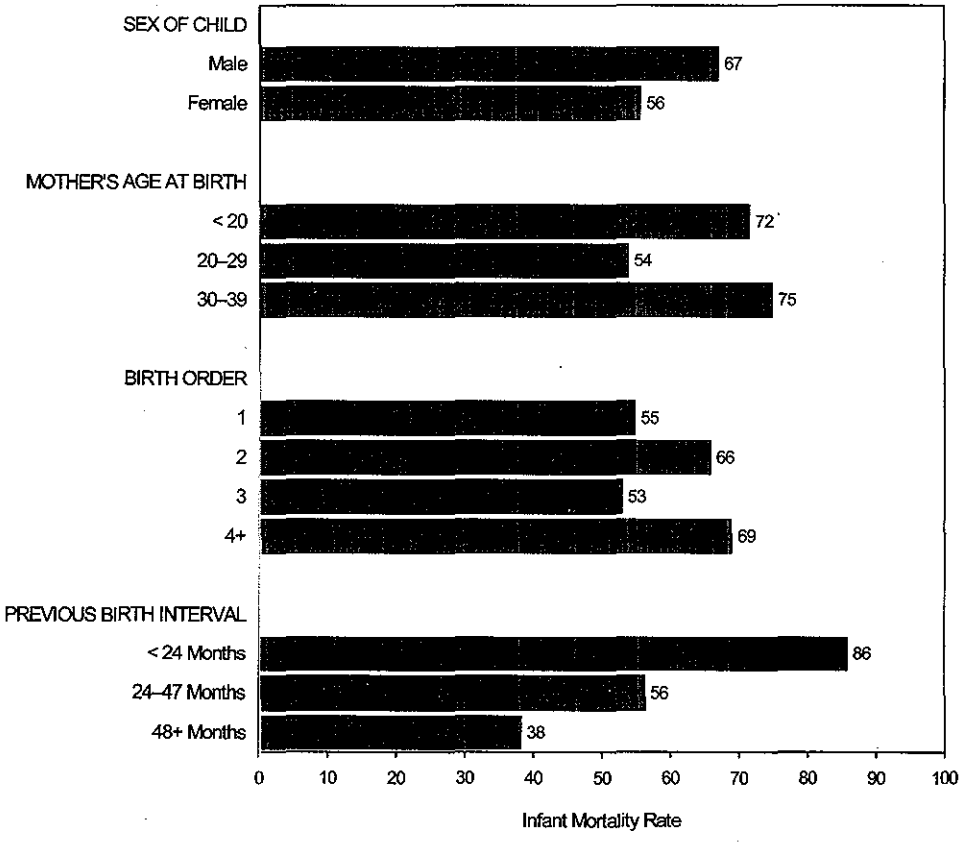
Demographic characteristic	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
Sex of child					
Male	42.1	24.8	66.9	21.4	86.8
Female	31.5	24.2	55.6	16.9	71.5
Mother's age at birth					
< 20	40.8	30.7	71.5	21.4	91.4
20–29	31.4	22.4	53.8	18.3	71.1
30–39	51.6	23.3	74.9	19.5	93.0
Birth order					
1	39.4	15.5	54.8	13.4	67.5
2	37.8	28.1	65.9	15.1	80.0
3	31.9	21.0	53.0	24.0	75.6
4+	37.3	31.6	68.9	24.6	91.8
Previous birth interval					
< 24 months	48.7	37.1	85.8	26.8	110.3
24–47 months	31.5	24.8	56.3	20.9	76.0
48+ months	(19.3)	(18.9)	(38.2)	(5.6)	(43.6)
Medical care[2]					
No care	(44.0)	(25.3)	(69.4)	U	U
One or two types of care	44.1	18.2	62.3	U	U

Note: The 10-year period preceding the survey does not include the month in which the interview took place. Rates are specified on a per-thousand basis. See text for definition of rates. Total includes small numbers of children whose mothers were age 40–49 at the time of birth and children whose mothers did not receive all three types of medical care. Each of these categories is based on fewer than 250 children surviving to the beginning of the age interval. Mortality rate for these children are not shown separately.
U: Not available
( ) Based on 250–499 children surviving to the beginning of the age interval
[1]Computed as the difference between the infant and neonatal mortality rates
[2]Medical care includes (i) antenatal care received from a health worker, (ii) delivery assistance given by a doctor, nurse, trained midwife, or other health professional, and (iii) postnatal care received in a health facility or at home within two months of delivery; rates are for the three-year period preceding the survey.

in their prime reproductive ages. Children born to young mothers are more likely to be of low birth weight, which is an important factor contributing to their higher neonatal mortality rate, and children born to mothers above age 30 are at a relatively high risk of experiencing congenital problems. Assam exhibits the expected U-shaped pattern of mortality by mother's age, with higher infant mortality rates among children of mothers under age 20 (72 deaths per 1,000 live births) and age 30–39 (75 deaths per 1,000) than among children of mothers age 20–29 (54 deaths per 1,000). The U-shaped pattern is also quite noticeable for neonatal mortality, but the upturn in postneonatal and child mortality at age 30–39 is very slight.

Birth order also tends to have a U-shaped relationship to infant deaths, with first births and births of order 4 and over having higher mortality rates than third births. The upturn between birth orders 3 and 4+ is very slight in the case of child mortality, however. The association between mortality and birth order is likely to reflect not only the effect of birth order but also the effect of mother's age at childbirth, since birth order and mother's age at childbirth are positively correlated. It is also likely that children of birth order 4 or higher are disproportionately from lower socioeconomic groups, in which mortality tends to be higher.

Figure 6.2
Infant Mortality Rates by Selected Demographic Characteristics



Note: Based on births in the 10 years preceding the survey (1989–98)

NFHS-2, Assam, 1999

The timing of successive births has a powerful effect on the survival chances of children in Assam. All the mortality rates decrease sharply as the length of the previous birth interval increases, and all the measures are especially high for children born less than 24 months after a previous birth. The infant mortality rate is more than twice as high for children with a previous birth interval of less than 24 months (86 deaths per 1,000 live births) as for children with a previous interval of 48 months or more (38 deaths per 1,000 live births). Previous birth interval also has a large effect on the other indicators of infant and child mortality shown in Table 6.4. Although the length of the previous birth interval is likely to affect mortality risks directly, a substantial portion of the association between birth interval and mortality risks may reflect the effect of factors that are correlated with birth interval. For example, shorter birth intervals are likely to occur in large families, and large families tend to come from lower socioeconomic groups and are more likely than other families to live in rural areas where medical facilities and other survival-enhancing resources are less readily available. Nevertheless, multivariate analyses of birth-interval effects on child survival commonly find an association between short birth intervals (less than 24 months) and increased mortality even after controlling for other demographic and socioeconomic characteristics (Retherford et al., 1989).

Antenatal, delivery, and postnatal care are usually associated with lower infant mortality. This is true in Assam, but the difference in infant mortality between those who did and did not receive care is not large. Table 6.4 shows that children of women who received one or two types

of care have a somewhat lower risk of postneonatal mortality than those who did not receive any care. There is, however, a negligible difference in neonatal mortality between those who did and did not receive any care.

6.3 Morbidity

There is only limited experience in collecting morbidity data from population-based demographic sample surveys. NFHS-1 collected data on five major morbidity conditions—partial and complete blindness, tuberculosis, leprosy, physical impairment of the limbs, and malaria—among all persons in the sample households. The results were found to be generally plausible and useful. For this reason, it was decided to include similar morbidity questions in NFHS-2. In NFHS-2, questions on blindness, leprosy, and physical impairment of the limbs were replaced by questions on asthma and jaundice. The questions on tuberculosis and malaria were retained, and a question on medical treatment of tuberculosis was added to get a better measure of the prevalence of tuberculosis. The household head or other knowledgeable adult in the household reported on morbidity for all household members. No effort was made to do clinical tests for any of the disease conditions.

Table 6.5 shows the prevalence of asthma, tuberculosis, jaundice, and malaria in the household population by age, sex, and place of residence. There are several reasons why the results of NFHS-2 may understate the prevalence of these conditions. Respondents may underreport diseases carrying a stigma, such as tuberculosis, due to intentional concealment. Underestimation may also occur because the household respondents are unaware that they or other members of the household have the condition. It is also possible that the respondents know that a household member suffers from a given condition but fail to report it because they do not recognize the term used by the enumerator to describe the condition. On the other hand, a factor contributing to a possible overestimation of prevalence without clinical verification is that some other disease can be mistaken by the respondent as one of the listed diseases; for example, chronic bronchitis may be reported as asthma or tuberculosis, or common flu as malaria.

Asthma

Asthma is a chronic respiratory disease characterized by sudden attacks of laboured breathing, chest constriction, and coughing. There has been a rapid increase in asthma cases in recent years in many parts of the world. In Assam, 3 percent of the population was reported to be suffering from asthma at the time of NFHS-2. The reported level of asthma (3,278 per 100,000 population) in Assam is higher than the level reported for India as a whole (2,468 per 100,000 population). The prevalence of asthma in Assam is considerably higher in rural areas (3,394 per 100,000 population) than in urban areas (1,931 per 100,000 population), and it is considerably higher among males (3,806 per 100,000) than among females (2,719 per 100,000). Age differences are also marked, with the prevalence increasing from 3,393 per 100,000 at age 0–14 to 9,453 per 100,000 at age 60 and over.

Tuberculosis

Tuberculosis, which is resurgent worldwide, is an infectious disease that affects the lungs and other body tissues. Tuberculosis of the lungs, the most commonly known form, is characterized by coughing up mucus and sputum, fever, weight loss, and chest pain. According to NFHS-2, the overall prevalence of tuberculosis in Assam is 710 per 100,000 population, which is considerably

Table 6.5 Morbidity

Number of persons per 100,000 usual household residents suffering from asthma, tuberculosis, jaundice, or malaria by age, sex, and residence, Assam, 1999

Age and sex	Number of persons per 100,000 suffering from: Asthma	Tuberculosis[1]	Medically treated tuberculosis	Jaundice during the past 12 months	Malaria during the past 3 months	Number of usual residents
			URBAN			
Age						
< 15	1,457	413	81	2,258	1,482	422
15–59	1,787	660	445	2,913	2,093	963
60+	6,609	547	547	2,764	1,965	72
Sex						
Male	2,435	596	317	3,679	2,147	743
Female	1,407	569	373	1,715	1,663	714
Total	1,931	583	345	2,716	1,910	1,457
			RURAL			
Age						
< 15	3,520	170	19	2,588	1,763	6,417
15–59	2,758	932	499	3,023	3,938	9,653
60+	9,696	2,482	1,317	1,318	2,999	846
Sex						
Male	3,923	877	527	3,073	3,996	8,715
Female	2,833	554	179	2,454	2,077	8,201
Total	3,394	721	358	2,773	3,066	16,916
			TOTAL			
Age						
< 15	3,393	185	23	2,568	1,746	6,839
15–59	2,670	907	494	3,013	3,770	10,615
60+	9,453	2,329	1,257	1,432	2,917	919
Sex						
Male	3,806	855	510	3,120	3,851	9,457
Female	2,719	555	194	2,395	2,044	8,915
Total	3,278	710	357	2,768	2,974	18,373

[1]Includes medically treated tuberculosis

higher than the national estimate of 544. The prevalence of tuberculosis as recorded in NFHS-2 in Assam (710 per 100,000) is higher than the level reported in NFHS-1 (640 per 100,000). The prevalence of tuberculosis is higher in rural areas (721 per 100,000) than in urban areas (583 per 100,000). Prevalence is higher for males (855 per 100,000) than for females (555 per 100,000). The sex differential in prevalence of tuberculosis is much larger in rural areas than in urban areas. Probable reasons for the higher prevalence of tuberculosis among males than among females are that men are more likely than women to come in contact with people who suffer from active tuberculosis and that men in Assam smoke more than women. The prevalence of tuberculosis increases rapidly with age. It is substantially higher among persons age 60 and above (2,329 per 100,000) than among those age 15–59 (907 per 100,000) or age 0–14 (185 per 100,000).

Medically treated tuberculosis is expected to give a more reliable measure of the prevalence of active tuberculosis than the measure based on all reported cases considered in the

preceding paragraph. As expected, the prevalence of medically treated tuberculosis is considerably lower (357 per 100,000) than the prevalence based on all reported cases (710 per 100,000). Differentials in the prevalence of medically treated tuberculosis by age and sex are rather similar to differentials in the prevalence of all reported cases. However, the data show that reported tuberculosis is more likely to be treated among older persons than among younger persons and in urban areas than in rural areas. Reported tuberculosis is slightly more likely to be medically treated for females than for males in urban areas, but much more likely to be medically treated for males than for females in rural areas.

Jaundice

Jaundice is characterized by yellowish discolouration of the eyes and skin, fever, liver enlargement, and abdominal pain. NFHS-2 asked household respondents if any member of the household had suffered from jaundice at any time during the 12 months preceding the survey. In Assam, 2,768 persons per 100,000 population were reported to have suffered from jaundice during the 12 months preceding the survey, considerably higher than the rate of 1,361 for India as a whole. The incidence of jaundice is about the same in urban and rural areas. Jaundice is more common among males (3,120 per 100,000) than among females (2,395 per 100,000). Jaundice is the only condition measured that does not increase with age. The prevalence of jaundice is highest for the age group 15–59 (3,013 per 100,000), followed by the age groups 0–14 years (2,568 per 100,000) and 60 years and above (1,432 per 100,000).

Malaria

Malaria is characterized by recurrent high fever with shivering. NFHS-2 asked household respondents whether any member of their household suffered from malaria at any time during the three months preceding the survey. In Assam, 2,974 persons per 100,000 population were reported to have suffered from malaria during the three months preceding the survey, lower than the national rate of 3,697 per 100,000 population. Since the prevalence of malaria is known to vary considerably by season, the NFHS-2 estimates should not be interpreted as representative of the level throughout the year. It is possible, however, to compare the NFHS-2 estimate with the NFHS-1 estimate because the months of the year comprising the reference period for the malaria estimates from the two surveys are almost the same. According to the two surveys, the rate of malaria in Assam increased slightly between 1992–93 and 1998–99, from 2,710 to 2,974 per 100,000.

Rural residents are more likely to suffer from malaria (3,066 per 100,000) than are urban residents (1,910 per 100,000). The reported prevalence of malaria is considerably higher for males than for females in both urban and rural areas. The prevalence of malaria increases irregularly with age, from 1,746 per 100,000 population age 0–14 to 3,770 per 100,000 population age 15–59 years to 2,917 per 100,000 population age 60 years and over.

6.4 Child Immunization

The vaccination of children against six serious but preventable diseases (tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis, and measles) has been a cornerstone of the child health care system in India. As part of the National Health Policy, the National Immunization Programme is being implemented on a priority basis. The Expanded Programme on Immunization (EPI) was initiated by the Government of India in 1978 with the objective of reducing morbidity, mortality,

and disabilities from these six diseases by making free vaccination services easily available to all eligible children. Immunization against poliomyelitis was introduced in 1979–80, and tetanus toxoid immunization for school children was added in 1980–81. Immunization against tuberculosis (BCG) was brought under the EPI in 1981–82. In 1985–86, immunization against measles was added to the programme (Ministry of Health and Family Welfare, 1991).

The Universal Immunization Programme (UIP) was introduced in 1985–86 with the following objectives: to cover at least 85 percent of all infants against the six vaccine-preventable diseases by 1990 and to achieve self-sufficiency in vaccine production and the manufacture of cold-chain equipment (Ministry of Health and Family Welfare, 1991). This scheme has been introduced in every district of the country, and the target now is to achieve 100 percent immunization coverage. Pulse Polio Immunization Campaigns began in December 1995 as part of a major national effort to eliminate polio. The standard immunization schedule developed for the child immunization programme specifies the age at which each vaccine is to be administered, the number of doses to be given, and the route of vaccination (intramuscular, oral, or subcutaneous). Routine vaccinations received by infants and children are usually recorded on a vaccination card that is issued for the child.

NFHS-2 asked mothers in Assam whether they had a vaccination card for each child born since January 1996. If a card was available, the interviewer was required to copy carefully the dates when the child received vaccinations against each disease. For vaccinations not recorded on the card, the mother's report that the vaccination was or was not given was accepted. If the mother could not show a vaccination card, she was asked whether the child had received any vaccinations. If any vaccination had been received, the mother was asked whether the child had received a vaccination against tuberculosis (BCG); diphtheria, whooping cough (pertussis), and tetanus (DPT); poliomyelitis (polio); and measles. For DPT and polio, information was obtained on the number of doses of the vaccine given to the child. Mothers were not asked the dates of vaccinations. To distinguish Polio 0 (polio vaccine given at the time of birth) from Polio 1 (polio vaccine given about six weeks after birth), mothers were also asked whether the first polio vaccine was given just after birth or later.[3]

Table 6.6 gives the percentages of urban and rural children age 12–23 months who received specific vaccinations at any time before the interview and before 12 months of age, according to whether a vaccination card was shown to the interviewer or the mother was the source of all vaccination information. The age group 12–23 months was chosen for analysis because both international and Government of India guidelines specify that children should be fully immunized by the time they complete their first year of life. Because the date of vaccination was not asked of the mother if she could not show a vaccination card, the proportion of vaccinations given during the first year of life to 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 to children with an exact date of vaccination on the card.

[3]Because mothers sometimes report that the first dose was given just after birth even if it was given several weeks later, an adjustment was made to the estimates of the number of polio vaccinations given, based on reports of the number of DPT vaccinations. This adjustment is based on the fact that when children receive a DPT vaccination, they are almost always given a polio vaccination at the same time. Thus, if the number of polio vaccinations was reported to be less than the number of DPT vaccinations and the first polio vaccination was reported to be given just after birth, then Polio 0 is assumed to really be Polio 1, Polio 1 is assumed to be Polio 2, etc. For comparative purposes, this same adjustment was made to the NFHS-1 vaccination estimates.

Table 6.6 Childhood vaccinations by source of information

Percentage of children age 12–23 months who received specific vaccinations at any time before the interview and before 12 months of age by source of information on vaccination history and residence, Assam, 1999

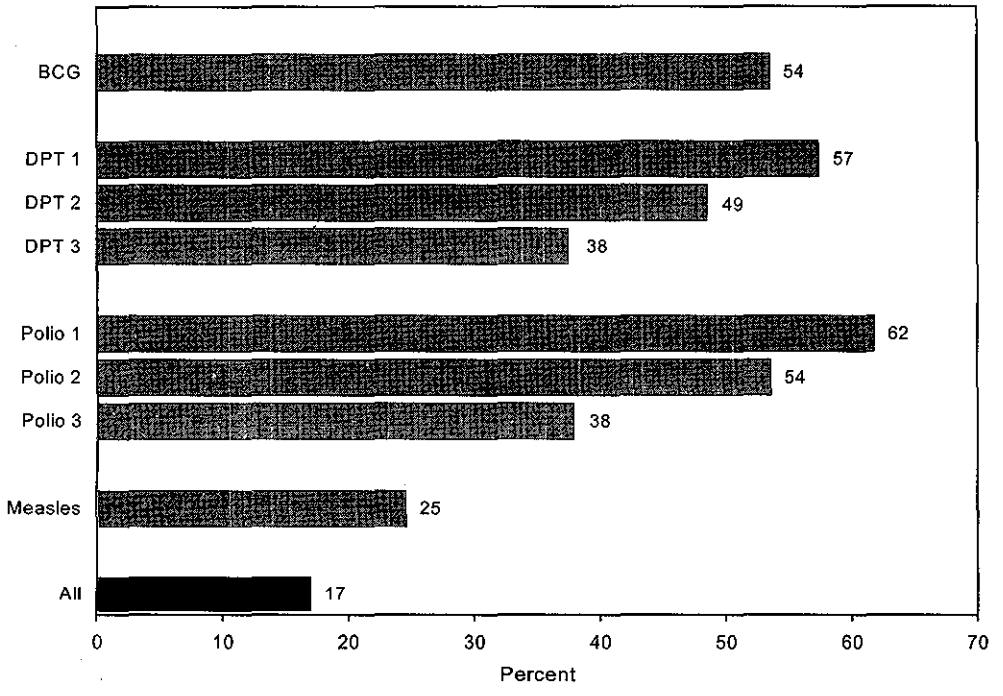
	Percentage vaccinated											
			DPT			Polio						Number of
Source of information	BCG	Polio 0	1	2	3	1	2	3	Measles	All[1]	None	children
URBAN												
Vaccinated at any time before the interview												
Vaccination card	(95.8)	(6.7)	(100.0)	(93.3)	(81.9)	(97.0)	(90.4)	(76.0)	(69.2)	(63.3)	(0.0)	12
Mother's report	(67.3)	(0.0)	(67.3)	(55.7)	(48.5)	(76.4)	(71.8)	(59.2)	(40.7)	(33.5)	(23.6)	9
Either source	83.2	3.7	85.6	76.7	67.2	87.9	82.1	68.6	56.7	50.1	10.4	21
Vaccinated by 12 months of age[2]	80.7	3.7	83.2	74.5	64.1	85.4	79.6	65.2	49.5	42.1	12.9	21
RURAL												
Vaccinated at any time before the interview												
Vaccination card	84.5	4.3	98.9	82.2	69.1	90.0	75.6	66.8	41.2	35.8	0.0	107
Mother's report	36.8	2.5	36.2	30.7	20.6	46.7	41.2	22.1	14.2	5.5	50.3	237
Either source	51.6	3.1	55.7	46.7	35.7	60.1	51.9	36.0	22.6	14.9	34.7	344
Vaccinated by 12 months of age[2]	49.5	3.1	52.5	42.3	32.1	55.6	48.1	31.0	18.1	12.3	37.6	344
TOTAL												
Vaccinated at any time before the interview												
Vaccination card	85.7	4.6	99.0	83.3	70.3	90.7	77.1	67.8	44.0	38.5	0.0	119
Mother's report	37.9	2.4	37.4	31.6	21.7	47.8	42.4	23.5	15.2	6.6	49.3	247
Either source	53.5	3.1	57.4	48.5	37.5	61.8	53.6	37.9	24.6	17.0	33.2	366
Vaccinated by 12 months of age[2]	51.3	3.1	54.3	44.2	34.1	57.4	50.0	33.1	20.0	14.0	36.1	366

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey.
( ) Based on 25–49 unweighted cases
[1]BCG, measles, and three doses each of DPT and polio vaccines (excluding Polio 0)
[2]For children whose information was based on the mother's report, the proportion of vaccinations given by 12 months of age is assumed to be the same as for children with a written record of vaccinations.

In NFHS-2, children who have received BCG, measles, and three doses each of DPT and polio vaccine (excluding Polio 0) are considered to be fully vaccinated. Based on information obtained from a card or reported by the mother ('either source'), only 17 percent of children age 12–23 months are fully vaccinated, and 33 percent have not received any vaccinations at all. Coverage for each individual vaccination except Polio 0 is much higher than the percentage fully vaccinated. BCG, the first dose of DPT, and the first and second doses of polio vaccine have each been received by more than half of the children (see Figure 6.3). However, only 38 percent have received three doses of DPT, and only 38 percent have received three doses of polio vaccine. Coverage rates are slightly higher for the first two doses of polio vaccine than the first two doses of DPT vaccine, undoubtedly because of the Pulse Polio Immunization Campaigns, but there is almost no difference in coverage for the third dose of these vaccines.

Not all children who begin the DPT and polio vaccination series go on to complete them. The difference between the percentages of children receiving the first and third doses is 20 percentage points for DPT and 24 percentage points for polio. Moreover, only 25 percent of

Figure 6.3
Percentage of Children Age 12–23 Months Who Have Received Specific Vaccinations



NFHS-2, Assam, 1999

children age 12–23 months have been vaccinated against measles. The relatively low percentages vaccinated against measles and receiving all three doses of DPT and polio vaccines are mainly responsible for the fact that the percentage fully vaccinated is only 17 percent.

There has been a slight decrease in full vaccination coverage in Assam since the time of NFHS-1, when the proportion of children fully vaccinated was 19 percent. The proportion of children who did not receive any vaccinations declined substantially, however, from 44 percent in NFHS-1 to 33 percent in NFHS-2, and the proportion receiving most individual vaccinations increased slightly. These data indicate that despite some progress that has been made in immunization coverage for children in Assam, coverage levels are still very low, and a large proportion of children who receive some early vaccinations drop out of the programme before receiving all of the recommended vaccinations. Moreover, the Pulse Polio Campaign evidently had very little impact in Assam by the time of the survey. In fact, the percentage of children receiving at least three doses of polio vaccine was lower in Assam than in any other state except Meghalaya.

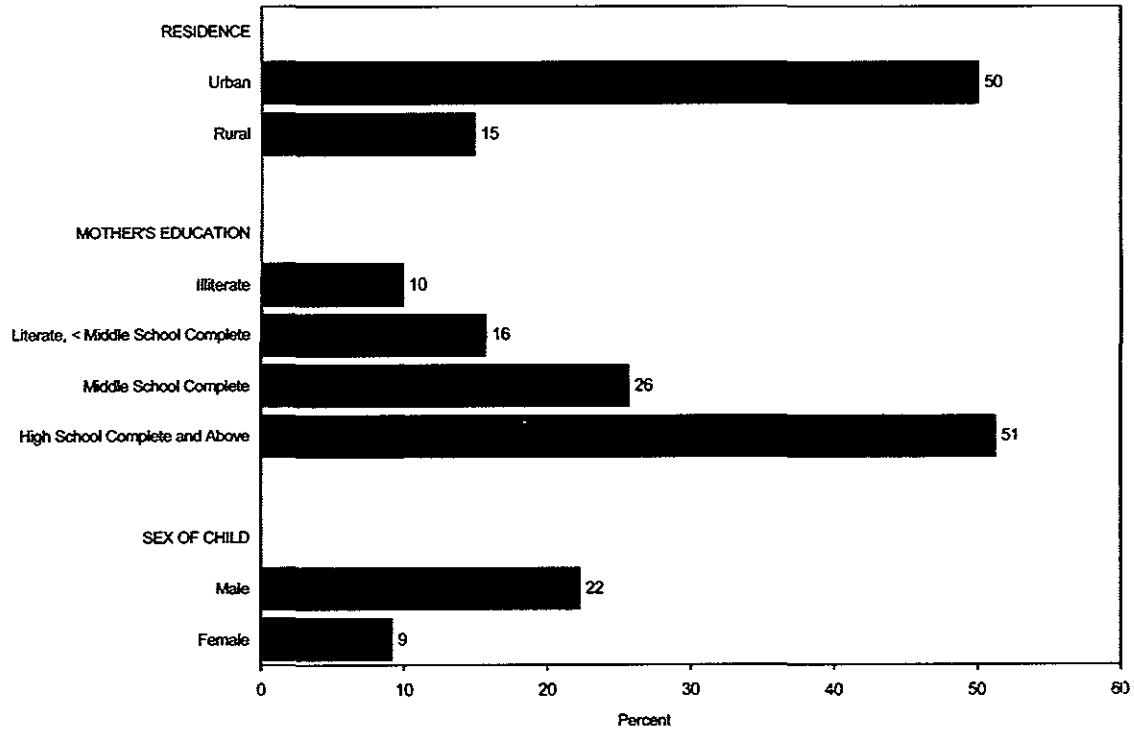
Government statistics suggest a much higher level of vaccination coverage than NFHS-2 estimates for most vaccinations. According to government statistics for Assam for the period 1997–98, 43 percent of children age 12–23 months are fully vaccinated and coverage is 68 percent for BCG, 60 percent for the third dose of DPT vaccine, 61 percent for the third dose of polio vaccine, and 46 percent for measles vaccine (Ministry of Health and Family Welfare, 1999).

According to the immunization schedule, all primary vaccinations, including measles, should be completed by the time a child is 12 months old. Table 6.6 shows that only 14 percent of all children (82 percent of fully vaccinated children) were fully vaccinated by age 12 months. The percentages of children who received the third dose of DPT vaccine, the third dose of polio vaccine, and the measles vaccine by 12 months of age are somewhat lower than the percentages who received these vaccines at any time before the survey. In the case of measles vaccination, 19 percent of children who were vaccinated against measles received the vaccination after their first birthday.

The analysis of vaccine-specific data indicates much higher coverage for each type of vaccine in urban areas than in rural areas. Fifty percent of children age 12–23 months in urban areas had received all the recommended vaccinations by the time of the survey, compared with 15 percent in rural areas. The proportion fully vaccinated during the first year of life is also higher in urban areas (42 percent) than in rural areas (12 percent). Dropout rates for DPT and polio (the proportion of children receiving the first dose but not the third dose) are somewhat higher in rural areas than in urban areas.

Table 6.7 and Figure 6.4 present vaccination coverage rates (according to the vaccination card or the mother) for children age 12–23 months by selected background characteristics. The table also shows the percentage of children with vaccination cards that were shown to the interviewer. Mothers showed vaccination cards for only 33 percent of children age 12–23

Figure 6.4
Percentage of Children Age 12–23 Months Who Have Received All Vaccinations



NFHS-2, Assam, 1999

Table 6.7 Childhood vaccinations by background characteristics

Percentage of children age 12–23 months who received specific vaccinations at any time before the interview (according to the vaccination card or the mother) and percentage with a vaccination card that was shown to the interviewer by selected background characteristics, Assam, 1999

Background characteristic	Percentage vaccinated											Percentage showing vaccination card	Number of children
			DPT			Polio							
	BCG	Polio 0	1	2	3	1	2	3	Measles	All[1]	None		
Sex of child													
Male	57.2	3.6	63.1	55.3	42.8	64.7	57.0	45.7	30.4	22.3	30.2	39.4	218
Female	48.0	2.4	49.2	38.5	29.8	57.4	48.7	26.4	15.9	9.2	37.7	22.4	148
Birth order													
1	58.6	3.7	65.8	56.4	49.2	63.8	54.8	47.2	34.2	27.5	28.3	48.5	105
2	70.2	2.8	70.1	61.0	44.8	77.4	68.5	49.9	33.0	21.8	19.8	41.5	98
3	40.6	4.1	48.6	37.6	27.4	57.5	46.5	16.6	12.8	4.2	40.4	15.8	58
4+	39.8	2.3	42.1	34.8	24.8	47.6	42.6	29.1	13.6	9.1	46.7	17.6	105
Residence													
Urban	83.2	3.7	85.6	76.7	67.2	87.9	82.1	68.6	56.7	50.1	10.4	55.9	21
Rural	51.6	3.1	55.7	46.7	35.7	60.1	51.9	36.0	22.6	14.9	34.7	31.1	344
Mother's education													
Illiterate	42.9	2.8	46.2	37.2	26.0	50.4	41.4	26.5	14.1	9.9	43.3	23.6	207
Literate, < middle school complete	54.5	2.9	62.0	51.5	40.5	69.8	60.8	41.0	29.0	15.7	27.1	34.5	80
Middle school complete	(73.6)	(3.5)	(76.2)	(70.2)	(56.9)	(75.6)	(70.3)	(49.6)	(40.4)	(25.7)	(18.4)	(46.6)	44
High school complete and above	(88.5)	(4.7)	(90.0)	(81.2)	(74.9)	(93.5)	(88.8)	(83.4)	(56.8)	(51.3)	(6.5)	(63.6)	35
Religion													
Hindu	61.2	3.8	64.9	56.7	45.5	66.4	58.5	43.7	30.1	21.0	29.2	41.1	199
Muslim	45.1	2.5	49.6	39.1	28.5	57.1	48.2	31.6	17.7	12.3	36.9	22.4	156
Caste/tribe													
Scheduled caste	(64.9)	(0.0)	(67.9)	(56.7)	(47.2)	(67.9)	(57.4)	(47.4)	(30.7)	(20.4)	(29.0)	(44.2)	37
Scheduled tribe	44.9	2.1	51.2	43.3	30.7	59.2	52.8	33.8	18.9	14.4	39.1	28.5	76
Other[2]	53.1	2.8	57.1	47.8	37.3	61.3	52.8	37.9	25.1	18.2	32.5	30.5	219
Standard of living index													
Low	42.0	4.6	45.2	38.6	29.3	52.5	45.3	31.3	18.2	12.8	42.8	24.0	180
Medium	61.7	1.4	65.8	52.7	42.4	66.7	57.1	41.2	27.0	18.3	27.3	39.7	145
High	(73.6)	(4.2)	(79.3)	(72.7)	(52.5)	(83.7)	(82.5)	(63.3)	(52.0)	(37.2)	(12.3)	(45.4)	29
Total	53.5	3.1	57.4	48.5	37.5	61.8	53.6	37.9	24.6	17.0	33.2	32.5	366

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey. Total includes 6 Christian children, 1 child belonging to an 'other' religion, 24 children belonging to other backward classes, and 4, 9, and 11 children with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.

( ) Based on 25–49 unweighted cases

[1]BCG, measles, and three doses each of DPT and polio vaccines (excluding Polio 0)

[2]Not belonging to a scheduled caste, scheduled tribe, or other backward class

months. Vaccination cards were shown for 56 percent of children in urban areas and 31 percent in rural areas. As expected, vaccination coverage is much higher for children for whom a vaccination card was shown than for other children (see Table 6.6).

Boys (22 percent) are more likely than girls (9 percent) to be fully vaccinated. Boys are also more likely than girls to have received each of the individual vaccinations. Mothers showed vaccination cards for 39 percent of boys and 22 percent of girls. Immunization coverage generally declines with increasing order of births. Only 10 percent of children of illiterate mothers are fully vaccinated, compared with 51 percent of children whose mothers have completed at least high school. Hindu children are much more likely than Muslim children to have received each of the recommended vaccinations, a pattern that is also evident at the national level. Children from scheduled tribes are less likely than other children to have received each vaccination, and 39 percent of scheduled-tribe children have not received any vaccinations at all. The standard of living of the household has a strong positive relationship with vaccination coverage; only 13 percent of children from households with a low standard of living are fully vaccinated, compared with 37 percent of children from households with a high standard of living.

Table 6.8 shows the percentage of children age 12–35 months with a vaccination card that was shown to the interviewer and the percentage who received various vaccinations during

Table 6.8 Childhood vaccinations received by 12 months of age

Percentage of children age 12–23 months and 24–35 months with a vaccination card that was shown to the interviewer and percentage who received specific vaccinations by 12 months of age, according to residence and child's current age, Assam, 1999

	Urban		Rural		Total	
Vaccination status	12–23 months	24–35 months	12–23 months	24–35 months	12–23 months	24–35 months
Vaccination card shown to interviewer	55.9	41.5	31.1	24.3	32.5	25.3
Percentage vaccinated by 12 months of age[1]						
BCG	80.7	66.0	49.5	46.6	51.3	47.7
Polio 0	3.7	0.0	3.1	2.8	3.1	2.7
DPT						
1	83.2	64.6	52.5	43.3	54.3	44.6
2	74.5	61.6	42.3	42.8	44.2	43.8
3	64.1	54.5	32.1	31.0	34.1	32.4
Polio						
1	85.4	69.9	55.6	52.4	57.4	53.4
2	79.6	63.1	48.1	49.8	50.0	50.4
3	65.2	50.1	31.0	30.5	33.1	31.7
Measles	49.5	37.3	18.1	20.8	20.0	21.7
All vaccinations[2]	42.1	32.6	12.3	15.1	14.0	16.1
No vaccinations	12.9	28.5	37.6	46.2	36.1	45.1
Number of children	21	20	344	308	366	327

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey.
[1]Information was obtained either from the vaccination card or from the mother if there was no written record. For children whose information was based on the mother's report, the proportion of vaccinations given by 12 months of age is assumed to be the same as for children with a written record of vaccinations.
[2]BCG, measles, and three doses each of DPT and polio vaccines (excluding Polio 0)

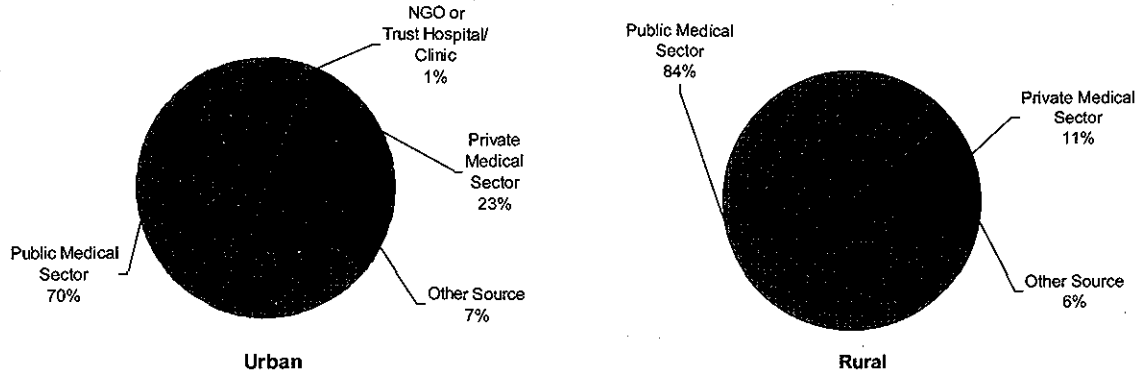
the first year of life by current age of the child and place of residence. The proportion vaccinated during the first year of life is estimated separately for children in each age group. The row labelled 'No vaccinations' indicates the percentage of children who have not received any vaccination by 12 months of age.

The proportion of children whose vaccination status was determined from a vaccination card declines substantially with child's age. This may reflect an upward trend in the use of vaccination cards. On the other hand, vaccination cards may have been lost or discarded, especially for older children who have received all their vaccinations. The proportion of children fully vaccinated by age 12 months decreases slightly from 16 percent for children age 24–35 months to 14 percent for children age 12–23 months. In the case of individual vaccinations, coverage increased slightly for BCG, DPT3, and Polio 3, and decreased slightly for measles. Rural areas show a similar pattern, but in urban areas coverage increased substantially for all the individual vaccinations.

Table 6.9 and Figure 6.5 give the percent distribution of children under age three years who have received any vaccinations by the source of most of the vaccinations, according to selected background characteristics. The public sector is the primary provider of childhood vaccinations in Assam. Eighty-two percent of all children who have received vaccinations received them from a public-sector source, and only 12 percent received them from a private-sector source. The proportion of vaccinated children receiving vaccinations from the private medical sector is more than twice as high in urban areas (23 percent), where private-sector services tend to be concentrated, as in rural areas (11 percent). Even in urban areas, however, 70 percent of children received their vaccinations from the public sector.

Children belonging to households with a high standard of living are more likely than other children to receive vaccinations from the private medical sector. Hindu children are more likely to receive vaccinations from the private medical sector than Muslim children. Children from scheduled tribes are more likely to receive vaccinations from the private medical sector than children from other caste/tribe groups.

Figure 6.5
Source of Childhood Vaccinations by Residence



Note: Percents add to more than 100.0 due to rounding

NFHS-2, Assam, 1999

Table 6.9 Source of childhood vaccinations

Percent distribution of children under age 3 who have received any vaccinations by source of most of the vaccinations, according to selected background characteristics, Assam, 1999

Background characteristic	Source				Total percent	Number of children
	Public medical sector	NGO or trust hospital/ clinic	Private medical sector	Other		
Age of child						
< 12 months	77.0	0.0	16.6	6.4	100.0	204
12–23 months	87.3	0.2	7.9	4.7	100.0	245
24–35 months	82.0	0.0	10.8	7.3	100.0	212
Sex of child						
Male	81.6	0.0	11.8	6.6	100.0	367
Female	83.4	0.2	11.1	5.3	100.0	294
Birth order						
1	82.3	0.2	13.3	4.2	100.0	236
2	82.8	0.0	12.8	4.3	100.0	180
3	77.2	0.0	10.9	12.0	100.0	105
4+	85.9	0.0	7.1	6.9	100.0	140
Residence						
Urban	69.8	0.8	22.7	6.6	100.0	53
Rural	83.5	0.0	10.5	6.0	100.0	608
Mother's education						
Illiterate	78.7	0.0	14.6	6.8	100.0	283
Literate, < middle school complete	88.8	0.0	5.7	5.5	100.0	172
Middle school complete	84.4	0.0	9.3	6.4	100.0	125
High school complete and above	78.9	0.5	16.4	4.2	100.0	82
Religion						
Hindu	78.2	0.1	16.0	5.7	100.0	412
Muslim	90.0	0.0	3.3	6.7	100.0	233
Caste/tribe						
Scheduled caste	83.9	0.0	10.0	6.2	100.0	86
Scheduled tribe	81.2	0.0	14.9	3.9	100.0	124
Other backward class	87.9	0.0	6.4	5.7	100.0	67
Other	82.6	0.1	10.4	7.0	100.0	374
Standard of living index						
Low	81.7	0.0	11.7	6.6	100.0	272
Medium	85.1	0.0	9.0	5.9	100.0	297
High	72.1	0.6	24.1	3.1	100.0	69
Total	82.4	0.1	11.5	6.0	100.0	661

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey. Total includes 9 Christian children, 3 children belonging to 'other' religions, and 4, 10, and 23 children with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.
NGO: Nongovernmental organization

6.5 Vitamin A Supplementation

Vitamin A deficiency is one of the most common nutritional deficiency disorders in the world, affecting more than 250 million children worldwide (Bloem et al., 1997). The National Programme on Prevention of Blindness targets children under age five years and administers oral doses of vitamin A every six months starting at age nine months. NFHS-2 asked mothers of

Table 6.10 Vitamin A supplementation for children

Percentage of children age 12–35 months who received at least one dose of vitamin A and who received at least one dose of vitamin A within the six months preceding the survey by selected background characteristics, Assam, 1999

Background characteristic	Percentage who received Vitamin A		Number of children
	At least one dose	At least one dose within past six months	
Age of child			
12–23 months	15.0	10.5	366
24–35 months	15.8	7.0	327
Sex of child			
Male	17.0	9.6	379
Female	13.4	8.0	314
Birth order			
1	21.7	15.9	194
2	15.3	7.7	187
3	15.1	5.9	116
4+	9.2	4.7	196
Residence			
Urban	27.4	15.4	41
Rural	14.6	8.5	652
Mother's education			
Illiterate	9.2	5.8	387
Literate, < middle school complete	14.5	5.9	154
Middle school complete	29.7	18.6	89
High school complete and above	34.6	21.3	63
Religion			
Hindu	19.7	10.2	387
Muslim	9.6	7.2	283
Caste/tribe			
Scheduled caste	24.8	11.8	77
Scheduled tribe	16.0	8.2	149
Other backward class	26.9	13.0	50
Other	12.3	8.3	404
Standard of living index			
Low	12.2	7.9	350
Medium	18.9	9.2	271
High	23.2	15.9	47
Total	15.4	8.9	693

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey. Total includes 13 Christian children, 3 children belonging to 'other' religions, and 8, 14, and 25 children with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.

children born during the three years before the survey whether their children ever received a dose of vitamin A. Those who said that their child had received at least one dose of vitamin A were asked how long ago the last dose of vitamin A was given. Table 6.10 shows the percentage of children age 12–35 months who received at least one dose of vitamin A and who received a dose of vitamin A within the past six months by selected background characteristics. In the state as a whole, only 15 percent of children age 12–35 months received at least one dose of vitamin A, and only 9 percent received a dose within the past six months. This indicates that a large majority

of children in Assam have not received vitamin A supplementation at all and even fewer children receive vitamin A supplementation regularly.

Children living in urban areas, children whose mothers completed at least middle school, Hindu children, children from households with a high standard of living, children belonging to a scheduled caste or other backward class, and first-born children are more likely than other children to receive vitamin A supplementation. Boys are more likely than girls to receive vitamin A supplementation. Children from groups that are more likely to have received at least one dose of vitamin A supplementation are also more likely to have received a dose in the past six months.

6.6 Child Morbidity and Treatment

This section discusses the prevalence and treatment of acute respiratory infection (ARI), fever, and diarrhoea. Mothers of children less than three years old were asked if their children suffered from cough, fever, or diarrhoea during the two weeks preceding the survey, and if so, the type of treatment given. The accuracy of all these measures is affected by the reliability of the mother's recall of when the disease episode occurred. The two-week recall period is thought to be most suitable for ensuring that there will be an adequate number of cases to analyze and that recall errors will not be too serious. Table 6.11 shows the percentage of children with cough accompanied by fast breathing (symptoms of acute respiratory infection), fever, and diarrhoea during the two weeks preceding the survey and the percentage with acute respiratory infection who were taken to a health facility or provider, by selected background characteristics.

Acute Respiratory Infection

Acute respiratory infection, primarily pneumonia, is a major cause of illness among infants and children and the leading cause of childhood mortality throughout the world (Murray and Lopez, 1996). Early diagnosis and treatment with antibiotics can prevent a large proportion of ARI/pneumonia deaths. NFHS-2 found that 18 percent of children under age three in Assam suffered from acute respiratory infection (cough accompanied by short, rapid breathing) at some time during the two-week period before the survey. Table 6.11 shows that ARI is slightly more prevalent among boys than among girls and much more prevalent among children living in rural areas than among children living in urban areas. Prevalence of ARI is also comparatively high among children age 6–11 months, children whose mothers completed middle school but not high school, and children belonging to scheduled castes and other backward classes. Surprisingly, prevalence of ARI rises as standard of living increases, although not by very much. The increase in reported prevalence of ARI as standard of living increases may occur because health-consciousness increases with the standard of living.

Table 6.11 also shows the percentage of children suffering from ARI symptoms in the two weeks before the survey who were taken to a health facility or provider. Forty-two percent of children received advice or treatment from a health facility or health provider when ill with ARI. This percentage is relatively high for boys, first births, Muslim children, children living in households with a medium standard of living, and children not belonging to a scheduled caste, scheduled tribe, or other backward class.

Table 6.11 Prevalence of acute respiratory infection, fever, and diarrhoea

Percentage of children under age 3 who were ill with a cough accompanied by fast breathing (symptoms of acute respiratory infection—ARI), fever, or diarrhoea during the two weeks preceding the survey and percentage with ARI who were taken to a health facility or provider, by selected background characteristics, Assam, 1999

Background characteristic	Percentage of children suffering in past two weeks from:				Number of children	Percentage with ARI taken to a health facility or provider	Number of children with ARI
	Cough accompanied by fast breathing (ARI)	Fever	Diarrhoea				
			Any diarrhoea[1]	Diarrhoea with blood			
Age of child							
1–5 months	16.9	22.9	5.0	0.0	188	(42.1)	32
6–11 months	26.8	34.7	7.6	3.2	161	(40.2)	43
12–23 months	19.0	33.1	11.6	2.5	366	40.4	70
24–35 months	12.7	23.4	6.3	2.5	327	(45.0)	42
Sex of child							
Male	18.9	31.8	7.3	1.6	562	44.4	106
Female	16.6	24.4	9.2	2.8	480	38.0	80
Birth order							
1	18.9	26.4	7.4	1.5	319	50.6	60
2	18.4	28.7	11.3	3.0	262	(25.8)	48
3	18.5	34.7	7.3	2.3	173	(33.3)	32
4+	15.7	26.7	6.6	2.1	288	(52.6)	45
Residence							
Urban	10.0	23.7	4.1	2.1	61	*	6
Rural	18.3	28.7	8.4	2.2	981	41.4	180
Mother's education							
Illiterate	16.0	26.5	8.7	2.4	555	39.4	89
Literate, < middle school complete	19.0	27.7	6.2	2.0	242	(46.4)	46
Middle school complete	24.0	36.0	8.9	1.8	154	(35.3)	37
High school complete and above	15.6	29.4	8.5	1.6	92	*	14
Religion							
Hindu	18.6	27.6	8.7	1.9	595	37.7	111
Muslim	17.3	30.6	7.7	2.4	414	48.2	71
Caste/tribe							
Scheduled caste	23.4	30.4	8.0	2.9	117	*	27
Scheduled tribe	17.8	22.7	9.3	1.8	201	(26.8)	36
Other backward class	26.7	28.7	7.1	0.0	84	*	22
Other	15.8	29.5	8.0	2.4	618	47.6	98
Standard of living index							
Low	16.9	24.8	8.5	2.4	522	38.6	88
Medium	18.6	32.3	8.2	2.3	402	44.1	75
High	20.2	29.8	4.8	0.4	83	*	17
Source of drinking water							
Piped water	14.4	22.8	11.6	0.9	90	*	13
Hand pump	19.2	29.6	7.9	1.7	486	39.5	93
Well water	18.7	29.7	7.7	3.0	362	41.5	68
Surface water	11.8	23.4	8.0	2.3	104	*	12
Purification of water[2]							
Uses alum	(10.6)	(20.4)	(6.5)	(0.0)	38	*	4
Uses water filter	17.6	25.0	6.6	1.6	118	*	21
Boils water	16.1	29.0	9.1	1.6	266	(37.3)	43
Nothing	18.3	29.0	8.1	2.5	648	39.9	119
Total	17.8	28.4	8.2	2.2	1,042	41.7	186

Note: Table includes only surviving children age 1–35 months from among the two most recent births in the three years preceding the survey. Total includes small numbers of children whose mothers belong to other religions, children in households using cloth, electronic water purifiers, or other methods to purify water, and children with missing information on religion, caste/tribe, and the standard of living index, who are not shown separately.
( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases
[1]Includes diarrhoea with blood
[2]Number of children and number of children with ARI may add to more than the respective totals because multiple methods of purification of water could be recorded.

Fever

Fever is the most common of the three conditions examined in Table 6.11, with 28 percent of children suffering from fever during the two weeks preceding the survey. The prevalence of fever is lower among children age 1–5 months (23 percent) than among children age 6–11 months (35 percent), after which prevalence declines. Fever is more prevalent among boys than among girls and somewhat more prevalent among rural children than among urban children. Prevalence of fever varies irregularly by birth order, mother's education, caste/tribe, source of drinking water, and type of water purification. Muslim children are slightly more likely than Hindu children to have suffered from fever. Prevalence of fever rises slightly as standard of living increases, albeit somewhat irregularly.

Diarrhoea

Diarrhoea is the second most important killer of children under age five worldwide, following acute respiratory infection. Deaths from acute diarrhoea are most often caused by dehydration due to loss of water and electrolytes. Nearly all dehydration-related deaths can be prevented by prompt administration of rehydration solutions. Because deaths from diarrhoea are a significant proportion of all child deaths, the Government of India has launched the Oral Rehydration Therapy Programme as one of its priority activities for child survival. One major goal of this programme is to increase awareness among mothers and communities about the causes and treatment of diarrhoea. Oral rehydration salt (ORS) packets are made widely available and mothers are taught how to use them. NFHS-2 asked mothers of children less than three years old a series of questions about episodes of diarrhoea suffered by their children in the two weeks before the survey, including questions on feeding practices during diarrhoea, the treatment of diarrhoea, and their knowledge and use of ORS.

Table 6.11 shows that 8 percent of children under age three suffered from diarrhoea in the two-week period before the survey. There are seasonal variations in the prevalence of diarrhoea, however, so that the percentages shown in Table 6.11 cannot be assumed to reflect the situation throughout the year.

Among children age 1–35 months, those age 1–5 months are least susceptible to diarrhoea, perhaps in part because many children are exclusively breastfed at that age, which minimizes the risk of infection from contaminated food. Prevalence of diarrhoea increases with age, peaking at 12–23 months before declining at 24–35 months. The prevalence of diarrhoea is relatively low among urban children and children living in households with a high standard of living. Contrary to expectation, households using piped water for drinking do not have an advantage in terms of the proportion of children who experience diarrhoea. Differentials in diarrhoea prevalence by the other variables shown in the table are small.

Two percent of all children age 1–35 months (27 percent of children who suffered from diarrhoea in the two weeks preceding the survey) had diarrhoea with blood, a symptom of dysentery. The prevalence of diarrhoea with blood peaks at age 6–11 months. Prevalence of bloody diarrhoea declines as mother's education increases and as household standard of living increases, and (unexpectedly) it is more common among children living in households that purify water than among children living in households that do not purify water. Regarding this latter finding, there may be some reverse causation operating: the experience of dysentery or lack of access to safe water may prompt some households to commence some kind of water purification.

Table 6.12 Knowledge of diarrhoea care

Among mothers with births during the three years preceding the survey, percentage who know about oral rehydration salt (ORS) packets, percent distribution by quantity to be given to drink during diarrhoea, and percentage who know two or more signs of diarrhoea that indicate the need for medical treatment by selected background characteristics, Assam, 1999

Background characteristic	Percentage who know about ORS packets	Reported quantity to be given to drink					Percentage who know two or more signs for medical treatment of diarrhoea[1]	Number of mothers
		Less	Same	More	Don't know/ missing	Total percent		
Age								
15–19	36.5	25.6	19.3	31.3	23.8	100.0	44.6	151
20–24	46.0	20.0	18.2	42.8	19.1	100.0	42.4	355
25–29	44.9	18.5	18.4	45.0	18.2	100.0	47.2	282
30–34	40.7	27.1	15.6	41.7	15.6	100.0	45.0	164
35–49	38.1	22.3	16.7	27.5	33.5	100.0	34.4	77
Residence								
Urban	72.1	16.2	18.6	57.4	7.7	100.0	52.0	61
Rural	41.0	22.0	17.8	39.3	20.8	100.0	43.3	969
Education								
Illiterate	30.0	25.4	18.3	28.5	27.7	100.0	36.8	549
Literate, < middle school complete	46.0	21.7	17.2	46.0	15.1	100.0	47.1	237
Middle school complete	64.0	14.1	19.8	57.0	9.2	100.0	60.5	152
High school complete and above	77.0	11.8	13.8	69.5	4.8	100.0	50.3	91
Religion								
Hindu	47.0	21.2	20.3	38.8	19.8	100.0	45.8	589
Muslim	37.1	23.0	14.3	42.7	20.0	100.0	42.0	407
Caste/tribe								
Scheduled caste	55.9	27.6	13.8	36.3	22.3	100.0	47.6	117
Scheduled tribe	38.4	21.3	20.7	36.5	21.5	100.0	47.6	192
Other backward class	58.3	14.6	24.5	48.4	12.5	100.0	43.1	86
Other	40.0	21.9	15.4	42.2	20.6	100.0	41.4	613
Exposure to media								
Exposed to any media	51.5	19.5	16.4	48.7	15.4	100.0	47.7	476
Watches television weekly	57.6	16.6	16.5	52.9	14.0	100.0	47.3	239
Listens to radio weekly	51.5	19.2	16.0	50.4	14.5	100.0	47.5	356
Visits cinema/theatre monthly	56.0	25.3	12.6	46.0	16.0	100.0	44.1	57
Reads newspaper/magazine weekly	66.8	13.1	13.4	65.1	8.4	100.0	52.3	142
Not regularly exposed to any media	35.4	23.6	19.1	33.2	24.1	100.0	40.5	553
Total	42.9	21.7	17.9	40.4	20.0	100.0	43.9	1,029

Note: Total includes 19 Christian women, 4 women belonging to 'other' religions, and 10 and 22 women with missing information on religion and caste/tribe, respectively, who are not shown separately.
[1]Percentage who know two or more signs of illness that indicate that a child should be taken to a health facility or health worker

Table 6.12 shows that 43 percent of mothers with births during the three years preceding the survey know about oral rehydration salt (ORS) packets, down from 53 percent among women who gave birth during the three years before NFHS-1, and well below the national average of 62 percent. Knowledge of ORS packets is somewhat lower among mothers age 15–19 and among mothers age 35–49 years than among mothers in the middle age groups. As expected, knowledge is considerably higher among urban mothers than rural mothers, and considerably higher among more-educated mothers than among less-educated mothers. Knowledge of ORS is

higher among Hindu mothers (47 percent) than among Muslim mothers (37 percent). Knowledge of ORS packets is much lower among mothers who are not regularly exposed to any mass media than among mothers who are exposed to some media. Mothers belonging to scheduled tribes and mothers not belonging to a scheduled caste, scheduled tribe, or other backward class are less likely to know about ORS than mothers in other caste/tribe groups.

In order to assess mothers' knowledge of children's need for extra fluids during episodes of diarrhoea, all mothers of children born in the three years preceding the survey were asked: 'When a child has diarrhoea, should he/she be given less to drink than usual, about the same amount, or more than usual?' Table 6.12 shows the responses of mothers to this question by selected background characteristics. In Assam, 40 percent of mothers report that children should be given more to drink than usual during an episode of diarrhoea. But, contrary to the standard recommendation, 22 percent say that children should be given less to drink and 18 percent say that they should be given about the same to drink. Another 20 percent say that they don't know. These findings suggest that mothers in Assam need much more education in the proper management of diarrhoea. The proportion reporting correctly that children with diarrhoea should be given more to drink is especially low among teenage mothers and older mothers (age 35–49), rural mothers, illiterate mothers, and mothers not regularly exposed to any mass media.

To assess whether mothers are aware of one or more signs associated with diarrhoea that suggest the need for medical treatment, mothers were also asked: 'When a child is sick with diarrhoea, what signs of illness would tell you that he or she should be taken to a health facility or health worker?' All answers given by the respondent were recorded. The signs warranting medical treatment include repeated watery stools, repeated vomiting, blood in the stools, fever, marked thirst, not eating or drinking well, getting sicker or very sick, and not getting better. Table 6.12 shows that only 44 percent of mothers were able to name two or more signs that indicate that a child with diarrhoea should be given medical treatment. The percentage is relatively low among mothers age 35–49 and illiterate mothers and relatively high among urban mothers and well-educated mothers, but it does not vary much by the other variables shown in the table. Overall, the table shows that knowledge of two or more signs of diarrhoea that suggest the need for medical treatment is universally low across all demographic and socioeconomic groups and never higher than 61 percent. This lack of knowledge suggests a need for further educating mothers about children's diarrhoea so that they are better able to recognize the signs of diarrhoea for which a health provider should be consulted.

Table 6.13 shows the percentage of children under age three with diarrhoea during the two weeks preceding the survey who were taken to a health facility or provider, the percentage who received each of various types of oral rehydration therapy (ORT), and the percentage who received other types of treatment, by selected background characteristics. Forty-eight percent of children in Assam who suffered from diarrhoea during the two weeks preceding the survey were taken to a health facility or provider for medical advice or treatment (much below the national level of 63 percent). Thirty-nine percent of children with diarrhoea did not receive any treatment at all.

Boys with diarrhoea were somewhat more likely than girls to be taken to a health facility or provider. The likelihood of seeking treatment is higher for Muslim children than for Hindu children, and higher for children from households with a medium standard of living than for children from households with a low standard of living. Differentials by other socioeconomic

Table 6.13 Treatment of diarrhoea

Among children under age 3 who had diarrhoea in the past two weeks, percentage taken to a health facility or provider, percentage who received various types of oral rehydration therapy (ORT), and percentage who received other treatments by selected background characteristics, Assam, 1999

		Oral rehydration					Other treatment					
Background characteristic	Taken to a health facility or provider	Oral rehydration salt (ORS) packets	Gruel	Homemade sugar-salt-water solution	Increased fluids	ORT not given	Pill or syrup	Injection	Intrave-nous (IV/drip/ bottle)	Home remedy/ herbal medicine	No treat-ment	Number of children with diarrhoea
Sex of child												
Male	(52.7)	(32.7)	(20.8)	(2.8)	(5.8)	(43.8)	(32.8)	(17.4)	(3.0)	(1.1)	(35.4)	41
Female	(44.1)	(41.0)	(18.7)	(2.7)	(16.1)	(48.3)	(12.3)	(8.2)	(11.1)	(5.8)	(41.9)	44
Religion												
Hindu	(42.4)	(23.5)	(14.6)	(2.2)	(4.6)	(62.0)	(19.4)	(11.4)	(7.2)	(4.9)	(45.4)	52
Muslim	(59.4)	(60.3)	(28.5)	(3.7)	(22.2)	(18.6)	(27.3)	(15.0)	(7.6)	(1.4)	(25.9)	32
Standard of living index												
Low	(45.3)	(35.2)	(15.5)	(0.0)	(8.0)	(57.3)	(17.6)	(2.6)	(8.4)	(5.7)	(46.6)	44
Medium	(55.1)	(33.4)	(22.7)	(3.5)	(14.4)	(36.8)	(25.2)	(29.2)	(3.7)	(1.3)	(33.2)	33
Total	48.2	37.1	19.7	2.7	11.1	46.2	22.1	12.6	7.3	3.5	38.8	85

Note: Table includes only surviving children age 1–35 months from among the two most recent births in the three years preceding the survey. Total includes 4 children from households with a high standard of living index and 1 and 4 women with missing information on religion and the standard of living index, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

characteristics are not shown because of too few cases in most of the categories of the characteristic. The number of cases is also small for all of the socioeconomic characteristics that are shown in the table, so the differentials should be interpreted cautiously.

Fifty-four percent of children with diarrhoea received some form of oral rehydration therapy. Thirty-seven percent received ORS packets (up from 25 percent in NFHS-1 and higher than the NFHS-2 national level of 27 percent), 20 percent received gruel, 3 percent received a home-made sugar-salt-water solution, and 11 percent received increased fluids.

The proportion who were treated with ORS packets is higher for girls than for boys and higher for Muslim children than Hindu children but varies little by standard of living. With all forms of oral rehydration therapy (ORT) taken into account, however, the likelihood of receiving some form of ORT is slightly lower for girls than for boys. It is also lower for Hindu children than for Muslim children and for children from households with a low standard of living than for children from households with a medium standard of living.

Boys with diarrhoea are much more likely than girls to have received pills, syrup, or injections to treat the diarrhoea, but girls are more likely than boys to have received a home remedy/herbal medicine or intravenous fluid. Muslim children are more likely than Hindu children to have received each of these treatments, except that Hindu children are more likely than Muslim children to have received a home remedy/herbal medicine. Children from households with a medium standard of living are more likely than children from households with a low standard of living to have received pills, syrup, or injections, but the differentials are reversed for home remedy/herbal medicine and intravenous fluid.

The use of antibiotics and other antidiarrhoeal drugs is not generally recommended for the treatment of childhood diarrhoea. Nevertheless, 22 percent of the children who had diarrhoea in the two weeks before NFHS-2 were treated with pills or syrup, and 13 percent received an injection. These figures indicate lack of knowledge about the proper treatment of diarrhoea not only among mothers but also among health-care providers. The results underscore the need for informational programmes for mothers and supplemental training for health-care providers that emphasizes the importance of ORT, increased fluid intake, and continued feeding, and discourages the use of drugs to treat childhood diarrhoea.

Table 6.14 shows the percent distribution of children who were treated with ORS for diarrhoea in the two weeks before NFHS-2 by source of the ORS packets, although again the number of cases is small. For 36 percent of children who were treated with ORS, the packets were obtained from public-sector medical sources, and for 64 percent the packets were obtained from private-sector medical sources. Among the public-sector medical sources, community health centres (CHC), rural hospitals, and Primary Health Centres (PHC) are mentioned most often. Among the private-sector medical sources, ORS packets were usually obtained from pharmacies/drugstores or private hospitals/clinics. Pharmacies/drugstores alone account for almost one-third of all cases.

Table 6.14 Source of ORS packets

Among children under age 3 who were treated with a solution made from oral rehydration salt (ORS) packets for diarrhoea in the two weeks preceding the survey, percent distribution of children by source of ORS packets, Assam, 1999

Source	Percent
Public medical sector	(36.4)
Government dispensary	(8.4)
CHC/rural hospital/PHC	(23.8)
Sub-centre	(4.2)
Private medical sector	(63.6)
Private hospital/clinic	(15.9)
Private doctor	(8.0)
Vaidya/hakim/homeopath	(3.9)
Pharmacy/drugstore	(31.4)
Other private medical sector	(4.3)
Total percent	100.0
Number of children treated with ORS	29

Note: Table includes only surviving children age 1–35 months from among the two most recent births in the three years preceding the survey. Table excludes children with missing information on source of ORS packets.
CHC: Community health centre; PHC: Primary Health Centre
( ) Based on 25–49 unweighted cases

6.7 HIV/AIDS

Acquired Immune Deficiency Syndrome (AIDS) is an illness caused by the HIV virus, which weakens the immune system and leads to death through secondary infections such as tuberculosis or pneumonia. The virus is generally transmitted through sexual contact, through contact with contaminated needles or blood, or from an HIV-infected mother to her child during pregnancy, during delivery, or through breastfeeding. HIV and AIDS prevalence in India have been on the rise for more than a decade and have reached alarming proportions in recent years. The Government of India established a National AIDS Control Organisation (NACO) under the Ministry of Health and Family Welfare in 1989 to deal with the epidemic. Since then there have been various efforts to prevent HIV transmission, such as public health education through the media and the activities of many nongovernmental organizations (NGOs).

NFHS-2 included a set of questions on knowledge of AIDS and AIDS prevention. Ever-married women age 15–49 were first asked if they had ever heard of an illness called AIDS. Respondents who had heard of AIDS were asked further questions about their sources of information on AIDS, whether they believe that AIDS is preventable, and if so, what precautions, if any, a person can take to avoid infection.

Knowledge of AIDS

Table 6.15 shows the percentage of women who have heard about AIDS by background characteristics. Sixty-six percent of women in Assam have never heard of AIDS, slightly higher than the national level of 60 percent. In Assam the percentage who have heard about AIDS increased from 8 per cent to 34 percent during the approximately six years between NFHS-1 and NFHS-2.

Table 6.15 Source of knowledge about AIDS

Percentage of ever-married women who have heard about AIDS and among women who have heard about AIDS, percentage who received information from specific sources by selected background characteristics, Assam, 1999

Background characteristic	Percentage who have heard about AIDS	Number of women	Among those who have heard about AIDS, percentage who received information from:										Number of women who have heard about AIDS
			Radio	Television	Cinema	Newspaper/ magazine	Poster/ hoarding	Health worker	Adult education programme	Friend/ relative	School/ teacher	Other source	
Age													
15–24	31.0	931	61.9	52.5	12.8	18.7	16.1	5.1	0.0	46.2	0.8	3.3	288
25–34	35.8	1,330	65.4	65.7	19.5	32.8	16.7	3.0	0.2	35.9	0.4	5.8	476
35–49	33.6	1,180	61.6	69.2	12.7	28.6	17.9	1.7	0.3	36.0	1.5	5.6	397
Residence													
Urban	76.5	294	58.0	90.5	27.8	42.6	19.5	1.2	0.0	34.4	0.3	5.7	225
Rural	29.7	3,147	64.5	57.2	12.6	24.3	16.4	3.5	0.3	39.4	1.0	5.0	936
Education													
Illiterate	12.5	1,856	47.2	39.0	6.4	1.6	5.4	4.0	0.0	52.1	0.5	4.6	232
Literate, < middle school complete	34.5	770	55.8	56.1	6.4	13.7	14.1	3.8	0.0	43.3	1.5	5.3	266
Middle school complete	74.1	484	67.8	67.6	15.6	26.5	16.8	2.3	0.3	32.9	0.3	3.6	358
High school complete and above	92.0	331	76.6	84.3	30.3	62.0	28.4	2.6	0.4	30.3	1.3	7.2	304
Religion													
Hindu	39.0	2,200	64.6	70.4	18.3	31.9	18.2	3.2	0.1	36.7	0.6	4.9	858
Muslim	21.8	1,114	57.9	45.4	7.2	16.0	13.6	2.9	0.5	44.8	1.4	4.6	243
Christian	49.7	79	(61.5)	(38.5)	(3.9)	(20.3)	(10.1)	(3.1)	(0.0)	(41.7)	(3.5)	(10.6)	39
Other	(55.6)	24	*	*	*	*	*	*	*	*	*	*	13
Caste/tribe													
Scheduled caste	31.9	349	56.5	62.6	12.0	14.4	13.1	7.4	0.0	42.3	0.0	5.7	111
Scheduled tribe	27.5	695	59.7	42.8	12.1	13.9	14.5	0.6	0.0	48.8	2.0	5.4	191
Other backward class	57.6	398	68.9	74.5	18.3	38.9	25.5	2.7	0.0	36.9	0.0	4.1	229
Other	32.1	1,919	64.0	66.9	16.4	30.9	15.4	3.2	0.4	34.8	1.0	5.4	616
Standard of living index													
Low	11.2	1,468	49.3	30.5	6.0	8.1	11.3	4.9	0.0	56.4	1.4	7.5	164
Medium	42.8	1,471	62.9	57.0	11.6	20.5	16.1	2.8	0.2	37.8	0.6	4.8	630
High	83.4	398	70.9	92.5	27.2	49.8	21.9	2.4	0.4	31.1	1.2	4.4	332
Exposure to mass media													
Exposed to any media	53.8	1,811	68.8	70.9	17.1	31.9	18.0	2.5	0.2	33.7	0.5	4.5	974
Listens to radio weekly	54.0	1,403	81.2	66.7	17.9	33.6	18.7	2.7	0.3	32.9	0.5	4.4	757
Watches television weekly	68.5	989	64.8	91.5	21.4	39.1	21.1	2.8	0.2	30.5	0.6	3.8	678
Goes to cinema/theatre monthly	56.9	192	74.7	88.9	43.6	53.7	32.2	3.1	1.1	24.7	1.1	2.5	109
Reads newspaper/magazine weekly	83.7	568	77.2	85.0	26.2	56.6	24.9	3.4	0.5	28.5	0.6	5.4	476
Not regularly exposed to any media	11.4	1,630	34.2	25.9	7.4	6.9	11.6	5.8	0.0	63.4	2.8	8.3	187
Total	33.7	3,441	63.2	63.6	15.5	27.9	17.0	3.1	0.2	38.5	0.9	5.1	1,161

Note: Total includes 8, 13, and 35 women with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases

Knowledge of AIDS does not vary much by women's age, but there are substantial differentials by all the other background characteristics. Three-quarters (76 percent) of urban women have heard about AIDS, compared with only 30 percent of rural women. The proportion who have heard about AIDS ranges from 13 percent of illiterate women to 92 percent of women who have completed at least high school. Knowledge about AIDS is highest for the small number of women of 'other' religions (56 percent), followed by Christian women (50 percent) and Hindu women (39 percent). Knowledge of AIDS is much greater among women from other backward classes (58 percent) than for women in the other caste/tribe groups (28–32 percent) and much greater among women from households with a high standard of living (83 percent) than among women from households with a low standard of living (11 percent). Knowledge also varies greatly by media exposure, ranging from 11 percent among those who are not regularly exposed to any media to 84 percent among those who regularly read newspapers or magazines.

Source of Knowledge About AIDS

As part of its AIDS prevention programme, the Government of India has been using mass media, especially electronic media, extensively to create awareness among the general public about AIDS and its prevention. NFHS-2 asked women who had heard of AIDS about their sources of AIDS information. Table 6.15 shows the percentage of ever-married women who have heard about AIDS from specific sources. Television and radio are by far the most important sources of information about AIDS among ever-married women in Assam. Sixty-four percent of women who have heard about AIDS received information about AIDS from television and 63 percent from radio. Other important sources of information about AIDS are friend/relatives (39 percent) and newspapers or magazines (28 percent). Only 3 percent report that they received information about AIDS from a health worker. Friends and relatives are the most important source of AIDS information for illiterate women, women from households with a low standard of living, and women who are not regularly exposed to any media.

Knowledge of Ways to Avoid AIDS

Respondents who have heard of AIDS were asked if a person can do anything to avoid becoming infected. Those who reported that something can be done were asked what a person can do to avoid AIDS. Table 6.16 shows the percentage of ever-married women who know of no way to avoid AIDS and the percentages who report that AIDS can be avoided in specific ways, by selected background characteristics.

Among women who have heard about AIDS, 52 percent do not know any way to avoid infection, compared with 33 percent for India as a whole. The percentage is higher among rural women (55 percent) than among urban women (38 percent), and it is especially high among illiterate women (80 percent), women from households with a low standard of living (78 percent), and women who are not regularly exposed to any media (75 percent). The percentage not knowing any way to avoid infection is also considerably higher among Muslim women (68 percent) than among Hindu women (47 percent). Scheduled-tribe women are more likely than women in other caste/tribe groups not to know any way to avoid AIDS. Lack of knowledge of ways to avoid becoming infected with AIDS decreases sharply with increasing levels of education and household standard of living.

Among women who have heard about AIDS, the most commonly mentioned ways of avoiding AIDS are using condoms (27 percent), having only one sex partner (23 percent),

Table 6.16 Knowledge about avoidance of AIDS

Among ever-married women who have heard about AIDS, percentage who believe AIDS can be avoided in specific ways by selected background characteristics, Assam, 1999

Background characteristic	Percentage who believe AIDS can be avoided by:									Knows no way to avoid AIDS	Number of women
	Abstaining from sex	Using condoms	Having only one sex partner	Avoiding sex with commercial sex workers	Avoiding sex with homo-sexuals	Avoiding blood transfusions	Avoiding injections/ using clean needles	Avoiding IV drug use	Other ways		
Age											
15–24	13.1	21.1	20.6	9.0	1.5	12.9	15.1	1.4	2.3	61.0	288
25–34	15.2	28.8	24.8	15.2	4.3	21.3	20.7	2.6	3.1	48.1	476
35–49	16.7	27.8	23.2	15.7	4.4	19.8	18.7	3.9	4.5	49.3	397
Residence											
Urban	22.3	35.9	33.2	25.6	8.3	25.6	31.0	6.2	3.1	37.6	225
Rural	13.5	24.3	20.8	11.0	2.6	17.0	15.6	1.9	3.4	55.1	936
Education											
Illiterate	6.4	7.9	4.8	3.1	0.8	6.7	6.8	1.0	2.9	80.3	232
Literate, < middle school complete	8.4	17.6	14.9	8.7	2.5	12.4	11.1	0.6	2.9	64.4	266
Middle school complete	16.2	29.3	24.5	11.6	2.8	19.7	17.9	2.2	2.9	45.6	358
High school complete and above	26.6	45.3	43.0	29.2	7.9	32.1	35.0	6.5	4.6	26.0	304
Religion											
Hindu	17.6	29.7	27.9	16.2	4.5	21.9	21.4	3.3	3.9	47.3	858
Muslim	5.7	16.2	10.1	7.6	1.4	8.1	8.9	1.2	0.9	67.6	243
Christian	(24.8)	(13.3)	(10.1)	(2.6)	(0.0)	(15.4)	(23.0)	(0.0)	(7.1)	(56.2)	39
Caste/tribe											
Scheduled caste	16.1	18.3	22.0	8.3	3.9	22.0	15.6	2.9	4.0	55.3	111
Scheduled tribe	9.4	14.8	17.0	12.0	4.7	14.5	12.3	1.3	2.7	64.6	191
Other backward class	22.4	42.8	36.4	17.1	3.8	21.6	25.5	3.7	3.7	42.1	229
Other	14.5	26.1	20.9	14.5	3.3	18.6	18.9	2.9	3.3	49.7	616
Standard of living index											
Low	6.6	12.7	8.4	2.5	1.3	8.9	7.0	0.2	1.9	77.5	164
Medium	12.6	22.1	18.9	11.3	2.4	14.4	16.1	2.1	3.4	56.1	630
High	24.2	41.7	38.6	24.3	7.5	32.3	28.0	4.9	4.2	30.1	332
Exposure to mass media											
Exposed to any media	16.8	29.4	25.9	15.1	4.0	20.4	20.3	3.0	3.8	47.3	974
Listens to radio weekly	17.8	32.2	27.5	15.0	4.3	21.6	20.1	2.8	4.0	45.4	757
Watches television weekly	19.3	36.5	31.5	17.4	4.5	23.0	23.8	3.1	4.2	39.8	678
Goes to cinema/theatre monthly	15.5	44.5	29.0	20.0	3.6	23.7	22.1	3.6	3.9	32.2	109
Reads newspaper/magazine weekly	23.6	44.0	38.8	23.5	6.4	29.5	28.0	4.2	4.4	30.4	476
Not regularly exposed to any media	6.9	11.8	9.3	7.1	1.8	10.0	9.6	1.3	0.7	74.9	187
Total	15.2	26.5	23.2	13.8	3.7	18.7	18.6	2.7	3.3	51.7	1,161

Note: Total includes 13 women belonging to other religions and 8, 13, and 35 women with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

avoiding blood transfusions (19 percent), and avoiding injections or using clean needles (19 percent). Fourteen percent mention avoiding sex with commercial sex workers. Only 4 percent of women mention avoiding sex with homosexuals as a way of avoiding AIDS, and only 3 percent mention avoiding intravenous drug use. Use of condoms as a way of avoiding AIDS is mentioned most often by women who have completed at least high school, women from households with a high standard of living and women who are regularly exposed to the cinema and print media.

The lack of knowledge of AIDS, its modes of transmission, and ways to avoid infection among women in Assam constitute a major challenge to efforts to avoid the spread of AIDS. Most ever-married women in their childbearing years have never heard of AIDS, and slightly more than half of those who have heard of AIDS do not know any way to avoid infection. It is clear that AIDS-prevention organizations need to strengthen the educational components of their programmes, in addition to trying to reduce high-risk behaviour, since even basic information about AIDS is seriously deficient among women in Assam.

CHAPTER 7

NUTRITION AND THE PREVALENCE OF ANAEMIA

This chapter focuses on the nutrition of women and young children, examining both the types of food consumed and the consequences of inadequate nutrition and poor feeding practices. NFHS-1 included basic information about feeding practices and the nutritional status of young children. NFHS-2 contains more comprehensive information on these topics, and, for the first time, information on the diet of women. Measurement of height and weight has been expanded to include ever-married women as well as young children. Two additional tests have been included for the first time—anaemia testing for women and young children and the testing of cooking salt to determine the extent of iodization. A specially trained health investigator attached to each interviewing team conducted height and weight measurements and anaemia testing.

7.1 Women's Food Consumption

The consumption of a wide variety of nutritious foods is important for women's health. Adequate amounts of protein, fat, carbohydrates, vitamins, and minerals are required for a well-balanced diet. Meat, fish, eggs, and milk, as well as pulses and nuts, are rich in protein. Green, leafy vegetables are a rich source of iron, folic acid, vitamin C, carotene, riboflavin, and calcium. Many fruits are also good sources of vitamin C. Bananas are rich in carbohydrates. Papayas, mangoes, and other yellow fruits contain carotene, which is converted to vitamin A. Vitamin A is also present in milk and milk products, as well as egg yolks (Gopalan et al., 1996).

NFHS-2 asked ever-married women how often they consume various types of food (daily, weekly, occasionally, or never). Women consume vegetables (both green, leafy vegetables and other vegetables) most often (Table 7.1). A majority of women consume each type of vegetable on a daily basis, and 88 percent or more consume each type of vegetable at least once a week. Pulses and beans are also an important part of the diet for women. Almost half of women (48 percent) eat pulses or beans every day, and another 37 percent eat pulses or beans weekly. Milk or curd is not a common part of the diet for a majority of women, but 42 percent of women consume milk or curd at least once a week. Fruits are eaten every day by only 6 percent of women, and only one-third of women eat fruits at least once a week. Fifty-eight percent of women in Assam eat chicken, meat, or fish at least once a week. Forty percent eat chicken, meat,

Table 7.1 Women's food consumption

Percent distribution of ever-married women by frequency of consumption of specific foods, Assam, 1999

Type of food	Frequency of consumption					Total percent
	Daily	Weekly	Occasionally	Never	Missing	
Milk or curd	17.4	24.3	46.2	12.0	0.1	100.0
Pulses or beans	48.1	37.2	13.8	0.6	0.3	100.0
Green, leafy vegetables	60.9	26.8	11.9	0.2	0.2	100.0
Other vegetables	75.4	19.4	4.8	0.1	0.2	100.0
Fruits	6.4	26.9	61.4	4.9	0.4	100.0
Eggs	4.2	54.2	36.9	4.5	0.3	100.0
Chicken, meat, or fish	9.6	48.1	39.9	2.2	0.1	100.0

or fish occasionally, and only 2 percent of women never consume these food items. Fifty-eight percent of women say that they eat eggs at least once a week, and 5 percent say they never eat eggs.

Table 7.2 shows that there are substantial differentials in food consumption patterns by selected background characteristics. Age does not play an important role in women's consumption patterns. Although urban women consume more vegetables than their rural counterparts, the difference is not large. However, women in urban areas are much more likely than women in rural areas to include every other type of food in their diet. Illiterate women have poorer and less varied diets than literate women, and their diets are particularly deficient in fruits and milk/curd, as well as eggs and chicken, meat, or fish. A similar percentage of Hindu and Muslim women consume 'other' vegetables (94–95 percent), chicken, meat, or fish (57–58 percent), and milk or curd (40–41 percent) at least once a week. A slightly greater proportion of Hindus than Muslims consume pulses or beans, fruits, green, leafy vegetables, and eggs.

Table 7.2 Women's food consumption by background characteristics

Percentage of ever-married women consuming specific foods at least once a week by selected background characteristics, Assam, 1999

Background characteristic	Type of food							Number of women
	Milk or curd	Pulses or beans	Green, leafy vegetables	Other vegetables	Fruits	Eggs	Chicken, meat, or fish	
Age								
15–24	38.6	82.8	86.3	93.9	31.1	58.0	58.8	931
25–34	42.1	84.4	88.6	94.7	33.6	58.3	57.7	1,330
35–49	43.7	88.5	87.6	95.8	34.5	58.8	56.9	1,180
Residence								
Urban	58.6	97.1	93.9	99.0	67.8	71.6	71.0	294
Rural	40.1	84.2	87.0	94.5	30.0	57.2	56.5	3,147
Education								
Illiterate	31.2	79.1	84.5	93.3	22.7	49.4	49.6	1,856
Literate, < middle school complete	43.9	89.4	89.3	95.8	33.8	61.9	59.1	770
Middle school complete	57.2	94.7	92.1	96.3	48.1	72.5	69.9	484
High school complete and above	72.5	97.0	94.5	99.1	69.4	79.7	82.4	331
Religion								
Hindu	41.2	87.1	88.5	95.4	34.4	59.7	56.6	2,200
Muslim	40.4	81.4	85.5	94.0	29.0	55.4	58.0	1,114
Christian	59.8	89.8	88.0	93.4	47.7	54.7	74.6	79
Other	(66.1)	(94.9)	(95.6)	(95.1)	(67.3)	(73.5)	(83.7)	24
Caste/tribe								
Scheduled caste	39.3	83.6	88.5	96.6	31.4	54.6	54.0	349
Scheduled tribe	34.2	81.2	89.2	94.6	22.9	56.9	57.7	695
Other backward class	48.9	94.9	93.6	97.9	40.2	73.2	59.2	398
Other	44.1	85.0	86.8	94.1	36.6	56.3	58.0	1,919
Standard of living index								
Low	26.4	74.8	83.1	91.6	18.0	45.7	47.3	1,468
Medium	48.0	92.8	90.4	96.8	37.8	65.4	60.9	1,471
High	70.9	97.7	93.9	98.9	70.1	80.2	81.9	398
Total	41.7	85.3	87.6	94.9	33.3	58.4	57.7	3,441

Note: Total includes 25, 80, and 104 women with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

Christian women are more likely than either Hindu or Muslim women to consume chicken, meat or fish, fruits, and milk or curd. Women from other backward classes have a better diet than women from other caste/tribe groups. As expected, the household's standard of living has a strong positive effect on the consumption of nutritious types of food. Women in households with a low standard of living are much less likely than other women to eat fruits, milk or curd, eggs, and chicken, meat or fish on a regular basis. Among women from households with a low standard of living, only 18 percent consume fruits and only 26 percent consume milk or curd at least once a week.

7.2 Nutritional Status of Women

In NFHS-2, ever-married women age 15–49 were weighed using a solar-powered digital scale with an accuracy of ±100 grams. Their height was measured using an adjustable wooden measuring board specially designed to provide accurate measurements (to the nearest 0.1 cm) of women and children in a field situation. The weight and height data were used to calculate several indicators of women's nutritional status, which are shown in Table 7.3.

The height of an adult is an outcome of several factors including nutrition during childhood and adolescence. A woman's height can be used to identify women at risk of having a difficult delivery, since small stature is often related to small pelvic size. The risk of having a baby with a low birth weight is also higher for mothers who are short. The cutoff point for height, below which a woman can be identified as nutritionally at risk, varies among populations, but it is usually considered to be in the range of 140–150 centimetres (cm).

NFHS-2 found a mean height for women in Assam of 150 cm (one cm shorter than the mean height for women in India as a whole). The mean height varies only slightly (between 149 and 152 cm) for women in different population groups, as shown in Table 7.3. Women living in households with a low standard of living are more than 2 cm shorter than women living in households with a high standard of living. Other women who are shorter than average include illiterate women, scheduled-caste women, and women who are employed by someone else, but the differences are not large. Women who have completed at least middle school, women from households with a high standard of living, Christian women, and urban women are taller than women in other population groups. Seventeen percent of women in Assam are under 145 cm in height. Muslim women (20 percent) are more likely to be below 145 cm in height than Hindu women (16 percent) or Christian women (5 percent). The proportion of women with a height below 145 cm is twice as high among women from households with a low standard of living as among women from households with a high standard of living. The relatively high proportion of women with a height less than 145 cm among women age 15–19 probably occurs mainly because these women are still growing taller. Women who are not currently married are more likely to be below 145 cm in height than other women.

Table 7.3 also shows two measures of an index that relates a woman's weight to her height. This index excludes women who were pregnant at the time of the survey and women who gave birth during the two months preceding the survey. The body mass index (BMI) can be used to assess both thinness and obesity. The BMI is defined as the weight in kilograms divided by the height in metres squared (kg/m^2). The mean BMI for women in Assam is 20 and varies between 19 and 22 across the various groups shown in the table. Chronic energy deficiency is usually indicated by a BMI of less than 18.5. Twenty-seven percent of women in Assam have a

Table 7.3 Nutritional status of women

Among ever-married women, mean height, percentage with height below 145 cm, mean body mass index (BMI), and percentage with BMI below 18.5 kg/m^2 by selected background characteristics, Assam, 1999

Background characteristic	Height			Weight-for-height[1]		
	Mean height (cm)	Percentage below 145 cm	Number of women for height	Mean body mass index (BMI)	Percentage with BMI below 18.5 kg/m^2	Number of women for BMI
Age						
15–19	149.0	23.1	292	19.6	28.7	265
20–24	149.8	18.3	570	19.8	28.3	495
25–29	150.0	16.2	622	19.8	31.4	558
30–34	150.1	15.6	620	20.4	23.6	579
35–49	150.0	17.0	1,101	20.3	25.7	1,066
Marital status						
Currently married	149.9	17.0	2,963	20.1	26.9	2,723
Not currently married	149.7	20.8	241	20.1	29.6	240
Residence						
Urban	151.0	11.0	274	21.6	18.8	260
Rural	149.8	17.9	2,930	19.9	27.9	2,703
Education						
Illiterate	149.5	19.1	1,743	19.7	31.6	1,609
Literate, < middle school complete	149.8	18.0	716	20.2	24.4	659
Middle school complete	150.7	11.5	443	20.8	18.7	407
High school complete and above	150.9	13.9	302	20.9	19.6	288
Religion						
Hindu	149.9	16.1	2,049	20.2	24.6	1,903
Muslim	149.8	20.3	1,043	19.7	32.2	957
Christian	151.1	5.1	70	20.2	30.0	63
Caste/tribe						
Scheduled caste	149.4	17.5	329	20.2	25.7	300
Scheduled tribe	150.0	13.0	650	20.4	19.1	609
Other backward class	150.2	15.4	369	20.2	22.1	334
Other	150.0	18.9	1,786	19.9	31.1	1,658
Work status						
Working in family farm/business	149.9	18.0	161	20.4	25.1	145
Employed by someone else	149.2	17.0	341	19.3	41.3	309
Self-employed	150.2	16.2	151	20.0	24.7	146
Not worked in past 12 months	150.0	17.4	2,552	20.1	25.5	2,364
Standard of living index						
Low	149.4	19.4	1,369	19.6	32.0	1,254
Medium	149.9	17.2	1,375	20.0	25.8	1,269
High	151.7	9.6	365	21.6	15.5	349
Total	149.9	17.3	3,205	20.1	27.1	2,963

Note: Total includes small numbers of women belonging to other religions and women with missing information on religion, caste/tribe, and the standard of living index, who are not shown separately.
[1]Excludes women who are pregnant and women with a birth in the preceding two months. The body mass index (BMI) is the ratio of the weight in kilograms to the square of the height in metres (kg/m^2).

BMI below 18.5, indicating a high prevalence of nutritional deficiency. Nutritional problems, as indicated by the BMI, are particularly serious for women below age 30, women not currently married, illiterate women, Muslim and Christian women, women who do not belong to a scheduled caste, scheduled tribe or other backward class, women who are employed by someone else, and women from households with a low standard of living. Women who are employed by

someone else have by far the highest proportion with a BMI below 18.5 (41 percent) of any of the groups shown in the table.

7.3 Anaemia Among Women

Anaemia is characterized by a low level of haemoglobin in the blood. Haemoglobin is necessary for transporting oxygen from the lungs to other tissues and organs of the body. Anaemia usually results from a nutritional deficiency of iron, folate, vitamin B_{12}, or some other nutrients. This type of anaemia is commonly referred to as iron-deficiency anaemia. Iron deficiency is the most widespread form of malnutrition in the world, affecting more than two billion people (Stolzfus and Dreyfuss, 1998). In India, anaemia affects an estimated 50 percent of the population (Seshadri, 1998).

Anaemia may have detrimental effects on the health of women and children and may become an underlying cause of maternal mortality and perinatal mortality. Anaemia results in an increased risk of premature delivery and low birth weight (Seshadri, 1997). Early detection of anaemia can help to prevent complications related to pregnancy and delivery as well as child-development problems. Information on the prevalence of anaemia can be useful for the development of health-intervention programmes designed to prevent anaemia, such as iron-fortification programmes.

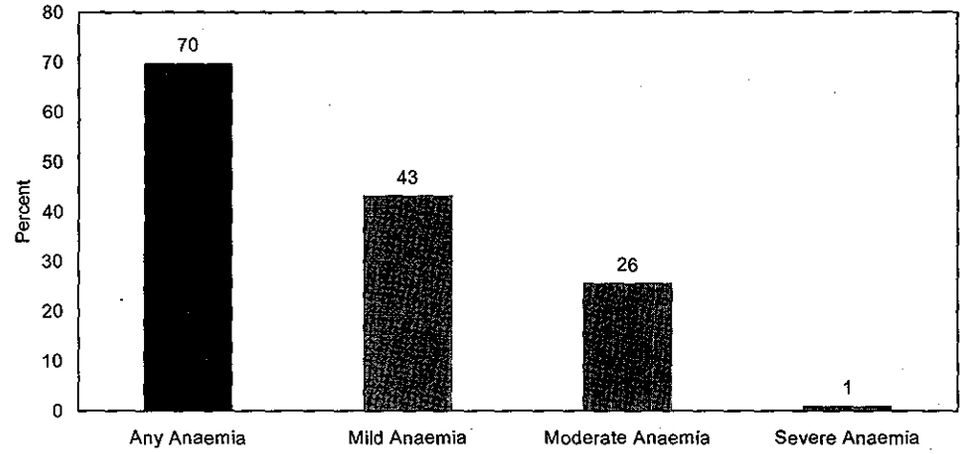
In India, under the Government's Reproductive and Child Health Programme, iron and folic acid tablets are provided to pregnant women in order to prevent anaemia during pregnancy. Because anaemia is such a serious health problem in India, NFHS-2 undertook direct measurement of haemoglobin levels for all ever-married women age 15–49 years and their children under three years of age. Measurements were taken in the field using the HemoCue system.[1] This system uses a single drop of blood from a finger prick (or a heel prick in the case of infants under six months old), which is drawn into a cuvette and then inserted into a portable, battery-operated instrument.[2] In less than one minute, the haemoglobin concentration is indicated on a digital read-out.

Before the anaemia testing was undertaken in a household, the health investigator read a detailed informed-consent statement to the respondent, informing her about anaemia, describing the procedure to be followed for the test, and emphasizing the voluntary nature of the test. She was then asked whether or not she would consent to have the test done for herself and her young children, if any. The health investigator then signed the questionnaire at the bottom of the statement to indicate that it had been read to the respondent and recorded her agreement or lack of agreement to the testing. If the test was conducted, at the end of the test the respondent was given a written record of the results for herself and each of her young children. In addition, the health investigator described to her the meaning of the results and advised her if medical treatment was necessary. In cases of severe anaemia, the respondent was read an additional

[1]The HemoCue instrument has been used extensively throughout the world for estimating the concentration of haemoglobin in capillary blood in field situations. The HemoCue has been found to give accurate results on venous blood samples, comparable to estimates from more sophisticated laboratory instruments (Von Schenk et al., 1986; McNulty et al., 1995; Krenzicheck and Tanseco, 1996). A recent small-scale study in India (Prakash et al., 1999), however, found that the HemoCue provided slightly higher estimates of haemoglobin than the standard blood cell counter (BCC) method.

[2]Because the first 2–3 drops of blood are wiped away to be sure that the sample used for analysis consists of fresh capillary blood, it is actually the third or fourth drop of blood that is drawn into the cuvette.

Figure 7.1
Anaemia Among Women



NFHS-2, Assam, 1999

statement asking whether she would give her permission for the survey organization to inform a local health official about the problem. For each Primary Sampling Unit, a local health official was given a list of severely anaemic women (and children) who had consented to the referral.

Table 7.4 and Figure 7.1 show anaemia levels for ever-married women age 15–49. The table and figure distinguish three levels of severity of anaemia: mild anaemia (10.0–10.9 grams/decilitre for pregnant women and 10.0–11.9 g/dl for nonpregnant women), moderate anaemia (7.0–9.9 g/dl), and severe anaemia (less than 7.0 g/dl). An appropriate adjustment in these cutoff points was made for women who smoke, since women in this group require more haemoglobin in their blood (Centers for Disease Control and Prevention, 1998).

In Assam, the haemoglobin levels were tested for 85 percent of women (see Table B.3 in Appendix B), compared with 88 percent of women in India as a whole. Overall, 70 percent of women in Assam have some degree of anaemia. Forty-three percent of women are mildly anaemic, 26 percent are moderately anaemic, and 1 percent are severely anaemic.[3] There are some differences in the prevalence of anaemia by background characteristics, but anaemia is substantial for women in every population group. Prevalence is slightly higher for rural women than for urban women. The prevalence of anaemia is relatively high for women who have not completed middle school, women not belonging to a scheduled caste, scheduled tribe, or other backward class, women who are employed by someone else, women who are working in a family farm/business, and women from households with a low standard of living. Muslim and Christian women have a much higher prevalence of anaemia than Hindu women.

[3]Rates that are not adjusted for smoking (69.6 percent for any anaemia, 43.3 percent for mild anaemia, 25.4 percent for moderate anaemia, and 0.9 percent for severe anaemia) are almost identical to the corresponding adjusted rates. The small impact of the adjustment factor is to be expected since, in Assam, the proportion of women who smoke is very small (see Table 2.12). The usual adjustment for altitude did not need to be made because none of the PSUs were above 1,000 metres.

The prevalence of anaemia is lower among pregnant women than for other women. Since anaemia is often considered to be particularly problematic for pregnant women, it is noteworthy that these women have slightly lower-than-average levels of anaemia. The provision of iron and folic acid supplements to pregnant women has undoubtedly reduced the overall prevalence of anaemia in pregnant women in Assam (55 percent of pregnant women received IFA tablets or syrup during pregnancy for births in the three years preceding the survey—see Table 8.6).

Table 7.4 Anaemia among women

Percentage of ever-married women classified as having iron-deficiency anaemia by degree of anaemia, according to selected background characteristics, Assam, 1999

Background characteristic	Percentage of women with any anaemia	Percentage of women with: Mild anaemia	Moderate anaemia	Severe anaemia	Number of women
Age					
15–19	67.7	38.7	29.0	0.0	266
20–24	69.5	41.5	25.9	2.2	506
25–29	69.9	44.0	25.5	0.5	559
30–34	69.8	42.8	25.6	1.4	574
35–49	70.1	45.1	24.5	0.5	991
Marital status					
Currently married	69.2	42.9	25.5	0.8	2,676
Not currently married	75.4	47.0	26.4	2.0	220
Residence					
Urban	67.2	49.2	17.1	0.8	247
Rural	69.9	42.6	26.4	0.9	2,649
Education					
Illiterate	72.1	43.1	28.0	1.1	1,575
Literate, < middle school complete	70.2	41.9	27.6	0.7	646
Middle school complete	65.6	46.6	18.4	0.7	407
High school complete and above	60.1	41.8	17.5	0.7	269
Religion					
Hindu	66.7	43.3	22.1	1.3	1,874
Muslim	75.1	42.8	32.0	0.3	928
Christian	76.1	41.4	34.7	0.0	60
Caste/tribe					
Scheduled caste	68.1	43.4	23.3	1.4	303
Scheduled tribe	65.3	41.4	23.4	0.5	599
Other backward class	59.9	42.3	16.7	0.9	336
Other	73.3	44.1	28.3	0.9	1,595
Work status					
Working in family farm/business	75.0	35.2	38.1	1.8	151
Employed by someone else	76.0	47.4	25.3	3.3	301
Self-employed	67.9	46.0	21.7	0.3	145
Not worked in past 12 months	68.6	43.0	25.0	0.6	2,299
Standard of living Index					
Low	73.1	41.4	30.5	1.2	1,234
Medium	66.8	44.4	21.7	0.8	1,252
High	66.4	44.6	21.5	0.4	330
Pregnancy/breastfeeding status					
Pregnant	62.3	24.6	34.2	3.5	217
Breastfeeding (not pregnant)	70.8	45.1	24.8	1.0	685
Not pregnant/not breastfeeding	70.1	44.6	24.9	0.6	1,994

Contd...

Table 7.4 Anaemia among women (contd.)

Percentage of ever-married women classified as having iron-deficiency anaemia by degree of anaemia, according to selected background characteristics, Assam, 1999

Background characteristic	Percentage of women with any anaemia	Percentage of women with: Mild anaemia	Moderate anaemia	Severe anaemia	Number of women
Height					
< 145 cm	75.5	41.2	32.5	1.9	480
≥ 145 cm	68.5	43.6	24.2	0.7	2,413
Body mass index					
< 18.5 kg/m^2	72.3	42.1	28.2	2.0	798
≥ 18.5 kg/m^2	68.9	43.4	25.0	0.5	2,048
Fruit and vegetable consumption[1]					
Fruit and vegetables	71.9	46.6	24.3	1.1	911
Fruit only	60.9	36.8	24.1	0.0	53
Vegetables only	68.3	42.8	24.7	0.8	1,630
Neither	71.5	36.0	34.0	1.5	295
Total	69.7	43.2	25.6	0.9	2,896

Note: The haemoglobin levels are adjusted for smoking when calculating the degree of anaemia. No adjustment for altitude of the enumeration area was made because all of the Primary Sampling Units in Assam are at an altitude below 1,000 metres. Total includes 20 women belonging to other religions and 14, 62, 81, 3, 50, and 7 women with missing information on religion, caste/tribe, the standard of living index, height, body mass index, and fruit and vegetable consumption, respectively, who are not shown separately.
[1]Based on consumption at least weekly. Vegetables include only green, leafy vegetables.

However, pregnant women have a much higher prevalence of moderate to severe anaemia (38 percent) than nonpregnant women (26 percent).

Shorter women and women with a low body mass index have a higher prevalence of anaemia than other women. A woman's diet also affects the likelihood that she suffers from anaemia. Consumption of iron-rich foods can reduce the prevalence or severity of anaemia, and the absorption of iron from the diet can be enhanced (for example, by vitamin C) or inhibited (for example, by tea or coffee) if particular items are consumed around the time that a meal is eaten. In Assam, differentials in anaemia prevalence by fruit and vegetable consumption are not that large. However, women who eat fruits but not vegetables at least weekly have a much lower level of anaemia than other women. However, the number of women who eat fruits but not vegetables is quite small.

7.4 Infant Feeding Practices

Infant feeding practices have significant effects on both mothers and children. Mothers are affected partly through the influence of breastfeeding on the period of postpartum infertility and hence on fertility levels and the length of birth intervals. These effects vary by both the duration and intensity of breastfeeding. Proper infant feeding, starting from the time of birth, is important for the physical and mental development of the child. Breastfeeding improves the nutritional status of young children and reduces morbidity and mortality. Breast milk not only provides important nutrients but also protects the child against infection. The timing and type of supplementary foods introduced in an infant's diet also have significant effects on the child's nutritional status.

The Baby Friendly Hospitals Initiative, launched by the United Nations Children's Fund (UNICEF), recommends initiation of breastfeeding immediately after childbirth. The World Health Organization (WHO) and UNICEF recommend that infants should be given only breast milk for the first six months of their life. Under the Reproductive and Child Health Programme, the Government of India recommends that infants should be exclusively breastfed from birth to age four months (Ministry of Health and Family Welfare, n.d.). According to WHO, most babies do not require any other foods or liquids during this period. By age seven months, adequate and appropriate complementary foods should be added to the infant's diet in order to provide sufficient nutrients for optimal growth. It is recommended that breastfeeding should continue, along with complementary foods, through the second year of life or beyond. It is further recommended that a feeding bottle with a nipple should not be used at any age, for reasons related mainly to sanitation and the prevention of infections.

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

In NFHS-2, data on breastfeeding and complementary feeding were obtained from a series of questions in the Woman's Questionnaire. These questions pertain to births since January 1996, but the tables are restricted to children born in the three years preceding the survey. For any given woman, information was obtained for a maximum of two births (the two most recent births).

Initiation of breastfeeding immediately after childbirth is important because it benefits both the mother and the infant. As soon as the infant starts suckling at the breast, the hormone oxytocin is released, resulting in uterine contractions that facilitate expulsion of the placenta and reduce the risk of postpartum haemorrhage. It is also recommended that the first breast milk should be given to the child rather than squeezed from the breast and discarded, because it contains colostrum, which provides natural immunity to the child.

Table 7.5 shows the percentage of children born during the three years before the survey who started breastfeeding within one hour and one day of birth. It also gives the percentage of children whose mothers squeezed the first milk from the breast before breastfeeding, which is not recommended. Although breastfeeding is nearly universal in Assam, less than half of children are put to the breast immediately after birth. Forty-five percent of children begin breastfeeding within one hour of birth, and 78 percent begin breastfeeding within one day of birth. Almost two out of every three women (64 percent) who gave birth to children during the three years preceding the survey squeezed the first milk from the breast before they began breastfeeding.

Table 7.5 Initiation of breastfeeding

Percentage of children born during the three years preceding the survey who started breastfeeding within one hour and within one day of birth and percentage whose mother squeezed the first milk from her breast before breastfeeding by selected background characteristics, Assam, 1999

Background characteristic	Percentage started breastfeeding within one hour of birth	Percentage started breastfeeding within one day of birth[1]	Percentage whose mother squeezed first milk from breast	Number of children
Residence				
Urban	42.2	71.2	71.5	66
Rural	44.8	78.0	63.6	1,063
Mother's education				
Illiterate	47.8	76.6	62.2	604
Literate, < middle school complete	40.9	77.9	68.4	261
Middle school complete	43.3	77.9	61.2	165
High school complete and above	37.8	81.7	69.3	99
Religion				
Hindu	45.8	83.8	66.6	645
Muslim	43.1	69.6	60.8	448
Caste/tribe				
Scheduled caste	39.5	81.9	70.6	127
Scheduled tribe	48.1	82.1	59.5	215
Other backward class	43.7	88.5	64.8	93
Other	43.5	73.5	64.3	671
Mother's work status				
Working in family farm/business	(42.9)	(62.0)	(58.0)	45
Employed by someone else	56.3	86.3	64.1	115
Self-employed	(27.9)	(68.1)	(72.3)	46
Not worked in past 12 months	44.1	77.7	64.0	923
Standard of living index				
Low	47.4	77.0	64.2	580
Medium	41.6	77.8	64.3	428
High	35.8	73.4	61.6	84
Assistance during delivery				
Health professional[2]	36.8	76.5	64.5	241
Dai (TBA)	45.0	74.9	71.5	361
Other	48.5	80.6	59.4	522
Place of delivery				
Public health facility	29.2	74.2	58.0	132
Private health facility	41.8	74.4	69.7	67
Own home	49.5	80.7	64.2	857
Parents' home	20.4	54.3	75.3	67
Total	44.7	77.6	64.1	1,129

Note: Table includes only the two most recent births during the three years preceding the survey, whether living or dead at the time of interview. Total includes 21 Christian children, 5 children whose mothers belong to 'other' religions, and 10, 22, 36, 5, and 6 children with missing information on religion, caste/tribe, the standard of living index, assistance at delivery, and place of delivery, respectively, who are not shown separately.
TBA: Traditional birth attendant
( ) Based on 25–49 unweighted cases
[1]Includes children who started breastfeeding within one hour of birth
[2]Includes doctor, auxiliary nurse midwife, nurse, midwife, lady health visitor, and other health professionals

Differentials in the early initiation of breastfeeding and in squeezing the first milk from the breast are also shown in Table 7.5. In no group were more than 56 percent of children put to the breast within one hour of birth. Children born to mothers employed by someone else are more likely than children in the other groups to start breastfeeding early in life: more than half (56 percent) start breastfeeding within one hour of birth, and 86 percent start breastfeeding within one day of birth. Urban women, Muslim women, and women living in households with a high standard of living are less likely than other women to start breastfeeding their children early.

The circumstances surrounding delivery of the baby can also have an important effect on the early initiation of breastfeeding. One might expect children whose delivery was assisted by a heath professional to be more likely than other children to start breastfeeding within one hour of birth, but the reverse is the case. Early initiation of breastfeeding (within one hour of birth) is relatively uncommon for births delivered in public health facilities, slightly less common than average for births delivered in private health facilities, and very uncommon for births delivered in the woman's parents' home, but most common for births delivered in the woman's own home.

The custom of squeezing the first milk from the breast before breastfeeding a child is widely practised in Assam. Contrary to recommendations regarding infant feeding, mothers squeeze the first milk from the breast before breastfeeding for 58 percent or more of births in every group shown in Table 7.5. This practice is least common for children who were delivered in a public health facility and most common for children delivered in the mother's parent's home.

Mothers of children born in the three years preceding the survey were asked if the child had been given plain water, other liquids, or solid or mushy (semi-solid) food at any time during the day or night before the interview. Results are shown in Tables 7.6 and 7.7. Children who received nothing but breast milk during that period are defined as being *exclusively breastfed.* The introduction of supplementary foods before four months of age may put infants at risk of malnutrition because other liquids and solid foods are nutritionally inferior to breast milk. Consumption of liquids and solid or mushy foods at an early age also increases children's exposure to pathogens and consequently puts them at a greater risk of getting diarrhoea. However, a recent study based on findings from NFHS-1 (Anandaiah and Choe, 2000) concluded that breastfeeding with supplements is more beneficial than exclusive breastfeeding even for children at very young ages (less than four months). That report suggests that mothers who are not well nourished and who are in poor health themselves may not be able to provide adequate breast milk for their infants.

In Assam, 43 percent of children under four months of age are exclusively breastfed (less than the national level of 55 percent), 22 percent receive breast milk plus water, and 34 percent receive supplements along with breast milk (Table 7.6). The percentage of infants exclusively breastfed drops off after three months to 16 percent at age 4–6 months and 9 percent at age 7–9 months. Very few children are exclusively breastfed after the first year of life. The proportion of children receiving supplements along with breast milk increases steadily with age, peaking at 90 percent for children age 14–15 months, and generally declines thereafter as children are weaned from the breast and their food consumption is no longer supplementing their consumption of breast milk. However, breastfeeding generally continues for a long period. Eighty-seven percent of children are still being breastfed at 20–21 months of age, as are 61 percent of children age 26–

Table 7.6 Breastfeeding status by child's age

Percent distribution of children under age 3 years by breastfeeding status, according to child's age in months, Assam, 1999

Age in months	Breastfeeding status				Total percent	Number of living children
	Not breastfeeding	Exclusively breastfeeding	Breastfeeding and: Receiving plain water only	Breastfeeding and: Receiving supplements		
< 2	(0.0)	(58.5)	(16.0)	(25.5)	100.0	40
2–3	1.4	34.5	25.2	38.9	100.0	80
4–5	0.0	20.2	29.3	50.4	100.0	77
6–7	0.5	6.9	15.0	77.6	100.0	71
8–9	2.2	9.5	11.9	76.5	100.0	52
10–11	(8.1)	(12.3)	(10.9)	(68.7)	100.0	38
12–13	4.1	3.3	3.6	89.1	100.0	69
14–15	3.7	1.5	4.4	90.4	100.0	79
16–17	8.7	0.0	5.0	86.3	100.0	72
18–19	12.6	1.9	6.5	79.1	100.0	59
20–21	13.1	0.0	4.8	82.1	100.0	51
22–23	(21.2)	(3.8)	(3.3)	(71.7)	100.0	36
24–25	39.3	0.0	3.1	57.6	100.0	75
26–27	39.4	0.0	0.0	60.6	100.0	76
28–29	(37.2)	(0.0)	(5.0)	(57.9)	100.0	46
30–31	44.6	0.0	2.4	52.9	100.0	57
32–33	(59.8)	(0.0)	(0.0)	(40.2)	100.0	36
34–35	(40.2)	(0.0)	(3.1)	(56.7)	100.0	37
< 4 months	1.0	42.5	22.2	34.4	100.0	121
4–6 months	0.3	15.7	25.0	59.0	100.0	114
7–9 months	1.3	8.7	12.7	77.2	100.0	86

Note: Table includes only surviving children from among the two most recent births during the three years preceding the survey. Breastfeeding status refers to the day or night before the interview. Children classified as 'breastfeeding and receiving plain water only' receive no supplements.
( ) Based on 25–49 unweighted cases

27 months. For the majority of children in Assam, breastfeeding continues even in the third year of life: 55 percent of children age 30–31 months are still breastfed.

Table 7.7 shows in more detail the types of food consumed by children under age three years the day or night before the interview. Because of the small number of non-breastfeeding children, two-month age categories have been combined into broader age groups for non-breastfeeding children. Powdered milk is rarely given to young children at any age, but other milk (such as cow's milk or buffalo's milk) is given to young children more often. For children under four months of age, a higher proportion receive other milk than any other liquid. Except for children under age 5 months, about one-third or more of all children in each age group were given other types of milk the day or night before the interview. Other liquids, such as juice or tea, are given slightly less often than milk. Among all children, the consumption of green, leafy vegetables increases with age, from less than 1 percent for age groups under 6 months to 68 percent at age 24–35 months. Among all children, the consumption of fruits increases from 2 percent at below age 4 months to 41 percent at age 12–13 months and then declines somewhat at older ages.

From about six months of age, the introduction of complementary food is critical for meeting the protein, energy, and micronutrient needs of children. In Assam 57 percent of breastfeeding children age 6–7 months consume solid or mushy foods. This proportion increases

Table 7.7 Type of food received by children

Percentage of children under age 3 years who received specific types of food the day or night before the interview and percentage using a bottle with a nipple by current breastfeeding status and child's age in months, Assam, 1999

Age in months	Type of food received						Using bottle with a nipple	Number of living children
	Powdered milk	Any other milk	Any other liquid	Green, leafy vegetables	Fruits	Any solid or mushy food[1]		
BREASTFEEDING CHILDREN								
< 2	(0.8)	(18.6)	(12.7)	(0.0)	(3.0)	(9.1)	(6.7)	40
2–3	5.9	20.6	13.8	0.0	2.1	17.4	13.3	79
4–5	5.1	25.4	16.3	0.4	9.6	33.4	10.7	77
6–7	5.7	35.5	32.8	2.0	8.3	56.7	13.8	71
8–9	(6.9)	(33.5)	(24.5)	(21.3)	(14.7)	(62.6)	(16.3)	51
10–11	(8.9)	(30.7)	(28.6)	(21.6)	(10.1)	(54.9)	(12.3)	35
12–13	6.4	35.3	19.9	39.6	40.0	85.2	9.4	66
14–15	3.9	39.6	30.2	43.6	25.3	86.2	6.7	76
16–17	2.9	43.2	34.8	55.0	26.5	87.2	21.2	65
18–23	0.3	37.1	32.5	59.1	28.6	86.3	11.6	124
24–29	3.1	39.8	40.7	63.6	26.0	93.3	11.2	121
30–35	4.4	47.8	30.6	61.9	32.4	92.9	11.8	68
< 4 months	4.2	19.9	13.4	0.0	2.4	14.6	11.1	119
4–5 months	5.1	25.4	16.3	0.4	9.6	33.4	10.7	77
6–9 months	6.2	34.6	29.4	10.0	11.0	59.2	14.8	122
NON-BREASTFEEDING CHILDREN								
< 24	(13.0)	(53.3)	(28.7)	(59.2)	(34.6)	(90.5)	(21.9)	39
24–29	5.3	46.9	44.9	73.7	32.5	96.8	11.0	77
30–35	4.8	48.9	36.2	73.9	38.2	95.0	6.8	62
ALL CHILDREN								
< 2	(0.8)	(18.6)	(12.7)	(0.0)	(3.0)	(9.1)	(6.7)	40
2–3	5.8	20.3	13.6	0.0	2.1	18.6	13.1	80
4–5	5.1	25.4	16.3	0.4	9.6	33.4	10.7	77
6–7	6.1	35.3	32.7	1.9	8.2	56.5	14.2	71
8–9	6.8	32.7	24.0	23.1	16.6	63.4	15.9	52
10–11	(10.2)	(32.1)	(26.3)	(19.8)	(10.2)	(55.5)	(13.3)	38
12–13	7.8	34.5	19.0	42.0	40.8	85.8	10.7	69
14–15	3.8	40.0	31.0	45.7	26.6	86.8	8.4	79
16–17	3.2	46.0	36.6	55.1	24.2	86.7	22.6	72
18–23	2.0	40.4	32.0	59.1	30.4	87.6	11.6	146
24–29	4.0	42.6	42.3	67.5	28.5	94.6	11.1	197
30–35	4.6	48.3	33.3	67.6	35.2	93.9	9.4	130
< 4 months	4.2	19.8	13.3	0.0	2.4	15.4	11.0	121
4–5 months	5.1	25.4	16.3	0.4	9.6	33.4	10.7	77
6–9 months	6.4	34.2	29.0	10.8	11.8	59.4	14.9	123

Note: Table includes only surviving children from among the two most recent births during the three years preceding the survey.
( ) Based on 25–49 unweighted cases
[1]Includes green, leafy vegetables and fruits

to 85 percent of breastfeeding children at age 12–13 months and then further rises to 93 percent for children at age 24–35 months.

Bottle feeding has a direct effect on the mother's exposure to the risk of pregnancy because the period of amenorrhoea may be shortened when breastfeeding is reduced or replaced by bottle feeding. Because it is often difficult to sterilize the nipple properly, the use of bottles with nipples also exposes children to an increased risk of getting diarrhoea and other diseases. For children who are being breastfed, a significant proportion were bottle fed the day or night before the interview, particularly among children age 2–11 months (Table 7.7). The use of a

bottle with a nipple is most common among breastfeeding children age 16–17 months (21 percent).

Table 7.8 shows several statistics that describe the duration of breastfeeding. Estimates of both means and medians are based on the current proportions of children breastfeeding in each age group because information on current status is usually more accurate than information based on mother's recall. The median length of breastfeeding in Assam is 30 months. Supplementation begins relatively early, however. The median length of exclusive breastfeeding is only 1.2 months, and the median length of exclusive breastfeeding or breastfeeding with water is only 3.2 months.

The mean durations of any breastfeeding, exclusive breastfeeding, and exclusive breastfeeding or breastfeeding with water only are 27.7 months, 3.3 months, and 6.0 months, respectively. The mean duration of any breastfeeding is about two months shorter than the median duration for any breastfeeding, but this difference is reversed in the cases of exclusive breastfeeding and exclusive breastfeeding plus water only.

An alternative measure of the duration of breastfeeding is the prevalence-incidence mean, which is calculated as the 'prevalence' of breastfeeding divided by its 'incidence'. In this case, prevalence is defined as the number of children whose mothers were breastfeeding at the time of the survey, and incidence is defined as the average number of births per month (averaged over a 36–month period to overcome problems of seasonality of births and possible reference-period errors). For each measure of breastfeeding, the prevalence-incidence mean is about the same as the mean calculated in the conventional manner.

Table 7.8 Median duration of breastfeeding

Median duration of breastfeeding among children under age 3 years by sex of child and residence, and mean duration of breastfeeding, Assam, 1999

Background characteristic	Median duration (months)[1]			Number of children
	Any breastfeeding	Exclusive breastfeeding	Exclusive breastfeeding or breastfeeding plus water only	
Sex of child				
Male	≥ 36.0	1.4	3.4	610
Female	26.0	1.1	2.9	518
Residence				
Urban	(29.7)	(1.7)	(2.4)	66
Rural	29.8	1.2	3.3	1,063
Median duration	29.8	1.2	3.2	1,129
Mean duration (months)[1]	27.7	3.3	6.0	1,129
Prevalence/incidence mean	27.5	2.7	5.7	1,129

Note: Table includes only the two most recent births during the three years preceding the survey. The median duration of any breastfeeding is shown as ≥ 36.0 months for males because the proportion of breastfeeding males does not drop below 50 percent in any age group for children under 36 months of age.
( ) Based on 25–49 unweighted cases
[1]Based on current status

The median duration of breastfeeding is considerably longer for boys than for girls. This pattern is sometimes observed in populations where son preference is strong because parents may stop breastfeeding a girl at a younger age to increase their chances of having another child earlier (with the hope that the next child will be a boy). In Assam, there is not much difference in the median duration of exclusive breastfeeding or breastfeeding plus water by sex of the child. The median length of breastfeeding is almost 30 months in both urban areas and rural areas. These differentials must be interpreted cautiously, because numbers of children at durations around 30 months are rather small, so that sampling errors are fairly large.

7.5 Nutritional Status of Children

Nutritional status is a major determinant of the health and well-being of children. Inadequate or unbalanced diets and chronic illness are associated with poor nutrition of children. To assess their nutritional status, measurements of weight and height/length were obtained for children born in the three years preceding the survey. Children were weighed and measured with the same types of scales and measuring boards used for women. Children under two years of age were measured lying down and older children were measured standing up. Data on weight and height/length were used to calculate the following three summary indices of nutritional status:

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

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

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

Each of these indices provides somewhat different information about the nutritional status of children. Weight-for-age is a composite measure that takes into account both chronic and acute undernutrition. Children who are more than two standard deviations below the reference median on this index are considered to be *underweight.* The height-for-age index measures linear growth retardation. Children who are more than two standard deviations below the median of the reference population in terms of height-for-age are considered short for their age or *stunted.* The percentage in this category indicates the prevalence of chronic undernutrition, which often results from failure to receive adequate nutrition over a long period of time or from chronic or recurrent diarrhoea. Height-for-age, therefore, does not vary appreciably by the season in which data are collected.

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

The validity of these indices is determined by many factors, including the coverage of the population of children and the accuracy of the anthropometric measurements. The survey was not able to measure the height and weight of all eligible children, usually because the child was not at home at the time of the health investigator's visit or because the mother refused to allow the child to be weighed and measured. In Assam, NFHS-2 did not obtain either height or weight or both for 17 percent of children under age 3 (see Table B.3 in Appendix B), a higher nonresponse rate than the national rate of 14 percent. Also excluded from the analysis are children whose month and year of birth were not known and those with grossly improbable height or weight measurements. In addition, two of the three indices (weight-for-age and height-for-age) are sensitive to misreporting of children's ages, including heaping on preferred digits.

Table 7.9 shows the percentage of children classified as undernourished by selected demographic characteristics. Thirty-six percent of children under three years of age are underweight and 50 percent are stunted. Similar estimates at the national level are 47 and 46 percent, respectively. The proportion of children who are severely undernourished is also very high—13 percent according to weight-for-age and 34 percent according to height-for-age. In addition, wasting is quite evident in Assam, affecting 13 percent of children under three years of age, somewhat lower than the national estimate of 16 percent. The proportion of children under three years of age who are underweight decreased from 49 percent in NFHS-1 to 36 percent in NFHS-2, and the proportion severely underweight decreased from 18 percent to 13 percent. The prevalence of stunting is the same in both surveys, at 50 percent, but the prevalence of severe stunting increased from 24 percent in NFHS-1 to 34 percent in NFHS-2. The prevalence of wasting was 11 percent in NFHS-1 and 13 percent in NFHS-2, and the prevalence of severe wasting was 2 percent in NFHS-1 and 3 percent in NFHS-2. Because of possible differences in the extent of misreporting of children's ages in NFHS-1 and NFHS-2 in Assam, the estimated trends in wasting, which do not depend on the accuracy of age reporting, may be more accurate than the estimated trends in underweight and stunting.

The proportion of children who are undernourished increases steadily with child's age through age 12–23 months, where it peaks at 47 percent for underweight and 63 percent for stunting. Even during the first six months of life, when most babies are breastfed, 14–25 percent of children are undernourished, according to the three nutritional indices. It is notable that at age 24–35 months, when many children have been weaned from breast milk, more than one-third are severely stunted and more than one-seventh are severely underweight.

Overall, girls are slightly more likely than boys to be underweight, but boys are slightly more likely than girls to be stunted or wasted. There is no consistent pattern in the prevalence of underweight, stunting, and wasting by birth order, but young children in families with six or more children are nutritionally the most disadvantaged, perhaps because children of very high birth order are more likely than other children to come from socioeconomically disadvantaged

Table 7.9 Nutritional status of children by demographic characteristics

Percentage of children under age 3 years classified as undernourished on three anthropometric indices of nutritional status, according to selected demographic characteristics, Assam, 1999

Demographic characteristic	Weight-for-age		Height-for-age		Weight-for-height		Number of children
	Percentage below –3 SD	Percentage below –2 SD[1]	Percentage below –3 SD	Percentage below –2 SD[1]	Percentage below –3 SD	Percentage below –2 SD[1]	
Age of child							
< 6 months	2.1	18.3	10.7	25.1	2.4	14.1	111
6–11 months	11.9	30.7	22.7	35.8	5.3	14.6	97
12–23 months	18.0	47.2	44.7	63.3	4.7	14.4	216
24–35 months	14.9	36.4	39.1	56.1	1.5	11.2	220
Sex of child							
Male	12.0	35.2	32.3	50.5	3.1	14.5	352
Female	14.8	37.1	35.3	49.7	3.6	11.8	293
Birth order							
1	11.3	34.2	28.6	45.4	5.7	16.3	178
2–3	13.4	37.5	36.3	51.6	0.8	12.2	276
4–5	12.8	31.8	32.8	48.8	3.7	12.3	120
6+	18.4	42.4	37.7	59.0	6.4	11.3	70
Previous birth interval[2]							
First birth	11.3	34.2	28.6	45.4	5.7	16.3	178
< 24 months	9.8	22.9	38.1	50.0	4.1	8.9	83
24–47 months	16.6	41.2	36.4	53.3	2.5	13.7	266
48+ months	11.1	36.5	32.0	50.4	1.0	10.8	117
Total	13.3	36.0	33.7	50.2	3.3	13.3	644

Note: Each index is expressed in standard deviation units (SD) from the median of the International Reference Population.
[1]Includes children who are below –3 SD from the International Reference Population median
[2]First-born twins (triplets, etc.) are counted as first births because they do not have a previous birth interval.

households. Surprisingly, children born after a short birth interval (less than 24 months) are not more likely than other children to be undernourished.

Table 7.10 shows the nutritional status of children by selected background characteristics. Undernutrition is substantially higher in rural areas than in urban areas. Even in urban areas, however, 27 percent of children are underweight and 37 percent are stunted. Children whose mothers are illiterate have much higher levels of undernutrition than children whose mothers are literate (see Figure 7.2). Muslim children are considerably more likely than Hindu children to be underweight, stunted, and wasted. Children who do not belong to a scheduled caste, scheduled tribe, or other backward class have higher levels of undernutrition than scheduled-caste children, scheduled-tribe children, and children from other backward classes. Undernutrition varies irregularly by mother's work status.

Child's nutritional status is positively related to mother's nutritional status. Undernutrition is more common among children of mothers whose height is less than 145 centimetres or whose body mass index is below 18.5 than among other children. All three measures of undernutrition are strongly related to household standard of living. Children from households with a low standard of living are more likely to be underweight, stunted, and wasted than children from households with a high standard of living.

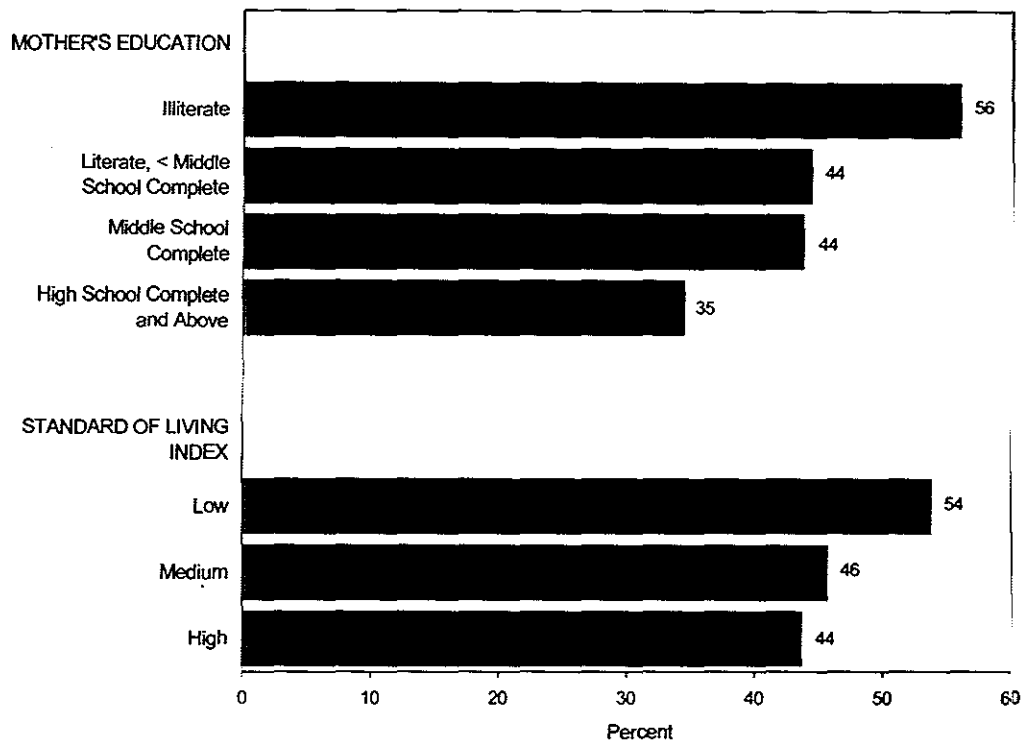
Table 7.10 Nutritional status of children by background characteristics

Percentage of children under age 3 years classified as undernourished on three anthropometric indices of nutritional status, according to selected background characteristics, Assam, 1999

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	6.5	27.3	20.2	37.1	1.6	10.4	37
Rural	13.7	36.6	34.5	50.9	3.4	13.4	607
Mother's education							
Illiterate	16.4	41.7	38.3	56.0	3.4	15.0	365
Literate, < middle school complete	8.4	27.6	29.6	44.4	5.2	11.0	139
Middle school complete	10.4	29.9	24.9	43.8	0.6	10.1	91
High school complete and above	8.9	29.3	27.4	34.5	2.4	12.3	49
Religion							
Hindu	7.1	27.2	26.2	45.0	1.9	9.6	355
Muslim	21.7	49.0	42.5	56.4	5.5	18.7	265
Caste/tribe							
Scheduled caste	5.1	32.4	29.7	45.1	2.0	8.4	77
Scheduled tribe	7.7	18.8	27.2	42.6	1.8	8.2	132
Other backward class	(11.4)	(20.6)	(24.0)	(31.7)	(2.9)	(15.1)	40
Other	15.8	43.8	37.6	55.6	4.0	15.1	383
Mother's work status							
Working in family farm/business	(10.3)	(45.2)	(23.1)	(40.6)	(4.0)	(20.8)	29
Employed by someone else	8.9	36.5	32.7	59.9	1.9	20.4	59
Self-employed	(20.0)	(33.6)	(40.0)	(51.8)	(0.0)	(9.7)	30
Not worked in past 12 months	13.5	35.6	34.0	49.5	3.6	12.2	526
Mother's height							
< 145 cm	18.5	38.6	40.5	54.3	5.2	18.5	108
≥ 145 cm	12.2	35.5	32.3	49.3	2.9	12.2	536
Mother's body mass index							
< 18.5 kg/m^2	17.5	48.2	34.9	52.2	3.4	17.0	220
≥ 18.5 kg/m^2	11.1	29.8	33.0	49.1	3.3	11.3	425
Standard of living index							
Low	15.8	39.6	36.0	53.8	4.8	14.7	337
Medium	10.0	32.5	29.9	45.7	1.6	11.4	239
High	8.7	24.1	35.9	43.7	2.7	11.2	44
Total	13.3	36.0	33.7	50.2	3.3	13.3	644

Note: Each index is expressed in standard deviation units (SD) from the median of the International Reference Population. Total includes 14 Christian children, 3 children whose mothers belong to 'other' religions, and 6, 12, and 25 children with missing information on religion, caste/tribe, and the standard of living index, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases
[1]Includes children who are below –3 SD from the International Reference Population median

Figure 7.2
Stunting Among Children Under Three Years by Mother's Education and SLI



7.6 Anaemia Among Children

Anaemia is a serious concern for young children because it can result in impaired cognitive performance, behavioural and motor development, coordination, language development, and scholastic achievement, as well as increased morbidity from infectious diseases (Seshadri, 1997). One of the most vulnerable groups is children age 6–24 months (Stoltzfus and Dreyfuss, 1998).

In Assam, haemoglobin levels were tested for 71 percent of children age 6–35 months (see Table B.3 in Appendix B). Table 7.11 and Figure 7.3 show anaemia levels for children age 6–35 months. Overall, 63 percent of these children have some level of anaemia, including 31 percent who are mildly anaemic (10.0–10.9 g/dl) and 32 percent who are moderately anaemic (7.0–9.9 g/dl).

Several groups of children have particularly high levels of anaemia. These include children age 6–11 months, female children, children of birth order 6 and above, children from rural areas, Muslim children, children of illiterate mothers, children who do not belong to a scheduled caste, scheduled tribe, or other backward class, children of mothers who are employed by someone else, and children from households with a low standard of living. The prevalence of anaemia is much lower among children whose mothers have completed at least middle school than among other children. As expected, there is a strong positive relationship between the anaemia status of mothers and prevalence of anaemia among children. Children of moderately anaemic mothers have the highest percentage with any anemia of any group shown in the table.

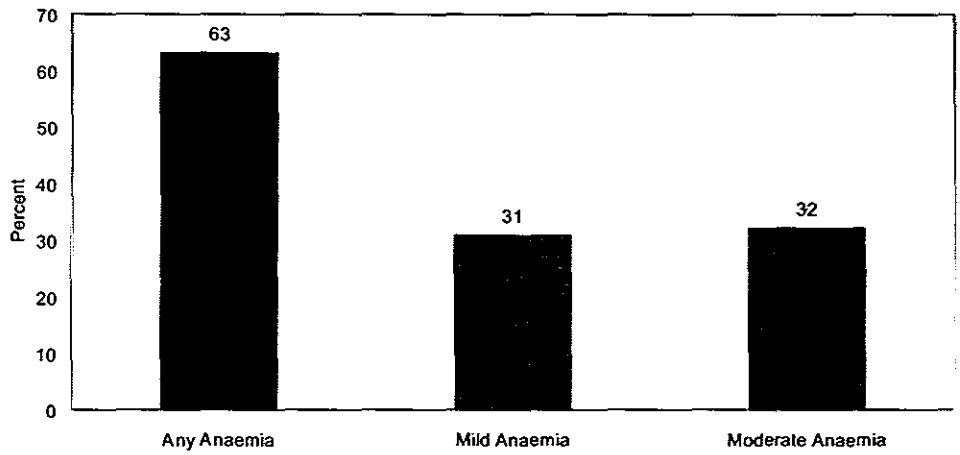
Table 7.11 Anaemia among children

Percentage of children age 6–35 months classified as having iron-deficiency anaemia by selected background characteristics, Assam, 1999

Background characteristic	Percentage of children with any anaemia	Percentage of children with: Mild anaemia	Moderate anaemia	Number of children
Age of child				
6–11 months	69.6	35.4	34.1	117
12–23 months	59.1	29.2	29.9	247
24–35 months	64.2	30.7	33.6	233
Sex of child				
Male	61.1	31.6	29.4	329
Female	65.8	30.2	35.6	268
Birth order				
1	62.9	32.3	30.6	166
2–3	62.0	30.6	31.4	258
4–5	62.9	35.9	27.0	108
6+	69.0	21.0	48.0	65
Residence				
Urban	52.3	22.9	29.3	30
Rural	63.8	31.4	32.3	567
Mother's education				
Illiterate	68.7	32.7	35.9	331
Literate, < middle school complete	61.8	29.0	32.8	139
Middle school complete	49.2	27.9	21.3	79
High school complete and above	52.5	30.1	22.3	48
Religion				
Hindu	58.0	30.5	27.6	327
Muslim	69.6	32.6	37.0	252
Caste/tribe				
Scheduled caste	55.3	30.6	24.8	73
Scheduled tribe	59.1	33.0	26.1	117
Other backward class	(47.9)	(30.5)	(17.4)	46
Other	67.9	31.0	37.0	353
Mother's work status				
Employed by someone else	72.1	33.0	39.1	58
Not worked in past 12 months	62.3	32.2	30.1	487
Standard of living index				
Low	69.4	32.1	37.3	304
Medium	57.3	29.9	27.4	235
High	56.2	30.8	25.4	42
Mother's anaemia status				
Not anaemic	44.6	27.0	17.6	193
Mildly anaemic	64.1	30.8	33.2	251
Moderately anaemic	84.7	36.6	48.2	144
Total	63.2	31.0	32.2	598

Note: Haemoglobin levels are not adjusted for altitude when calculating the degree of anaemia among children because all of the Primary Sampling Units in Assam are at an altitude below 1,000 metres. Total includes 10 Christian children, 3 children whose mothers belong to 'other' religions, 27 children whose mothers are working in a family farm/business, 26 children whose mothers are self-employed, 8 children whose mothers are severely anaemic, and 5, 9, 17, and 2 children with missing information on religion, caste/tribe, the standard of living index, and mother's anaemia status, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

Figure 7.3
Anaemia Among Children



NFHS-2, Assam, 1999

Overall, anaemia is very widespread in Assam. A majority of children in almost every group shown in the table are anaemic.

7.7 Iodization of Salt

Iodine is an important micronutrient. A lack of iodine in the diet can lead to Iodine Deficiency Disorders (IDD), which, according to the World Health Organization, can cause miscarriages, brain disorders, cretinism, and retarded psychomotor development. Iodine deficiency is the single most important and preventable cause of mental retardation worldwide.

It has been estimated that 200 million people in India are exposed to the risk of iodine deficiency, and 70 million suffer from goitre and other IDDs (IDD & Nutrition Cell, 1998). In addition, about one-fifth of pregnant women are at considerable risk of giving birth to children who will not reach their optimum physical and mental potential because of maternal iodine deficiency (Vir, 1995).

Iodine deficiency can be avoided by using salt that has been fortified with iodine. In 1983–84, the Government of India adopted a policy to achieve universal iodization of edible salt by 1992. In 1988, the Prevention of Food Adulteration Act was amended to fix the minimum iodine content of salt at 30 parts per million (ppm) at the manufacturing level and 15 ppm at the consumer level (Ministry of Health and Family Welfare, 1994). The Government of India advised all states and union territories to issue notifications banning the sale of edible salt that is not iodized. However, the ban on non-iodized salt was lifted in September, 2000.

NFHS-2, with its representative sample of households throughout Assam, is an ideal vehicle for measuring the degree of salt iodization in the state. Iodine levels in salt can be measured in the laboratory using a standard titration test or in the field using a rapid-test kit. In NFHS-2, interviewers measured the iodine content of cooking salt in each interviewed household using a rapid-test kit. The test kit consists of ampoules of a stabilized starch solution and a weak acid-based solution. The interviewer squeezes one drop of the starch solution on a sample of

Table 7.12 Iodization of salt

Percent distribution of households by degree of iodization of salt, according to selected background characteristics, Assam, 1999

Background characteristic	Not iodized	7 ppm	15 ppm	30 ppm	Missing	Total percent	Number of households
Type of place of residence							
Large city	0.0	1.9	10.3	87.3	0.5	100.0	79
Small city	1.9	17.2	20.0	60.9	0.0	100.0	36
Town	0.5	6.5	18.4	74.5	0.0	100.0	185
Rural area	1.9	19.5	34.5	43.8	0.4	100.0	2,821
Religion of household head							
Hindu	1.9	16.8	31.0	50.0	0.3	100.0	2,087
Muslim	1.7	21.2	36.0	40.7	0.4	100.0	917
Christian	0.0	14.9	41.0	44.1	0.0	100.0	75
Caste/tribe of household head							
Scheduled caste	3.3	20.9	35.7	40.1	0.0	100.0	308
Scheduled tribe	1.6	21.9	37.4	38.7	0.4	100.0	664
Other backward class	1.6	8.0	24.6	65.5	0.3	100.0	389
Other	1.2	18.2	32.4	47.8	0.4	100.0	1,686
Standard of living index							
Low	2.5	24.4	39.3	33.6	0.2	100.0	1,424
Medium	1.3	15.7	31.0	51.5	0.4	100.0	1,265
High	0.6	1.7	13.4	84.3	0.1	100.0	337
Total	1.8	18.2	32.7	46.9	0.3	100.0	3,121

Note: Total includes 20 households with a household head belonging to other religions, and 22, 74, and 94 households with missing information on religion, caste/tribe, and the standard of living index, respectively, which are not shown separately.
ppm: Parts per million

cooking salt obtained from the household respondent. If the colour changes (from light blue through dark violet), the interviewer matches the colour of the salt as closely as possible to a colour chart on the test kit and records the iodine level as 7, 15, or 30 ppm. If the initial test is negative (no change in colour), the interviewer is required to conduct a second confirmatory test on a new salt sample, using the acid-based solution in addition to the starch solution. This test is necessary because the starch solution will not show any colour change even on iodized salt if the salt is alkaline or is mixed with alkaline free-flow agents. If the colour of the salt does not change even after the confirmatory test, the salt is not iodized. Because of uncertainties and subjective judgement in the matching process, the rapid test should not be seen as giving an exact quantitative estimate of salt iodization, but it does provide useful information on whether or not salt is iodized, as well as the extent of iodization. A recent multicentric study in eight centres in India concluded that the rapid-test kit can be used for semi-quantitative estimation of the iodine content of salt to monitor the quality of salt being used in a community (Kapil et al., 1999).

Table 7.12 shows the extent of salt iodization at the household level. Overall, 80 percent of households use cooking salt that is iodized at the recommended level of 15 ppm or more. Two percent of households use salt that is not iodized at all, and 18 percent use salt that is inadequately iodized (less than 15 ppm). Differentials in salt iodization by background characteristics are pronounced. There are substantial differences in salt iodization between large cities (98 percent), small cities (81 percent), towns (93 percent), and rural areas (78 percent). Households in which the head is Muslim are somewhat less likely to use iodized salt than households with Hindu or Christian heads. The use of iodized salt is higher among other

backward classes than among other caste/tribe groups. The widest differentials in the table are observed for the standard of living index. Ninety-eight percent of households with a high standard of living use adequately iodized salt, compared with 73 percent of households with a low standard of living.

CHAPTER 8

MATERNAL AND REPRODUCTIVE HEALTH

Promotion of maternal and child health has been one of the most important objectives of the Family Welfare Programme in India. The Government of India took steps to strengthen maternal and child health services as early as the First and Second Five-Year Plans (1951–56 and 1956–61). As part of the Minimum Needs Programme initiated during the Fifth Five-Year Plan (1974–79), maternal health, child health, and nutrition services were integrated with family planning services. The primary aim at that time was to provide at least a minimum level of public health services to pregnant women, lactating mothers, and preschool children (Kanitkar, 1979).

In 1992–93, the Child Survival and Safe Motherhood Programme continued the process of integration by bringing together several key child survival interventions with safe motherhood and family planning activities (Ministry of Health and Family Welfare, 1992). In 1996, safe motherhood and child health services were incorporated into the Reproductive and Child Health Programme. This new programme seeks to integrate maternal health, child health, and fertility regulation interventions with reproductive health programmes for both women and men. With regard to maternal and reproductive health (Ministry of Health and Family Welfare, 1997; 1998b), the important elements of the programme include:

- Provision of antenatal care, including at least three antenatal care visits, iron prophylaxis for pregnant and lactating women, two doses of tetanus toxoid vaccine, detection and treatment of anaemia in mothers, and management and referral of high-risk pregnancies
- Encouragement of institutional deliveries or home deliveries assisted by trained health personnel
- Provision of postnatal care, including at least three postnatal visits
- Identification and management of reproductive tract and sexually transmitted infections

In rural areas, the government delivers reproductive and other health services through its network of Primary Health Centres (PHCs), sub-centres, and other health facilities. In addition, pregnant women and children can obtain services from private maternity homes, hospitals, private practitioners, and in some cases, nongovernmental organizations (NGOs). In urban areas, reproductive health services are available mainly through government or municipal hospitals, urban health posts, hospitals and nursing homes operated by NGOs, and private nursing and maternity homes.

In rural areas, a female paramedical worker, called an auxiliary nurse midwife (ANM), is posted at a sub-centre to provide basic maternal health, child health, and family welfare services to women and children either in their homes or in the health clinic. Her work is overseen by a lady health visitor (LHV) posted at the PHC. With regard to safe motherhood, the ANM is responsible for registering pregnant women, motivating them to obtain antenatal and postnatal care, assessing their health throughout pregnancy and in the postpartum period, and referring women with high-risk pregnancies. The ANM is assisted by a male health worker whose duties

include motivating men to participate in the family welfare programme and educating men about reproductive tract and sexually transmitted infections. The ANM and LHV also assist the medical officer at the PHC where health services, including antenatal and postnatal care, are provided (Ministry of Health and Family Welfare, 1997; 1998b).

The National Population Policy adopted by the Government of India in 2000 (Ministry of Health and Family Welfare, 2000) reiterates the government's commitment to safe motherhood programmes within the wider context of reproductive health. Among the national socio-demographic goals for 2010 specified by the policy, several goals pertain to safe motherhood, namely that 80 percent of all deliveries should take place in institutions by 2010, 100 percent of deliveries should be attended by trained personnel, and the maternal mortality ratio should be reduced to a level below 100 per 100,000 live births. Empowering women for improved health and nutrition is 1 of the 12 strategic themes identified in the policy to be pursued in stand-alone or intersectoral programmes.

An important objective of NFHS-2 is to provide information on the use of safe motherhood services provided by the public and private sectors. In addition, the survey included questions on the prevalence and treatment of reproductive health problems. The Woman's Questionnaire included relevant maternal and safe motherhood information for women age 15–49 who gave birth since 1 January 1996. The topics covered include pregnancy complications, utilization and specific components of antenatal and postnatal care, place of and assistance during delivery, delivery characteristics, and postpartum complications. Although NFHS-2 obtained information for the two most recent live births since 1 January 1996, the information presented in this chapter pertains only to the subset of those births that took place during the three years preceding the woman's interview. With regard to reproductive health, all women were asked about their experience of specific symptoms of reproductive health problems, and if problems were reported, whether and where they received treatment.

8.1 Antenatal Problems and Care

Antenatal care (ANC) refers to pregnancy-related health care provided by a doctor or a health worker in a medical facility or at home. The Safe Motherhood Initiative proclaims that all pregnant women must receive basic, professional antenatal care (Harrison, 1990). Ideally, antenatal care should monitor a pregnancy for signs of complications, detect and treat pre-existing and concurrent problems of pregnancy, and provide advice and counselling on preventive care, diet during pregnancy, delivery care, postnatal care, and related issues. The Reproductive and Child Health Programme recommends that as part of antenatal care, women receive two doses of tetanus toxoid vaccine, adequate amounts of iron and folic acid tablets or syrup to prevent and treat anaemia, and at least three antenatal check-ups that include blood pressure checks and other procedures to detect pregnancy complications (Ministry of Health and Family Welfare, 1997; 1998b).

NFHS-2 collected information from women on specific problems they may have had during their pregnancies and whether they received any antenatal check-ups. Women who did not receive antenatal check-ups were asked why they did not. Women who received antenatal check-ups were asked about the care provider, the timing of the first antenatal check-up, the total number of check-ups, the procedures conducted during the check-ups, and the advice given. In addition, the survey asked women whether they received tetanus toxoid injections and iron and

folic acid tablets or syrup during the pregnancy. Results from each of these questions are discussed in this chapter.

Problems During Pregnancy

For each of the two most recent births in the three years preceding the survey, the mother was asked if at any time during the pregnancy she experienced any of the following pregnancy-related problems: night blindness, blurred vision, convulsions (not from fever), swelling (of the legs, body, or face), excessive fatigue, anaemia, or vaginal bleeding. Night blindness, or difficulty seeing at dusk, is the result of chronic vitamin A deficiency and is often seen in pregnant women in areas where vitamin A deficiency is endemic. Convulsions accompanied by signs of hypertension can be symptomatic of eclampsia, a potentially fatal condition. The potential health risk posed by vaginal bleeding during pregnancy varies by when in the pregnancy the bleeding takes place. Although documenting the prevalence of the symptoms of pregnancy complications is vital for planning services to reduce maternal morbidity and mortality, the information presented here is based on women's self reports, rather than medical diagnoses, and should be interpreted with care.

As shown in Table 8.1 and Figure 8.1, the problems most commonly reported are excessive fatigue (46 percent), swelling of the legs, body, or face (27 percent), anaemia (21 percent), and blurred vision (19 percent). Fourteen percent reported convulsions not from fever, 7 percent reported night blindness, and 5 percent reported vaginal bleeding. Although the types of health problems are similar in urban and rural areas, a higher proportion of rural than urban women reported having every type of problem except swelling of the legs, body, or face.

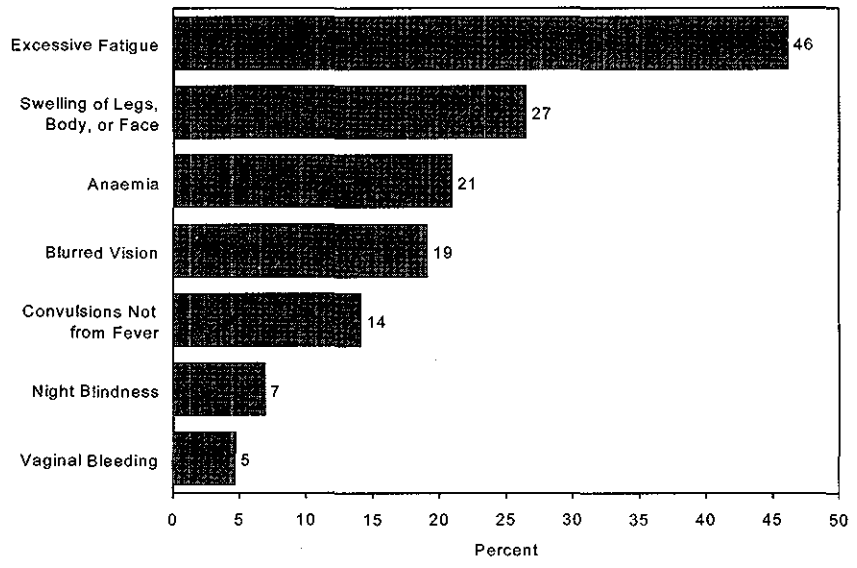
Table 8.1 Health problems during pregnancy

Among births during the three years preceding the survey, percentage of mothers experiencing specific health problems during pregnancy by residence, Assam, 1999

Problem during pregnancy	Urban	Rural	Total
Night blindness	1.3	7.2	6.9
Blurred vision	12.0	19.5	19.1
Convulsions not from fever	9.5	14.3	14.1
Swelling of the legs, body, or face	27.0	26.5	26.5
Excessive fatigue	32.8	47.0	46.2
Anaemia	17.5	21.1	20.9
Vaginal bleeding	3.7	4.8	4.7
Number of births	66	1,063	1,129

Note: Table includes only the two most recent births during the three years preceding the survey.

Figure 8.1
Problems During Pregnancy



Note: Based on births in the three years preceding the survey (1996–98)

NFHS-2, Assam, 1999

Antenatal Check-Ups

A pregnant woman can have an antenatal check-up by visiting a doctor or another health professional in a medical facility, receiving a home visit from a health worker, or both. NFHS-2 asked women who had a birth during the three years preceding the survey whether any health worker had visited them at home to provide antenatal check-ups. The survey also asked whether women had gone for antenatal check-ups outside the home, and if they had, what type of service provider gave them the check-ups.

Table 8.2 and Figure 8.2 show the percent distribution of births in the three years preceding the survey by the source of antenatal check-ups received during pregnancy. Women who received antenatal check-ups both at home and outside the home are categorized as having received care outside the home. If a woman received check-ups from more than one type of health provider, only the provider with the highest qualification is considered. NFHS-2 results for Assam show that mothers received antenatal check-ups for only 60 percent of births during the three years preceding the survey (compared with 51 percent in NFHS-1). Fifty-two percent received check-ups from doctors and 7 percent from other health professionals outside the home. Two percent received check-ups only at home from a health worker. Antenatal check-ups are more common for births to younger women than to older women, and they are particularly common for first births (76 percent). The proportion of births for which the mother received antenatal check-ups was 88 percent in urban areas, compared with 58 percent in rural areas. Almost all mothers who completed at least a high school education (93 percent) received antenatal check-ups, but illiterate mothers received antenatal check-ups for only 47 percent of their births. As expected, more-educated women are more likely than less-educated women to receive antenatal check-ups from doctors for their births. The utilization of antenatal check-up services is much higher for births to Hindu mothers (67 percent) than for births to Muslim

Table 8.2 Antenatal check-ups

Percent distribution of births during the three years preceding the survey by source of antenatal check-up, according to selected background characteristics, Assam, 1999

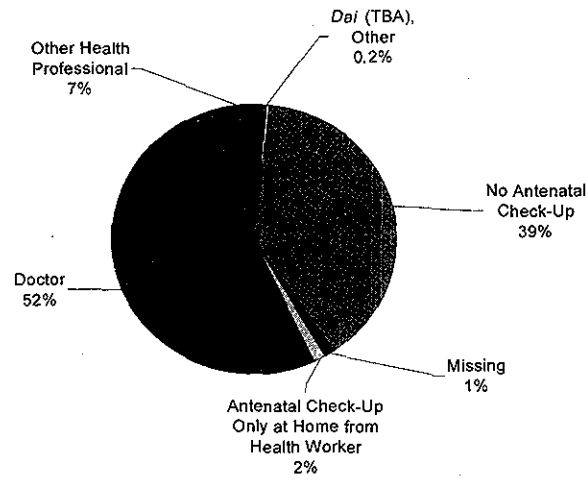
Background characteristic	Antenatal check-up only at home from health worker	Antenatal check-up outside home[1] from:			No antenatal check-up	Missing	Total percent	Number of births
		Doctor	Other health professional	Traditional birth attendant, other				
Mother's age at birth								
< 20	0.4	54.7	6.6	0.4	36.9	1.0	100.0	274
20–34	1.9	51.4	7.2	0.2	38.3	1.0	100.0	805
35–49	(2.3)	(35.7)	(2.4)	(0.0)	(59.6)	(0.0)	100.0	50
Birth order								
1	0.7	67.5	6.6	0.7	23.4	1.1	100.0	350
2–3	1.5	50.5	7.5	0.0	39.3	1.2	100.0	468
4–5	2.4	37.8	6.9	0.0	52.2	0.6	100.0	192
6+	2.9	30.7	4.9	0.0	61.2	0.3	100.0	119
Residence								
Urban	0.0	86.2	2.2	0.0	9.5	2.0	100.0	66
Rural	1.6	49.4	7.1	0.2	40.7	0.9	100.0	1,063
Mother's education								
Illiterate	1.7	36.8	8.2	0.0	52.2	1.1	100.0	604
Literate, < middle school complete	0.9	55.7	7.8	0.4	35.0	0.1	100.0	261
Middle school complete	2.1	76.1	3.8	0.0	17.3	0.8	100.0	165
High school complete and above	1.2	89.6	1.2	1.3	4.1	2.6	100.0	99
Religion								
Hindu	0.9	60.7	5.5	0.2	31.7	1.0	100.0	645
Muslim	2.3	37.4	9.1	0.3	49.9	1.0	100.0	448
Caste/tribe								
Scheduled caste	3.7	63.8	5.6	0.0	24.5	2.4	100.0	127
Scheduled tribe	0.6	49.0	3.1	0.0	47.4	0.0	100.0	215
Other backward class	1.2	75.3	1.3	0.0	22.2	0.0	100.0	93
Other	1.6	47.4	8.6	0.4	40.9	1.2	100.0	671
Standard of living index								
Low	2.0	38.9	7.8	0.2	49.9	1.2	100.0	580
Medium	1.1	62.4	6.6	0.0	29.0	0.9	100.0	428
High	0.0	85.2	2.9	1.5	10.0	0.4	100.0	84
Total	1.5	51.5	6.8	0.2	38.9	1.0	100.0	1,129

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 21 births to Christian women, 5 births to women belonging to 'other' religions, and 10, 22, and 36 births with missing information on religion, caste/tribe, and the standard of living index, respectively, which are not shown separately.

( ) Based on 25–49 unweighted cases

[1]Includes all births for which the mothers received an antenatal check-up outside the home, even if they also received an antenatal check-up at home from a health worker. If more than one type of antenatal check-up provider was mentioned, only the provider with the highest qualification is shown.

Figure 8.2
Source of Antenatal Check-Ups During Pregnancy



Note: Percents add to more than 100.0 due to rounding

NFHS-2, Assam, 1999

mothers (49 percent). By caste/tribe, the proportion of births for which the mother received antenatal check-ups ranges from 53 percent for scheduled-tribe women to 78 percent for women who do not belong to a scheduled caste, schedule tribe, or other backward class. By the standard of living index, the proportion ranges from 49 percent for women living in households with a low standard of living to 90 percent for women living in households with a high standard of living.

In summary, 60 percent of women in Assam received an antenatal check-up for births in the three years preceding the survey. Women not receiving antenatal check-ups tend to be disproportionately older women, women of high parity, women from scheduled tribes, illiterate women, and women from households with a low standard of living. This suggests that improving the coverage of antenatal programmes requires special efforts to reach older and high-parity women and women who are socio-economically disadvantaged.

Reasons for Not Receiving Antenatal Check-Ups

Table 8.3 shows the percent distribution of births in the three years preceding the survey whose mothers did not receive any antenatal check-ups by the main reason for not receiving any check-ups. For births to mothers who did not have any antenatal check-ups, 43 percent of mothers said a check-up was not necessary and 21 percent said it costs too much. Another 12 percent mentioned inconvenience or distance from the services, 7 percent said that antenatal check-ups were not customary, and 6 percent mentioned lack of knowledge about antenatal check-ups. No other reason accounted for more than 4 percent of births. These results suggest the need to inform women and families about the availability and benefits of antenatal check-ups to help overcome traditional attitudes and other hurdles that prevent them from seeking antenatal care for their pregnancies. In addition, since more than one-third of the reasons reported deal with problems of accessibility, quality, and cost of services, utilization of antenatal check-ups could also be

Table 8.3 Reason for not receiving an antenatal check-up

Percent distribution of births during the three years preceding the survey to mothers who did not receive an antenatal check-up by the main reason for not receiving an antenatal check-up, Assam, 1999

Reason for not receiving an antenatal check-up	Percent
Not necessary	43.4
Not customary	6.6
Costs too much	20.7
Too far/no transport	12.0
Poor quality service	3.9
No time to go	2.5
Family did not allow	3.6
Lack of knowledge	6.0
No health worker visited	1.1
Other	0.3
Total percent	100.0
Number of births	439

Note: Table includes only the two most recent births during the three years preceding the survey.

increased by lowering direct and indirect costs, improving quality, and making services more accessible.

Number and Timing of Antenatal Check-Ups

The number of antenatal check-ups and the timing of the first check-up are important for the health of the mother and the outcome of the pregnancy. The conventional recommendation for normal pregnancies is that once pregnancy is confirmed, antenatal check-ups should be scheduled at four-week intervals during the first seven months, then every two weeks until the last month, and weekly thereafter (MacDonald and Pritchard, 1980). Four antenatal check-ups—one each during the third, sixth, eighth, and ninth months of pregnancy—have been recommended as the minimum necessary (Park and Park, 1989). The conventional recommendation is to schedule the first check-up within six weeks of a woman's last menstrual period. Studies on the timing of the initial antenatal check-up, however, show that even when antenatal care is initiated as late as the third trimester, there is a substantial reduction in perinatal mortality (Ramachandran, 1992).

In India, the Reproductive and Child Health Programme includes the provision of at least three antenatal care visits for pregnant women. Guidelines for the programme require that each pregnancy be registered in the first 12–16 weeks (Ministry of Health and Family Welfare, 1997). Accordingly, the first antenatal check-up should take place at the latest during the second trimester of pregnancy. NFHS-2 asked women who received antenatal check-ups for births in the three years preceding the survey about the total number of check-ups they received and when in their pregnancies they received their first check-up.

Table 8.4 and Figure 8.3 show the percent distribution of births in the three years preceding the survey by the number and timing of antenatal check-ups. In Assam, mothers of only 31 percent of births received at least three antenatal check-ups (compared with 44 percent

Table 8.4 Number and timing of antenatal check-ups and stage of pregnancy

Percent distribution of births during the three years preceding the survey by number of antenatal check-ups and by the stage of pregnancy at the time of the first antenatal check-up, according to residence, Assam, 1999

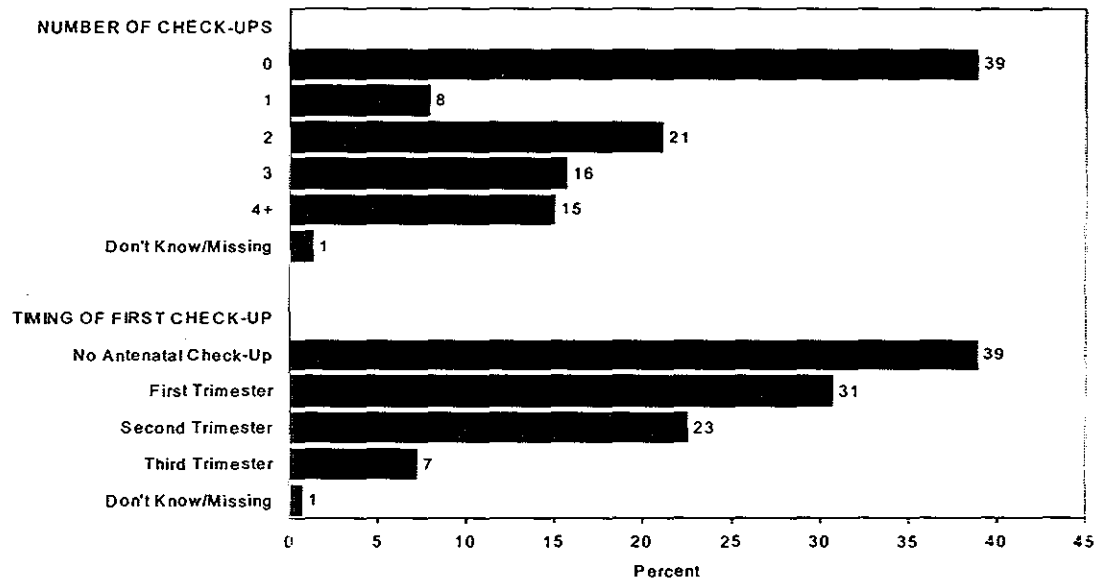
Number and timing of check-ups	Urban	Rural	Total
Number of antenatal check-ups			
0	9.5	40.7	38.9
1	3.3	8.2	7.9
2	14.0	21.6	21.1
3	20.2	15.5	15.7
4+	50.9	12.8	15.0
Don't know/missing	2.0	1.2	1.3
Total percent	100.0	100.0	100.0
Median number of check-ups (for those who received at least one antenatal check-up)	3.6	2.0	2.1
Stage of pregnancy at the time of the first antenatal check-up			
No antenatal check-up	9.5	40.7	38.9
First trimester	62.9	28.7	30.7
Second trimester	22.8	22.5	22.5
Third trimester	4.8	7.3	7.2
Don't know/missing	0.0	0.8	0.7
Total percent	100.0	100.0	100.0
Median months pregnant at first antenatal check-up (for those who received at least one antenatal check-up)	3.0	3.6	3.5
Number of births	66	1,063	1,129

Note: Table includes only the two most recent births during the three years preceding the survey.

in India as a whole). The median number of check-ups for those who received at least one check-up was 2.1. There are substantial differences by residence in the number of antenatal check-ups. At least three antenatal check-ups were received for 71 percent of births to mothers living in urban areas, but only 28 percent of births to mothers living in rural areas. Among births to mothers who received at least one antenatal check-up, the median number of check-ups was 3.6 in urban areas and 2.0 in rural areas. The shorter distances to antenatal-care services and the comparative ease of travelling in urban areas, as well as the higher educational attainment of mothers, could be important factors for the higher proportion of check-ups received by mothers in urban areas than in rural areas.

Thirty-one percent of births that took place in the three years preceding the survey were to mothers who received their first antenatal check-up in the first trimester of pregnancy (up substantially from 19 percent in NFHS-1), and another 23 percent were to mothers who received their first check-up in the second trimester. Check-ups during the first trimester were much more common in urban areas, (63 percent) than in rural areas (29 percent). In the state as a whole, the first check-up was received in the third trimester for only 7 percent of births. The median timing

Figure 8.3
Number and Timing of Antenatal Check-Ups



Note: Based on births in the three years preceding the survey (1996–98)

NFHS-2, Assam, 1999

of the first antenatal check-up was 3.6 months in rural areas, 3.0 months in urban areas, and 3.5 months in the state as a whole.

Components of Antenatal Check-Ups

The effectiveness of antenatal check-ups in ensuring safe motherhood depends in part on the tests and measurements done and the advice given during the check-ups. NFHS-2 collected information on this important aspect of antenatal care for the first time by asking mothers who received antenatal check-ups whether they received each of several components of antenatal check-ups at least once during any of their check-ups during pregnancy. For births during the three years preceding the survey for which antenatal check-ups were received, Table 8.5 presents the percentage whose mothers received specific components of check-ups by residence. Except for X-rays (which are not recommended as a standard component of antenatal care), all of the measurements and tests are part of essential obstetric care or are required for monitoring high-risk pregnancies.

Among all births for which mothers received antenatal check-ups, mothers had an abdominal examination in 68 percent of cases and had their blood pressure checked in 58 percent of cases. Other common components of antenatal check-ups were blood tests (42 percent), urine tests (39 percent), and weight measurement (28 percent). Mothers of 14 percent of the births had their height measured, 9 percent had internal examinations, and 4 percent had a sonogram or ultrasound check-up. X-ray examinations and amniocentesis were rarely performed. All of the measurements or tests except amniocentesis were performed more often for women living in urban areas than for women living in rural areas. The differences by residence are most pronounced for urine tests (72 percent in urban areas and 36 percent in rural areas) and blood tests (68 percent in urban areas and 39 percent in rural areas).

Table 8.5 Components of antenatal check-ups

Among births during the three years preceding the survey for which an antenatal check-up was received, percentage receiving specific components of antenatal check-ups by residence, Assam, 1999

Components of antenatal check-ups	Urban	Rural	Total
Antenatal measurements/tests			
Weight measured	51.2	26.2	28.3
Height measured	32.7	12.6	14.4
Blood pressure checked	80.1	56.2	58.3
Blood tested	67.7	39.3	41.8
Urine tested	72.2	35.5	38.7
Abdomen examined	79.0	67.3	68.3
Internal examination	12.2	8.3	8.6
X-ray	6.7	3.5	3.8
Sonography or ultrasound	17.5	2.5	3.8
Amniocentesis	1.1	1.7	1.6
Antenatal advice			
Diet	67.3	47.4	49.1
Danger signs of pregnancy	43.9	26.0	27.5
Delivery care	48.1	37.0	37.9
Newborn care	41.4	28.1	29.2
Family planning	31.7	21.2	22.1
Number of births for which the mother received at least one antenatal check-up	58	621	679

Note: Table includes only the two most recent births during the three years preceding the survey.

Table 8.5 also shows the type of advice received by mothers who had antenatal check-ups for births in the three years preceding the survey. Dietary advice was given to mothers most often (in 49 percent of cases). Mothers were less likely to receive advice on delivery care (38 percent), newborn care and the danger signs of pregnancy (28–29 percent), and family planning (22 percent). The proportions receiving advice on each of these topics is higher in urban areas than in rural areas.

Tetanus Toxoid Vaccination

In India, an important cause of death in infancy is neonatal tetanus, which is caused by newborn infants becoming infected by tetanus organisms, usually at the umbilical stump. Neonatal tetanus is most common among children who are delivered in unhygienic environments and when unsterilized instruments are used to cut the umbilical cord. Tetanus typically develops during the first or second week of life and is fatal in 70–90 percent of cases (Foster, 1984). If neonatal tetanus infection occurs where expert medical help is not available, as is common in many rural areas in India, death is almost certain. Neonatal tetanus, however, is a preventable disease. Two doses of tetanus toxoid vaccine given one month apart during early pregnancy are nearly 100 percent effective in preventing tetanus among both newborn infants and their mothers. Immunity against tetanus is transferred to the foetus through the placenta when the mother is vaccinated.

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

programme, the Government of India initiated the Universal Immunization Programme (UIP) in 1985–86. An important objective of the UIP was to vaccinate all pregnant women against tetanus by 1990. In 1992–93, the UIP was integrated into the Child Survival and Safe Motherhood Programme, which in turn has been integrated into the Reproductive and Child Health Programme. According to the National Immunization Schedule, a pregnant woman should receive two doses of tetanus toxoid vaccine, the first when she is 16 weeks pregnant and the second when she is 20 weeks pregnant (Central Bureau of Health Intelligence, 1991). Re-inoculation is recommended every three years. If two doses were received less than three years earlier, a single booster injection is recommended.

For each of the two most recent births during the three years preceding the survey, NFHS-2 asked women whether they were given an injection in the arm to prevent them and their baby from getting tetanus. Women who said they had received a tetanus injection were asked how many times they had received the injection during the pregnancy.

Table 8.6 shows the distribution of births by the number of tetanus toxoid injections given to mothers, according to selected background characteristics. Tetanus toxoid coverage in Assam is far from complete, but it has increased substantially in recent years. For births in the three years preceding the survey, 52 percent of mothers received at least two tetanus toxoid injections during pregnancy, and another 9 percent received one injection. The proportion of mothers who received two or more tetanus toxoid injections during their pregnancies rose from 35 to 52 percent between NFHS-1 and NFHS-2, but Assam still lags behind the average of 67 percent for all India.

Tetanus toxoid injections are much more common in urban areas than in rural areas. Coverage also varies by age of mother and birth order. Tetanus toxoid coverage (two or more injections) is much higher for births to women under age 35 (52–55 percent) than for the small number of births to older women (24 percent). At least two tetanus toxoid injections were received by mothers for 68 percent of first births, compared with 26 percent of births of order six or higher. Coverage is strongly related to education, ranging from 36 percent for births to illiterate women to 95 percent for births to women who have completed at least a high school education. Tetanus toxoid coverage is better for Hindus (56 percent) than for Muslims (46 percent). Coverage ranges from 42 percent for births to scheduled-tribe women to 66 percent for births to women who belong to an other backward class. Tetanus toxoid coverage increases with an increasing standard of living of the household, from 39 percent for births to women living in households with a low standard of living to 85 percent for births to mothers living in households with a high standard of living. These results suggest that despite generally improving coverage of tetanus toxoid vaccinations, the coverage for socio-economically disadvantaged women lags behind the level for the state as a whole.

Iron and Folic Acid Supplementation

Nutritional deficiencies in women are often exacerbated during pregnancy because of the additional nutrient requirements of foetal growth. Iron deficiency anaemia is the most common micronutrient deficiency in the world. It is a major threat to safe motherhood and to the health and survival of infants because it contributes to low birth weight, lowered resistance to infection, impaired cognitive development, and decreased work capacity. Studies in different parts of India have estimated that the proportion of births with a low birth weight (less than 2,500 grams)

Table 8.6 Tetanus toxoid vaccination and iron and folic acid tablets or syrup

Percent distribution of births during the three years preceding the survey by the number of tetanus toxoid injections received by the mother, percentage of births for which the mothers were given iron and folic acid (IFA) tablets or syrup during pregnancy, and among those who received iron and folic acid tablets or syrup, percentage who received enough for three months or longer and percentage who consumed all the supply given, according to selected background characteristics, Assam, 1999

Background characteristic	Number of tetanus toxoid injections					Percentage given iron and folic acid tablets or syrup	Number of births	Percentage who received supply for 3+ months[1]	Percentage who consumed all the supply[1]	Number of births whose mothers received IFA
	None	One	Two or more	Don't know/ missing	Total percent					
Mother's age at birth										
< 20	34.9	8.2	54.6	2.2	100.0	54.2	274	82.1	72.5	149
20–34	38.0	8.5	52.4	1.1	100.0	56.1	805	83.0	81.5	452
35–49	(66.8)	(9.5)	(23.7)	(0.0)	100.0	(40.4)	50	*	*	20
Birth order										
1	24.0	6.4	68.2	1.3	100.0	67.9	350	85.9	78.4	238
2–3	36.9	8.9	53.1	1.1	100.0	54.8	468	83.0	80.9	257
4–5	54.6	9.7	34.3	1.3	100.0	42.3	192	77.9	77.8	81
6+	62.0	10.5	25.5	2.0	100.0	37.9	119	(68.9)	(76.2)	45
Residence										
Urban	8.9	3.4	87.7	0.0	100.0	84.9	66	97.5	87.8	56
Rural	40.4	8.8	49.5	1.4	100.0	53.1	1,063	80.9	78.3	564
Mother's education										
Illiterate	53.2	9.5	35.5	1.8	100.0	40.5	604	77.4	76.2	245
Literate, < middle school complete	32.9	7.0	59.6	0.5	100.0	59.1	261	81.0	74.9	154
Middle school complete	16.3	10.1	72.8	0.8	100.0	77.7	165	88.3	85.2	128
High school complete and above	0.8	3.2	94.9	1.1	100.0	94.8	99	89.7	85.8	93
Religion										
Hindu	34.3	9.3	55.5	1.0	100.0	61.0	645	83.6	77.7	394
Muslim	45.3	7.1	45.7	1.9	100.0	46.5	448	80.8	81.9	208
Caste/tribe										
Scheduled caste	26.0	10.2	62.8	1.0	100.0	64.6	127	73.8	79.7	82
Scheduled tribe	44.3	12.3	42.1	1.3	100.0	49.6	215	80.0	79.4	107
Other backward class	28.6	5.4	66.0	0.0	100.0	69.9	93	90.7	81.4	65
Other	40.0	7.4	51.2	1.4	100.0	53.6	671	83.5	79.0	360
Standard of living index										
Low	50.3	9.6	38.9	1.3	100.0	43.3	580	78.6	77.1	251
Medium	29.0	8.0	61.9	1.1	100.0	64.0	428	83.3	81.0	274
High	8.4	3.9	84.8	2.9	100.0	85.7	84	88.0	81.4	72
Total	38.5	8.5	51.7	1.3	100.0	55.0	1,129	82.4	79.2	620

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes small numbers of births to Christian mothers, mothers belonging to 'other' religions, and births with missing information on religion, caste/tribe, and the standard of living index, which are not shown separately.

( ) Based on 25–49 unweighted cases

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

[1]Among births whose mothers received iron and folic acid tablets or syrup

ranges from 15 percent in Trivandrum to 46 percent in Baroda (Nutrition Foundation of India, 1993). Overall, about one-third of newborn children in India are of low birth weight, indicating that many pregnant women in India suffer from nutritional deficiencies. Improvement in a woman's nutritional status, coupled with proper health care during pregnancy, can substantially increase her child's birth weight (Ramachandran, 1992). To this end, the provision of iron and folic acid (IFA) tablets to pregnant women to prevent nutritional anaemia forms an integral part of the safe-motherhood services offered as part of the Reproductive and Child Health Programme. The programme recommendation is that pregnant women consume 100 tablets of iron and folic acid during pregnancy.

For each birth during the three years preceding the survey, NFHS-2 collected information on whether the mother received IFA tablets or syrup during pregnancy. IFA syrup was included in the question along with IFA tablets since IFA syrup is sometimes prescribed in the private sector and may even be prescribed in the public sector when and where tablets are not available. Table 8.6 shows that mothers in Assam received IFA supplements for 55 percent of births. This level is slightly lower than the national average of 58 percent. As with tetanus toxoid coverage, IFA coverage in Assam is well below average for births to disadvantaged women (i.e., illiterate women, scheduled-tribe women, and women with a low standard of living) and mothers of higher-order births. IFA coverage is also much lower in rural areas (53 percent) than in urban areas (85 percent) and among Muslim women (47 percent) than among Hindu women (61 percent).

Not all mothers who received IFA received the recommended three-month supply of tablets or syrup. Among births to women who received IFA during pregnancy, 82 percent received at least a three-month supply and 79 percent consumed all the supplements that were given to them. Differentials by background characteristics in the proportion that received at least a three-month supply and the proportion that consumed all the supply received are similar for most background characteristics. Both indicators are positively related to mother's education level and the standard of living, and both are relatively low in rural areas. Differentials by religion and mother's age at birth are fairly small.

Thus, the distribution of IFA supplements is still quite limited in Assam and many women who receive IFA are not consuming an adequate amount of IFA during their pregnancies. This suggests that the Reproductive and Child Health Programme needs to do a better job of informing pregnant women about the advantages of IFA, trying to understand why many women do not consume all the IFA they receive, and overcoming resistance to the consumption of IFA.

8.2 Delivery Care

Place of Delivery

Another important thrust of the Reproductive and Child Health Programme is to encourage deliveries under proper hygienic conditions under the supervision of trained health professionals. For each birth during the three years preceding the survey, NFHS-2 asked the mother where she gave birth and who assisted during the delivery. Table 8.7 and Figure 8.4 show that only 18 percent of births in Assam took place in health facilities (up slightly from 12 percent in NFHS-1), 76 percent took place in the women's own homes, and 6 percent took place in their

Table 8.7 Place of delivery

Percent distribution of births during the three years preceding the survey by place of delivery, according to selected background characteristics, Assam, 1999

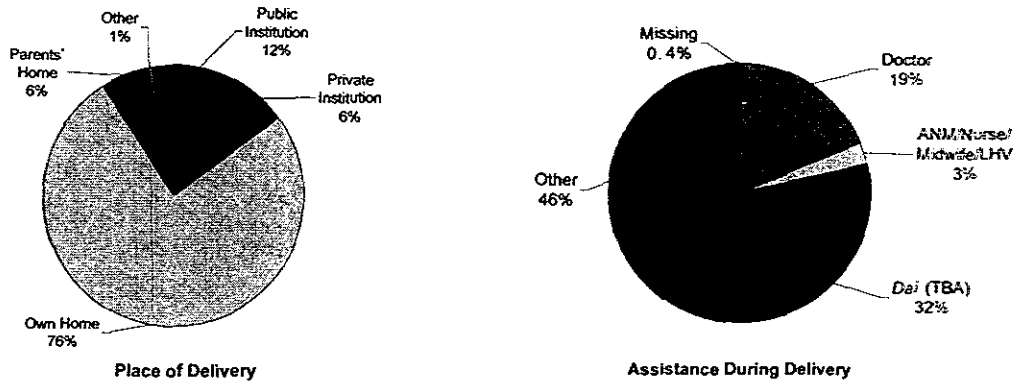
Background characteristic	Place of delivery					Total percent	Number of births
	Health facility/institution		Home				
	Public	Private	Own home	Parents' home	Other[1]		
Mother's age at birth							
< 20	8.9	3.0	77.3	9.9	0.9	100.0	274
20–34	12.8	7.2	74.6	4.8	0.4	100.0	805
35–49	(8.0)	(0.0)	(89.7)	(2.3)	(0.0)	100.0	50
Birth order							
1	18.3	9.1	64.6	7.4	0.7	100.0	350
2–3	11.2	6.6	75.0	6.6	0.5	100.0	468
4–5	4.9	1.9	87.8	4.8	0.6	100.0	192
6+	5.0	0.0	94.1	1.0	0.0	100.0	119
Residence							
Urban	34.0	25.9	37.8	2.3	0.0	100.0	66
Rural	10.3	4.7	78.3	6.2	0.6	100.0	1,063
Mother's education							
Illiterate	3.7	3.4	86.0	6.3	0.6	100.0	604
Literate, < middle school complete	13.3	1.9	80.3	4.5	0.0	100.0	261
Middle school complete	26.4	9.1	55.6	8.1	0.8	100.0	165
High school complete and above	31.3	26.6	36.7	4.2	1.1	100.0	99
Religion							
Hindu	15.7	9.4	71.0	3.5	0.4	100.0	645
Muslim	5.6	1.1	82.8	9.7	0.8	100.0	448
Caste/tribe							
Scheduled caste	14.0	7.4	75.7	1.9	1.0	100.0	127
Scheduled tribe	13.1	3.0	81.9	2.0	0.0	100.0	215
Other backward class	26.3	8.9	59.9	4.9	0.0	100.0	93
Other	9.1	6.0	75.9	8.3	0.7	100.0	671
Standard of living index							
Low	5.6	2.3	83.5	7.7	0.8	100.0	580
Medium	17.2	5.4	73.2	3.9	0.3	100.0	428
High	19.8	34.6	40.5	5.1	0.0	100.0	84
Number of antenatal check-ups							
0	2.2	0.5	89.2	8.1	0.0	100.0	439
1	6.3	0.0	87.1	6.6	0.0	100.0	90
2	13.3	5.7	75.6	5.4	0.0	100.0	239
3	18.2	5.9	71.6	4.3	0.0	100.0	178
4+	30.6	23.5	43.6	2.3	0.0	100.0	170
Total	11.7	5.9	76.0	5.9	0.5	100.0	1,129

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 21 births to Christian mothers, 5 births to mothers belonging to 'other' religions, and 10, 22, 36, and 14 births with missing information on religion, caste/tribe, the standard of living index, and number of antenatal check-ups, respectively, which are not shown separately.

( ) Based on 25–49 unweighted cases

[1]Includes missing

Figure 8.4
Place of Delivery and Assistance During Delivery



Note: Percents add to more than 100.0 due to rounding

NFHS-2, Assam, 1999

parents' homes. Births were twice as likely to take place in public institutions (such as government-operated district, *tehsil*, town, or municipal hospitals and Primary Health Centres) than in private institutions. The estimated percentage of institutional deliveries is slightly lower than the 1997 SRS estimate of 21 percent.

In NFHS-2, the proportion of births that took place in health facilities is four times as high in urban areas (60 percent) as in rural areas (15 percent). Institutional deliveries are slightly less common for younger and older mothers than for mothers age 20–34. Institutional deliveries are highest for first births (27 percent) and lowest for births of order six or higher (5 percent). Institutional deliveries increase sharply with education and the standard of living. Women from other backward classes have a higher proportion of institutional births than women in other caste/tribe groups. By religion, the proportion of institutional deliveries is 7 percent for Muslims and 25 percent for Hindus.

The proportion of institutional births is more than twice as high among women who received four or more antenatal check-ups (54 percent) as among women who received three antenatal check-ups (24 percent) and 20 times as high as among women who did not receive any antenatal check-ups. Several different factors are likely to contribute to the positive relationship between antenatal check-ups and delivery in a health facility. Women who receive antenatal check-ups are more likely than other women to deliver in a health facility because their antenatal care providers might have advised them to do so. Conversely, women who register with a health facility for delivery may be called for regular antenatal check-ups by the facility. Another important factor may be pregnancy complications, because women with complications are more likely than other women to have antenatal check-ups and also to deliver in a health facility. Another contributing factor may be the growing awareness of the benefits of professional medical care during both pregnancy and delivery, especially among urban, young, educated women.

With regard to deliveries at home, the proportion of deliveries in a woman's own home increases and the proportion in her parents' home decreases with age and birth order. Mother's

Table 8.8 Assistance during delivery

Percent distribution of births during the three years preceding the survey by attendant assisting during delivery, according to selected background characteristics, Assam, 1999

Background characteristic	Attendant assisting during delivery[1]					Total percent	Number of births
	Doctor	ANM/nurse/ midwife/LHV	Traditional birth attendant	Other	Missing		
Mother's age at birth							
< 20	14.2	1.5	36.3	47.6	0.4	100.0	274
20–34	20.2	3.4	30.4	45.5	0.4	100.0	805
35–49	(15.3)	(0.7)	(32.5)	(51.6)	(0.0)	100.0	50
Birth order							
1	29.1	2.5	31.0	36.7	0.7	100.0	350
2–3	18.9	3.9	28.8	47.8	0.5	100.0	468
4–5	6.8	1.2	37.6	54.3	0.0	100.0	192
6+	5.0	2.0	37.7	55.3	0.0	100.0	119
Residence							
Urban	60.0	3.7	10.7	25.6	0.0	100.0	66
Rural	16.0	2.8	33.3	47.6	0.4	100.0	1,063
Mother's education							
Illiterate	7.5	1.2	38.0	52.9	0.4	100.0	604
Literate, < middle school complete	16.1	3.4	28.3	52.2	0.0	100.0	261
Middle school complete	36.8	7.2	24.4	30.9	0.8	100.0	165
High school complete and above	62.3	3.7	17.1	15.8	1.1	100.0	99
Religion							
Hindu	26.4	3.4	28.5	41.2	0.4	100.0	645
Muslim	7.3	2.1	38.0	52.1	0.5	100.0	448
Caste/tribe							
Scheduled caste	20.6	3.8	26.9	47.8	1.0	100.0	127
Scheduled tribe	18.3	1.8	26.8	53.0	0.0	100.0	215
Other backward class	38.1	3.8	27.6	30.5	0.0	100.0	93
Other	15.9	2.7	34.1	46.8	0.5	100.0	671
Standard of living index							
Low	8.4	1.7	35.8	53.5	0.6	100.0	580
Medium	23.7	3.7	30.4	42.0	0.3	100.0	428
High	59.2	6.2	14.8	19.9	0.0	100.0	84
Number of antenatal check-ups							
0							
1	3.3	0.0	34.2	62.5	0.0	100.0	439
2	8.9	5.2	30.6	55.3	0.0	100.0	90
3	19.4	2.1	36.4	42.1	0.0	100.0	239
4+	24.6	5.9	37.7	31.7	0.0	100.0	178
	55.9	6.8	16.0	21.3	0.0	100.0	170
Place of delivery							
Public health facility	91.6	8.2	0.0	0.2	0.0	100.0	132
Private health facility	92.2	5.5	1.8	0.5	0.0	100.0	67
Own home	2.3	1.7	37.7	58.3	0.0	100.0	857
Parents' home	10.9	4.1	53.9	31.2	0.0	100.0	67
Total	18.5	2.8	31.9	46.3	0.4	100.0	1,129

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 21 births to Christian mothers, 5 births to mothers belonging to 'other' religions, 6 births delivered in other places, and 10, 22, 36, and 14 births with missing information on religion, caste/tribe, the standard of living index, and number of antenatal check-ups, respectively, which are not shown separately.
ANM: Auxiliary nurse midwife; LHV: Lady health visitor
( ) Based on 25–49 unweighted cases
[1]If the respondent mentioned more than one attendant, only the most qualified attendant is shown.

education and the standard of living are both strongly negatively associated with delivery in women's own homes.

Assistance During Delivery

Table 8.8 and Figure 8.4 provide information on assistance during delivery by selected background characteristics. If more than one type of attendant assisted at delivery, only the most qualified attendant is shown. Only 21 percent of births in the three years preceding the survey were attended by a health professional, including 18 percent by a doctor and 3 percent by an ANM, nurse, midwife, or LHV. Comparable estimates at the national level are 42 percent by a health professional, 30 percent by a doctor, and 11 percent by an ANM, nurse, midwife, or LHV. In Assam, 32 percent of births were attended by a traditional birth attendant and 46 percent were attended only by friends, relatives, or other persons. According to the two NFHS surveys, the proportion of deliveries attended by a health professional increased from 18 percent in NFHS-1 to 21 percent in NFHS-2.

The proportion of births attended by a doctor varies by the mother's age, from 14 percent for mothers age less than 20 years to 15–20 percent for older mothers. The differentials are much larger by birth order, ranging from 5 percent for births of order six or higher to 29 percent for first-order births. Births are much more likely to be assisted by a doctor in urban areas (60 percent) than in rural areas (16 percent). The proportion of births delivered by a doctor increases sharply with the mother's level of education and the household standard of living. The proportion of births delivered by a doctor is much higher for births to Hindu women than Muslim women. Deliveries by doctors are much higher for women from other backward classes than for women in any other caste/tribe group. Only 3 percent of births to women who did not have any antenatal check-up were attended by a doctor; this proportion increases steadily to 25 percent for births to women who had three antenatal check-ups and 56 percent for births to women who had four or more antenatal check-ups. Thirty-four percent of births to women who did not have any antenatal check-ups were attended by a TBA, and almost two-thirds were attended only by friends, relatives, and other persons who are not health professionals. By place of delivery, the proportion of births attended by a doctor was 92 percent for births in public as well as private health facilities, but only 2 percent for births occurring in the woman's own home and 11 percent for births occurring in her parents' home. Among births delivered at the respondent's own home, 38 percent were attended by a TBA and only 4 percent were attended by a health professional.

Delivery Characteristics

Table 8.9 shows the percentage of births during the three years preceding the survey that were delivered by caesarian section and the percent distribution of births by birth weight and the mother's estimate of the baby's size at birth. Based on mothers' reports, 4 percent of children born in Assam in the past three years were delivered by caesarian section. The proportion of deliveries by caesarian section was higher in urban areas (14 percent) than in rural areas (3 percent). Although caesarian sections are still rare in Assam, they have increased from 2 percent of births in NFHS-1 to 4 percent in NFHS-2.

Babies with low birth weights face substantially higher risks of dying than do babies with normal birth weights. For each birth that took place in the three years preceding the survey,

Table 8.9 Characteristics of births

Percentage of births during the three years preceding the survey that were delivered by caesarian section and percent distribution of births by birth weight and by the mother's estimate of the baby's size at birth, according to residence, Assam, 1999

Characteristic of births	Urban	Rural	Total
Percentage delivered by caesarian section	13.5	3.1	3.8
Birth weight			
< 2.5 kg	17.8	3.9	4.7
2.5 kg or more	35.0	7.7	9.3
Don't know/missing	2.0	1.3	1.4
Not weighed	45.1	87.1	84.6
Total percent	100.0	100.0	100.0
Size at birth			
Large	23.6	16.4	16.8
Average	59.9	61.1	61.0
Small	13.2	19.7	19.4
Very small	2.6	2.2	2.3
Don't know/missing	0.7	0.6	0.6
Total percent	100.0	100.0	100.0
Number of births	66	1,063	1,129

Note: Table includes only the two most recent births during the three years preceding the survey.

respondents were asked the baby's birth weight. Because babies delivered at home are unlikely to be weighed and because the mother might not remember the birth weight even if the baby was weighed, the survey also asked mothers to estimate the size of each baby at birth (large, average, small, or very small).

In Assam, 85 percent of babies born in the three years preceding the survey were not weighed at birth. The proportion not weighed is 45 percent in urban areas and 87 percent in rural areas. For babies that were weighed, only 9 percent of the mothers did not remember the weight. Among children for whom birth weights are reported, 34 percent weighed less than 2.5 kilograms. The proportion weighing less than 2.5 kilograms is the same (34 percent) in urban and rural areas.

According to mothers' estimates, 17 percent of births in the three years preceding the survey were large, 61 percent were of average size, 19 percent were small, and 2 percent were very small. The percentage of babies reported as small or very small was 16 in urban areas and 22 percent in rural areas.

8.3 Postnatal Care

The health of a mother and her newborn child depends not only on the health care she receives during her pregnancy and delivery, but also on the care she and the infant receive during the first few weeks after delivery. Postpartum check-ups within two months after delivery are particularly important for births that take place in noninstitutional settings. Recognizing the importance of

Table 8.10 Postpartum check-ups

Percentage of noninstitutional births during the three years preceding the survey for which a postpartum check-up was received within two months of birth and, among those receiving a postpartum check-up, percentage seen within two days and one week of birth and percentage receiving specific components of check-ups by selected background characteristics, Assam, 1999

Background characteristic	Percentage with a postpartum check-up within two months of birth	Number of births	Among those with postpartum check-up						Number of births followed by a postpartum check-up
			Percentage seen within two days of birth	Percentage seen within one week of birth	Components of postpartum check-up (%)				
					Abdominal examination	Family planning advice	Breast-feeding advice	Baby care advice	
Mother's age at birth									
< 20	27.1	239	3.7	8.0	14.8	9.3	27.6	31.9	65
20–34	25.8	640	1.4	4.3	17.9	14.0	16.6	15.9	165
35–49	(13.9)	46	*	*	*	*	*	*	6
Birth order									
1	33.5	252	2.8	6.1	18.7	11.8	30.8	32.4	84
2–3	27.1	382	2.3	4.5	13.7	8.4	12.1	10.8	104
4–5	17.8	177	(0.0)	(0.0)	(22.3)	(27.1)	(11.3)	(18.6)	32
6+	14.6	113	*	*	*	*	*	*	16
Residence									
Urban	44.7	26	(0.0)	(3.7)	(12.3)	(5.8)	(11.6)	(18.2)	12
Rural	25.0	898	2.1	5.3	18.0	12.8	19.7	20.1	224
Mother's education									
Illiterate	20.5	557	2.0	7.1	15.9	9.5	13.7	18.9	114
Literate, < middle school complete	28.5	222	0.0	1.9	13.9	19.1	24.9	18.7	63
Middle school complete	34.8	105	(6.7)	(7.9)	(20.6)	(9.9)	(20.9)	(20.1)	37
High school complete and above	(55.4)	40	*	*	*	*	*	*	22
Religion									
Hindu	32.0	481	2.3	6.4	23.7	12.9	19.6	23.5	154
Muslim	18.3	414	1.6	3.2	7.0	9.5	18.6	14.6	76
Caste/tribe									
Scheduled caste	40.6	99	(2.8)	(8.5)	(23.2)	(9.1)	(8.8)	(14.6)	40
Scheduled tribe	31.4	181	(0.0)	(2.1)	(15.5)	(13.0)	(18.3)	(23.9)	57
Other backward class	19.8	60	*	*	*	*	*	*	12
Other	22.0	565	2.9	6.1	14.9	12.3	21.1	17.9	124
Standard of living index									
Low	20.3	529	1.1	4.4	13.0	10.0	18.8	18.2	107
Medium	32.9	331	3.3	6.9	23.1	15.4	19.3	22.6	109
High	(32.5)	38	*	*	*	*	*	*	12
Number of antenatal check-ups									
0	8.6	427	(0.0)	(0.0)	(6.5)	(3.2)	(9.6)	(9.8)	37
1	26.2	84	*	*	*	*	*	*	22
2	39.4	193	3.0	7.8	12.5	17.2	25.4	22.3	76
3+	46.9	213	2.5	4.8	24.1	12.9	20.4	21.6	100
Assistance during delivery									
Doctor/ANM/nurse/ midwife/LHV[1]	(41.5)	45	*	*	*	*	*	*	19
Dai (TBA)	25.8	359	0.0	1.3	23.6	17.4	17.6	21.8	93
Other	24.0	521	2.9	7.9	13.5	9.5	19.8	16.2	125
Total	25.5	924	2.0	5.2	17.7	12.5	19.3	20.0	236

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes small numbers of births to Christian mothers, mothers belonging to 'other' religions, and births with missing information on religion, caste/tribe, the standard of living, and number of antenatal check-ups, which are not shown separately.
ANM: Auxiliary nurse midwife; LHV: Lady health visitor; TBA: Traditional birth attendant
( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases
[1]Includes other health professionals

postpartum check-ups, the Reproductive and Child Health Programme recommends three postpartum visits (Ministry of Health and Family Welfare, 1998b).

Table 8.10 gives the percentage of noninstitutional births in the three years preceding the survey that were followed by a postpartum check-up within two months of delivery. Among births that were followed by a postpartum check-up, the table also shows the percentage with a check-up within two days of delivery (which is the most crucial period) and within one week of delivery, and the percentage whose mothers received specific recommended components of care during the check-up.

Only 26 percent of noninstitutional births were followed by a check-up within two months of the delivery. Among births that were followed by a check-up, only 2 percent of check-ups took place within two days of birth and only 5 percent took place within one week of birth. Postpartum check-ups are not very prevalent for any group of women; the maximum level is 55 percent for the small number of noninstitutional births to mothers who have completed high school. In all other groups, postpartum check-ups with two months of the birth were not obtained for most noninstitutional births.

Mothers who did not deliver in a health facility but who received a postpartum check-up were asked whether they received specific components of postpartum care, including an abdominal examination and advice on family planning, breastfeeding, and baby care. Among these mothers, 18 percent reported an abdominal examination. Twenty percent received advice on baby care, 19 percent received advice on breastfeeding, and only 13 percent received family planning advice.

Postpartum Complications

Every woman who had a birth in the three years preceding the survey was asked if she had massive vaginal bleeding or a very high fever—both symptoms of possible postpartum complications—at any time during the two months after delivery. For 9 percent of births, the mother reported a very high fever, and for 15 percent of births, the mother reported massive vaginal bleeding following the birth (Table 8.11). These proportions vary little by age for births to women less than 35 years old. Both complications are slightly higher for births to rural mothers than urban mothers. Massive vaginal bleeding is much higher for low-order births than for high-order births, but there is no consistent relationship between birth order and very high fever. Very high fever is twice as likely for deliveries in the parent's home than for institutional deliveries or deliveries in the respondent's home. Massive vaginal bleeding is most common for births that take place in private health facilities. Very high fever is most prevalent for births attended by a TBA.

8.4 Reproductive Health Problems

Absence of reproductive tract infections (RTIs) is essential for the reproductive health of both women and men and is critical for their ability to meet their reproductive goals. There are three different types of reproductive tract infections for women: endogenous infections that are caused by the multiplying of organisms normally present in the vagina; iatrogenic infections caused by the introduction of bacteria or other infection-causing micro-organisms through medical procedures such as an IUD insertion; and sexually transmitted infections (STIs). Endogenous

Table 8.11 Symptoms of postpartum complications

Among births during the three years preceding the survey, the percentage for which the mother had massive vaginal bleeding or very high fever within two months after the delivery by selected background characteristics, Assam, 1999

Background characteristic	Massive vaginal bleeding	Very high fever	Number of births
Residence			
Urban	13.2	7.4	63
Rural	14.6	8.8	1,025
Mother's age at birth			
< 20	14.7	9.5	270
20–34	15.1	9.0	771
35–49	(3.4)	(0.0)	46
Birth order			
1	13.3	9.5	337
2–3	19.2	8.6	450
4–5	8.7	7.3	183
6+	8.9	9.1	116
Place of delivery			
Public health facility	10.7	7.1	124
Private health facility	23.2	6.9	63
Own home	14.3	8.6	830
Parents' home	16.4	16.2	65
Assistance during delivery			
Doctor	17.0	7.2	199
ANM/nurse/midwife/LHV	(20.0)	(0.0)	31
Dai (TBA)	17.0	11.9	351
Other[1]	11.4	7.7	507
Total	14.5	8.7	1,087

Note: Table includes only the two most recent births during the 2–35 months preceding the survey. Total includes 6 births delivered in other places of delivery, which are not shown separately.
ANM: Auxiliary nurse midwife; LHV: Lady health visitor; TBA: Traditional birth attendant
( ) Based on 25–49 unweighted cases
[1]Includes missing

infections and several of the iatrogenic and sexually transmitted infections are often easily cured if detected early and given proper treatment. If left untreated, RTIs can cause pregnancy-related complications, congenital infections, infertility, and chronic pain. They are also a risk factor for pelvic inflammatory disease and HIV (Population Council, 1999).

A number of studies (Bang et al., 1989; Bang and Bang, 1991; Pachauri and Gittelsohn, 1994; Jeejeebhoy and Rama Rao, 1992) have shown that many Indian women suffer from RTIs. Several researchers have also shown that women in India often bear the symptoms of RTIs silently without seeking health care. RTIs and their sequellae are an important component of programmes for family planning, child survival, women's health, safe motherhood, and HIV prevention. RTIs have profound implications for the success of each of these initiatives, and conversely, these initiatives provide a critical opportunity for the prevention and control of RTIs (Germain et al., 1992). Studies have demonstrated that RTIs are an important reason for the poor acceptance and low continuation rates of contraceptive methods such as the IUD. Bhatia and

Cleland (1995) found a higher incidence of gynaecological symptoms among women who had undergone a tubectomy than among other women. The Government of India recognized the importance of RTIs and STIs in undermining the health and welfare of individuals and couples in a policy statement on the Reproductive and Child Health Programme, which states that couples should be 'able to have sexual relations free of fear of pregnancy and contracting diseases' (Ministry of Health and Family Welfare, 1997:2). The Reproductive and Child Health Programme includes the following interventions: establishment of RTI/STI clinics at district hospitals (where not already available), provision of technicians for laboratory diagnosis of RTIs/STIs, and in selected districts, screening and treatment of RTIs/STIs (Ministry of Health and Family Welfare, 1997).

NFHS-2 collected information from women on some common symptoms of RTIs, namely problems with abnormal vaginal discharge or urinary tract infections in the three months preceding the survey, intercourse-related pain (often), and bleeding after intercourse (ever). Specifically, the prevalence of reproductive health problems among ever-married women is estimated from women's self-reported experience with each of the following problems: vaginal discharge accompanied by itching, by irritation around the vaginal area, by bad odour, by severe lower abdominal pain, by fever, or by any other problem; pain or burning while urinating or frequent or difficult urination; and (among currently married women only) painful intercourse or bleeding after intercourse. Women who experience one or more of these reproductive health problems could either have or be at risk of getting an RTI/STI. However, since information on health problems is based on self reports rather than clinical tests or examinations, the results should be interpreted with caution.

Table 8.12 shows the prevalence of different reproductive health problems among women in Assam by background characteristics. Forty percent of ever-married women reported at least one type of problem related to vaginal discharge, and 20 percent reported symptoms of a urinary tract infection. Overall, 46 percent of women reported either problems with vaginal discharge or symptoms of a urinary tract infection. Among problems related to vaginal discharge, severe lower abdominal pain unrelated to menstruation was mentioned most frequently (32 percent), followed by bad odour and itching or irritation (14 percent each).

Table 8.12 and Figure 8.5 show that 51 percent of currently married women report one or more reproductive health problems (considerably higher than the national average of 39 percent). Fifteen percent report painful intercourse and 4 percent report bleeding after intercourse.

Reproductive health problems are more common among women under age 35 than among women age 35–49. These problems are more common among rural women (52 percent) than among urban women (37 percent). The prevalence of reproductive health problems declines with increasing educational level of women. All types of reproductive health problems are more common among Muslim women than among Hindu or Christian women. By caste/tribe, the prevalence of reproductive health problems ranges from 42 percent among women belonging to scheduled castes to 52 percent among scheduled-tribe women and women who do not belong to a scheduled caste, a scheduled tribe, or an other backward class. Reproductive health problems become less prevalent with increasing levels of the standard of living. The prevalence of these problems is somewhat higher for women who work in a family farm/business or are employed by someone outside the family than for other women. Reproductive health problems are also

Table 8.12 Symptoms of reproductive health problems

Percentage of ever-married women reporting abnormal vaginal discharge or symptoms of a urinary tract infection during the three months preceding the survey and percentage of currently married women reporting painful intercourse or bleeding after intercourse by selected background characteristics, Assam, 1999

Background characteristic	Ever-married women									Currently married women			
	Any abnormal vaginal discharge	Vaginal discharge accompanied by: Itching or irritation	Bad odour	Severe lower abdominal pain[1]	Fever	Other problem	Symptoms of a urinary tract infection[2]	Any abnormal vaginal discharge or symptoms of a urinary tract infection[2]	Number of ever-married women	Painful intercourse (often)	Bleeding after intercourse (ever)[1]	Any reproductive health problem	Number of currently married women
Age													
15–19	40.6	11.7	15.0	32.4	10.9	6.7	23.2	46.6	320	21.5	9.9	54.6	311
20–24	43.9	14.2	15.9	36.3	10.2	5.8	25.6	51.9	611	22.4	6.3	57.8	580
25–29	46.9	16.1	16.5	36.8	7.4	5.3	19.3	51.8	673	17.4	4.1	55.0	648
30–34	44.5	17.6	15.1	35.6	7.2	6.8	21.4	50.5	657	14.3	4.0	53.3	615
35–39	41.7	16.2	14.7	34.7	9.0	5.3	19.6	46.7	475	10.1	2.0	48.3	443
40–44	31.9	11.6	11.2	22.4	5.2	6.8	15.8	38.4	361	4.1	0.3	39.2	309
45–49	19.5	6.9	7.3	14.3	5.1	2.5	11.8	26.0	343	4.6	0.6	30.6	272
Residence													
Urban	26.8	10.4	6.7	19.5	3.7	4.7	13.6	32.3	294	10.4	3.0	37.0	266
Rural	41.5	14.6	15.0	33.2	8.3	5.7	20.7	47.7	3,147	15.1	4.2	51.9	2,912
Education													
Illiterate	43.6	14.9	17.1	35.9	8.6	5.8	22.1	49.8	1,856	14.1	3.5	53.7	1,669
Literate, < middle school complete	40.8	14.0	12.4	31.6	7.4	6.4	21.5	47.8	770	16.5	5.5	53.0	721
Middle school complete	33.6	12.9	11.9	25.3	8.1	4.9	14.7	39.2	484	15.2	4.6	44.0	468
High school complete and above	30.2	13.8	6.5	21.3	5.3	4.3	13.4	34.5	331	13.1	3.1	38.8	321
Religion													
Hindu	39.2	15.0	14.8	29.9	6.7	4.9	17.6	44.6	2,200	11.4	2.9	48.7	2,033
Muslim	43.2	13.5	13.4	36.7	10.9	7.2	25.8	50.6	1,114	21.8	6.2	55.5	1,026
Christian	37.4	9.8	16.5	32.1	0.9	1.8	11.8	45.3	79	11.9	5.6	45.7	74
Other	(22.8)	(11.1)	(9.8)	(16.3)	(9.8)	(4.8)	(18.3)	(24.8)	24	*	*	*	22
Caste/tribe													
Scheduled caste	30.8	9.7	10.0	23.2	3.3	5.9	15.9	37.3	349	11.3	2.5	42.4	311
Scheduled tribe	44.3	15.6	19.2	32.3	7.4	5.0	16.7	48.5	695	12.7	1.5	52.2	660
Other backward class	37.5	18.5	13.7	26.2	7.4	5.1	15.9	43.6	398	8.5	2.5	46.0	372
Other	40.7	13.7	13.3	34.0	8.7	5.9	22.6	47.6	1,919	17.6	5.6	52.2	1,759

Contd...

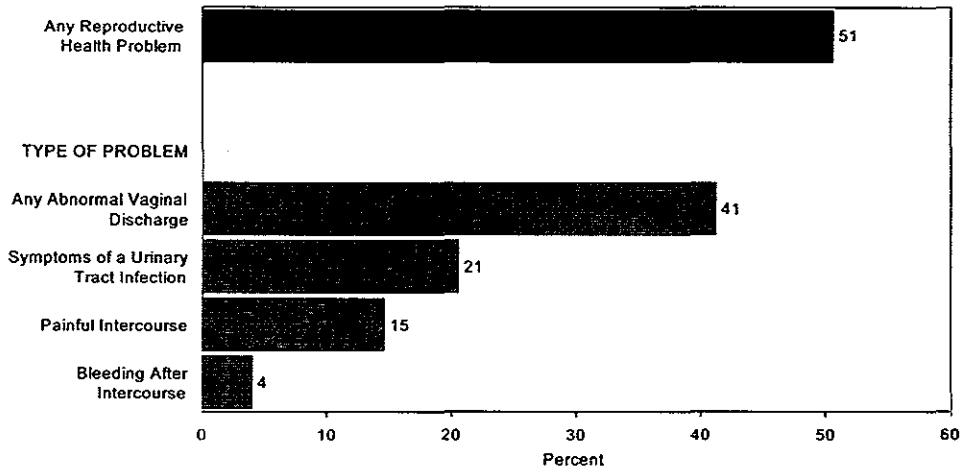
Table 8.12 Symptoms of reproductive health problems (contd.)

Percentage of ever-married women reporting abnormal vaginal discharge or symptoms of a urinary tract infection during the three months preceding the survey and percentage of currently married women reporting painful intercourse or bleeding after intercourse by selected background characteristics, Assam, 1999

	Ever-married women									Currently married women			
		Vaginal discharge accompanied by:											
Background characteristic	Any abnormal vaginal discharge	Itching or irritation	Bad odour	Severe lower abdominal pain[1]	Fever	Other problem	Symptoms of a urinary tract infection[2]	Any abnormal vaginal discharge or symptoms of a urinary tract infection[2]	Number of ever-married women	Painful intercourse (often)	Bleeding after intercourse (ever)[1]	Any reproductive health problem	Number of currently married women
Standard of living index													
Low	44.5	14.4	16.4	37.4	8.8	5.5	23.3	50.7	1,468	16.7	4.5	56.2	1,344
Medium	39.5	15.4	14.3	29.7	8.4	5.8	19.3	46.1	1,471	14.7	4.5	49.2	1,366
High	27.8	9.3	6.6	21.1	3.4	5.5	11.0	32.5	398	8.6	1.7	36.9	370
Work status													
Working in family farm/ business	43.5	10.6	14.4	36.1	7.7	9.4	29.5	51.5	166	18.6	7.3	59.5	139
Employed by someone else	55.3	19.8	25.0	47.1	9.9	5.8	24.6	61.7	373	11.1	2.6	64.8	319
Self-employed	43.6	13.7	15.6	39.0	6.0	6.7	22.4	48.1	155	15.7	4.3	52.7	123
Not worked in past 12 months	37.9	13.8	12.8	29.3	7.8	5.3	18.8	43.9	2,747	14.9	4.1	48.3	2,597
Number of children ever born													
0	41.8	13.3	16.7	34.7	9.6	8.4	22.8	47.5	383	23.8	8.1	54.7	351
1	40.1	15.5	13.6	30.1	8.6	4.6	17.4	45.3	560	15.6	4.4	49.3	510
2–3	42.6	15.7	15.1	32.7	7.4	5.3	19.7	48.9	1,262	15.9	4.5	53.6	1,172
4–5	39.6	13.9	13.7	33.3	8.1	4.9	21.7	45.6	816	10.2	2.5	47.8	757
6+	33.5	10.0	11.9	27.5	7.0	7.0	19.4	41.1	420	10.4	1.8	45.3	388
All ever-married women	40.3	14.3	14.3	32.0	7.9	5.7	20.1	46.4	3,441	NA	NA	NA	NA
All currently married women	41.2	14.4	14.5	32.9	8.3	5.7	20.6	47.3	3,179	14.7	4.1	50.6	3,179

Note: Total includes women with missing information on religion, caste/tribe, and the standard of living index, who are not shown separately.
NA: Not applicable
( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases
[1]Not related to menstruation
[2]Includes pain or burning while urinating or more frequent or difficult urination

Figure 8.5
Reproductive Health Problems Among Currently Married Women



NFHS-2, Assam, 1999

Table 8.13 Treatment of reproductive health problems

Among women with a reproductive health problem, percentage who sought advice or treatment from specific providers by residence, Assam, 1999

Provider	Urban	Rural	Total
Public medical sector	15.6	12.2	12.4
Government doctor	15.6	9.9	10.3
Public health nurse	0.0	1.1	1.1
ANM/LHV	0.0	0.8	0.8
Male MPW/supervisior	0.0	0.1	0.1
Village health guide	0.0	0.5	0.4
Other public medical sector	0.0	0.4	0.4
NGO worker	0.0	0.1	0.1
Private medical sector	24.7	14.9	15.5
Private doctor	20.4	10.0	10.6
Private nurse	0.7	1.6	1.6
Compounder/pharmacist	0.4	0.5	0.5
Vaidya/hakim/homeopath	2.0	1.9	1.9
Dai (TBA)	0.0	0.6	0.6
Traditional healer	1.3	1.4	1.4
Other private medical sector	0.0	0.8	0.7
Other	0.8	0.6	0.6
None	59.2	73.4	72.5
Number of women	104	1,589	1,693

Note: Table includes currently married women who report abnormal vaginal discharge, symptoms of a urinary tract infection, painful intercourse, or bleeding after intercourse and women who are ever married but not currently married who report abnormal vaginal discharge or symptoms of a urinary tract infection. Percentages add to more than 100.0 because women could report treatment from multiple providers.
ANM: Auxiliary nurse midwife; LHV: Lady health visitor; MPW: Multipurpose health worker; NGO: Nongovernmental organization; TBA: Traditional birth attendant

somewhat lower for women with more children. Overall, however, reproductive health problems are widespread among women in every group shown in the table.

Among women who report any reproductive health problems, almost three-quarters have not seen anyone for advice or treatment (Table 8.13). The proportion of women who have not obtained advice or treatment is higher in rural areas (73 percent) than in urban areas (59 percent). Overall, 56 percent of women who obtained advice or treatment were seen by someone in the private medical sector (61 percent in urban areas and 56 percent in rural areas). Among women who sought advice or treatment, 39 percent saw a private doctor and 37 percent saw a government doctor.

NFHS–2 results in Assam show that although almost half of currently married women report at least one reproductive health problem that could be symptomatic of a more serious reproductive tract infection, almost three-quarters of them bear the problems silently without seeking advice or treatment. These findings highlight the need to educate women regarding the symptoms and consequences of reproductive health problems and the urgent need to expand counselling and reproductive health services in both rural and urban areas.

CHAPTER 9

QUALITY OF CARE

The historic International Conference on Population and Development in Cairo in 1994 brought about a paradigm shift in population-related policies. The conference helped focus the attention of governments on making programmes more client-oriented with an emphasis on the quality of services and care. In line with the conference recommendations, the Government of India acknowledged the need to abandon the use of targets for monitoring its family welfare programme. It recognized that the top-down target approach does not reflect user needs and preferences and de-emphasizes the quality of care provided (Ministry of Health and Family Welfare, 1998b). Recent research on the different aspects of service delivery, especially at the grass-roots level, including programme coverage, client-provider interactions, and informed choice, also endorses the need to take a different approach to meeting the reproductive and health needs of the Indian population (Koenig and Khan, 1999). This research suggests that inadequate attention to the quality of care has contributed to the inability of the government's family welfare programme to meet its goals.

In 1996, the existing family welfare programme was transformed into the new Reproductive and Child Health (RCH) Programme. This new programme integrates all family welfare and women and child health services with the explicit objective of providing beneficiaries with 'need based, client centred, demand driven, high quality integrated RCH services' (Ministry of Health and Family Welfare, 1998b:6). The strategy for the RCH Programme shifts the policy emphasis from achieving demographic targets to meeting the reproductive needs of individual clients (Ministry of Health and Family Welfare, 1996).

NFHS-2 included several questions on the quality of care of health and family welfare services provided in the public sector and the private sector. In this chapter, sources of health care for households are described first. The chapter then examines different aspects of home visits by health and family planning workers and visits by respondents to health facilities, including frequency of visits, source of care, and quality of care. Finally, information is presented on the quality of care with respect to family planning services.

9.1 Source of Health Care for Households

To examine the role of different health providers in meeting the health-care needs of households, the NFHS-2 Household Questionnaire included the question, 'When members of your household get sick, where do they generally go for treatment?' Table 9.1 shows the main source of health care according to residence and the standard of living index. A large majority of households (75 percent) normally use the public medical sector when a household member gets sick; only 25 percent use the private medical sector. Overall, four types of health providers are generally used as a source of treatment by 75 percent of households: CHCs/rural hospitals/PHCs (45 percent), government/municipal hospitals (12 percent), private hospitals or clinics (10 percent), and private doctors (9 percent). Private doctors are the most popular source of health care for households in urban areas and CHCs/rural hospitals/PHCs in rural areas.

Table 9.1 Source of health care

Percent distribution of households by main source of health care when household members get sick, according to residence and the standard of living index, Assam, 1999

Source	Residence		Standard of living index			Total
	Urban	Rural	Low	Medium	High	
Public medical sector	43.4	78.0	75.5	78.2	56.5	74.7
Government/municipal hospital	26.1	10.2	9.4	12.6	17.4	11.7
Government dispensary	4.1	6.7	5.2	7.6	7.6	6.4
UHC/UHP/UFWC	0.4	0.9	1.1	0.6	0.7	0.8
CHC/rural hospital/PHC	7.1	48.9	48.3	45.8	24.8	44.9
Sub-centre	2.4	9.6	9.8	9.7	3.0	8.9
Government mobile clinic	0.0	0.0	0.0	0.1	0.0	0.0
Government paramedic	0.0	0.0	0.1	0.0	0.0	0.0
Other public medical sector	3.2	1.7	1.7	1.8	2.9	1.9
NGO or trust						
Hospital/clinic	0.7	0.0	0.1	0.1	0.1	0.1
Private medical sector	54.9	21.7	24.2	21.4	42.0	24.9
Private hospital/clinic	13.0	9.1	10.8	6.5	15.6	9.5
Private doctor	36.5	5.9	4.5	10.2	22.3	8.9
Private mobile clinic	0.1	0.1	0.0	0.1	0.4	0.1
Private paramedic	0.2	0.2	0.2	0.1	0.1	0.2
Vaidya/hakim/homeopath	0.7	0.3	0.3	0.3	0.9	0.3
Pharmacy/drugstore	3.3	2.1	2.5	2.2	1.2	2.2
Dai (TBA)	0.0	0.0	0.1	0.0	0.0	0.0
Other private medical sector	1.0	4.0	6.0	2.1	1.5	3.7
Other source	1.1	0.3	0.2	0.2	1.4	0.3
Home treatment	1.0	0.2	0.2	0.1	1.3	0.3
Other	0.1	0.0	0.0	0.1	0.1	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of households	300	2,821	1,424	1,265	337	3,121

Note: Total includes 94 households with missing information on the standard of living index, which are not shown separately.
UHC: Urban health centre; UHP: Urban health post; UFWC: Urban family welfare centre; CHC: Community health centre; PHC: Primary Health Centre; NGO: Nongovernmental organization; TBA: Traditional birth attendant

The type of health care services used is influenced by the standard of living of the household, although the public sector is the dominant health care source for households at all standards of living. More than three-quarters (76–78 percent) of households that have a low or medium standard of living usually obtain their health care from the public medical sector, compared with 57 percent of households with a high standard of living. The use of private doctors increases steadily from 5 percent of households with a low standard of living to 22 percent of households with a high standard of living. These results point to the importance of the public medical sector in providing health care to rural households and to households at every standard of living. It is notable that use of the public medical sector for health care is much higher in Assam (75 percent) than in India as a whole (29 percent).

9.2 Contacts at Home with Health and Family Planning Workers

Under the family welfare programme, health or family planning workers are required to regularly visit each household in their assigned area. During these contacts, the female health or family planning worker is supposed to monitor various aspects of the health of women and children, provide information related to health and family planning, counsel and motivate women to adopt

appropriate health and family planning practices, and deliver other selected services. These contacts are also important for enhancing the credibility of services and establishing necessary rapport with the clients. Only 4 percent of women in Assam, however, report that they received a home visit from a health or family planning worker during the 12 months preceding the survey (Table 9.2), compared with 13 percent of women in India as a whole. Given the small proportion of women reporting a home visit, the variation in home visits by background characteristics is perforce limited.

Table 9.2 Home visits by a health or family planning worker

Percentage of ever-married women who had at least one home visit by a health or family planning worker in the 12 months preceding the survey by selected background characteristics, Assam, 1999

Background characteristic	Percentage with at least one visit	Number of women
Age		
15–24	4.4	931
25–34	4.0	1,330
35–49	2.8	1,180
Residence		
Urban	1.2	294
Rural	3.9	3,147
Education		
Illiterate	3.3	1,856
Literate, < middle school complete	5.0	770
Middle school complete	4.2	484
High school complete and above	1.8	331
Religion		
Hindu	4.0	2,200
Muslim	2.8	1,114
Christian	9.4	79
Other	(4.9)	24
Caste/tribe		
Scheduled caste	8.0	349
Scheduled tribe	3.5	695
Other backward class	2.5	398
Other	3.4	1,919
Standard of living index		
Low	4.2	1,468
Medium	3.5	1,471
High	2.6	398
Number of children ever born		
0	2.3	383
1	3.9	560
2	3.8	667
3	3.2	595
4	5.3	506
5+	3.4	730
Family planning status		
Sterilized	5.2	531
Using method other than sterilization	3.9	845
Non-user	3.2	2,065
Total	3.7	3,441

Note: Total includes 25, 80, and 104 women with missing information on religion, caste/tribe, and the standard of living index, who are not shown separately.
( ) Based on 25–49 unweighted cases

Women who reported a home visit from a health or family planning worker during the 12 months preceding the survey were asked the frequency of visits during the past 12 months and the number of months since the most recent visit. These women, on average, received less than two home visits during the year, with the median duration since the most recent visit of 3 months (data not shown).

9.3 Quality of Home Visits

The quality of the care provided during home visits can be assessed in terms of client satisfaction with the services received during the visit. Each woman who reported that a health or family planning worker had visited her during the 12 months preceding the survey was asked about the quality of the care received. Questions were asked with reference only to the most recent home visit. The questions covered how the worker talked to the woman during the visit and whether the worker spent enough time with her. Table 9.3 shows that 82 percent of women who were visited at home by a health or family planning worker were satisfied with the amount of time the worker spent with them and 82 percent said that the worker talked nicely to them. Seventeen percent of women reported that the worker talked to them somewhat nicely and only 1 percent said that the worker did not talk nicely to them.

Table 9.3 Quality of home visits

Quality of care indicators for the most recent home visit by a health or family planning worker during the 12 months preceding the survey, Assam, 1999

Quality indicator	Total
Percentage who said worker spent enough time with them	81.9
Percentage who said worker talked to them:	
Nicely	81.6
Somewhat nicely	17.4
Not nicely	1.0
Total percent	100.0
Number of women visited at home	124

9.4 Matters Discussed During Home Visits or Visits to Health Facilities

Women who were visited at home by a health or family planning worker, as well as those who visited a health facility during the 12 months preceding the survey, were asked about the different topics discussed with the workers during any of these visits. Table 9.4 shows the percentage of women who discussed specific topics during home visits or visits to a health facility during the past 12 months.

The topic discussed most often during home visits by health or family planning workers was treatment of a health problem, which was mentioned by 38 percent of women. Other topics commonly discussed were postpartum care (24 percent), disease prevention (21 percent), antenatal care (15 percent), and immunization and family planning (11 percent each). Discussions about family planning were mentioned more often by current users of contraception (17 percent) than by pregnant women or women with a child less than three years of age (10 percent). As expected, pregnant women and women who had a child less than three years old

Table 9.4 Matters discussed during contacts with a health or family planning worker

Among ever-married women who had at least one contact with a health or family planning worker in the 12 months preceding the survey, the percentage who discussed specific topics with the health or family planning worker, Assam, 1999

Topic discussed	Pregnant women or women with children under age 3	Other women		Total
		Current contraceptive users	Current non-users	
During home visit				
Family planning	10.4	(16.5)	*	11.0
Immunization	19.7	(2.7)	*	11.3
Nutrition	7.6	(0.0)	*	4.1
Disease prevention	9.1	(30.6)	*	21.0
Treatment of health problem	27.5	(49.1)	*	37.5
Antenatal care	27.9	(0.0)	*	14.8
Delivery care	3.5	(0.0)	*	1.9
Postpartum care	7.1	(0.0)	*	3.8
Childcare	35.0	(11.2)	*	24.3
Sanitation/cleanliness	1.7	(0.0)	*	0.9
Other	0.0	(2.7)	*	0.9
Number of women	67	42	17	127
During visit to health facility				
Family planning	2.7	7.2	3.0	4.0
Breastfeeding	0.8	0.0	0.0	0.4
Supplementary feeding	0.3	0.0	0.4	0.2
Immunization	37.0	1.2	2.0	18.9
Nutrition	1.3	0.9	0.8	1.0
Disease prevention	6.7	16.7	23.3	13.3
Treatment of health problem	31.5	80.8	80.6	56.6
Antenatal care	32.3	0.0	1.4	16.2
Delivery care	5.1	0.3	1.0	2.8
Postpartum care	6.4	0.0	0.8	3.3
Childcare	33.0	23.2	19.3	27.1
Sanitation/cleanliness	0.2	0.3	0.0	0.2
Oral rehydration	0.3	0.9	0.0	0.4
Other	0.0	0.1	1.4	0.4
Number of women	725	413	342	1,480

Note: Percentages add to more than 100.0 because of multiple responses.
( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases

were much more likely than other women to report discussions of immunization, antenatal care, and childcare.

The topics most frequently discussed during visits to health facilities were treatment of health problems (57 percent) and childcare (27 percent), followed by immunization (19 percent). Only 4 percent of women reported that family planning was discussed during any of their visits to a health facility in the past year. Even among currently pregnant women and women with children under age three (many of whom are potentially in need of family planning), only 3 percent discussed family planning. Only 3 percent of current non-users of contraception mentioned discussing family planning. As expected, pregnant women and women with a child less than three years old were most likely to have discussions about childcare, antenatal care, and immunization. Although these women were also most likely to mention postpartum care and delivery care, the proportions discussing each of these topics is low—6 percent and 5 percent,

respectively. Moreover, only negligible proportions of these women discussed such topics as oral rehydration, breastfeeding, nutrition, and sanitation.

These findings suggest that delivery of health and family planning services in Assam is not well integrated. Indeed, in the process of providing health and childcare services, health workers are missing the opportunity to discuss family planning with even the women who may be most in need of such services. It is also evident that the provision of advice and information on safe motherhood practices to pregnant mothers and mothers with young children is very limited. Finally, many important health-related topics (feeding practices, nutrition, disease prevention, sanitation, and oral rehydration) are rarely discussed during either home visits or visits to a health facility.

9.5 Quality of Services Received at the Most Recent Visit to a Health Facility

NFHS-2 asked women who visited a health facility in the 12 months preceding the survey a number of questions to ascertain their perception of the quality of care they received during their most recent visit. Specific dimensions covered were whether women received the service they went for, the waiting time before receiving the service (or before finding out that the service was not available), whether the staff at the health facility spent enough time with them, whether the staff talked nicely to them, and whether the staff respected their privacy, if they needed privacy. Women were also asked to assess the cleanliness of the facility.

Almost all respondents (98 percent) said that they received the services for which they visited the facility (Table 9.5). The median waiting time to receive services was 30 minutes (30 minutes at public facilities and 29 minutes at private facilities). Satisfaction with the amount of time the staff spent with the woman was generally high, but was slightly lower in the public sector (90 percent) than in the private sector (96 percent).

Users also rated the private health sector more positively than the public health sector on all of the other indicators of quality. Eighty-one percent of women who received services in a private-sector facility said that the staff talked to them nicely, compared with only 60 percent of women who received services in a public-sector facility. The most dissatisfaction on this indicator was expressed by rural women who visited public-sector facilities, but only 3 percent of these women said that the staff did not talk to them nicely.

Among women who said they needed privacy during their visit, 84 percent were satisfied that the staff respected their need for privacy (93 percent for private-sector facilities and 81 percent for public-sector facilities). This proportion was also higher for women living in urban areas (96 percent) than for women living in rural areas (83 percent).

Only half of women rated the health facility they visited most recently as very clean. Both women living in urban areas and women living in rural areas rated private-sector facilities as cleaner than public-sector facilities. Overall, 73 percent of women who visited a private-sector facility said that the facility was very clean, compared with 42 percent of women who visited a public-sector facility. These data indicate that private-sector facilities on average appear to provide better quality services than public-sector facilities and that women living in urban areas receive better quality services than women living in rural areas.

Table 9.5 Quality of care during the most recent visit to a health facility

Among ever-married women, indicators of quality of care during the most recent visit to a health facility in the 12 months preceding the survey by sector of most recent visit and residence, Assam, 1999

	Public sector			Private sector/NGO/trust			Total		
Quality indicator	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Percentage who received the service they went for	98.9	97.3	97.4	99.0	98.2	98.3	98.9	97.5	97.6
Median waiting time (minutes)	29.4	29.8	29.8	19.8	29.5	29.4	29.1	29.8	29.7
Percentage who said the staff spent enough time with them	96.8	89.0	89.5	99.2	95.6	96.2	98.0	90.6	91.3
Percentage who said the staff talked to them:									
Nicely	80.3	59.0	60.3	95.3	78.2	80.9	87.6	63.7	65.8
Somewhat nicely	19.1	38.0	36.8	4.7	21.5	18.8	12.0	33.9	32.0
Not nicely	0.0	3.0	2.9	0.0	0.4	0.3	0.0	2.4	2.2
Missing	0.7	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Percentage who said the staff respected their need for privacy[1]	93.4	80.5	81.4	98.3	91.5	92.6	95.7	83.2	84.4
Percentage who rated facility as:									
Very clean	64.1	40.3	41.7	89.1	69.3	72.5	76.3	47.4	50.0
Somewhat clean	34.2	56.2	54.8	9.7	29.2	26.1	22.2	49.5	47.1
Not clean	0.5	2.8	2.7	0.7	1.1	1.1	0.6	2.4	2.3
Missing	1.2	0.7	0.8	0.5	0.4	0.4	0.9	0.6	0.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	66	1,010	1,076	64	331	394	130	1,341	1,470
Number of women who said they needed privacy	48	658	706	41	214	255	89	873	961

Note: Cases where the source of service was neither the public sector nor the private sector/NGO/trust are excluded from the table.
NGO: Nongovernmental organization
[1]Among women who said they needed privacy

9.6 Family Planning Information and Advice Received

To gain a better understanding of the information provided to women about different contraceptive methods, women were asked to recollect all the specific methods that had ever been discussed during any of the contacts they ever had with a health or family planning worker. Overall, 75 percent of women said that they had either no contact or no discussion about any method of family planning with health or family planning personnel (Table 9.6). This proportion was somewhat higher in rural areas (75 percent) than in urban areas (69 percent). Among women who discussed contraception, the most frequently discussed method was female sterilization. Discussions of the pill, IUD, rhythm method, withdrawal, and condom were each mentioned by less than 8 percent of women. Urban women reported discussions of all modern methods except male sterilization more often than rural women, and rural women reported discussions of male sterilization and traditional methods more often than urban women.

Table 9.6 Family planning discussions with a health or family planning worker

Percentage of ever-married women who reported ever discussing specific contraceptive methods with health or family planning workers by residence, Assam, 1999

Method	Urban	Rural	Total
Pill	8.4	7.6	7.7
Condom	4.6	1.1	1.4
IUD	4.6	2.8	3.0
Female sterilization	14.9	12.3	12.5
Male sterilization	0.3	0.7	0.7
Rhythm/safe period	0.9	2.3	2.1
Withdrawal	0.6	1.5	1.5
Other method	0.3	0.5	0.5
No method/no contact	69.1	75.1	74.6
Number of women	294	3,147	3,441

Note: Percentages add to more than 100.0 because more than one method may have been discussed.

9.7 Availability of Pills and Condoms

To explore difficulties faced in the procurement of condoms and pills, NFHS-2 asked current users of these methods if they had been able to get their supply whenever needed. The results are presented in Table 9.7. Only 6 percent of condom users report ever having a problem getting condoms, and only 4 percent of pill users report ever having a problem getting pills. In rural areas, 8 percent of condom users and 5 percent of pill users mentioned having had a problem obtaining condoms and pills, but no urban condom or pill users mentioned having had a supply problem.

Table 9.7 Availability of regular supply of condoms/pills

Percentage of current condom or pill users who ever had a problem getting a supply of condoms/pills by residence, Assam, 1999

Method/residence	Percentage who had a problem getting supply	Number of users
Condom		
Urban	(0.0)	12
Rural	(8.2)	44
Total	6.4	56
Pill		
Urban	(0.0)	16
Rural	4.5	185
Total	4.1	201

( ) Based on 25–49 unweighted cases

9.8 Person Motivating Users of a Modern Contraceptive Method

To help understand the dynamics of the adoption of contraceptive methods and the roles that different persons play, NFHS-2 asked current users of modern methods who mainly motivated them to use their current method. In Assam, 17 percent of the current users of a modern method said that they were not motivated by anyone; rather they adopted the method on their own (Table 9.8 and Figure 9.1). Only 21 percent said that a government health worker was the person who mainly motivated them and only 4 percent said they were motivated by a private-sector health worker. The remaining 58 percent reported that the motivator was someone other than a government or private-sector health worker. Differences between urban and rural areas are generally small, but users in urban areas were slightly more likely to have been motivated by a private-sector health worker and users in rural areas were slightly more likely to have motivated by a government health worker.

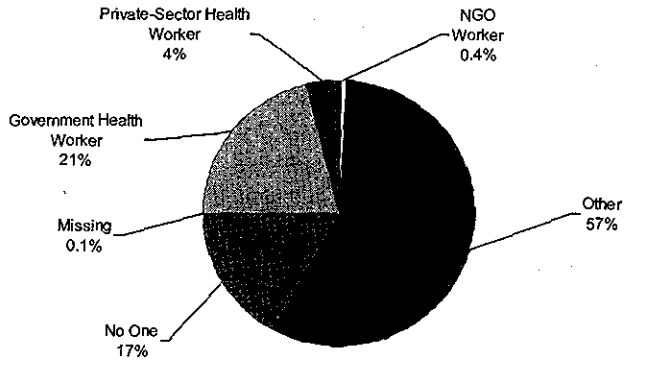
Table 9.8 Motivation to use family planning

Percent distribution of current users of modern contraceptive methods by type of person who motivated them to use the method, according to current method and residence, Assam, 1999

	Type of person who motivated the user to use current method							
Current method	Government health worker	Private-sector health worker	NGO worker	Other	No one	Missing	Total percent	Number of users
URBAN								
Pill	(28.7)	(15.0)	(0.0)	(56.3)	(0.0)	(0.0)	100.0	16
Condom	(8.1)	(21.9)	(0.0)	(67.3)	(2.7)	(0.0)	100.0	12
IUD	*	*	*	*	*	*	100.0	5
Female sterilization	15.8	0.7	0.0	62.9	20.6	0.0	100.0	48
Male sterilization	*	*	*	*	*	*	100.0	1
All modern methods	17.3	7.4	0.0	60.8	14.5	0.0	100.0	81
RURAL								
Pill	23.5	3.3	0.0	60.4	12.9	0.0	100.0	185
Condom	(16.4)	(5.2)	(0.0)	(70.4)	(7.9)	(0.0)	100.0	44
IUD	(21.8)	(0.0)	(0.0)	(56.5)	(21.7)	(0.0)	100.0	55
Female sterilization	21.3	3.6	0.3	56.6	18.2	0.0	100.0	451
Male sterilization	(22.4)	(11.8)	(7.8)	(27.0)	(27.1)	(3.9)	100.0	31
All modern methods	21.6	3.7	0.5	57.1	17.0	0.2	100.0	766
TOTAL								
Pill	23.9	4.2	0.0	60.0	11.9	0.0	100.0	201
Condom	14.6	8.8	0.0	69.7	6.8	0.0	100.0	56
IUD	21.1	1.1	0.0	55.8	22.0	0.0	100.0	60
Female sterilization	20.8	3.4	0.2	57.2	18.5	0.0	100.0	499
Male sterilization	(23.0)	(11.6)	(7.6)	(26.4)	(27.6)	(3.8)	100.0	32
All modern methods	21.2	4.1	0.4	57.4	16.7	0.1	100.0	847

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

Figure 9.1
Motivator for Current Users of Modern Contraceptive Methods



Note: Percents add to less than 100.0 due to rounding

NFHS-2, Assam, 1999

9.9 Quality of Care of Family Planning Services

NFHS-2 investigated several other aspects of quality of care. Each current user of a modern family planning method was asked whether the person who motivated her to use her current method informed her about alternative methods of family planning; whether she was told by a health or family planning worker about the possible side effects of her current method at the time she accepted the method; and whether she received any follow-up care after accepting the method either at home or in a health facility. Tables 9.9 and 9.10 present the results of this investigation.

An important indicator of the quality of family planning services is whether women are informed about a variety of available methods and are allowed to make an informed choice about

Table 9.9 Discussions about alternative methods of family planning

Percentage of current users of modern contraceptive methods who were told about at least one other method by the person who motivated them to use the current method, according to the sector of the motivator and residence, Assam, 1999

Sector of motivator	Urban	Rural	Total	Number of users
Public health sector	(50.7)	21.1	23.4	180
Private health sector	*	*	(27.7)	34
Other	14.9	13.5	13.6	486
Total	27.8	15.5	16.7	704

Note: Table excludes women who said that no one motivated them to use their current method. Total includes 4 users of modern methods who were motivated by a worker from a nongovernmental organization, who are not shown separately.
( ) Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases

the method most suited to their family planning and reproductive health needs. Women who reported that someone had motivated them to use family planning were asked whether the motivator told them about alternative methods that they could use. Overall, only 17 percent of users of modern contraceptive methods who were motivated by someone were informed about at least one alternative method (Table 9.9). Even among women who were motivated by a government or private-sector health worker, only 23–28 percent were told about any other method. The overall situation was better in urban areas (where motivators provided 28 percent of users with information about other methods) than in rural areas (where only 16 percent received such information). However, even in urban areas, almost three out of four users of modern methods who were motivated by someone to use their method were not told about any other methods of contraception.

Another important element of informed contraceptive choice is being fully informed about any side effects and any other problems associated with the method. Table 9.10 shows the percentage of current users of modern contraception who were told about side effects or other problems by a health or family planning worker at the time they accepted their current method. Women were also asked if they received follow-up services after they accepted the method. In Assam, only 13 percent of users of any modern method were informed about possible side effects or problems associated with their current method at the time of adopting the method. In the case of sterilization, only 11 percent of women were told about possible side effects of the method. These proportions are similar in urban and rural areas. From these results, it is apparent that health or family planning workers in Assam are not providing couples with the information they need to make an informed choice about contraceptive methods.

The situation is much better with respect to follow-up services. Overall, 85 percent of users of modern contraceptives received follow-up services (91 percent of those who were sterilized and 74 percent of those using other modern methods). Among sterilization users, 97 percent in urban areas and 91 percent in rural areas received follow-up services.

Table 9.10 Information on side effects and follow-up for current method

Percentage of current users of modern contraceptive methods who were told about side effects or other problems of the current method by a health or family planning worker at the time of accepting the method and percentage who received follow-up services after accepting the method by current method and residence, Assam, 1999

Information/follow-up	Urban	Rural	Total
Told about side effects			
Sterilization	12.1	10.5	10.6
Other modern method	18.0	17.0	17.1
Any modern method	14.5	12.9	13.0
Received follow-up			
Sterilization	97.0	90.5	91.1
Other modern method	59.8	76.0	74.3
Any modern method	81.8	85.2	84.8

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.

Anandaiah, Ravilla, and Minja Kim Choe. 2000. Are the WHO guidelines on breastfeeding appropriate for India? *National Family Health Survey Subject Reports No. 16.* Mumbai: International Institute for Population Sciences; and Honolulu: East-West Center.

Arnold, Fred. 1996. *Son preference in South Asia.* Paper presented at the Seminar on Comparative Perspectives on Fertility Transition in South Asia, International Union for the Scientific Study of Population, Rawalpindi, 17–20 December.

Arnold, Fred, Minja Kim Choe, and T.K. Roy. 1998. Son preference, the family-building process and child mortality in India. *Population Studies* 52(3): 301–315.

Bang, R.A. and A. Bang. 1991. Why women hide them: Rural women's viewpoints on reproductive tract infections. *Manushi* 69:27–30.

Bang, R.A., A.T. Bang, M. Baitule, Y. Chaudhury, S. Sarmukaddam, and O. Tale. 1989. High prevalence of gynaecological diseases in rural Indian women. *Lancet* 1(8629): 85–88.

Bardhan, Kalpana. 1985. Women's work, welfare and status: Forces of tradition and change in India. *Economic and Political Weekly* 20(51): 2261–2267.

Basu, Alaka Malwade. 1989. Is discrimination in food really necessary for explaining sex differentials in childhood mortality? *Population Studies* 43(2): 193–210.

Bhatia, J.C. and John Cleland. 1995. On self-reported symptoms of gynecological morbidity and their treatment in South India. *Studies in Family Planning* 26(4): 203–216.

Bloem, Martin W., Saskia de Pee, and Ian Darnton-Hill. 1997. Vitamin A Deficiency in India, Bangladesh and Nepal. In Stuart Gillespie (ed.), *Malnutrition in South Asia: A Regional Profile.* Kathmandu: Regional Office for South Asia, UNICEF.

Centers for Disease Control and Prevention (CDC). 1998. Recommendations to prevent and control iron deficiency in the United States. *Morbidity and Mortality Weekly Report* 47(RR-3): 1–29.

Central Bureau of Health Intelligence (CBHI). 1991. *Health Information of India - 1991.* New Delhi: CBHI, Directorate General of Health Services, Ministry of Health and Family Welfare.

Das Gupta, Monica. 1987. Selective discrimination against female children in rural Punjab, India. *Population and Development Review* 13(1): 77–100.

Desai, Sonalde and Devaki Jain. 1994. Maternal employment and changes in family dynamics: The social context of women's work in rural South India. *Population and Development Review* 20(1): 115–136.

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 Economics and Statistics, Assam, 2001. *Economic Survey-Assam, 2000–2001.* Guwahati: Directorate of Economics and Statistics, Government of Assam.

Dixon-Mueller, Ruth. 1993. *Population Policies and Women's Rights: Transforming Reproductive Choice.* Westport, Connecticut: Praeger.

Dyson, Tim and Mick Moore. 1983. On kinship structure, female autonomy and demographic behavior in India. *Population and Development Review* 9(1): 35–60.

EPW Research Foundation. 1998, *National Accounts Statistics of India, 1950-51 to 1996-97.* Mumbai: EPW Research Foundation.

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* 10 (Suppl.): 119–140.

Germain, Adrienne, King K. Holmes, Peter Piot, and Judith N. Wasserheit. 1992. *Reproductive Tract Infections: Global Impact and Priorities for Women's Reproductive Health.* New York: Plenum Press.

Ghosh, Shanti. 1987. The female child in India: A struggle for survival. *Bulletin of the Nutrition Foundation of India* 8(4).

Gopalan, C., B.V. Rama Sastri, and S.C. Balasubramanian. 1996. *Nutritive Value of Indian Foods.* Hyderabad: National Institute of Nutrition.

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.

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.

Hegde, Radha S. 1996. Narratives of silence: Rethinking gender, agency and power from the communication experiences of battered women in south India. *Communication Studies* 47: 303–317.

Heise, Lori, Mary Ellsberg, and Megan Gottemoeller. 1998. Ending violence against women. *Population Reports, Series L, No. 11.* Baltimore: Population Information Program, Johns Hopkins University School of Public Health.

Heise, Lori, Jacqueline Pitanguy, and Adrienne Germain. 1994. *Violence Against Women: The Hidden Health Burden.* Washington, DC: The World Bank.

IDD & Nutrition Cell. 1998. *Policy Guidelines on National Iodine Deficiency Disorders Control Programme.* New Delhi: Directorate General of Health Services, Ministry of Health and Family Welfare.

International Clinical Epidemiology Network (INCLEN). 2000. WorldSAFE and IndiaSAFE: Studying the prevalence of family violence. *INCLEN Monograph Series on Critical International Health Issues, Monograph 9.* Philadelphia: INCLEN.

International Institute for Population Sciences (IIPS). 1995. *National Family Health Survey (MCH and Family Planning), India 1992–93.* Bombay: IIPS.

International Institute for Population Sciences (IIPS) and ORC Macro. 2000. *National Family Health Survey (NFHS-2), 1998–99: India.* Mumbai: IIPS.

Jaisingh, I. 1995. Violence Against Women: The Indian Perspective. In J. Peters and A. Wolper (eds.), *Women's Rights, Human Rights.* New York: Routledge.

Jeffery, Roger and Alaka M. Basu. 1996. *Girls' Schooling, Women's Autonomy and Fertility Change in South Asia.* New Delhi: Sage Publications.

Jejeebhoy, Shireen J. 1998. Associations between wife-beating and fetal and infant death: Impressions from a survey in rural India. *Studies in Family Planning* 29(3): 300–308.

Jejeebhoy, Shireen J. and S. Rama Rao. 1992. *Unsafe motherhood: A review of reproductive health in India.* Paper presented at the Workshop on Health and Development in India, sponsored by the National Council of Applied Economic Research and Harvard University, Center for Population and Development Studies, New Delhi, 2–4 January.

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.

Kapil, Umesh, R.S. Raghuvanshi, Kumud Khanna, B.P. Mathur, T.D. Sharma, Beena, S.S. Swami, and S. Seshadri. 1999. Utility of spot testing kit in the assessment of iodine content of salt – A multicentric study. *Indian Pediatrics* 37: 182–186.

Kishor, Sunita. 1995. Gender Differentials in Child Mortality: A Review of Evidence. In Monica Das Gupta, Lincoln C. Chen, and T.N. Krishnan (eds.), *Women's Health in India: Risk and Vulnerability.* Bombay: Oxford University Press.

Koenig, Michael A. and Gillian H.C. Foo. 1992. Patriarchy, women's status and reproductive behaviour in rural North India. *Demography India* 21(2): 145–166.

Koenig, Michael A. and M.E. Khan (eds.). 1999. *Improving Quality of Care in India's Family Welfare Programme: The Challenge Ahead.* New York: Population Council.

Krenzischeck, D.A. and F.V. Tanseco. 1996. Comparative study of bedside and laboratory measurements of haemoglobin. *American Journal of Critical Care* 5: 427–432.

Kulkarni, Sumati and Minja Kim Choe. 1998. Wanted and unwanted fertility in selected states of India. *National Family Health Survey Subject Reports No. 6.* Mumbai: International Institute for Population Sciences; and Honolulu: East-West Center.

MacDonald, Paul C. and Jack A. Pritchard. 1980. *Williams Obstetrics.* Sixteenth Edition. New York: Appleton-Century-Crofts.

Mahmud, Simeen and Anne M. Johnston. 1994. Women's Status, Empowerment and Reproductive Outcomes. In Gita Sen, Adrienne Germain, and Lincoln C. Chen (eds.), *Population Policies Reconsidered: Health, Empowerment and Rights.* Harvard Series on Population and International Health. Boston: Harvard School of Public Health.

Martorell, R. and J.P. Habicht. 1986. Growth in Early Childhood in Developing Countries. In Frank Falkner and J.M. Tanner (eds.). *Human Growth: A Comprehensive Treatise*, Vol. 3. New York: Plenum Press.

McNulty, Stephen E., Marc Torjman, Wlodzimierz Grodecki, Alex Marr, and Hugh Schieren. 1995. A comparison of four bedside methods of hemoglobin assessment during cardiac surgery. *Anesthesia and Analgesic* 81(6): 1197–1202.

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). 1994. *Annual Report 1992–93.* New Delhi: MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1996. *Model Plan for District Based Pilot/Sub-projects of Reproductive and Child Health (RCH).* New Delhi: MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1997. *Reproductive and Child Health Programme: Schemes for Implementation.* New Delhi: Department of Family Welfare, MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1998a. *Family Welfare Programme in India, Year Book, 1996–1997.* New Delhi: Department of Family Welfare, MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1998b. *Manual on Community Needs Assessment Approach in Family Welfare Programme.* New Delhi: Department of Family Welfare, MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1999. *Evaluation of Routine Immunization 1997–98*. New Delhi: Department of Family Welfare, MOHFW.

Ministry of Health and Family Welfare (MOHFW). 2000. *National Population Policy, 2000*. New Delhi: Department of Family Welfare, MOHFW.

Ministry of Health and Family Welfare (MOHFW). n.d. *Reproductive and Child Health Programme*. New Delhi: Department of Family Welfare, MOHFW.

Murray, Christopher J.L. and Alan D. Lopez. 1996. *The Global Burden of Disease*. Cambridge, Massachusetts: Harvard University Press.

Murthi, M., A.-C. Guio, and J. Drèze. 1995. Mortality, fertility, and gender bias in India. *Population and Development Review* 21(4): 745–782.

Nag, Moni. 1991. Sex preference in Bangladesh, India and Pakistan and its effect on fertility. *Demography India* 20(2): 163–185.

Narasimhan, R.L., Robert D. Retherford, Vinod Mishra, Fred Arnold, and T.K. Roy. 1997. Comparison of Fertility Estimates from India's Sample Registration System and National Family Health Survey. National Family Health Survey Subject Reports No. 4. Mumbai: International Institute for Population Sciences; and Honolulu: East-West Center.

Nutrition Foundation of India. 1993. *NFI Bulletin* 14(4).

Office of the Registrar General. 1996. *Report of the Technical Group on Population Projections*. New Delhi: Office of the Registrar General, India.

Office of the Registrar General. 1999a. *Sample Registration System: Statistical Report 1997*. New Delhi: Office of the Registrar General, India.

Office of the Registrar General. 1999b. *SRS Compendium of India's Fertility and Mortality Indicators, 1971-1997 (Based on the Sample Registration System)*. New Delhi: Office of the Registrar General, India.

Office of the Registrar General and Census Commissioner. 1992. *Census of India, 1991, Series 1, India, Paper-2 of 1992, Final population totals: Brief analysis of Primary Census Abstract*. New Delhi: Office of the Registrar General and Census Commissioner.

Office of the Registrar General and Census Commissioner. 2001. *Census of India 2001, Series-1, India, Paper-1 of 2001, Provisional Population Totals*. New Delhi: Registrar General and Census Commissioner, India.

Pachauri, S. and J. Gittelsohn. 1994. Summary of Research Studies and Implications for Health Policy and Programmes. In J. Gittelsohn, M.E. Bentley, P.J. Pelto, M. Nag, S. Pachauri, A.D. Harrison, and L.T. Landman (eds.), *Listening to Women Talk about Their Health: Issues and Evidence from India*. New Delhi: Ford Foundation and Har-Anand Publications.

Pandey, Arvind, Minja Kim Choe, Norman Y. Luther, Damodar Sahu, and Jagdish Chand. 1998. Infant and child mortality in India. *National Family Health Survey Subject Reports No. 11*. Mumbai: International Institute for Population Sciences; and Honolulu: East-West Center.

Parasuraman, Sulabha, T.K. Roy, and S. Sureender. 1994. Sex Composition of Children and Fertility Behaviour in Rural Maharashtra. In K.B. Pathak, U.P. Sinha, and Arvind Pandey (eds.), *Dynamics of Population and Family Welfare*. Bombay: Himalaya Publishing House.

Park, J.E. and K. Park. 1989. *Textbook of Preventive and Social Medicine*. Twelfth Edition. Jabalpur: M/S Banarsidas Bhanot Publishers.

Population Council. 1999. Reproductive tract infections: A set of factsheets. Bangkok: Population Council.

Prakash, S., U. Kapil, G. Singh, S.N. Dwivedi, and M. Tandon. 1999. Utility of Hemocue in estimation of hemoglobin against standard blood cell counter method. *Journal of the Association of Physicians of India* 47: 995–997.

Prasad, Shally. 1999. Medicolegal response to violence against women in India. *Violence Against Women* 5(5): 478–506.

Preston, Samuel H. 1989. Mortality in India. In International Union for the Scientific Study of Population (IUSSP), *International Population Conference, New Delhi, 1989*, Vol. 4. Liege: IUSSP.

Ramachandran, Prema. 1992. Need of organization of antenatal and intrapartum care in India. *Demography India* 21(2): 179–193.

Ramasubban, Radhika and Bhanwar Singh. 1998. 'Ashaktapana' (Weakness) and Reproductive Health in a Slum Population in Mumbai, India. In Carla M. Obermeyer (ed.), *Cultural Perspectives in Reproductive Health*. Oxford: Oxford University Press.

Ramesh, B.M., S.C. Gulati, and Robert D. Retherford. 1996. Contraceptive use in India. *National Family Health Survey Subject Reports No. 2*. Mumbai: International Institute for Population Sciences; and Honolulu: East-West Center.

Rao, Vijayendra and Francis Bloch. 1993. Wife-Beating, Its Causes and Its Implications for Nutrition Allocations to Children: An Economic and Anthropological Case Study of a Rural South Indian Community. Washington, DC: Policy Research Department, Poverty and Human Resources Division, World Bank.

Retherford, Robert D. and Vinod K. Mishra. 2001. *Comparison of fertility trends estimated from India's Sample Registration System and India's first and second National Family Health Surveys*. Paper presented at the annual meeting of the Population Association of America, Washington, DC, 29–31 May, 2001.

Retherford, Robert D. and B.M. Ramesh. 1996. Fertility and contraceptive use in Tamil Nadu, Andhra Pradesh and Uttar Pradesh, *National Family Health Survey Bulletin No. 3*. Mumbai: International Institute for Population Sciences; and Honolulu: East-West Center.

Retherford, Robert D., Minja Kim Choe, Shyam Thapa, and Bhakta B. Gubhaju. 1989. To what extent does breastfeeding explain birth-interval effects of early childhood mortality? *Demography* 26(3): 439–450.

Rutstein, Shea O. 1984. Infant and child mortality: Levels, trends, and demographic differentials. Revised edition. *WFS Comparative Studies No. 43*. Voorburg, Netherlands: International Statistical Institute.

Sen, Amartya K. 1990. Gender and Cooperative Conflicts. In Irene Tinker (ed.), *Persistent Inequalities: Women and World Development*. New York: Oxford University Press.

Sen, Gita and Srilatha Batliwala. 1997. *Empowering women for reproductive rights: Moving beyond Cairo*. Paper presented at the Seminar on Female Empowerment and Demographic Processes: Moving Beyond Cairo, IUSSP, Lund, Sweden, 21–24 April.

Seshadri, Subadra. 1997. Nutritional Anaemia in South Asia. In Stuart Gillespie (ed.), *Malnutrition in South Asia: A Regional Profile*. Kathmandu: Regional Office for South Asia, UNICEF.

Seshadri, Subadra. 1998. *A Data Base on Iron Deficiency Anemia (IDA) in India: Prevalence, Causes, Consequences and Strategies for Prevention*. Vadodara: The Maharaja Sayajirao University of Baroda.

Stolzfus, Rebecca J. and Michele L. Dreyfuss. 1998. *Guidelines for the Use of Iron Supplements to Prevent and Treat Iron Deficiency Anemia*. International Nutritional Anemia Consultative Group. Washington, DC: International Life Sciences Institute Press.

Tabutin, Dominique and Michel Willems. 1995. Excess female child mortality in the developing world in the 1970s and 1980s. *Population Bulletin of the United Nations* 39:45–78.

United Nations. 1955. *Methods of Appraisal of Quality of Basic Data for Population Estimates*. New York: United Nations.

United Nations General Assembly. 1991. Advancement of Women: Convention on the Elimination of All Forms of Discrimination Against Women, Report of the Secretary-General. New York: United Nations.

Vir, Sheila. 1995. Iodine deficiency in India. *Indian Journal of Public Health* 39(4): 132–134.

Visaria, Leela. 1999. Violence Against Women in India: Evidence from Rural Gujarat. In International Center for Research on Women (ICRW), *Domestic Violence in India; A Summary Report of Three Studies*. Washington, DC: ICRW.

Von Schenk, H., M. Falkensson, and B. Lundberg. 1986. Evaluation of "HemoCue", a new device for determining hemoglobin. *Clinical Chemistry* 32(3): 526-529.

Youssef, Nadia H. 1982. The Interrelationship Between the Division of Labor in the Household, Women's Roles and Their Impact on Fertility. In R. Anker, M. Buvinic, and N.H. Youssef (eds.), *Women's Roles and Population Trends in the Third World*. London: Croom Helm.

APPENDIX A

ESTIMATES OF SAMPLING ERRORS

Two types of errors affect the estimates from a sample survey: (1) nonsampling errors and (2) sampling errors. Nonsampling errors are the result of errors committed during data collection and data processing, such as failure to locate and interview the correct household, misunderstanding of the questions on the part of either the interviewer or the respondent, and data entry errors. Although numerous efforts were made during the implementation of NFHS-2 to minimize nonsampling errors, they are impossible to avoid and difficult to evaluate statistically.

Sampling errors, on the other hand, can be evaluated statistically. The sample of women selected in NFHS-2 is only one of many samples that could have been selected from the same population, using the same design and expected sample size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. The sampling error is a measure of the variability among all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

The sampling error is usually measured by the *standard error* for a particular statistic (for example, a mean or percentage), which is the square root of the variance. The standard error can be used to calculate confidence intervals within which the true value for the population can reasonably be assumed to fall. For example, for any given statistic calculated from a sample survey, the value of that statistic will fall within a range, calculated as the value of the statistic plus or minus two times the standard error of that statistic, in 95 percent of all possible samples of identical size and design.

If the sample of women had been selected as a simple random sample, it would have been possible, for many statistics, to use straightforward formulas for calculating sampling errors. However, the NFHS-2 sample is the result of a multi-stage stratified sample design, and it is, therefore, necessary to use more complex formulas. The computer software used to calculate sampling errors for NFHS-2 is ISSA (the Integrated System for Survey Analysis). The linear Taylor series approximation method for variance estimation is used for estimates of means, proportions, and ratios. The JACKKNIFE repeated replication method is used with ISSA for variance estimation for more complex statistics such as fertility and mortality rates.

The ISSA package treats any percentage or average as a ratio estimate, $r = y/x$, where y represents the sample value for variable y, and x represents the number of cases in the group or subgroup under consideration. The variance of r is computed using the formula given below, with the standard error being the square root of the variance:

$$var(r) = \frac{1 - f}{x^2} \sum_{h=1}^{H} \left[\frac{m_h}{m_h - 1} \left(\sum_{i=1}^{m_h} z_{hi}^2 - \frac{z_h^2}{m_h} \right) \right]$$

in which

$$z_{hi} = y_{hi} - rx_{hi}$$
$$z_h = y_h - rx_h$$

where

h represents the stratum that 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,
f is the overall sampling fraction, which is so small that the program ignores it.

In addition to the standard error, ISSA computes the relative standard error, confidence limits for the estimates, and the design effect (DEFT) for each estimate. The design effect is defined as the ratio of the standard error using the given sample design to the standard error that would result if a simple random sample had been used. A DEFT value of 1.0 indicates that the sample design is as efficient as a simple random sample, while a value greater than 1.0 indicates the increase in the sampling error due to the use of a more complex and less statistically efficient design.

Sampling errors for NFHS-2 are calculated for selected variables considered to be of primary interest. The results in this appendix are presented for the state as a whole and for urban and rural areas separately, except for the variable on salt iodization for which the results are shown separately for large cities, small cities, towns, and rural areas. For each variable, the type of statistic (mean, proportion, ratio, or rate) and the base population are given in Table A.1. Table A.2 presents the value of the statistic (R), its standard error (SE), the relative standard error (SE/R), and the 95 percent confidence limits (R±2SE) for each variable. In addition, for all variables except the fertility and mortality rates, the table shows the unweighted number of cases (N), the weighted number of cases (WN), the standard error assuming a simple random sample (SER), and the design effect (DEFT).

Table A.1 List of selected variables for sampling errors, Assam, 1999

Variable	Estimate	Base population
Sex ratio	Ratio	*De facto* household population
Illiterate	Proportion	*De facto* household population age 6 and above
Have tuberculosis	Rate	1,000 *de jure* household population
Salt iodized at 15 ppm or more	Proportion	Households
Illiterate	Proportion	Ever-married women age 15–49
High school complete and above	Proportion	Ever-married women age 15–49
Currently married	Proportion	Ever-married women age 15–49
Number of children ever born	Mean	Currently married women age 15–49
Number of living children	Mean	Currently married women age 15–49
Have ever used any method	Proportion	Currently married women age 15–49
Currently using any method	Proportion	Currently married women age 15–49
Currently using any modern method	Proportion	Currently married women age 15–49
Currently using pills	Proportion	Currently married women age 15–49
Currently using IUD	Proportion	Currently married women age 15–49
Currently using condoms	Proportion	Currently married women age 15–49
Currently using female sterilization	Proportion	Currently married women age 15–49
Currently using male sterilization	Proportion	Currently married women age 15–49
Currently using rhythm/safe period	Proportion	Currently married women age 15–49
Using public source for modern method	Proportion	Current users of modern methods
Do not want any more children	Proportion	Currently married women age 15–49
Want to delay birth at least 2 years	Proportion	Currently married women age 15–49
Ideal number of children	Mean	Ever-married women age 15–49
Ideal number of sons	Mean	Ever-married women age 15–49
Ideal number of daughters	Mean	Ever-married women age 15–49
Visited by a health/family planning worker	Proportion	Ever- married women age 15–49
Received no antenatal check-up	Proportion	Births in the past 3 years
Received iron and folic acid tablets or syrup	Proportion	Births in the past 3 years
Received medical assistance during delivery	Proportion	Births in the past 3 years
Received postpartum check-up	Proportion	Noninstitutional births in past 3 years
Had diarrhoea in the past 2 weeks	Proportion	Children under 3 years
Treated with ORS packets	Proportion	Children under 3 with diarrhoea in past 2 weeks
Taken to a health facility/provider for diarrhoea	Proportion	Children under 3 with diarrhoea in past 2 weeks
Showing a vaccination card	Proportion	Children age 12–23 months
Received BCG vaccination	Proportion	Children age 12–23 months
Received DPT vaccination (3 doses)	Proportion	Children age 12–23 months
Received polio vaccination (3 doses)	Proportion	Children age 12–23 months
Received measles vaccination	Proportion	Children age 12–23 months
Fully vaccinated	Proportion	Children age 12–23 months
Received vitamin A	Proportion	Children age 12–35 months
Had reproductive health problem	Proportion	Currently married women age 15–49
Not involved in any decisionmaking	Proportion	Ever-married women age 15–49
Ever beaten or physically mistreated since age 15	Proportion	Ever-married women age 15–49
Not worked in past 12 months	Proportion	Ever-married women age 15–49
Anaemic women	Proportion	Ever-married women age 15–49
Anaemic children	Proportion	Children age 6-35 months
Fertility rates	Rate	All women, population
Mortality rates	Rate	Births, population

Table A.2 Sampling errors, Assam, 1999

Variable/ residence	Value (R)	Standard error (SE)	Number of cases		Standard error assuming SRS (SER)	Design effect (DEFT)	Relative standard error (SE/R)	Confidence limits	
			Unweighted (N)	Weighted (WN)				R-2SE	R+2SE
Sex ratio (*De facto* household population)									
Urban	989	31.275	2078	745	24.308	1.287	0.032	926	1052
Rural	954	14.310	7083	8758	13.191	1.085	0.015	925	982
Total	956	13.434	9161	9503	11.393	1.179	0.014	930	983
Illiterate (*De facto* household population age 6 and above)									
Urban	0.127	0.017	3716	1330	0.008	2.229	0.134	0.093	0.161
Rural	0.349	0.021	11888	14686	0.007	3.078	0.060	0.306	0.391
Total	0.330	0.020	15604	16015	0.006	3.402	0.060	0.290	0.370
Have tuberculosis (1,000 *de jure* household population)									
Urban	5.826	2.097	4075	1457	1.746	1.201	0.360	1.631	10.021
Rural	7.206	1.244	13692	16916	1.043	1.192	0.173	4.718	9.693
Total	7.096	1.159	17767	18373	0.895	1.295	0.163	4.779	9.414
Salt iodized at 15 ppm or more (Households)									
Large city	0.975	0.010	198	79	0.011	0.882	0.010	0.956	0.995
Small city	0.809	0.167	106	36	0.038	4.355	0.206	0.475	1.000
Town	0.929	0.022	534	185	0.011	1.998	0.024	0.885	0.974
Rural	0.783	0.022	2283	2821	0.009	2.557	0.028	0.738	0.827
Total	0.796	0.020	3121	3121	0.007	2.783	0.025	0.756	0.837
Illiterate (Ever-married women age 15-49)									
Urban	0.239	0.029	808	294	0.015	1.960	0.123	0.181	0.298
Rural	0.567	0.027	2633	3147	0.010	2.820	0.048	0.513	0.622
Total	0.539	0.026	3441	3441	0.008	3.054	0.048	0.488	0.591
High school complete and above (Ever-married women age 15-49)									
Urban	0.350	0.041	808	294	0.017	2.448	0.117	0.268	0.432
Rural	0.072	0.009	2633	3147	0.005	1.835	0.128	0.054	0.091
Total	0.096	0.010	3441	3441	0.005	2.083	0.109	0.075	0.117
Currently married (Ever-married women age 15–49)									
Urban	0.907	0.010	808	294	0.010	1.009	0.011	0.886	0.927
Rural	0.925	0.007	2633	3147	0.005	1.339	0.007	0.912	0.939
Total	0.924	0.006	3441	3441	0.005	1.407	0.007	0.911	0.937
Number of children ever born (Currently married women age 15–49)									
Urban	2.445	0.082	734	266	0.063	1.309	0.034	2.280	2.609
Rural	3.015	0.049	2435	2912	0.043	1.126	0.016	2.917	3.112
Total	2.967	0.047	3169	3179	0.037	1.243	0.016	2.874	3.060
Number of living children (Currently married women age 15–49)									
Urban	2.294	0.072	734	266	0.057	1.256	0.031	2.150	2.438
Rural	2.745	0.040	2435	2912	0.039	1.035	0.015	2.664	2.826
Total	2.707	0.039	3169	3179	0.034	1.142	0.014	2.630	2.784
Have ever used any method (Currently married women age 15–49)									
Urban	0.683	0.026	734	266	0.017	1.539	0.039	0.630	0.735
Rural	0.534	0.023	2435	2912	0.010	2.317	0.044	0.487	0.581
Total	0.547	0.022	3169	3179	0.009	2.454	0.040	0.503	0.590

Table A.2 Sampling errors, Assam, 1999 (contd.)

Variable/ residence	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Standard error assuming SRS (SER)	Design effect (DEFT)	Relative standard error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
Currently using any method (Currently married women age 15–49)									
Urban	0.534	0.033	734	266	0.018	1.791	0.062	0.468	0.600
Rural	0.423	0.021	2435	2912	0.010	2.092	0.049	0.382	0.465
Total	0.433	0.019	3169	3179	0.009	2.211	0.045	0.394	0.472
Currently using any modern method (Currently married women age 15–49)									
Urban	0.306	0.025	734	266	0.017	1.465	0.082	0.256	0.356
Rural	0.263	0.019	2435	2912	0.009	2.136	0.072	0.225	0.301
Total	0.266	0.018	3169	3179	0.008	2.240	0.066	0.231	0.302
Currently using pills (Currently married women age 15–49)									
Urban	0.060	0.011	734	266	0.009	1.277	0.187	0.038	0.083
Rural	0.063	0.007	2435	2912	0.005	1.471	0.115	0.049	0.078
Total	0.063	0.007	3169	3179	0.004	1.557	0.107	0.050	0.077
Currently using IUD (Currently married women age 15–49)									
Urban	0.019	0.005	734	266	0.005	0.998	0.263	0.009	0.029
Rural	0.019	0.005	2435	2912	0.003	1.643	0.241	0.010	0.028
Total	0.019	0.004	3169	3179	0.002	1.726	0.221	0.010	0.027
Currently using condoms (Currently married women age 15–49)									
Urban	0.045	0.009	734	266	0.008	1.128	0.191	0.028	0.063
Rural	0.015	0.003	2435	2912	0.002	1.076	0.177	0.010	0.020
Total	0.018	0.003	3169	3179	0.002	1.099	0.146	0.012	0.023
Currently using female sterilization (Currently married women age 15–49)									
Urban	0.179	0.024	734	266	0.014	1.681	0.133	0.131	0.226
Rural	0.155	0.019	2435	2912	0.007	2.562	0.121	0.117	0.193
Total	0.157	0.017	3169	3179	0.006	2.682	0.110	0.122	0.192
Currently using male sterilization (Currently married women age 15–49)									
Urban	0.003	0.002	734	266	0.002	0.947	0.690	0.000	0.006
Rural	0.011	0.003	2435	2912	0.002	1.307	0.256	0.005	0.016
Total	0.010	0.002	3169	3179	0.002	1.415	0.251	0.005	0.015
Currently using rhythm/safe period (Currently married women age 15–49)									
Urban	0.130	0.012	734	266	0.012	0.986	0.094	0.105	0.154
Rural	0.109	0.009	2435	2912	0.006	1.485	0.086	0.090	0.128
Total	0.111	0.009	3169	3179	0.006	1.555	0.078	0.093	0.128
Using public source for modern method (Current users of modern methods)									
Urban	0.468	0.067	222	81	0.034	2.008	0.144	0.333	0.603
Rural	0.655	0.043	640	766	0.019	2.267	0.065	0.570	0.740
Total	0.637	0.039	862	847	0.016	2.391	0.062	0.559	0.715
Do not want any more children (Currently married women age 15–49)									
Urban	0.515	0.022	734	266	0.018	1.193	0.043	0.471	0.559
Rural	0.423	0.018	2435	2912	0.010	1.845	0.044	0.386	0.459
Total	0.430	0.017	3169	3179	0.009	1.944	0.040	0.396	0.465
Want to delay birth at least two years (Currently married women age 15–49)									
Urban	0.113	0.011	734	266	0.012	0.899	0.093	0.092	0.134
Rural	0.129	0.009	2435	2912	0.007	1.373	0.072	0.111	0.148
Total	0.128	0.009	3169	3179	0.006	1.453	0.067	0.111	0.145

Table A.2 Sampling errors, Assam, 1999 (contd.)

Variable/ residence	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Standard error assuming SRS (SER)	Design effect (DEFT)	Relative standard error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
Ideal number of children (Ever-married women age 15–49)									
Urban	2.342	0.055	802	291	0.029	1.880	0.023	2.233	2.452
Rural	2.959	0.060	2585	3090	0.022	2.772	0.020	2.839	3.078
Total	2.906	0.056	3387	3382	0.019	3.003	0.019	2.793	3.018
Ideal number of sons (Ever-married women age 15–49)									
Urban	1.188	0.040	800	291	0.024	1.691	0.034	1.107	1.269
Rural	1.621	0.037	2583	3088	0.015	2.407	0.023	1.547	1.695
Total	1.584	0.035	3383	3379	0.013	2.607	0.022	1.513	1.654
Ideal number of daughters (Ever-married women age 15–49)									
Urban	0.959	0.028	800	291	0.019	1.516	0.029	0.902	1.015
Rural	1.194	0.026	2583	3088	0.012	2.075	0.021	1.143	1.245
Total	1.174	0.024	3383	3379	0.011	2.244	0.020	1.126	1.222
Visited by a health/family planning worker (Ever-married women age 15–49)									
Urban	0.012	0.005	807	294	0.004	1.278	0.402	0.002	0.022
Rural	0.039	0.007	2633	3147	0.004	1.826	0.176	0.025	0.053
Total	0.037	0.006	3440	3441	0.003	1.979	0.172	0.024	0.050
Received no antenatal check-up (Births in past 3 years)									
Urban	0.095	0.034	181	66	0.023	1.479	0.359	0.027	0.163
Rural	0.407	0.031	888	1063	0.017	1.779	0.076	0.345	0.469
Total	0.389	0.030	1069	1129	0.015	1.940	0.076	0.330	0.448
Received iron and folic acid tablets or syrup (Births in past 3 years)									
Urban	0.849	0.034	181	66	0.027	1.272	0.040	0.781	0.917
Rural	0.531	0.029	888	1063	0.017	1.721	0.054	0.473	0.589
Total	0.550	0.028	1069	1129	0.015	1.824	0.051	0.494	0.605
Received medical assistance during delivery (Births in past 3 years)									
Urban	0.637	0.064	181	66	0.038	1.672	0.101	0.508	0.765
Rural	0.187	0.024	888	1063	0.014	1.775	0.129	0.139	0.235
Total	0.214	0.024	1069	1129	0.013	1.886	0.113	0.165	0.262
Received postpartum check-up (Noninstitutional births in past 3 years)									
Urban	0.447	0.060	72	26	0.059	1.016	0.134	0.327	0.567
Rural	0.250	0.031	750	898	0.016	1.954	0.124	0.188	0.312
Total	0.255	0.030	822	924	0.015	1.987	0.118	0.195	0.316
Had diarrhoea in the past 2 weeks (Children under 3 years)									
Urban	0.041	0.017	168	61	0.015	1.109	0.417	0.007	0.074
Rural	0.084	0.011	819	981	0.010	1.158	0.134	0.062	0.107
Total	0.082	0.011	987	1042	0.009	1.222	0.131	0.060	0.103
Treated with ORS packets (Children under 3 with diarrhoea in past 2 weeks)									
Total	0.371	0.058	75	85	0.052	1.119	0.157	0.254	0.487
Taken to a health facility/provider for diarrhoea (Children under 3 with diarrhoea in past 2 weeks)									
Total	0.482	0.077	75	85	0.056	1.374	0.159	0.329	0.635

Table A.2 Sampling errors, Assam, 1999 (contd.)

Variable/ residence	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Standard error assuming SRS (SER)	Design effect (DEFT)	Relative standard error (SE/R)	Confidence limits: R-2SE	Confidence limits: R+2SE
Showing a vaccination card (Children age 12–23 months)									
Urban	0.559	0.066	59	21	0.065	1.020	0.118	0.427	0.691
Rural	0.311	0.030	288	344	0.028	1.103	0.098	0.250	0.372
Total	0.325	0.029	347	366	0.025	1.183	0.090	0.267	0.384
Received BCG vaccination (Children age 12–23 months)									
Urban	0.832	0.049	59	21	0.049	1.008	0.059	0.734	0.930
Rural	0.516	0.038	288	344	0.030	1.283	0.074	0.440	0.592
Total	0.535	0.037	347	366	0.026	1.394	0.069	0.461	0.608
Received DPT vaccination (3 doses) (Children age 12–23 months)									
Urban	0.672	0.061	59	21	0.061	0.996	0.091	0.550	0.794
Rural	0.357	0.038	288	344	0.029	1.347	0.108	0.280	0.434
Total	0.375	0.037	347	366	0.026	1.450	0.099	0.301	0.449
Received polio vaccination (3 doses) (Children age 12–23 months)									
Urban	0.686	0.059	59	21	0.061	0.974	0.086	0.568	0.803
Rural	0.360	0.037	288	344	0.028	1.305	0.103	0.286	0.434
Total	0.379	0.036	347	366	0.026	1.404	0.095	0.307	0.451
Received measles vaccination (Children age 12–23 months)									
Urban	0.567	0.068	59	21	0.065	1.052	0.120	0.431	0.702
Rural	0.226	0.034	288	344	0.025	1.372	0.150	0.158	0.294
Total	0.246	0.033	347	366	0.023	1.456	0.134	0.180	0.311
Fully vaccinated (Children age 12–23 months)									
Urban	0.501	0.072	59	21	0.065	1.112	0.145	0.356	0.646
Rural	0.149	0.031	288	344	0.021	1.456	0.205	0.088	0.211
Total	0.170	0.030	347	366	0.020	1.522	0.176	0.110	0.230
Received vitamin A (Children age 12–35 months)									
Urban	0.274	0.047	113	41	0.042	1.117	0.172	0.180	0.368
Rural	0.146	0.018	544	652	0.015	1.190	0.124	0.110	0.182
Total	0.154	0.017	657	693	0.014	1.260	0.113	0.119	0.188
Had reproductive health problem (Currently married women age 15–49)									
Urban	0.370	0.023	734	266	0.018	1.311	0.063	0.323	0.416
Rural	0.519	0.019	2435	2912	0.010	1.834	0.036	0.481	0.556
Total	0.506	0.017	3169	3179	0.009	1.964	0.034	0.471	0.541
Not involved in any decisionmaking (Ever-married women age 15–49)									
Urban	0.027	0.009	808	294	0.006	1.574	0.330	0.009	0.045
Rural	0.048	0.009	2633	3147	0.004	2.073	0.181	0.030	0.064
Total	0.046	0.008	3441	3441	0.004	2.223	0.173	0.030	0.061
Ever beaten or physically mistreated since age 15 (Ever-married women age 15–49)									
Urban	0.088	0.015	808	294	0.010	1.519	0.172	0.058	0.118
Rural	0.161	0.012	2633	3147	0.007	1.703	0.076	0.137	0.186
Total	0.155	0.011	3441	3441	0.006	1.839	0.073	0.132	0.178
Not worked in past 12 months (Ever-married women age 15–49)									
Urban	0.831	0.017	808	294	0.013	1.321	0.021	0.796	0.866
Rural	0.795	0.028	2633	3147	0.008	3.549	0.035	0.739	0.851
Total	0.798	0.026	3441	3441	0.007	3.747	0.032	0.747	0.850

Table A.2 Sampling errors, Assam, 1999 (contd.)

Variable/ residence	Value (R)	Standard error (SE)	Number of cases		Standard error assuming SRS (SER)	Design effect (DEFT)	Relative standard error (SE/R)	Confidence limits	
			Unweighted (N)	Weighted (WN)				R-2SE	R+2SE
Anaemic women (Ever-married women age 15–49)									
Urban	0.672	0.026	648	247	0.018	1.387	0.038	0.621	0.723
Rural	0.699	0.021	2248	2649	0.010	2.165	0.030	0.657	0.741
Total	0.697	0.019	2896	2896	0.009	2.260	0.028	0.658	0.735
Anaemic children (Children age 6–35 months)									
Urban	0.523	0.071	83	30	0.055	1.287	0.136	0.381	0.665
Rural	0.638	0.034	482	567	0.022	1.531	0.053	0.570	0.705
Total	0.632	0.032	565	598	0.020	1.584	0.051	0.567	0.696

Table A.2 Sampling errors, Assam, 1999 (contd.)

Variable/ residence	Value (R)	Standard error (SE)	Relative standard error (SE/R)	Confidence limits	
				R-2SE	R+2SE
Total fertility rate (Women age 15–49)					
Urban	1.503	0.131	0.087	1.240	1.765
Rural	2.388	0.118	0.049	2.153	2.623
Total	2.311	0.108	0.047	2.096	2.526
Age-specific fertility rate (Women age 15–19)					
Urban	0.040	0.008	0.201	0.024	0.056
Rural	0.094	0.007	0.077	0.079	0.108
Total	0.089	0.007	0.075	0.076	0.103
Age-specific fertility rate (Women age 20–24)					
Urban	0.110	0.011	0.103	0.088	0.133
Rural	0.152	0.008	0.053	0.136	0.168
Total	0.149	0.007	0.050	0.134	0.164
Age-specific fertility rate (Women age 25–29)					
Urban	0.084	0.011	0.129	0.063	0.106
Rural	0.119	0.009	0.073	0.102	0.136
Total	0.116	0.008	0.069	0.100	0.132
Age-specific fertility rate (Women age 30–34)					
Urban	0.052	0.008	0.159	0.035	0.068
Rural	0.072	0.008	0.105	0.057	0.087
Total	0.070	0.007	0.098	0.056	0.083
Age-specific fertility rate (Women age 35–39)					
Urban	0.014	0.005	0.376	0.003	0.024
Rural	0.033	0.007	0.222	0.019	0.048
Total	0.031	0.007	0.211	0.018	0.044
Age-specific fertility rate (Women age 40–44)					
Urban	0.000	0.000	NC	0.000	0.000
Rural	0.008	0.003	0.373	0.002	0.014
Total	0.007	0.003	0.372	0.002	0.013

Table A.2 Sampling errors, Assam, 1999 (contd.)

Variable/ residence	Value (R)	Standard error (SE)	Relative standard error (SE/R)	Confidence limits	
				R-2SE	R+2SE
Neonatal mortality (5-year period preceding survey)					
Urban	35.952	10.793	0.300	14.366	57.539
Rural	45.153	5.267	0.117	34.619	55.687
Total	44.624	4.998	0.112	34.629	54.619
Infant mortality $_1q_0$ (5-year period preceding survey)					
Urban	47.091	13.118	0.279	20.855	73.327
Rural	70.925	6.695	0.094	57.536	84.314
Total	69.550	6.355	0.091	56.840	82.260
Child mortality $_4q_1$ (5-year period preceding survey)					
Urban	8.334	4.439	0.533	0.000	17.211
Rural	22.203	3.488	0.157	15.227	29.179
Total	21.395	3.299	0.154	14.797	27.994
Under-five mortality $_5q_0$ (5-year period preceding survey)					
Urban	55.033	15.693	0.285	23.648	86.418
Rural	91.553	7.804	0.085	75.944	107.162
Total	89.457	7.423	0.083	74.611	104.303
Crude death rate (Based on Household Questionnaire)					
Urban	6.137	0.815	0.133	4.507	7.767
Rural	9.794	0.707	0.072	8.381	11.208
Total	9.504	0.666	0.070	8.173	10.836
Crude birth rate (Based on women's birth history)					
Urban	15.806	1.489	0.094	12.827	18.785
Rural	22.311	0.965	0.043	20.381	24.241
Total	21.841	0.900	0.041	20.041	23.642

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

APPENDIX B

DATA QUALITY TABLES

The purpose of this appendix is to provide the data user with an overview of the general quality of the NFHS-2 data. Whereas Appendix A is concerned with sampling errors and their effects on the survey results, the tables in this appendix refer to possible *nonsampling* errors: for example, 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 workload; noncooperation of the respondent in providing information; or refusal to have children measured for height and weight or tested for anaemia. A description of the likely magnitude of such nonsampling errors is provided in this appendix.

The distribution of the *de facto* household population by single years of age and sex is presented in Table B.1. In many (but not all) cases, the respondent was the head of the household. It is well documented that ages are poorly reported in most parts of India. Ages are of little relevance to much of the rural population in particular, and no amount of probing will ensure that ages are properly recorded. In interviewer training for NFHS-2, a great deal of emphasis was placed on obtaining as accurate information as possible on ages and dates of events. Nevertheless, it is clear that age reporting in NFHS-2 shares the same problems inherent in all Indian censuses and surveys. Heaping on ages ending in 0, 2, 5, and 8 is considerable and is particularly severe in the older age groups. Another measure of the quality of the NFHS-2 age data is the percentage of persons whose ages were recorded as not known or missing. In Assam, information on age was missing for only 3 persons out of 18,592 persons who stayed in the sample households the night before the interview.

Table B.2 examines the possibility that some eligible women (that is, ever-married women age 15–49) were not properly identified in NFHS-2. In some surveys, interviewers may try to reduce their workload by pushing women out of the eligible age range or recording ever-married women as never married so that they will not have to be interviewed. If such practices were being followed to a noticeable extent, Table 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-2 data. It can, therefore, be concluded that there was no concerted effort to misidentify eligible women in NFHS-2 in Assam.

One traditional measure of the quality of data is the extent to which information is missing on key variables. Although completeness of responses does not necessarily indicate that the results are accurate, the existence of missing information for a large number of cases would suggest that data collection was not carried out with sufficient care. In NFHS-2 in Assam, the extent of missing information is very low for month and year of birth, age at first marriage, woman's education, and prevalence of diarrhoea in the two weeks preceding the survey (Table B.3). Missing information is higher for the month of birth and, for children who died, the age at death of children born in the past 15 years. It is important to note, however, that the year of birth is reported in almost every case in which the month is missing. Data on height and weight of children are available for 83 percent of cases. Some children could not be measured because they were not at home or they were ill at the time of the survey. In some other cases when the child

Table B.1 Household age distribution

Single-year age distribution of *de facto* household population by sex (weighted), Assam, 1999

	Male		Female			Male		Female	
Age	Number	Percent	Number	Percent	Age	Number	Percent	Number	Percent
< 1	194	2.0	176	1.9	38	116	1.2	92	1.0
1	213	2.2	151	1.7	39	27	0.3	27	0.3
2	187	2.0	166	1.8	40	386	4.1	245	2.7
3	201	2.1	189	2.1	41	20	0.2	23	0.3
4	284	3.0	258	2.8	42	69	0.7	74	0.8
5	273	2.9	285	3.1	43	31	0.3	30	0.3
6	248	2.6	292	3.2	44	18	0.2	29	0.3
7	262	2.8	202	2.2	45	305	3.2	243	2.7
8	319	3.4	280	3.1	46	30	0.3	34	0.4
9	171	1.8	196	2.2	47	34	0.4	47	0.5
10	314	3.3	287	3.2	48	65	0.7	91	1.0
11	160	1.7	154	1.7	49	25	0.3	21	0.2
12	334	3.5	299	3.3	50	227	2.4	104	1.1
13	184	1.9	217	2.4	51	12	0.1	17	0.2
14	217	2.3	203	2.2	52	42	0.4	42	0.5
15	232	2.4	224	2.5	53	10	0.1	18	0.2
16	209	2.2	249	2.7	54	9	0.1	7	0.1
17	153	1.6	156	1.7	55	154	1.6	150	1.7
18	262	2.8	244	2.7	56	28	0.3	8	0.1
19	122	1.3	133	1.5	57	14	0.1	0	0.0
20	267	2.8	343	3.8	58	25	0.3	13	0.1
21	93	1.0	91	1.0	59	8	0.1	6	0.1
22	217	2.3	258	2.8	60	175	1.8	153	1.7
23	104	1.1	124	1.4	61	5	0.1	3	0.0
24	106	1.1	138	1.5	62	18	0.2	8	0.1
25	271	2.9	396	4.4	63	5	0.1	3	0.0
26	127	1.3	148	1.6	64	4	0.0	3	0.0
27	111	1.2	109	1.2	65	99	1.0	65	0.7
28	190	2.0	182	2.0	66	6	0.1	1	0.0
29	62	0.7	53	0.6	67	9	0.1	3	0.0
30	399	4.2	440	4.8	68	15	0.2	8	0.1
31	44	0.5	53	0.6	69	3	0.0	1	0.0
32	133	1.4	150	1.6	70+	187	2.0	142	1.6
33	56	0.6	44	0.5	Don't				
34	32	0.3	40	0.4	know/				
35	441	4.6	359	3.9	missing	3	0.0	0	0.0
36	59	0.6	72	0.8					
37	69	0.7	22	0.2	Total	9,503	100.0	9,089	100.0

Note: The *de facto* population includes both usual residents and visitors who stayed in the household the night before the interview.

was at home and not ill, either the child refused to be measured or the mother refused to allow the child to be measured. Data on woman's haemoglobin level are available for 85 percent of respondents and data on children's haemoglobin level are available for only 71 percent of children. Before undertaking haemoglobin measurements, a separate 'informed consent' statement was read to the respondent explaining that participation in the haemoglobin testing was completely voluntary. At this point, some women declined to take part in the anaemia testing and/or to have their children participate.

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 that 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

Table B.2 Age distribution of eligible and interviewed women

Age distribution of the *de facto* household population of women age 10–54 and of interviewed women age 15–49, and percentage of eligible women who were interviewed (weighted), Assam, 1999

Age	All women	Ever-married women	Interviewed women		Percent interviewed
			Number	Percent	
10–14	1,159	17	NA	NA	NA
15–19	1,007	241	229	6.5	94.9
20–24	954	615	595	16.8	96.8
25–29	887	744	721	20.4	96.9
30–34	725	687	665	18.8	96.8
35–39	572	556	538	15.2	96.7
40–44	399	390	377	10.6	96.6
45–49	435	429	416	11.7	97.0
50–54	188	188	NA	NA	NA
15–49	4,980	3,662	3,541	100.0	96.7

Note: The *de facto* population includes both usual residents and visitors who stayed in the household the night before the interview. For all columns, the age distribution is taken from ages reported in the Household Questionnaire. The total number of interviewed women in this table differs from the total number in earlier tables because this table uses household weights rather than women's weights for the calculations.
NA: Not applicable

Table B.3 Completeness of reporting

Percentage of observations with missing information for selected demographic and health indicators (weighted), Assam, 1999

Indicator	Reference group	Percentage missing information	Number of cases
Birth date	Births in past 15 years		
Month only		1.16	6,726
Month and year		0.07	6,726
Age at death	Deaths to births in past 15 years	2.57	554
Age at first marriage	Ever-married women age 15–49	0.04	3,441
Woman's education	Ever-married women age 15–49	0.07	3,441
Anthropometry	Living children age 0–35 months		
Height		15.41	1,051
Weight		16.67	1,051
Height or weight		16.90	1,051
Woman's haemoglobin level	Ever-married women age 15–49	15.16	3,441
Child's haemoglobin level	Living children age 6–35 months	29.19	854
Diarrhoea in past 2 weeks	Living children age 1–35 months	0.28	1,042

Table B.4 Births by calendar year

Number of births, percent with complete birth date, sex ratio at birth, and calendar year ratio for children still alive at the time of the survey (L), children who died by the time of the survey (D), and total children (T), by calendar year (weighted), Assam, 1999

	Number of births			Percent with complete birth date[1]			Sex ratio at birth[2]			Calendar year ratio[3]		
Calendar year	L	D	T	L	D	T	L	D	T	L	D	T
1999	134	8	143	100.0	100.0	100.0	779	394	751	NA	NA	NA
1998	401	25	427	100.0	100.0	100.0	910	871	908	NC	NC	NC
1997	354	24	379	100.0	95.0	99.7	624	820	635	108.1	95.1	107.1
1996	255	26	280	100.0	100.0	100.0	1,348	914	1,300	56.4	64.0	57.1
1995	548	56	604	99.8	98.0	99.6	889	617	860	147.1	156.9	147.9
1994	490	46	536	99.0	94.6	98.6	1,008	703	978	94.7	93.9	94.7
1993	488	41	529	99.0	97.1	98.9	983	697	957	100.0	102.9	100.2
1992	485	35	519	98.7	96.6	98.6	950	1,248	968	101.2	78.9	99.3
1991	470	46	517	99.0	100.0	99.1	878	611	850	103.9	138.8	106.3
1990	421	32	454	99.2	88.7	98.4	1,046	862	1,032	96.5	71.4	94.2
1989	403	44	447	98.5	91.9	97.9	846	730	834	96.0	140.0	99.1
1988	418	30	448	98.8	100.0	98.9	948	492	908	101.7	80.3	99.9
1993–97	2,135	193	2,328	99.5	96.9	99.3	929	714	909	NA	NA	NA
1988–92	2,197	188	2,385	98.8	95.5	98.6	931	748	915	NA	NA	NA
1983–87	1,840	191	2,031	98.5	94.3	98.1	936	924	935	NA	NA	NA
1978–82	1,299	146	1,446	98.8	95.9	98.5	889	917	892	NA	NA	NA
1977 or earlier	1,237	167	1,404	98.8	95.8	98.5	778	862	787	NA	NA	NA
All	9,245	918	10,163	99.0	95.8	98.7	900	820	893	NA	NA	NA

NA: Not applicable
NC: Not calculated because full-year data were not collected for 1999
[1]Both year and month of birth given
[2]$(B_f/B_m)x1000$, where B_f and B_m are the numbers of female and male births, respectively
[3]$[2B_x/(B_{x-1}+B_{x+1})]x100$, where B_x is the number of births in calendar year x

dates recorded, as did 96 percent of children who had died. The completeness of data on birth dates for both surviving and nonsurviving children is excellent overall. The annual data on the number of births can be examined to see if there is an abnormally large decline in the number of births after January 1996, the cutoff point for the health questions and measurements made on young children in the survey. It is typical for the annual number of births to fluctuate somewhat, so small annual fluctuations are to be expected. However, the sharp drop in the annual number of births between 1991–95 and 1996–98 suggests that interviewers sometimes moved births back to in time in order to avoid having to ask the large block of questions pertaining to children born after January 1996. This pattern provides further evidence in support of the above inference that the fact that month and year of birth of a child are recorded does not necessarily mean that this birth date information is accurate.

Many surveys that include both demographic information and health information for children below a specified age have been subject to a substantial amount of age displacement. In particular, there is often a tendency for interviewers to 'age' children out of the eligible period for asking health questions. This problem was well known before NFHS-2 began; therefore, interviewer training stressed this issue to try to reduce the extent of biases due to age displacement. Apparently, the training and supervision were not entirely successful in avoiding this type of problem, however.

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 seriously underreported in Assam because the ratios of deaths under seven days to all neonatal deaths are consistently high (a ratio of less than 25 percent is often used as a guideline to indicate underreporting of early neonatal deaths). The ratios are 72 for 0–4 years, 84 for 5–9 years, and 64 for 10–14 years preceding the survey. Although there was no severe underreporting of early neonatal deaths in NFHS-2, there was some misreporting of age at death due to a preference for reporting the age at death at 5, 7, 10, and 20 days (Table B.5).

Table B.6 shows the percentage of infant deaths that occurred during the neonatal period. These percentages are also quite high, suggesting that there is no major omission of early deaths. One problem that is inherent in most retrospective surveys is heaping of the age at death on certain digits, 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 may have actually occurred during infancy (that is, at ages 0–11 months). In this case, heaping would bias the infant mortality rate downward and child mortality upward.

Examination of the distribution of deaths under age two years during the 15 years before the survey by month of death (Table B.6) indicates there is substantial heaping of deaths at 6, 12, and 18 months of age. However, digit preference does not appear to be serious enough to alter substantially the mortality rates calculated here. Even if one-third of the deaths reported at age 12 months or age 'one year' actually occurred at less than 12 months of age, the infant mortality rate for the five years before the survey would be underestimated by only 1 percent.

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 percentage of neonatal deaths reported to occur at age 0–6 days, for births occurring during five-year periods preceding the survey (weighted), Assam, 1999

	Years preceding survey			
Age at death (days)	0–4	5–9	10–14	0–14
< 1	14	16	11	40
1	25	22	15	62
2	6	8	9	23
3	11	7	6	24
4	3	2	4	9
5	5	4	3	11
6	1	1	2	4
7	7	4	9	20
8	1	0	1	2
9	2	0	4	6
10	2	1	5	9
11	1	0	1	2
12	1	0	0	2
13	0	0	0	0
14	1	1	1	4
15	2	1	0	3
16	0	0	2	2
17	0	0	0	0
18	0	0	0	0
19	1	0	0	1
20	4	0	1	5
21	0	0	1	1
22	0	1	1	2
23	1	0	0	1
24	0	0	0	0
25	0	1	0	1
26	0	0	0	0
27	1	0	0	1
28	0	1	0	1
29	0	0	0	0
30	0	0	0	0
Missing	1	1	0	2
0–30	90	72	76	238
Percent early neonatal[1]	71.6	84.1	63.7	72.9

[1]Deaths during the first 6 days divided by deaths during the first 30 days

This brief check on internal consistency of NFHS-2 childhood mortality data for Assam suggests that there is no serious underreporting of deaths during the time periods for which mortality rates are estimated. Although there is some heaping of age at death at certain ages, the heaping is minimal and any resulting bias in infant and child mortality rates should be 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 percentage of infant deaths reported to occur at age under one month, for births occurring during five-year periods preceding the survey (weighted), Assam, 1999

	Years preceding survey			
Age at death (months)	0–4	5–9	10–14	0–14
< 1	91	73	76	240
1	14	17	17	49
2	9	6	5	21
3	7	10	7	23
4	5	4	3	11
5	1	1	4	6
6	4	5	5	14
7	0	6	4	10
8	1	3	1	5
9	1	2	2	6
10	1	1	1	4
11	4	0	0	4
12	4	5	5	13
13	0	0	0	0
14	0	0	0	0
15	2	1	0	4
16	3	0	0	3
17	0	0	0	0
18	1	1	2	5
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
1 year	1	0	0	1
0–11 months	140	129	124	392
Percent neonatal[1]	65.5	56.7	61.4	61.3

[1]Deaths during the first month divided by deaths during the first year

APPENDIX C

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APPENDIX D

SURVEY INSTRUMENTS

NATIONAL FAMILY HEALTH SURVEY, 1998-99 (NFHS-2)
HOUSEHOLD QUESTIONNAIRE

INDIA

CONFIDENTIAL
For Research
Purposes Only

IDENTIFICATION

STATE _____

DISTRICT _____

TEHSIL/TALUK _____

CITY/TOWN/VILLAGE _____

URBAN/RURAL (urban=1, rural=2).....

LARGE CITY/SMALL CITY/TOWN/RURAL AREA.....
(large city=1, small city=2, town=3, rural area=4)

PSU NUMBER.....

HOUSEHOLD NUMBER.....

NAME OF HOUSEHOLD HEAD _____

ADDRESS OF HOUSEHOLD _____

_____

INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE				DAY / MONTH / YEAR (1 9)
INTERVIEWER'S NAME				NAME CODE
RESULT*				RESULT CODE
NEXT VISIT: DATE / TIME				TOTAL NUMBER OF VISITS

*RESULT CODES:
1 COMPLETED
2 NO HOUSEHOLD MEMBER AT HOME OR NO COMPETENT RESPONDENT AT HOME AT THE TIME OF VISIT
3 ENTIRE HOUSEHOLD ABSENT FOR EXTENDED PERIOD
4 POSTPONED
5 REFUSED
6 DWELLING VACANT OR ADDRESS NOT A DWELLING
7 DWELLING DESTROYED
8 DWELLING NOT FOUND
9 OTHER _____ (SPECIFY)

TOTAL PERSONS IN HOUSEHOLD

TOTAL ELIGIBLE WOMEN

LINE NO. OF RESP. TO HOUSEHOLD SCHEDULE

	SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
DATE				
NAME				

PREVIOUS PAGE BLANK

HOUSEHOLD SCHEDULE

1	RECORD THE TIME.	HOUR.....	
		MINUTES.....	

Now I would like some information about the people who usually live in your household or who are staying with you now.

LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	RESIDENCE		SEX	AGE	IF AGE 6 YEARS OR OLDER						
							MARITAL STATUS	ELIGIBILITY	EDUCATION				
											IF NEVER ATTENDED SCHOOL	IF EVER ATTENDED SCHOOL	
													IF AGE LESS THAN 18 YEARS
								CIRCLE LINE NUMBER OF EVER-MARRIED FEMALES AGE 15-49 (EXCLUDE NG AND NM)					IF NOT IN SCHOOL
	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 main reason (NAME) never went to school? ****	What is the highest grade (NAME) has completed? *****	Is (NAME) still in school?	What is the main reason (NAME) is not going to school?******
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
				YES NO	YES NO	M F	IN YEARS	CM NG S DS D W NM		YES NO	YES NO	REASON	GRADE	YES NO	REASON
01				1 2	1 2	1 2		1 2 3 4 5 6 7	01	1 2	1 2			1 2	
02				1 2	1 2	1 2		1 2 3 4 5 6 7	02	1 2	1 2			1 2	
03				1 2	1 2	1 2		1 2 3 4 5 6 7	03	1 2	1 2			1 2	
04				1 2	1 2	1 2		1 2 3 4 5 6 7	04	1 2	1 2			1 2	
05				1 2	1 2	1 2		1 2 3 4 5 6 7	05	1 2	1 2			1 2	
06				1 2	1 2	1 2		1 2 3 4 5 6 7	06	1 2	1 2			1 2	
07				1 2	1 2	1 2		1 2 3 4 5 6 7	07	1 2	1 2			1 2	
08				1 2	1 2	1 2		1 2 3 4 5 6 7	08	1 2	1 2			1 2	

HOUSEHOLD SCHEDULE (CONTINUED)

(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
			YES NO	YES NO	M F	IN YEARS	CM NG S DS D W NM		YES NO	YES NO	REASON	GRADE	YES NO	REASON
09			1 2	1 2	1 2		1 2 3 4 5 6 7	09	1 2	1 2			1 2	
10			1 2	1 2	1 2		1 2 3 4 5 6 7	10	1 2	1 2			1 2	
11			1 2	1 2	1 2		1 2 3 4 5 6 7	11	1 2	1 2			1 2	
12			1 2	1 2	1 2		1 2 3 4 5 6 7	12	1 2	1 2			1 2	
13			1 2	1 2	1 2		1 2 3 4 5 6 7	13	1 2	1 2			1 2	
14			1 2	1 2	1 2		1 2 3 4 5 6 7	14	1 2	1 2			1 2	
15			1 2	1 2	1 2		1 2 3 4 5 6 7	15	1 2	1 2			1 2	
16			1 2	1 2	1 2		1 2 3 4 5 6 7	16	1 2	1 2			1 2	

TICK HERE IF CONTINUATION SHEET USED ☐ TOTAL NUMBER OF ELIGIBLE WOMEN ☐☐

* CODES FOR Q.4
RELATIONSHIP TO HEAD OF HOUSEHOLD:
01= HEAD
02= WIFE OR HUSBAND
03= SON OR DAUGHTER
04= SON-IN-LAW OR DAUGHTER-IN-LAW
05= GRANDCHILD
06= PARENT
07= PARENT-IN-LAW
08= BROTHER OR SISTER
09= BROTHER-IN-LAW OR SISTER-IN-LAW
10= NIECE OR NEPHEW
11= OTHER RELATIVE
12= ADOPTED/FOSTER CHILD
13= NOT RELATED

** CODES FOR Q.8
00= AGE LESS THAN ONE YEAR
95= AGE 95 YEARS OR MORE

*** CODES FOR Q.9
MARITAL STATUS:
1= CURRENTLY MARRIED
2= MARRIED,BUT GAUNA NOT PERFORMED
3= SEPARATED
4= DESERTED
5= DIVORCED
6= WIDOWED
7= NEVER MARRIED

****CODES FOR Q.13
01= SCHOOL TOO FAR AWAY
02= TRANSPORT NOT AVAILABLE
03= EDUCATION NOT CONSIDERED NECESSARY
04= REQUIRED FOR HOUSEHOLD WORK
05= REQUIRED FOR WORK ON FARM/FAMILY BUSINESS
06= REQUIRED FOR OUTSIDE WORK FOR PAYMENT IN CASH OR KIND
07= COST TOO MUCH
08= NO PROPER SCHOOL FACILITIES FOR GIRLS
09= REQUIRED FOR CARE OF SIBLINGS
10= NOT INTERESTED IN STUDIES
96= OTHER
98= DK

*****CODES FOR Q.14
GRADE:
00=LESS THAN 1 YEAR COMPLETED

******CODES FOR Q.16
01= SCHOOL TOO FAR AWAY
02= TRANSPORT NOT AVAILABLE
03= FURTHER EDUCATION NOT CONSIDERED NECESSARY
04= REQUIRED FOR HOUSEHOLD WORK
05= REQUIRED FOR WORK ON FARM/FAMILY BUSINESS
06= REQUIRED FOR OUTSIDE WORK FOR PAYMENT IN CASH OR KIND
07= COST TOO MUCH
08= NO PROPER SCHOOL FACILITIES FOR GIRLS
09= REQUIRED FOR CARE OF SIBLINGS
10= NOT INTERESTED IN STUDIES
11= REPEATED FAILURES
12= GOT MARRIED
96= OTHER
98= DK

PSU NO. _____

HH NO. _____

LINE NO.	IF AGE 6 YEARS OR OLDER		AFTER COMPLETING COLUMNS 1-18 FOR ALL LISTED PERSONS, ASK:										
	OCCUPATION		Does anyone listed suffer from:			Did anyone listed suffer from malaria at any time during the last three months? RECORD FOR EACH PERSON (22)	Did anyone listed suffer from jaundice at any time during the last twelve months? RECORD FOR EACH PERSON (23)	Does anyone listed:			Has any (other) person listed ever smoked regularly? RECORD FOR CURRENT NONSMOKERS ONLY (27)
	What kind of work does (NAME) do most of the time? (17)	IF WORKING: Does (NAME) earn cash for this work? (18)	Asthma? RECORD FOR EACH PERSON (19)	Tuberculosis? RECORD FOR EACH PERSON (20)	IF SUFFERS FROM TUBERCULOSIS: Has (NAME) received medical treatment for tuberculosis? (21)			Chew paan masala or tobacco? RECORD FOR EACH PERSON (24)	Drink alcohol? RECORD FOR EACH PERSON (25)	Smoke? RECORD FOR EACH PERSON (26)	
		YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO DK
01		1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2 3
02		1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2 3
03		1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2 3
04		1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2 3
05		1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2 3
06		1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2 3
07		1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2 3
08		1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2 3

PSU NO._____

HH NO. _____

	(17)	(18)		(19)		(20)		(21)		(22)		(23)		(24)		(25)		(26)		(27)		
		YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	DK
09		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
10		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
11		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
12		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
13		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
14		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
15		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3
16		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	3

28 Just to make sure that I have a complete listing:

1) Are there any other persons such as small children or infants that we have not listed? YES ☐ → ENTER EACH IN TABLE NO ☐

2) In addition, are there any other people who may not be members of your family, such as domestic servants, lodgers or friends who usually live here? YES ☐ → ENTER EACH IN TABLE NO ☐

3) Do you have any guests or temporary visitors staying here, or anyone else who stayed here last night? YES ☐ → ENTER EACH IN TABLE NO ☐

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
29	When members of your household get sick, where do they generally go for treatment?	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSPITAL.....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSPITAL/PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 GOVT. PARAMEDIC.....17 OTHER PUBLIC SECTOR HEALTH FACILITY.....18 NGO/TRUST HOSPITAL/CLINIC.....21 NGO WORKER.....22 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 PVT. PARAMEDIC.....34 VAIDYA/HAKIM/HOMEOPATH.....35 TRADITIONAL HEALER.....36 PHARMACY/DRUGSTORE.....37 DAI(TBA).....38 OTHER PRIVATE SECTOR HEALTH FACILITY.....39 OTHER SHOP.....41 HOME TREATMENT.....42 OTHER _____ 96 (SPECIFY)	
30	What is the main source of drinking water for members of your household?	PIPED WATER PIPED INTO RESIDENCE/YARD/PLOT.....11 ——>32 PUBLIC TAP.....12 GROUND WATER HANDPUMP IN RESIDENCE/ YARD/PLOT.....21 ——>32 PUBLIC HANDPUMP.....22 WELL WATER WELL IN RESIDENCE/YARD/PLOT COVERED WELL.....31 OPEN WELL.....32 ——>32 PUBLIC WELL COVERED WELL.....33 OPEN WELL.....34 SURFACE WATER SPRING.....41 RIVER/STREAM.....42 POND/LAKE.....43 DAM.....44 RAINWATER.....51 TANKER TRUCK.....61 OTHER _____ 96 (SPECIFY)	
31	How long does it take to go there, get water, and come back in one trip?	MINUTES..... ☐☐☐	
32	What do you do to purify drinking water, if anything? RECORD ALL MENTIONED.	STRAIN BY CLOTH.....A ALUM.....B WATER FILTER.....C BOILING.....D ELECTRONIC PURIFIER.....E NOTHING.....F OTHER _____ X (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
33	What kind of toilet facility does your household have?	FLUSH TOILET OWN FLUSH TOILET.....11 SHARED FLUSH TOILET.....12 PUBLIC FLUSH TOILET.....13 PIT TOILET/LATRINE OWN PIT TOILET/LATRINE.....21 SHARED PIT TOILET/LATRINE.....22 PUBLIC PIT TOILET/LATRINE.....23 NO FACILITY/BUSH/FIELD.....31 OTHER _____ 96 (SPECIFY)	
34	What is the main source of lighting for your household?	ELECTRICITY.....1 KEROSENE.....2 GAS.....3 OIL.....4 OTHER _____ 6 (SPECIFY)	
35	How many rooms are there in your household?	ROOMS..... ☐☐	
36	Do you have a separate room which is used as a kitchen?	YES.....1 NO.....2	
37	What type of fuel does your household mainly use for cooking?	WOOD.....01 CROP RESIDUES.....02 DUNG CAKES.....03 COAL/COKE/LIGNITE.....04 CHARCOAL.....05 KEROSENE.....06 ELECTRICITY.....07 LIQUID PETROLEUM GAS.....08 BIO-GAS..... 09 OTHER _____ 96 (SPECIFY)	
38	What other types of fuel does your household commonly use for cooking or heating? RECORD ALL MENTIONED.	WOOD.....A CROP RESIDUES.....B DUNG CAKES.....C COAL/COKE/LIGNITE.....D CHARCOAL.....E KEROSENE.....F ELECTRICITY.....G LIQUID PETROLEUM GAS.....H BIO-GAS..... I OTHER _____ X (SPECIFY) NO OTHER TYPE.....Y	
39	What is the religion of the head of the household?	HINDU.....01 MUSLIM.....02 CHRISTIAN.....03 SIKH.....04 BUDDHIST/NEO BUDDHIST.....05 JAIN.....06 JEWISH.....07 ZOROASTRIAN/PARSI.....08 NO RELIGION.....09 OTHER _____ 96 (SPECIFY)	
40	What is the caste or tribe of the head of the household?	CASTE _____ 1 (SPECIFY) TRIBE _____ 2 (SPECIFY) NO CASTE/TRIBE.....3	——>42
41	Is this a scheduled caste, a scheduled tribe, other backward caste, or none of them?	SC.....1 ST.....2 OBC.....3 NONE OF THEM.....4	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
42	Does this household own this house or any other house?	YES.....1 NO.....2	
43	Does this household own any agricultural land?	YES.....1 NO.....2 ——>46	
44	_____ (SIZE AND UNIT) How much agricultural land does this household own?	ACRES..... ☐☐☐.☐	
45	_____ (SIZE AND UNIT) Out of this land, how much is irrigated?	ACRES..... ☐☐☐.☐ NONE.....9995	
46	Does this household own any livestock?	YES.....1 NO.....2	
47	Does the household own any of the following:	YES NO	
	A mattress?	MATTRESS.....1 2	
	A pressure cooker?	PRESSURE COOKER.....1 2	
	A chair?	CHAIR.....1 2	
	A cot or bed?	COT/BED.....1 2	
	A table?	TABLE.....1 2	
	A clock or watch?	CLOCK/WATCH.....1 2	
	An electric fan?	ELECTRIC FAN.....1 2	
	A bicycle?	BICYCLE.....1 2	
	A radio or transistor?	RADIO/TRANSISTOR.....1 2	
	A sewing machine?	SEWING MACHINE.....1 2	
	A telephone?	TELEPHONE.....1 2	
	A refrigerator?	REFRIGERATOR.....1 2	
	A black and white television?	TELEVISION(B&W).....1 2	
	A colour television?	TELEVISION(COLOUR).....1 2	
	A moped, scooter, or motorcycle?	MOPED/SCOOTER/MOTORCYCLE...1 2	
	A car?	CAR.....1 2	
	A water pump?	WATER PUMP.....1 2	
	A bullock cart?	BULLOCK CART.....1 2	
	A thresher?	THRESHER.....1 2	
	A tractor?	TRACTOR.....1 2	
48	What is the main type of kitchenware this household uses?	CLAY.....1 ALUMINIUM.....2 CAST IRON.....3 BRASS/COPPER.....4 STAINLESS STEEL.....5 OTHER_____ (SPECIFY).....6	

49	TYPE OF HOUSE. RECORD OBSERVATION.	ROOF _____ WALLS_____ FLOOR_____	PUCCA.....1 SEMI-PUCCA.....2 KACHHA.....3
50A	TYPE OF SALT USED FOR COOKING:		REFINED SALT.....1 COARSE SALT.....2
50B	TEST COOKING SALT FOR IODINE:		0 PPM (NO IODINE).....1 7 PPM.....2 15 PPM.....3 30 PPM.....4

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
51	Did any usual resident of this household die since January 1997?	YES.....1 NO.....2	>63
52	How many persons died?	TOTAL DEATHS.....	

53	54	55	56	57	58	59	60	61	62
What (was/were) the name(s) of the person(s) who died?	Was (NAME) a male or a female?	How old was he/she when he/she died? RECORD DAYS IF LESS THAN ONE MONTH, MONTHS IF LESS THAN TWO YEARS, OR YEARS	In what month and year did (NAME) die?	What did (NAME) die of?	CHECK 54 AND 55: DECEASED WAS FEMALE AGED 15-49 AT THE TIME OF DEATH	Was (NAME) pregnant when she died?	Did (NAME) die during childbirth?	Did (NAME) die within two months after the end of a pregnancy or childbirth?	Was the death of (NAME) due to a complication of the pregnancy or childbirth?
01 (NAME)	MALE.....1 FEMALE...2	DAYS....1 MONTHS..2 YEARS...3	MONTH.. YEAR...		YES.....1 NO.....2 (GO TO NEXT DEATH)	YES.....1 (GO TO 62) NO.....2	YES.....1 (GO TO NEXT DEATH) NO.....2	YES.....1 NO.....2 (GO TO NEXT DEATH)	YES.....1 NO.....2
02 (NAME)	MALE.....1 FEMALE...2	DAYS....1 MONTHS..2 YEARS...3	MONTH.. YEAR...		YES.....1 NO.....2 (GO TO NEXT DEATH)	YES.....1 (GO TO 62) NO.....2	YES.....1 (GO TO NEXT DEATH) NO.....2	YES.....1 NO.....2 (GO TO NEXT DEATH)	YES.....1 NO.....2
03 (NAME)	MALE.....1 FEMALE...2	DAYS....1 MONTHS..2 YEARS...3	MONTH.. YEAR...		YES.....1 NO.....2 (GO TO NEXT DEATH)	YES.....1 (GO TO 62) NO.....2	YES.....1 (GO TO NEXT DEATH) NO.....2	YES.....1 NO.....2 (GO TO NEXT DEATH)	YES.....1 NO.....2

63	RECORD THE TIME.	HOUR..... MINUTES.....

NATIONAL FAMILY HEALTH SURVEY, 1998-99 (NFHS-2)
WOMAN'S QUESTIONNAIRE

INDIA

CONFIDENTIAL
For Research
Purposes Only

IDENTIFICATION

STATE _____

DISTRICT _____

TEHSIL/TALUK _____

CITY/TOWN/VILLAGE _____

URBAN/RURAL (urban=1, rural=2).....

LARGE CITY/SMALL CITY/TOWN/RURAL AREA.....
(large city=1, small city=2, town=3, rural area=4)

PSU NUMBER.....

HOUSEHOLD NUMBER.....

NAME AND LINE NUMBER OF WOMAN _____

ADDRESS OF HOUSEHOLD _____

INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE				DAY / MONTH / YEAR 1 9
INTERVIEWER'S NAME				NAME CODE
RESULT*				RESULT CODE
NEXT VISIT: DATE / TIME				TOTAL NUMBER OF VISITS

*RESULT CODES:
1 COMPLETED
2 NOT AT HOME
3 POSTPONED
4 REFUSED
5 PARTLY COMPLETED
6 OTHER (SPECIFY) _____

NATIVE LANGUAGE OF RESPONDENT**.....

**LANGUAGE CODES:

01 Assamese	05 Hindi	09 Manipuri	14 Konkani
02 Bengali	06 Kannada	10 Marathi	15 Sindhi
03 English	07 Kashmiri	11 Nepali	16 Tamil
04 Gujarati	08 Malayalam	12 Oriya	17 Telugu
19 Other (SPECIFY) _____		13 Punjabi	18 Urdu

	SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
DATE				
NAME				

SECTION 1. RESPONDENT'S BACKGROUND

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	RECORD THE TIME.	HOUR..... ☐☐ MINUTES..... ☐☐	

Namaste. My name is _____ and I am working with (NAME OF THE ORGANISATION). We are conducting a national survey about the health of women and children. We would very much appreciate your participation in this survey.

I would like to ask you about your health (and the health of your children). This information will help the government to plan health services. The amount of time needed will be less than one hour. Participation in this survey is voluntary. If you decide to participate, you may stop answering questions at any time. Whatever information you provide will be kept strictly confidential and will not be shown to other persons.

We hope that you will participate in the survey since your views are important. Do you want to ask me anything about the survey at this time?

Signature of Interviewer:_____ Date:_____

RESPONDENT AGREES FOR INTERVIEW.....1

RESPONDENT DOES NOT AGREE FOR INTERVIEW.....2 ⟶ END

102	First I would like to ask some questions about you and your household. For most of the time until you were 12 years old, did you live in a city, a town, or a village?	CITY/TOWN.....1 VILLAGE.....2	
103	How long have you been living continuously in (NAME OF CURRENT PLACE OF RESIDENCE)?	YEARS..... ☐☐ SINCE BIRTH.....95 VISITOR.....96 ⟶ 105	
104	Just before you moved here, did you live in a city, a town, or a village?	CITY/TOWN.....1 VILLAGE.....2	
105	In what month and year were you born?	MONTH..... ☐☐ DK MONTH.....98 YEAR..... ☐☐☐☐ DK YEAR.....9998	
106	How old were you at your last birthday? COMPARE AND CORRECT 105 AND/OR 106 IF INCONSISTENT.	AGE IN COMPLETED YEARS..... ☐☐	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
107	What is your current marital status?	CURRENTLY MARRIED.....1 MARRIED BUT GAUNA NOT PERFORMED..2 SEPARATED.....3 DESERTED.....4 DIVORCED.....5 WIDOWED.....6 NEVER MARRIED.....7	→END →110 →END
108	Are you living with your husband now or is he staying elsewhere?	LIVING WITH HUSBAND.....1 STAYING ELSEWHERE.....2	→110
109	For how long have you and your husband not been living together? IF LESS THAN 1 YEAR, RECORD MONTHS; OTHERWISE RECORD COMPLETED YEARS.	MONTHS.....1 ☐☐ YEARS.....2 ☐☐	
110	Now I would like to ask you some questions about your marriage. Have you been married only once or more than once?	ONCE.....1 MORE THAN ONCE.....2	→114
111	How old were you at the time of your first marriage?	AGE IN COMPLETED YEARS..... ☐☐	
112	How old were you when you started living with your first husband?	AGE IN COMPLETED YEARS..... ☐☐ GAUNA HAD NOT TAKEN PLACE..... 96	
113	How old were you when your first marriage dissolved?	AGE IN COMPLETED YEARS..... ☐☐	
114	How old were you at the time of your (current) marriage?	AGE IN COMPLETED YEARS..... ☐☐	
115	How old were you when you started living with your (current) husband?	AGE IN COMPLETED YEARS..... ☐☐ GAUNA HAS NOT TAKEN PLACE.....96	→END

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
116	Have you ever attended school?	YES.....1 NO.....2	>119
117	What is the highest grade you completed?	GRADE..... ☐☐	
118	CHECK 117: GRADE 0-5 ☐ v GRADE 6 AND ABOVE ☐		>120
119	Can you read and write?	YES.....1 NO.....2	>121
120	Do you usually read a newspaper or a magazine at least once a week?	YES.....1 NO.....2	
121	Do you usually listen to a radio at least once a week?	YES.....1 NO.....2	
122	Do you usually watch television at least once a week?	YES.....1 NO.....2	
123	Do you usually go to a cinema hall or theatre to see a movie at least once a month?	YES.....1 NO.....2	
124	How often do you yourself consume the following items: daily, weekly, occasionally, or never:	DAILY 1 / WEEKLY 2 / OCCASIONALLY 3 / NEVER 4	
	Milk or Curd?	MILK OR CURD..1 2 3 4	
	Pulses or beans?	PULSES/BEANS..1 2 3 4	
	Green leafy vegetables?	GREEN LEAFY...1 2 3 4	
	Other vegetables?	OTH. VEG.....1 2 3 4	
	Fruits?	FRUITS.....1 2 3 4	
	Eggs?	EGGS.....1 2 3 4	
	Chicken, meat, or fish?	CHICKEN/MEAT/ FISH.....1 2 3 4	

SECTION 2. REPRODUCTION

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
201	Now I would like to ask about all the births you have had during your life. Have you ever given birth?	YES.....1 NO.....2	→206
202	Do you have any sons or daughters to whom you have given birth who are now living with you?	YES.....1 NO.....2	→204
203	How many sons live with you? And how many daughters live with you? IF NONE, RECORD '00'.	SONS AT HOME..... DAUGHTERS AT HOME.....	
204	Do you have any sons or daughters to whom you have given birth who are alive but do not live with you?	YES.....1 NO.....2	→206
205	How many sons are alive but do not live with you? And how many daughters are alive but do not live with you? IF NONE, RECORD '00'.	SONS ELSEWHERE..... DAUGHTERS ELSEWHERE.....	
206	Have you ever given birth to a boy or a girl who was born alive but later died? IF NO, PROBE: Any baby who cried or showed any sign of life but only survived a few hours or days?	YES.....1 NO.....2	→208
207	In all, how many boys have died? And how many girls have died? IF NONE, RECORD '00'.	BOYS DEAD..... GIRLS DEAD.....	
208	SUM ANSWERS TO 203, 205, AND 207, AND ENTER TOTAL. IF NONE RECORD '00'.	TOTAL.....	
209	CHECK 208: Just to make sure that I have this right: you have had in TOTAL ____ births during your life. Is that correct? YES ☐ ↓ NO ☐ → PROBE AND CORRECT 201-208 AS NECESSARY		
210	CHECK 208: ONE OR MORE BIRTHS ☐ ↓ NO BIRTHS ☐		→225

211

Now I would like to talk to you about all the births in your lifetime, whether currently alive or not, starting with the first one you had.
RECORD NAMES OF ALL THE LIVE BIRTHS IN 212. RECORD TWINS AND TRIPLETS ON SEPARATE LINES.

212	213	214	215	216	217	218	218A	219	220*
What name was given to your (first, next) baby?	Were any of these twins?	Is (NAME) a boy or a girl?	In what month and year was (NAME) born? PROBE: What is his/her birthday?	Is (NAME) still alive?	IF ALIVE: How old was (NAME) at his/her last birthday? RECORD AGE IN COMPLETED YEARS.	IF ALIVE: Is (NAME) living with you?	IF ALIVE: RECORD HOUSEHOLD LINE NUMBER OF CHILD (RECORD '00' IF CHILD NOT LISTED IN HOUSEHOLD)	IF DEAD: How old was (NAME) when he/she died? IF "1 YEAR", PROBE: How many months old was (NAME)? RECORD DAYS IF LESS THAN 1 MONTH, MONTHS IF LESS THAN TWO YEARS, OR YEARS.	Between (NAME OF PREVIOUS BIRTH) and (NAME OF THIS BIRTH) did you have any stillbirth, spontaneous abortion, or induced abortion? (* FOR FIRST CHILD ASK: Before (NAME), did you have any stillbirth, spontaneous abortion, or induced abortion?) IF NONE, RECORD '0'. FOR SECOND TWIN, RECORD '0' IN EACH BOX WITHOUT ASKING.
01 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER → (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
02 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER → (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
03 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER → (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
04 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER → (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....

212	213	214	215	216	217	218	218A	219	220*
05 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
06 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
07 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
08 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
09 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
10 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....
11 (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....

212	213	214	215	216	217	218	218A	219	220*
12 _____ (NAME)	SING...1 MULT...2	BOY...1 GIRL..2	MONTH..... YEAR..	YES...1 NO....2 → 219	AGE IN YEARS	YES.....1 NO.....2	LINE NUMBER ↓ (GO TO 220)	DAYS....1 MONTHS..2 YEARS...3	NUMBER OF STILLBIRTHS..... NUMBER OF SPON. ABORTIONS..... NUMBER OF INDUCED ABORTIONS.....

221 After the last birth, did you have any stillbirth, spontaneous abortion, or induced abortion?

IF NONE, RECORD '0'

NUMBER OF STILLBIRTHS.....
NUMBER OF SPON. ABORTIONS.....
NUMBER OF INDUCED ABORTIONS.....

222 CHECK 220 AND 221:

Just to make sure that I have this right: you have had in TOTAL _____STILLBIRTHS, _____SPONTANEOUS ABORTIONS, and_____INDUCED ABORTIONS during your life: Is that correct?

YES, ☐ NO ☐ -> PROBE AND CORRECT 220 - 221 AS NECESSARY

223 COMPARE 208 WITH NUMBER OF BIRTHS IN HISTORY ABOVE AND MARK:

NUMBERS ARE SAME ☐ NUMBERS ARE DIFFERENT ☐ -> (PROBE AND RECONCILE)

CHECK: FOR EACH BIRTH: YEAR OF BIRTH IS RECORDED. ☐
FOR EACH LIVING CHILD: CURRENT AGE IS RECORDED. ☐
FOR EACH DEAD CHILD: AGE AT DEATH IS RECORDED. ☐
FOR AGE AT DEATH 12 MONTHS: PROBE TO DETERMINE EXACT NUMBER OF MONTHS. ☐
FOR EACH CALENDAR BIRTH INTERVAL 4 OR MORE YEARS: EXPLANATION IS GIVEN. ☐

224 CHECK 215 AND ENTER THE NUMBER OF BIRTHS SINCE JANUARY 1996.
IF NONE, RECORD '0'. ☐ ->229

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
225	Have you ever had a stillbirth?	YES.....1 NO.....2	>227
226	How many stillbirths have you had?	NUMBER OF STILLBIRTHS.....	
227	Have you ever had an abortion? PROBE FOR SPONTANEOUS AND INDUCED ABORTIONS.	YES.....1 NO.....2	>229
228	How many abortions have you had? PROBE FOR NUMBER OF SPONTANEOUS AND INDUCED ABORTIONS. IF NONE, RECORD '0'.	NO. OF SPON. ABORTIONS..... NO. OF INDUCED ABORTIONS.....	
229	CHECK 107: CURRENTLY MARRIED ☐ SEPARATED DESERTED DIVORCED WIDOWED ☐		>301
230	Are you pregnant now?	YES.....1 NO.....2 UNSURE.....8	>233
231	How many months pregnant are you?	MONTHS.....	
232	At the time you became pregnant, did you want to become pregnant then, did you want to wait until later, or did you want no (more) children at all?	THEN.....1 LATER.....2 NO MORE.....3	>301
233	When did your last menstrual period start? _____ (DATE, IF GIVEN)	DAYS AGO.....1 WEEKS AGO.....2 MONTHS AGO.....3 YEARS AGO.....4 IN MENOPAUSE/HYSTERECTOMY.....993 BEFORE LAST BIRTH.....994 NEVER MESTRUATED.....995	

SECTION 3A. QUALITY OF CARE

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
301	During the last 12 months, has a health or family planning worker visited you at home?	YES.....1 NO.....2	——>308
302	How many times did a worker visit you in the last 12 months?	NUMBER OF TIMES..... ☐☐	
303	During these visits, what were the different matters talked about? Anything else? RECORD ALL MENTIONED.	FAMILY PLANNING.....A BREASTFEEDING.....B SUPPLEMENTARY FEEDING.....C IMMUNIZATION.....D NUTRITION.....E DISEASE PREVENTION.....F TREATMENT OF HEALTH PROBLEM....G ANTENATAL CARE.....H DELIVERY CARE.....I POSTPARTUM CARE.....J CHILD CARE.....K SANITATION/CLEANLINESS.....L ORAL REHYDRATION.....M OTHER_____X (SPECIFY)	
304	When was the last time a health or family planning worker visited you at home? IF LESS THAN ONE MONTH, RECORD '00' MONTHS.	MONTHS AGO..... ☐☐	
305	Who visited you at that time?	PUBLIC SECTOR WORKER GOVT. DOCTOR.....11 PUBLIC HEALTH NURSE.....12 ANM/LHV.....13 MALE MPW/SUPERVISOR.....14 ANGANWADI WORKER.....15 VILLAGE HEALTH GUIDE.....16 OTHER PUBLIC SECTOR HEALTH WORKER.....17 NGO DOCTOR.....21 NGO WORKER.....22 PRIVATE SECTOR WORKER PRIVATE DOCTOR.....31 PRIVATE NURSE.....32 COMPOUNDER.....33 TRADITIONAL HEALER.....34 DAI (TBA).....35 OTHER PRIVATE SECTOR HEALTH WORKER.....36 OTHER_____96 (SPECIFY)	
305A	What type of services did you receive during this visit? Any other service? RECORD ALL MENTIONED.	PILL SUPPLY.....A CONDOM SUPPLY.....B FOLLOW-UP FOR STERILIZATION.....C FOLLOW-UP FOR IUD INSERTION.....D FAMILY PLANNING ADVICE.....E OTHER FAMILY PLANNING SERVICE...F IMMUNIZATION.....G ANTENATAL CARE.....H DELIVERY CARE.....I POSTPARTUM CARE.....J DISEASE PREVENTION.....K MEDICAL TREATMENT FOR SELF.....L TREATMENT FOR SICK CHILD.....M TREATMENT FOR OTHER PERSON.....N OTHER_____X (SPECIFY)	
306	Did she/he spend enough time with you?	YES.....1 NO.....2	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
307	Did she/he talk to you nicely, somewhat nicely, or not nicely?	NICELY.....1 SOMEWHAT NICELY.....2 NOT NICELY.....3	
308	Have you visited a health facility or camp for any reason for yourself (or your children) in the last last 12 months?	YES.....1 NO.....2 ——>317	
309	During these visits in the last 12 months, what were the different matters talked about? Anything else? RECORD ALL MENTIONED.	FAMILY PLANNING.....A BREASTFEEDING.....B SUPPLEMENTARY FEEDING.....C IMMUNIZATION.....D NUTRITION.....E DISEASE PREVENTION.....F TREATMENT OF HEALTH PROBLEM....G ANTENATAL CARE.....H DELIVERY CARE.....I POSTPARTUM CARE.....J CHILD CARE.....K SANITATION/CLEANLINESS.....L ORAL REHYDRATION.....M OTHER_____X (SPECIFY)	
310	What type of health facility did you visit most recently for yourself (or your children)?	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSPITAL.....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSPITAL/PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 CAMP.....17 OTHER PUBLIC SECTOR HEALTH FACILITY.....18 NGO/TRUST HOSPITAL/CLINIC.....21 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....31 PVT. MOBILE CLINIC.....32 PHARMACY/DRUGSTORE.....33 OTHER PRIVATE SECTOR HEALTH FACILITY.....34 OTHER _____96 (SPECIFY)	
311	What service did you go for? Any other service? RECORD ALL MENTIONED.	PILL SUPPLY.....A CONDOM SUPPLY.....B IUD/LOOP INSERTION.....C STERILIZATION OPERATION.....D FOLLOW-UP FOR STERILIZATION.....E FOLLOW-UP FOR IUD INSERTION.....F FAMILY PLANNING ADVICE.....G OTHER FAMILY PLANNING SERVICE...H IMMUNIZATION.....I ANTENATAL CARE.....J DELIVERY CARE.....K POSTPARTUM CARE.....L DISEASE PREVENTION.....M MEDICAL TREATMENT FOR SELF.....N TREATMENT FOR SICK CHILD.....O TREATMENT FOR OTHER PERSON.....P OTHER_____X (SPECIFY)	
311A	Did you receive the service that you went for?	YES.....1 NO.....2	

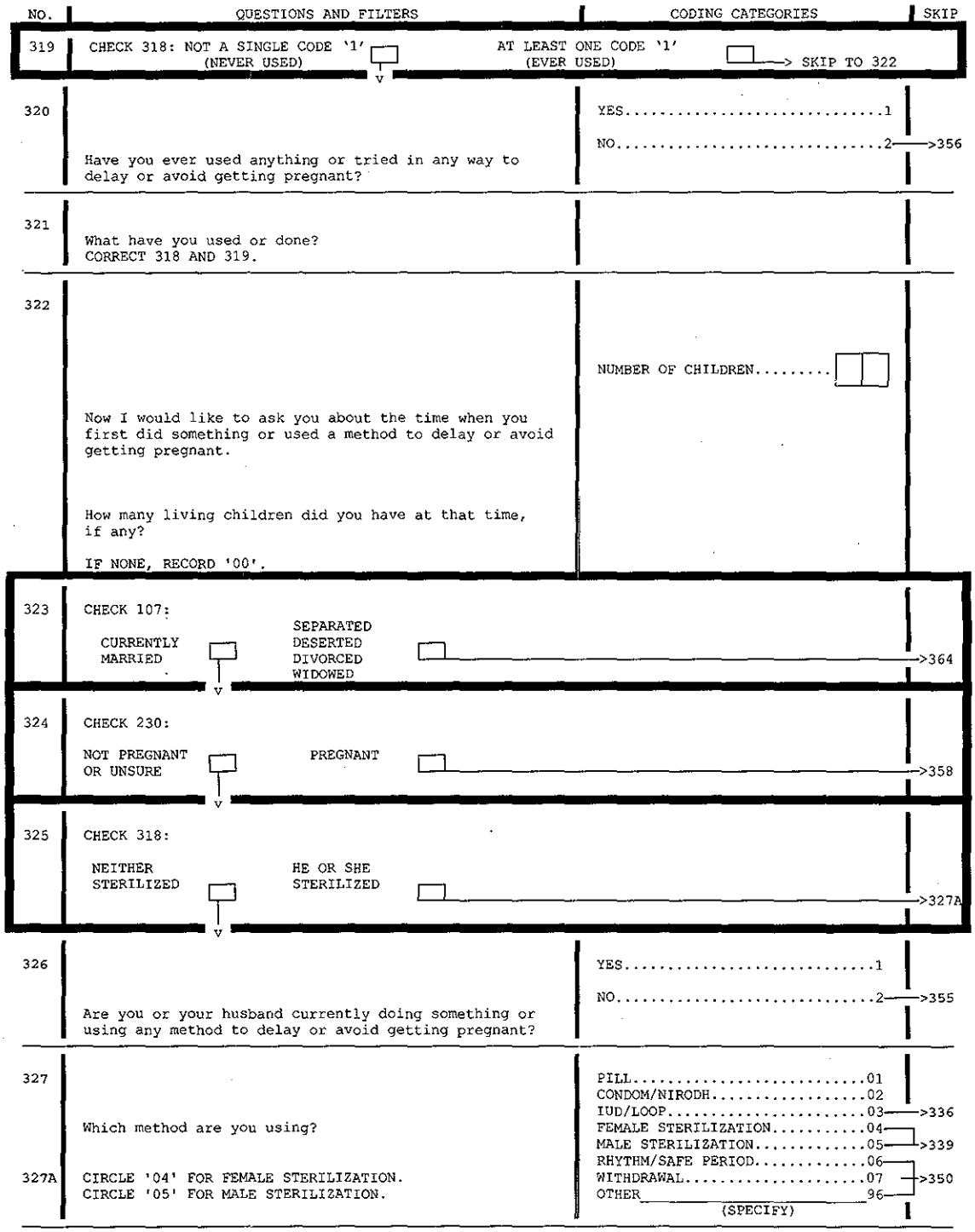
NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
312	CHECK 311A: RECEIVED SERVICE ☐ v DID NOT RECEIVE SERVICE ☐ v How long did you have to wait before being served? How long did you have to wait before you learned that the service you went for would not be available?	MINUTES.....1 ☐☐ HOURS.....2 ☐☐ NO WAIT AT ALL.....995 OTHER_____996 (SPECIFY)	
313	During this visit did the staff spend enough time with you?	YES.....1 NO.....2	
314	Did the staff talk to you nicely, somewhat nicely, or not nicely?	NICELY.....1 SOMEWHAT NICELY.....2 NOT NICELY.....3	
315	Did the staff respect your need for privacy?	YES.....1 NO.....2 SAYS PRIVACY NOT NEEDED.....3	
316	Would you say the health facility was very clean, somewhat clean, or not clean?	VERY CLEAN.....1 SOMEWHAT CLEAN.....2 NOT CLEAN.....3	
317	Now I would like to ask about all the contacts you have had with health or family planning workers at home or anywhere else in the last 12 months or ever before. During any of these contacts, which methods of delaying or avoiding pregnancy were discussed, if any? PROBE: Any other methods discussed? RECORD ALL MENTIONED.	PILL.....A CONDOM/NIRODH.....B IUD/LOOP.....C FEMALE STERILIZATION.....D MALE STERILIZATION.....E RHYTHM/SAFE PERIOD.....F WITHDRAWAL.....G OTHER_____X (SPECIFY) NONE/NEVER DISCUSSED.....Y	

SECTION 3B. CONTRACEPTION

318. Now I would like to talk about family planning - the various ways or methods that a couple can use to delay or avoid a pregnancy.

For each method I mention, please tell me if you have ever heard of the method and whether you have ever used the method at any time in your life?

01	Pill Women can take a pill daily or weekly.	HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3
02	Condom or Nirodh Men can use a rubber sheath during sexual intercourse.	HAS USED .....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3
03	IUD or Loop Women can have a loop or coil placed inside them by a doctor or a nurse.	HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3
04	Female sterilization Women can have an operation to avoid having any more children.	Have you ever heard of female sterilization? IF YES: Have you ever had an operation to avoid having any more children? HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3
05	Male sterilization Men can have an operation to avoid having any more children.	Have you ever heard of male sterilization? IF YES: Has your husband ever had an operation to avoid having any more children? HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3
06	Rhythm or safe period method Couples can avoid having sexual intercourse on certain days of the month when the woman is more likely to become pregnant.	HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3
07	Withdrawal Men can be careful and pull out before climax.	HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3
08	Have you ever heard of any other ways or methods that women or men can use to delay or avoid pregnancy? IF YES: Have you ever used this method? 1 _____ (SPECIFY) 2 _____ (SPECIFY)	HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3 HAS USED.....1 HAS HEARD, BUT HAS NOT USED.....2 HAS NOT HEARD.....3


NO.
QUESTIONS AND FILTERS
CODING CATEGORIES
SKIP
319
CHECK 318: NOT A SINGLE CODE '1' (NEVER USED)
AT LEAST ONE CODE '1' (EVER USED)
SKIP TO 322
320
Have you ever used anything or tried in any way to delay or avoid getting pregnant?
YES.....1
NO.....2
>356
321
What have you used or done?
CORRECT 318 AND 319.
322
Now I would like to ask you about the time when you first did something or used a method to delay or avoid getting pregnant.
How many living children did you have at that time, if any?
IF NONE, RECORD '00'.
NUMBER OF CHILDREN.....
323
CHECK 107:
CURRENTLY MARRIED
SEPARATED
DESERTED
DIVORCED
WIDOWED
>364
324
CHECK 230:
NOT PREGNANT OR UNSURE
PREGNANT
>358
325
CHECK 318:
NEITHER STERILIZED
HE OR SHE STERILIZED
>327A
326
Are you or your husband currently doing something or using any method to delay or avoid getting pregnant?
YES.....1
NO.....2
>355
327
Which method are you using?
327A
CIRCLE '04' FOR FEMALE STERILIZATION.
CIRCLE '05' FOR MALE STERILIZATION.
PILL.....01
CONDOM/NIRODH.....02
IUD/LOOP.....03
>336
FEMALE STERILIZATION.....04
MALE STERILIZATION.....05
>339
RHYTHM/SAFE PERIOD.....06
WITHDRAWAL.....07
>350
OTHER_____96
(SPECIFY)

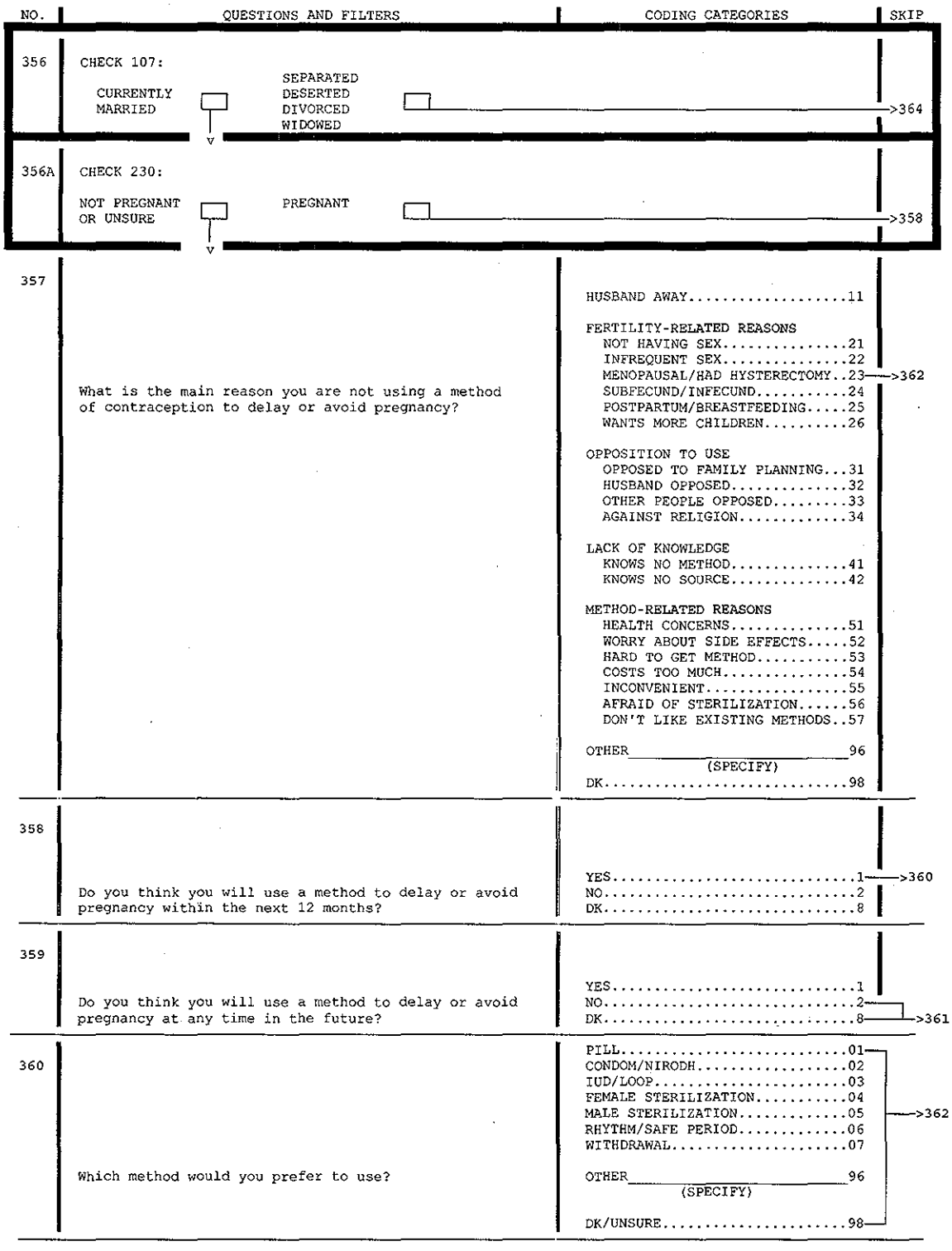
NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
328	For how many months have you been using pills/condoms continuously? IF LESS THAN 1 MONTH, RECORD '00'.	MONTHS..... 8 YEARS OR LONGER.....96	
329	Where did you obtain the pills/condoms the last time? IF SOURCE IS HOSPITAL OR CLINIC, WRITE THE NAME OF THE PLACE. PROBE TO IDENTIFY THE TYPE OF PLACE AND CIRCLE THE APPROPRIATE CODE. _____ (NAME OF PLACE IF HOSPITAL OR CLINIC)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSPITAL.....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSPITAL/PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 GOVT. PARAMEDIC.....17 CAMP.....18 OTHER PUBLIC SECTOR HEALTH FACILITY.....19 NGO/TRUST HOSPITAL/CLINIC.....21 ->331 NGO WORKER.....22 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 PVT. PARAMEDIC.....34 VAIDYA/HAKIM/HOMEOPATH.....35 TRADITIONAL HEALER.....36 PHARMACY/DRUGSTORE.....37 DAI(TBA).....38 OTHER PRIVATE SECTOR HEALTH FACILITY.....39 OTHER SOURCE SHOP.....41 HUSBAND.....42 FRIEND/OTHER RELATIVE.....43 OTHER _____ 96 ->331 (SPECIFY)	
330	Do you know where this person obtained the pills/condoms the last time? IF SOURCE IS HOSPITAL OR CLINIC, WRITE THE NAME OF THE PLACE. PROBE TO IDENTIFY THE TYPE OF PLACE AND CIRCLE THE APPROPRIATE CODE. _____ (NAME OF PLACE IF HOSPITAL OR CLINIC)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSPITAL.....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSPITAL/PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 GOVT. PARAMEDIC.....17 CAMP.....18 OTHER PUBLIC SECTOR HEALTH FACILITY.....19 NGO/TRUST HOSPITAL/CLINIC.....21 NGO WORKER.....22 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 PVT. PARAMEDIC.....34 VAIDYA/HAKIM/HOMEOPATH.....35 TRADITIONAL HEALER.....36 PHARMACY/DRUGSTORE.....37 DAI(TBA).....38 OTHER PRIVATE SECTOR HEALTH FACILITY.....39 OTHER SOURCE SHOP.....41 OTHER _____ 96 (SPECIFY) DK.....99	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
331	May I see the packet of pills/condoms you are using now? IF PACKET SEEN, RECORD BRAND NAME.	PACKET SEEN.....1 BRAND NAME_____ ☐☐☐ PACKET NOT SEEN.....2	>333
332	Do you know the brand name of the pills/condoms you are using now?	BRAND NAME_____ ☐☐☐ DK.....998	
333	How much does one packet of pills/condoms cost you?	COST Rs:..... ☐☐☐ FREE.....995 DK.....998	>335
334	For that cost how many condoms/pill cycles do you get?	NUMBER..... ☐☐	
335	Have you been able to get the supply of pills/condoms whenever you need them?	YES.....1 NO.....2	>344
336	For how many months have you been using the IUD/LOOP continuously? IF LESS THAN 1 MONTH, RECORD '00'.	MONTHS..... ☐☐ 8 YEARS OR LONGER.....96	
337	Who inserted the IUD/LOOP?	GOVERNMENT DOCTOR.....01 GOVERNMENT NURSE/PARAMEDIC.....02 NGO DOCTOR.....03 NGO NURSE/PARAMEDIC.....04 PRIVATE DOCTOR.....05 PRIVATE NURSE/PARAMEDIC.....06 OTHER_____96 (SPECIFY)	
338	Where did you go to get the IUD/LOOP inserted? _____ (NAME OF PLACE IF HOSPITAL OR CLINIC)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSPITAL.....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSPITAL/PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 CAMP.....17 OTHER PUBLIC SECTOR HEALTH FACILITY.....18 NGO/TRUST HOSPITAL/CLINIC.....21 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 OTHER PRIVATE SECTOR HEALTH FACILITY.....34 OTHER_____96 (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
338A	How much did the IUD/LOOP insertion cost you? IF NO CHARGE, RECORD '0000'.	COST Rs:..... DK.....9998	>342
339	In what month and year was your/your husband's sterilization operation performed?	MONTH..... YEAR.....	
340	Where did you/your husband get sterilized? _____ (NAME OF PLACE IF HOSPITAL OR CLINIC)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSPITAL.....11 UHC/UHP/UFWC.....12 CHC/RURAL HOSPITAL/PHC.....13 GOVT. MOBILE CLINIC.....14 CAMP.....15 OTHER PUBLIC SECTOR HEALTH FACILITY.....16 NGO/TRUST HOSPITAL/CLINIC.....21 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 OTHER PRIVATE SECTOR HEALTH FACILITY.....34 OTHER _____ 96 (SPECIFY)	
341	How much did the operation cost you? IF NO CHARGE, RECORD '0000'.	COST Rs..... DK.....9998	
342	How would you rate the care you/your husband received during or immediately after the operation/IUD insertion: very good, all right, not so good, or bad?	VERY GOOD.....1 ALL RIGHT.....2 NOT SO GOOD.....3 BAD.....4	
343	What improvements would you suggest in the care you/your husband received during or immediately after the operation/IUD insertion? Anything else? RECORD ALL MENTIONED.	MORE CLEANLINESS.....A MORE PRIVACY.....B BETTER CARE BY THE DOCTOR.....C BETTER CARE BY THE OTHER STAFF...D SHORTER WAITING TIME.....E LOWER COST.....F OTHER _____ X (SPECIFY) NONE.....Y	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
344	Who mainly motivated you to use (CURRENT METHOD)?	GOVT. DOCTOR.....01 PUBLIC HEALTH NURSE.....02 ANM/LHV.....03 MALE MPW/SUPERVISOR.....04 ANGANWADI WORKER.....05 OTHER GOVT. HEALTH WORKER.....06 NGO WORKER.....07 PRIVATE DOCTOR.....08 PRIVATE PARAMEDIC.....09 DAI (TBA).....10 TEACHER.....11 RELIGIOUS LEADER.....12 POLITICAL LEADER.....13 HUSBAND.....14 MOTHER/MOTHER-IN-LAW.....15 OTHER RELATIVE/FRIEND.....16 NO ONE/SELF.....17 OTHER_____96 (SPECIFY)	>347
345	Did he/she tell you about any other methods that you might use?	YES.....1 NO.....2	>347
346	Which other methods were you told about? RECORD ALL MENTIONED.	PILL.....A CONDOM/NIRODH.....B IUD/LOOP.....C FEMALE STERILIZATION.....D MALE STERILIZATION.....E RHYTHM/SAFE PERIOD.....F WITHDRAWAL.....G OTHER_____X (SPECIFY)	
347	At the time when you accepted the (CURRENT METHOD) did any health or family planning worker tell you about side effects or other problems you might have using the (CURRENT METHOD)?	YES.....1 NO.....2	
348	Were you told what to do in case you experienced problems with the method?	YES.....1 NO.....2	
349	Did you receive any follow-up, either at home or in a health facility, after you accepted the (CURRENT METHOD)? PROBE FOR TYPE OF VISIT.	AT HOME ONLY.....1 IN A FACILITY ONLY.....2 BOTH.....3 NEITHER.....4	>351
350	For how long have you been using this method continuously? IF LESS THAN 1 MONTH, RECORD '00'.	MONTHS.....[ ][ ] 8 YEARS OR LONGER.....96	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
351	Have you had any problems related to the use of (CURRENT METHOD)?	YES.....1 NO.....2	→362
352	What problems have you had related to the use of (CURRENT METHOD)? PROBE: Any other problems? RECORD ALL MENTIONED.	WEIGHT GAIN.....A WEIGHT LOSS.....B TOO MUCH BLEEDING.....C HYPERTENSION.....D HEADACHE/BODYACHE/BACKACHE.....E NAUSEA/VOMITING.....F NO MENSTRUATION.....G WEAKNESS/TIREDNESS.....H DIZZINESS.....I FEVER.....J CRAMPS.....K SPOTTING.....L INCONVENIENT TO USE.....M ABDOMINAL PAIN.....N WHITE DISCHARGE.....O IRREGULAR PERIODS.....P BREAST TENDERNESS.....Q ALLERGY.....R EXPULSION.....S REDUCED SEXUAL SATISFACTION.....T OTHER_____ (SPECIFY) X	
353	When you first started having these problems, did you talk to anyone about these problems?	YES.....1 NO.....2	→362
354	Who did you talk to about these problems? Any other person? RECORD ALL PERSONS TALKED TO.	GOVT. DOCTOR.....A PUBLIC HEALTH NURSE.....B ANM/LHV.....C ANGANWADI WORKER.....D OTHER GOVT. HEALTH WORKER.....E NGO DOCTOR.....F NGO WORKER.....G PRIVATE DOCTOR.....H PRIVATE PARAMEDIC.....I COMPOUNDER/PHARMACIST.....J TRADITIONAL HEALER.....K HUSBAND.....L FRIEND/OTHER RELATIVE.....M OTHER_____ (SPECIFY) X	→362
355	What is the main reason you stopped using family planning?	METHOD FAILED/GOT PREGNANT.....01 LACK OF SEXUAL SATISFACTION.....02 CREATED MENSTRUAL PROBLEM.....03 CREATED HEALTH PROBLEM.....04 INCONVENIENT TO USE.....05 HARD TO GET METHOD.....06 PUT ON WEIGHT.....07 DID NOT LIKE THE METHOD.....08 WANTED TO HAVE A CHILD.....09 WANTED TO REPLACE DEAD CHILD.....10 LACK OF PRIVACY FOR USE.....11 HUSBAND AWAY.....12 COST TOO MUCH.....13 OTHER_____ (SPECIFY) 96	→356


NO.
QUESTIONS AND FILTERS
CODING CATEGORIES
SKIP
356
CHECK 107:
CURRENTLY MARRIED
SEPARATED
DESERTED
DIVORCED
WIDOWED
>364
356A
CHECK 230:
NOT PREGNANT OR UNSURE
PREGNANT
>358
357
What is the main reason you are not using a method of contraception to delay or avoid pregnancy?
HUSBAND AWAY.....11
FERTILITY-RELATED REASONS
NOT HAVING SEX.....21
INFREQUENT SEX.....22
MENOPAUSAL/HAD HYSTERECTOMY..23
SUBFECUND/INFECUND.....24
POSTPARTUM/BREASTFEEDING.....25
WANTS MORE CHILDREN.....26
OPPOSITION TO USE
OPPOSED TO FAMILY PLANNING...31
HUSBAND OPPOSED.....32
OTHER PEOPLE OPPOSED.....33
AGAINST RELIGION.....34
LACK OF KNOWLEDGE
KNOWS NO METHOD.....41
KNOWS NO SOURCE.....42
METHOD-RELATED REASONS
HEALTH CONCERNS.....51
WORRY ABOUT SIDE EFFECTS.....52
HARD TO GET METHOD.....53
COSTS TOO MUCH.....54
INCONVENIENT.....55
AFRAID OF STERILIZATION.....56
DON'T LIKE EXISTING METHODS..57
OTHER _____ 96
(SPECIFY)
DK.....98
>362
358
Do you think you will use a method to delay or avoid pregnancy within the next 12 months?
YES.....1
NO.....2
DK.....8
>360
359
Do you think you will use a method to delay or avoid pregnancy at any time in the future?
YES.....1
NO.....2
DK.....8
>361
360
Which method would you prefer to use?
PILL.....01
CONDOM/NIRODH.....02
IUD/LOOP.....03
FEMALE STERILIZATION.....04
MALE STERILIZATION.....05
RHYTHM/SAFE PERIOD.....06
WITHDRAWAL.....07
OTHER _____ 96
(SPECIFY)
DK/UNSURE.....98
>362

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
361	What is the main reason that you think you will not use a family planning method at any time in the future?	FERTILITY-RELATED REASONS NOT HAVING SEX.....11 INFREQUENT SEX.....12 MENOPAUSAL/HAD HYSTERECTOMY..13 SUBFECUND/INFECUND.....14 WANTS AS MANY CHILDREN AS POSSIBLE.....15 OPPOSITION TO USE OPPOSED TO FAMILY PLANNING...21 HUSBAND OPPOSED.....22 OTHER PEOPLE OPPOSED.....23 AGAINST RELIGION.....24 LACK OF KNOWLEDGE KNOWS NO METHOD.....31 KNOWS NO SOURCE.....32 METHOD-RELATED REASONS HEALTH CONCERNS.....41 WORRY ABOUT SIDE EFFECTS.....42 HARD TO GET METHOD.....43 COSTS TOO MUCH.....44 INCONVENIENT.....45 AFRAID OF STERILIZATION.....46 DON'T LIKE EXISTING METHODS..47 OTHER_____ (SPECIFY) 96 DK.....98	
362	In the last few months, have you discussed the practice of family planning with your husband, friends, neighbours, or relatives?	YES.....1 NO.....2	——>364
363	With whom? Anyone else? RECORD ALL MENTIONED.	HUSBAND.....A MOTHER.....B SISTER(S).....C DAUGHTER.....D MOTHER-IN-LAW.....E SISTER-IN-LAW.....F FRIEND/NEIGHBOUR.....G OTHER_____ (SPECIFY) X	
364	In the last few months, have you heard or seen any message about family planning:	YES NO	
	on radio?	RADIO..... 1 2	
	on television?	TELEVISION..... 1 2	
	in a cinema or film show?	CINEMA/FILM SHOW..... 1 2	
	in a newspaper or magazine?	NEWSPAPER/MAGAZINE..... 1 2	
	on a wall painting or hoarding?	WALL PAINTING/HOARDING... 1 2	
	in a drama, folk dance, or street play?	DRAMA/FOLK DANCE/STREET PLAY..... 1 2	

401 CHECK 224
ONE OR MORE BIRTHS SINCE JAN. 1996 ☐ v
NO BIRTHS SINCE JAN. 1996 ☐ → (SKIP TO 486)

402 ENTER THE LINE NUMBER, NAME, AND SURVIVAL STATUS OF LAST TWO BIRTHS SINCE JANUARY 1996 IN THE TABLE. ASK THE QUESTIONS ABOUT THESE TWO BIRTHS. BEGIN WITH THE LAST BIRTH. (IF THERE ARE MORE THAN 2 BIRTHS, RECORD ONLY LAST TWO BIRTHS.)

Now I would like to ask you some questions about the health of your children born since January 1996. (We will talk about one child at a time.)

	LAST BIRTH	NEXT-TO-LAST BIRTH
LINE NUMBER FROM Q. 212	☐☐	☐☐
FROM Q. 212 AND Q. 216	NAME _____ ALIVE ☐ v DEAD ☐ v	NAME _____ ALIVE ☐ v DEAD ☐ v
403 At the time you became pregnant with (NAME), did you want to become pregnant then, did you want to wait until later, or did you want no (more) children at all?	THEN.....1 (SKIP TO 405) LATER.....2 NO MORE.....3 (SKIP TO 405)	THEN.....1 (SKIP TO 405) LATER.....2 NO MORE.....3 (SKIP TO 405)
404 How much longer would you like to have waited?	MONTHS.....1 ☐☐ YEARS.....2 DK.....998	MONTHS.....1 ☐☐ YEARS.....2 DK.....998
405 When you were pregnant with (NAME), did you go for an antenatal check-up?	YES.....1 NO.....2 (SKIP TO 407)	YES.....1 NO.....2 (SKIP TO 407)
406 Whom did you see? Anyone RECORD ALL PERSONS SEEN.	HEALTH PROFESSIONAL DOCTOR.....A ANM/NURSE/MIDWIFE/LHV...B OTHER HEALTH PROFSSNL...C TRADITIONAL BIRTH ATTENDANT (DAI).....D OTHER _____ X (SPECIFY)	HEALTH PROFESSIONAL DOCTOR.....A ANM/NURSE/MIDWIFE/LHV...B OTHER HEALTH PROFSSNL...C TRADITIONAL BIRTH ATTENDANT (DAI).....D OTHER _____ X (SPECIFY)
407 When you were pregnant with (NAME), did any health worker visit you at home for an antenatal check-up?	YES.....1 NO.....2	YES.....1 NO.....2
408 CHECK 405 AND 407:	YES IN EITHER ☐ v NO IN BOTH ☐ v (SKIP TO 413)	YES IN EITHER ☐ v NO IN BOTH ☐ v (SKIP TO 413)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
409	How many months pregnant were you when you first received an antenatal check-up?	MONTHS..... ☐☐	MONTHS..... ☐☐
410	How many times did you receive antenatal check-ups during this pregnancy?	NO. OF TIMES..... ☐☐	NO. OF TIMES..... ☐☐
411	Did you have the following performed at least once during any of your antenatal check-ups for this pregnancy:	YES NO	YES NO
	Weight measured?	WEIGHT..... 1 2	WEIGHT..... 1 2
	Height measured?	HEIGHT..... 1 2	HEIGHT..... 1 2
	Blood pressure checked?	BLOOD PRESSURE.... 1 2	BLOOD PRESSURE.... 1 2
	Blood test?	BLOOD TEST..... 1 2	BLOOD TEST..... 1 2
	Urine test?	URINE TEST..... 1 2	URINE TEST..... 1 2
	Abdomen examined?	ABDOMEN EXAMINED.. 1 2	ABDOMEN EXAMINED.. 1 2
	Internal exam?	INTERNAL EXAM..... 1 2	INTERNAL EXAM..... 1 2
	X-ray?	X-RAY..... 1 2	X-RAY..... 1 2
	Sonogram or ultrasound?	SONOGRAM/ULTRAS... 1 2	SONOGRAM/ULTRAS... 1 2
	Amniocentesis?	AMNIOCENTESIS..... 1 2	AMNIOCENTESIS..... 1 2
412	Did you receive advice on any of the following during at least one of your antenatal check-ups for this pregnancy	YES NO	YES NO
	Diet?	DIET..... 1 2	DIET..... 1 2
	Danger signs of pregnancy?	DANGER SIGNS..... 1 2	DANGER SIGNS..... 1 2
	Delivery care?	DELIVERY CARE..... 1 2	DELIVERY CARE..... 1 2
	Newborn care?	NEWBORN CARE..... 1 2	NEWBORN CARE..... 1 2
	Family planning?	FAMILY PLANNING.... 1 2 (SKIP TO 414)<	FAMILY PLANNING.... 1 2 (SKIP TO 414)<
413	What is the main reason you did not receive an antenatal check-up?	NOT NECESSARY.....01 NOT CUSTOMARY.....02 COST TOO MUCH.....03 TOO FAR/NO TRANSPORT....04 POOR QUALITY SERVICE....05 NO TIME TO GO.....06 FAMILY DID NOT ALLOW....07 LACK OF KNOWLEDGE.....08 NO HEALTH WORKER VISITED.....09 OTHER _____ 96 (SPECIFY)	NOT NECESSARY.....01 NOT CUSTOMARY.....02 COST TOO MUCH.....03 TOO FAR/NO TRANSPORT....04 POOR QUALITY SERVICE....05 NO TIME TO GO.....06 FAMILY DID NOT ALLOW....07 LACK OF KNOWLEDGE.....08 NO HEALTH WORKER VISITED.....09 OTHER _____ 96 (SPECIFY)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
414	When you were pregnant with (NAME), did you experience any of the following problems at any time:	YES NO	YES NO
	Night blindness? (USE LOCAL TERM)	NIGHT BLINDNESS.... 1 2	NIGHT BLINDNESS.... 1 2
	Blurred vision?	BLURRED VISION..... 1 2	BLURRED VISION..... 1 2
	Convulsions not from fever?	CONVULSIONS..... 1 2	CONVULSIONS..... 1 2
	Swelling of the legs, body, or face?	SWELLING..... 1 2	SWELLING..... 1 2
	Excessive fatigue?	EXCESSIVE FATIGUE.. 1 2	EXCESSIVE FATIGUE.. 1 2
	Anaemia?	ANAEMIA..... 1 2	ANAEMIA..... 1 2
	Any vaginal bleeding?	VAGINAL BLEEDING... 1 2	VAGINAL BLEEDING... 1 2
415	When you were pregnant with (NAME), were you given any iron folic tablets or syrup?	YES.....1 NO.....2 (SKIP TO 418)<—	YES.....1 NO.....2 (SKIP TO 418)<—
416	Did you receive enough iron folic tablets or syrup to last about three months or longer?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
417	Did you consume all the iron folic tablets or syrup you were given ?	YES.....1 NO.....2	YES.....1 NO.....2
418	When you were pregnant with (NAME), were you given an injection in the arm to prevent you and the baby from getting tetanus (USE LOCAL TERM FOR TETANUS)?	YES.....1 NO.....2 (SKIP TO 420)<— DK.....8	YES.....1 NO.....2 (SKIP TO 420)<— DK.....8
419	During this pregnancy, how many times did you get this injection?	TIMES..... ☐ DK.....8	TIMES..... ☐ DK.....8

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
420	Where did you give birth to (NAME)?	HOME YOUR HOME.....11 PARENTS' HOME.....12 OTHER HOME.....13 PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP...21 GOVT. DISPENSARY.....22 UHC/UHP/UFWC.....23 CHC/RURAL HOSP./PHC....24 SUB-CENTRE.....25 OTHER PUBLIC SECTOR HEALTH FACILITY.....26 NGO/TRUST HOSP./CLINIC..31 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC/ MATERNITY HOME.....41 OTHER PRIVATE SECTOR HEALTH FACILITY.....42 OTHER _____ 96 (SPECIFY) (SKIP TO 422)	HOME YOUR HOME.....11 PARENTS' HOME.....12 OTHER HOME.....13 PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP...21 GOVT. DISPENSARY.....22 UHC/UHP/UFWC.....23 CHC/RURAL HOSP./PHC....24 SUB-CENTRE.....25 OTHER PUBLIC SECTOR HEALTH FACILITY.....26 NGO/TRUST HOSP./CLINIC..31 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC/ MATERNITY HOME.....41 OTHER PRIVATE SECTOR HEALTH FACILITY.....42 OTHER _____ 96 (SPECIFY) (SKIP TO 422)
421	What is the main reason you did not go to a health facility for delivery?	NOT NECESSARY.....01 NOT CUSTOMARY.....02 COST TOO MUCH.....03 TOO FAR/NO TRANSPORT....04 POOR QUALITY SERVICE....05 NO TIME TO GO.....06 FAMILY DID NOT ALLOW....07 BETTER CARE AT HOME.....08 LACK OF KNOWLEDGE.....09 OTHER _____ 96 (SPECIFY)	NOT NECESSARY.....01 NOT CUSTOMARY.....02 COST TOO MUCH.....03 TOO FAR/NO TRANSPORT....04 POOR QUALITY SERVICE....05 NO TIME TO GO.....06 FAMILY DID NOT ALLOW....07 BETTER CARE AT HOME.....08 LACK OF KNOWLEDGE.....09 OTHER _____ 96 (SPECIFY)
422	Who assisted with the delivery of (NAME)? Anyone else? PROBE FOR THE TYPE OF PERSON AND RECORD ALL PERSONS WHO ASSISTED.	HEALTH PROFESSIONAL DOCTOR.....A ANM/NURSE/MIDWIFE/LHV...B OTHER HEALTH PROFESSNL..C OTHER PERSON DAI(TBA).....D FRIEND/RELATIVE.....E OTHER _____ X (SPECIFY) NO ONE.....Y	HEALTH PROFESSIONAL DOCTOR.....A ANM/NURSE/MIDWIFE/LHV...B OTHER HEALTH PROFESSNL..C OTHER PERSON DAI(TBA).....D FRIEND/RELATIVE.....E OTHER _____ X (SPECIFY) NO ONE.....Y
423	CHECK 422:	ANY CODE A, B, OR C → (SKIP TO 425); NO CODE A, B, OR C	ANY CODE A, B, OR C → (SKIP TO 425); NO CODE A, B, OR C
424	What is the main reason you did not take the help of a health professional?	NOT NECESSARY.....01 NOT CUSTOMARY.....02 COST TOO MUCH.....03 TOO FAR/NO TRANSPORT...04 PROFES. NOT AVAI'BLE...05 NO CONFIDENCE IN AVAILABLE PROFESIONAL.06 NO TIME TO GET HELP....07 FAMILY DID NOT ALLOW...08 OTHER _____ 96 (SPECIFY) (SKIP TO 426)	NOT NECESSARY.....01 NOT CUSTOMARY.....02 COST TOO MUCH.....03 TOO FAR/NO TRANSPORT...04 PROFES. NOT AVAI'BLE...05 NO CONFIDENCE IN AVAILABLE PROFESIONAL.06 NO TIME TO GET HELP....07 FAMILY DID NOT ALLOW...08 OTHER _____ 96 (SPECIFY) (SKIP TO 426)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
425	Was (NAME) delivered by caesarian section?	YES.....1 NO.....2	YES.....1 NO.....2
426	When (NAME) was born, was he/she: large, average, small, or very small?	LARGE.....1 AVERAGE.....2 SMALL .....3 VERY SMALL.....4	LARGE.....1 AVERAGE.....2 SMALL .....3 VERY SMALL.....4
427	Was (NAME) weighed at birth?	YES.....1 NO.....2 (SKIP TO 429)<-	YES.....1 NO.....2 (SKIP TO 429)<-
428	How much did (NAME) weigh?	GRAMS..... [ ][ ][ ][ ] DK.....9998	GRAMS..... [ ][ ][ ][ ] DK.....9998
429	Now I would like to ask you about the 2-month period after the delivery of (NAME). During that period, did a doctor or other health professional check your health or the health of your baby?	YES.....1 NO.....2 (SKIP TO 433)<-	YES.....1 NO.....2 (SKIP TO 433)<-
430	How soon after the birth of (NAME) did you first get a check-up?	DAYS.....1 [ ][ ] WEEKS.....2 [0][ ]	DAYS.....1 [ ][ ] WEEKS.....2 [0][ ]
431	Where did you get the check-up?	HOME VISIT.....11 PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP....21 GOVT. DISPENSARY.....22 UHC/UHP/UFWC.....23 CHC/RURAL HOSP./PHC.....24 SUB-CENTRE.....25 OTHER PUBLIC SECTOR HEALTH FACILITY.....26 NGO/TRUST HOSP./CLINIC...31 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC/ MATERNITY HOME.....41 OTHER PRIVATE SECTOR HEALTH FACILITY.....42 OTHER _____ 96 (SPECIFY)	HOME VISIT.....11 PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP....21 GOVT. DISPENSARY.....22 UHC/UHP/UFWC.....23 CHC/RURAL HOSP./PHC.....24 SUB-CENTRE.....25 OTHER PUBLIC SECTOR HEALTH FACILITY.....26 NGO/TRUST HOSP./CLINIC...31 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC/ MATERNITY HOME.....41 OTHER PRIVATE SECTOR HEALTH FACILITY.....42 OTHER _____ 96 (SPECIFY)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
432	Did any of the following happen when you had the check-up: Was your abdomen examined? Did you receive advice on family planning? Did you receive advice on breastfeeding? Did you receive advice on baby care?	YES NO ABDOMEN EXAMINED... 1 2 FAMILY PLANNING.... 1 2 BREASTFEEDING..... 1 2 BABY CARE..... 1 2	YES NO ABDOMEN EXAMINED... 1 2 FAMILY PLANNING.... 1 2 BREASTFEEDING..... 1 2 BABY CARE..... 1 2
433	At any time during the two months after the delivery of (NAME), did you have any of the following: Massive vaginal bleeding? Very high fever?	YES NO VAGINAL BLEEDING... 1 2 VERY HIGH FEVER.... 1 2	YES NO VAGINAL BLEEDING... 1 2 VERY HIGH FEVER.... 1 2
434	Has your period returned since the birth of (NAME)?	YES .....1 (SKIP TO 436) NO.....2 (SKIP TO 437)	
435	Did your period return between the birth of (NAME) and your next pregnancy?		YES .....1 NO.....2 (SKIP TO 439)
436	For how many months after the birth of (NAME) did you not have a period?	MONTHS..... DK.....98	MONTHS..... DK.....98
437	CHECK 230: RESPONDENT PREGNANT?	NOT PREGNANT OR Q230 NOT ASKED PREGNANT OR UNSURE (SKIP TO 439)	
438	Have you resumed sexual relations since the birth of (NAME)?	YES.....1 NO.....2 (SKIP TO 440)	

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
439	For how many months after the birth of (NAME) did you not have sexual relations?	MONTHS..... ☐☐ DK.....98	MONTHS..... ☐☐ DK.....98
440	Did you ever breastfeed (NAME)?	YES.....1 (SKIP TO 442) NO.....2	YES.....1 (SKIP TO 442) NO.....2
441	Why did you not breastfeed (NAME)?	MOTHER ILL/WEAK.....01 CHILD ILL/WEAK.....02 CHILD DIED.....03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.....05 MOTHER WORKING.....06 CHILD REFUSED.....07 OTHER_____96 (SPECIFY) (SKIP TO 448)	MOTHER ILL/WEAK.....01 CHILD ILL/WEAK.....02 CHILD DIED.....03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.....05 MOTHER WORKING.....06 CHILD REFUSED.....07 OTHER_____96 (SPECIFY) (SKIP TO 448)
442	How long after birth did you first put (NAME) to the breast? IF LESS THAN 1 HOUR, RECORD '00' HOURS. IF LESS THAN 24 HOURS, RECORD HOURS. OTHERWISE, RECORD DAYS.	IMMEDIATELY.....000 HOURS.....1 ☐☐ DAYS.....2 ☐☐	IMMEDIATELY.....000 HOURS.....1 ☐☐ DAYS.....2 ☐☐
443	Did you squeeze out the milk from the breast before you first put (NAME) to the breast?	YES.....1 NO.....2	YES.....1 NO.....2
444	CHECK 216: CHILD ALIVE?	ALIVE ☐ DEAD ☐ v v (SKIP TO 446)	ALIVE ☐ DEAD ☐ v v (SKIP TO 446)
445	Are you still breastfeeding (NAME)?	YES.....1 (SKIP TO 449) NO.....2	YES.....1 (SKIP TO 449) NO.....2
446	For how many months did you breastfeed (NAME)?	MONTHS..... ☐☐ UNTIL DIED.....96 (SKIP TO 452)	MONTHS..... ☐☐ UNTIL DIED.....96 (SKIP TO 452)
447	Why did you stop breastfeeding (NAME)?	MOTHER ILL/WEAK.....01 CHILD ILL/WEAK.....02 CHILD DIED.....03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.....05 MOTHER WORKING.....06 CHILD REFUSED.....07 WEANING AGE.....08 BECAME PREGNANT.....09 STARTED USING CONTRACEPTION.....10 OTHER_____96 (SPECIFY)	MOTHER ILL/WEAK.....01 CHILD ILL/WEAK.....02 CHILD DIED.....03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.....05 MOTHER WORKING.....06 CHILD REFUSED.....07 WEANING AGE.....08 BECAME PREGNANT.....09 STARTED USING CONTRACEPTION.....10 OTHER_____96 (SPECIFY)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
448	CHECK 216: CHILD ALIVE?	ALIVE ☐ DEAD ☐ (SKIP TO 452)	ALIVE ☐ DEAD ☐ (SKIP TO 452)
449	Did (NAME) drink anything from a bottle with a nipple yesterday or last night?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
450	At any time yesterday or last night, was (NAME) given any of the following:	YES NO DK	YES NO DK
	Plain water?	PLAIN WATER..... 1 2 8	PLAIN WATER..... 1 2 8
	Powdered milk?	POWDERED MILK.... 1 2 8	POWDERED MILK.... 1 2 8
	Any other milk (other than breast milk)?	OTHER MILK..... 1 2 8	OTHER MILK..... 1 2 8
	Any other liquid?	ANY OTHER LIQUID. 1 2 8	ANY OTHER LIQUID. 1 2 8
	Green, leafy vegetables?	GREEN/LEAFY VEG.. 1 2 8	GREEN/LEAFY VEG.. 1 2 8
	Fruits?	FRUITS..... 1 2 8	FRUITS..... 1 2 8
	Any other solid or mushy food?	SOLID/MUSHY FOOD. 1 2 8	SOLID/MUSHY FOOD. 1 2 8
451	How often during the last seven days was (NAME) given any of the following:	1 = EVERY DAY 2 = SOME DAYS 3 = NOT AT ALL 8 = DK	1 = EVERY DAY 2 = SOME DAYS 3 = NOT AT ALL 8 = DK
	Plain water?	PLAIN WATER..... ☐	PLAIN WATER..... ☐
	Powdered milk?	POWDERED MILK..... ☐	POWDERED MILK..... ☐
	Any other milk (other than breast milk)?	OTHER MILK..... ☐	OTHER MILK..... ☐
	Any other liquid?	OTHER LIQUID..... ☐	OTHER LIQUID..... ☐
	Green, leafy vegetables?	GREEN/LEAFY VEG..... ☐	GREEN/LEAFY VEG..... ☐
	Fruits?	FRUITS..... ☐	FRUITS..... ☐
	Any other solid or mushy food?	SOLID/MUSHY FOOD..... ☐	SOLID/MUSHY FOOD..... ☐
452	——————>	GO BACK TO 403 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 453	GO TO 453

SECTION 4B. IMMUNIZATION AND HEALTH

453 ENTER THE LINE NUMBER AND NAME OF LAST TWO BIRTHS SINCE JANUARY 1996 IN THE TABLE. ASK THE QUESTIONS ABOUT THESE TWO BIRTHS. BEGIN WITH THE LAST BIRTH. (IF THERE ARE MORE THAN 2 BIRTHS, RECORD ONLY LAST TWO BIRTHS.)

	LAST BIRTH	NEXT-TO-LAST BIRTH
LINE NUMBER FROM Q. 212	☐☐	☐☐
FROM Q. 212 AND Q. 216	NAME _____ ALIVE ☐ DEAD ☐ (GO TO NEXT COLUMN, OR IF NO MORE BIRTHS, GO TO 481)	NAME _____ ALIVE ☐ DEAD ☐ (GO TO 481)

454 Do you have a card where (NAME'S) vaccinations are written down?

IF YES: May I see it, please?

	LAST BIRTH	NEXT-TO-LAST BIRTH
YES, SEEN	1 (SKIP TO 456)	1 (SKIP TO 456)
YES, NOT SEEN	2 (SKIP TO 458)	2 (SKIP TO 458)
NO CARD	3	3

455 Did you ever have a vaccination card for (NAME)?

	LAST BIRTH	NEXT-TO-LAST BIRTH
YES	1 (SKIP TO 458)	1 (SKIP TO 458)
NO	2	2

456 (1) COPY VACCINATION DATES FOR EACH VACCINE FROM THE CARD.

(2) WRITE '44' IN 'DAY' COLUMN IF CARD SHOWS THAT A VACCINATION WAS GIVEN, BUT NO DATE IS RECORDED.

	LAST BIRTH DAY	LAST BIRTH MO	LAST BIRTH YEAR	NEXT-TO-LAST BIRTH DAY	NEXT-TO-LAST BIRTH MO	NEXT-TO-LAST BIRTH YEAR
BCG	BCG			BCG		
POLIO 0	P0			P0		
DPT 1	D1			D1		
DPT 2	D2			D2		
DPT 3	D3			D3		
POLIO 1	P1			P1		
POLIO 2	P2			P2		
POLIO 3	P3			P3		
MEASLES	MEA			MEA		

457 Has (NAME) received any vaccinations that are not recorded on this card?

RECORD 'YES' ONLY IF RESPONDENT MENTIONS BCG, DPT 1-3, POLIO 0-3 AND/OR MEASLES VACCINE(S).

	LAST BIRTH	NEXT-TO-LAST BIRTH
YES	1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 456) (SKIP TO 460)	1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 456) (SKIP TO 460)
NO	2	2
DK	8 (SKIP TO 460)	8 (SKIP TO 460)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
458	Did (NAME) ever receive any vaccinations to prevent him/her from getting diseases?	YES.....1 NO.....2 (SKIP TO 462) DK.....8	YES.....1 NO.....2 (SKIP TO 462) DK.....8
459	Please tell me if (NAME) has received any of the following vaccinations:		
459A	A BCG vaccination against tuberculosis, that is, an injection in the left shoulder that caused a scar?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
459B	A DPT vaccination against diphtheria, whooping cough, and tetanus given as an injection?	YES.....1 NO.....2 (SKIP TO 459D) DK.....8	YES.....1 NO.....2 (SKIP TO 459D) DK.....8
459C	How many times?	NUMBER OF TIMES.....	NUMBER OF TIMES.....
459D	Polio vaccine, that is, drops in the mouth?	YES.....1 NO.....2 (SKIP TO 459G) DK.....8	YES.....1 NO.....2 (SKIP TO 459G) DK.....8
459E	How many times?	NUMBER OF TIMES.....	NUMBER OF TIMES.....
459F	When was the first polio vaccine given -- just after birth or later?	JUST AFTER BIRTH.....1 LATER.....2	JUST AFTER BIRTH.....1 LATER.....2
459G	An injection against measles?	YES.....1 NO.....2 DK.....8 (SKIP TO 461)	YES.....1 NO.....2 DK.....8 (SKIP TO 461)
460	CHECK 456: ANY VACCINATIONS RECEIVED?	YES NO (SKIP TO 462)	YES NO (SKIP TO 462)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
461	Where did (NAME) receive most of his/her vaccinations?	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSP./PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 CAMP.....17 PULSE POLIO LOCATION....18 OTHER PUBLIC SECTOR HEALTH FACILITY.....19 NGO/TRUST HOSP./CLINIC...21 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 VAIDYA/HAKIM/HOMEOPATH..34 PHARMACY/DRUGSTORE.....35 OTHER PRIVATE SECTOR HEALTH FACILITY.....36 OTHER _____ 96 (SPECIFY)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSP./PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 CAMP.....17 PULSE POLIO LOCATION....18 OTHER PUBLIC SECTOR HEALTH FACILITY.....19 NGO/TRUST HOSP./CLINIC...21 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 VAIDYA/HAKIM/HOMEOPATH..34 PHARMACY/DRUGSTORE.....35 OTHER PRIVATE SECTOR HEALTH FACILITY.....36 OTHER _____ 96 (SPECIFY)
462	Was a dose of vitamin A liquid or capsule ever given to (NAME) to protect him/her from night blindness (USE LOCAL TERM)?	YES.....1 NO.....2 (SKIP TO 464) DK.....8	YES.....1 NO.....2 (SKIP TO 464) DK.....8
463	How many months ago did (NAME) receive the last dose of Vitamin A?	MONTHS AGO.....	MONTHS AGO.....
464	Has (NAME) been ill with a fever at any time in the last 2 weeks?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
465	Has (NAME) been ill with a cough at any time in the last 2 weeks?	YES.....1 NO.....2 (SKIP TO 469) DK.....8	YES.....1 NO.....2 (SKIP TO 469) DK.....8
466	When (NAME) was ill with a cough, did he/she breathe faster than usual with short, rapid breaths?	YES.....1 NO.....2 DK.....8	YES.....1 NO.....2 DK.....8
467	Did you seek advice or treatment for the cough?	YES.....1 NO.....2 (SKIP TO 469)	YES.....1 NO.....2 (SKIP TO 469)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
468	Where did you seek advice or treatment? Anywhere else? RECORD ALL MENTIONED.	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP.....A GOVT. DISPENSARY.....B UHC/UHP/UFWC.....C CHC/RURAL HOSP./PHC.....D SUB-CENTRE.....E GOVT. MOBILE CLINIC.....F GOVT. PARAMEDIC..... G CAMP.....H OTHER PUBLIC SECTOR HEALTH FACILITY.....I NGO/TRUST HOSP./CLINIC....J NGO WORKER.....K PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....L PVT. DOCTOR.....M PVT. MOBILE CLINIC.....N PVT. PARAMEDIC.....O VAIDYA/HAKIM/HOMEOPATH...P TRADITIONAL HEALER.....Q PHARMACY/DRUGSTORE.....R OTHER PRIVATE SECTOR HEALTH FACILITY.....S OTHER SOURCE SHOP.....T FRIEND/RELATIVE.....U OTHER _____ X (SPECIFY)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP.....A GOVT. DISPENSARY.....B UHC/UHP/UFWC.....C CHC/RURAL HOSP./PHC.....D SUB-CENTRE.....E GOVT. MOBILE CLINIC.....F GOVT. PARAMEDIC..... G CAMP.....H OTHER PUBLIC SECTOR HEALTH FACILITY.....I NGO/TRUST HOSP./CLINIC....J NGO WORKER.....K PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....L PVT. DOCTOR.....M PVT. MOBILE CLINIC.....N PVT. PARAMEDIC.....O VAIDYA/HAKIM/HOMEOPATH...P TRADITIONAL HEALER.....Q PHARMACY/DRUGSTORE.....R OTHER PRIVATE SECTOR HEALTH FACILITY.....S OTHER SOURCE SHOP.....T FRIEND/RELATIVE.....U OTHER _____ X (SPECIFY)
469	Has (NAME) had diarrhoea in the last two weeks?	YES.....1 NO.....2 (SKIP TO 480) DK.....8	YES.....1 NO.....2 (SKIP TO 480) DK.....8
470	Was there any blood in the stools?	YES.....1 NO.....2	YES.....1 NO.....2
471	(Including breast milk) Was he/she given the same amount to drink as before the diarrhoea, or more, or less?	SAME.....1 MORE.....2 LESS.....3 DK.....8	SAME.....1 MORE.....2 LESS.....3 DK.....8
472	Was he/she given the same amount of food as before the diarrhoea, or more, or less?	SAME.....1 MORE.....2 LESS.....3 STOPPED COMPLETELY.....4 DK.....8	SAME.....1 MORE.....2 LESS.....3 STOPPED COMPLETELY.....4 DK.....8
473	Did you seek advice or treatment for the diarrhoea?	YES.....1 NO.....2 (SKIP TO 475)	YES.....1 NO.....2 (SKIP TO 475)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
474	Where did you seek advice or treatment? Anywhere else? RECORD ALL MENTIONED.	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP.....A GOVT. DISPENSARY.....B UHC/UHP/UFWC.....C CHC/RURAL HOSP./PHC.....D SUB-CENTRE.....E GOVT. MOBILE CLINIC.....F GOVT. PARAMEDIC..... G CAMP.....H OTHER PUBLIC SECTOR HEALTH FACILITY.....I NGO/TRUST HOSP./CLINIC....J NGO WORKER.....K PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....L PVT. DOCTOR.....M PVT. MOBILE CLINIC.....N PVT. PARAMEDIC.....O VAIDYA/HAKIM/HOMEOPATH...P TRADITIONAL HEALER.....Q PHARMACY/DRUGSTORE.....R OTHER PRIVATE SECTOR HEALTH FACILITY.....S OTHER SOURCE SHOP.....T FRIEND/RELATIVE.....U OTHER _____ X (SPECIFY)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP.....A GOVT. DISPENSARY.....B UHC/UHP/UFWC.....C CHC/RURAL HOSP./PHC.....D SUB-CENTRE.....E GOVT. MOBILE CLINIC.....F GOVT. PARAMEDIC.....G CAMP.....H OTHER PUBLIC SECTOR HEALTH FACILITY.....I NGO/TRUST HOSP./CLINIC....J NGO WORKER.....K PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC.....L PVT. DOCTOR.....M PVT. MOBILE CLINIC.....N PVT. PARAMEDIC.....O VAIDYA/HAKIM/HOMEOPATH...P TRADITIONAL HEALER.....Q PHARMACY/DRUGSTORE.....R OTHER PRIVATE SECTOR HEALTH FACILITY.....S OTHER SOURCE SHOP.....T FRIEND/RELATIVE.....U OTHER _____ X (SPECIFY)
475	When (NAME) had diarrhoea, was he/she given any of the following to drink: A fluid made from a special packet called [LOCAL NAME]? Gruel made from rice [OR OTHER LOCAL GRAIN, TUBER, OR PLANTAIN]?	YES NO DK FLUID FROM ORS PACKET..... 1 2 8 GRUEL..... 1 2 8	YES NO DK FLUID FROM ORS PACKET..... 1 2 8 GRUEL..... 1 2 8
476	CHECK 475: FLUID FROM ORS PACKET GIVEN?	YES ☐ NO OR DK ☐ v (SKIP TO 478)	YES ☐ NO OR DK ☐ v (SKIP TO 478)

		LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____
477	Where did you obtain the ORS packet?	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSP./PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 GOVT. PARAMEDIC.....17 OTHER PUBLIC SECTOR HEALTH FACILITY.....18 NGO/TRUST HOSP./CLINIC...21 NGO WORKER.....22 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 PVT. PARAMEDIC.....35 VAIDYA/HAKIM/HOMEOPATH..34 PHARMACY/DRUGSTORE.....36 DAI(TBA).....37 OTHER PRIVATE SECTOR HEALTH FACILITY.....38 OTHER SOURCE SHOP.....41 HUSBAND.....42 FRIEND/OTHER RELATIVE...43 OTHER _____ 96 (SPECIFY)	PUBLIC MEDICAL SECTOR GOVT./MUNICIPAL HOSP....11 GOVT. DISPENSARY.....12 UHC/UHP/UFWC.....13 CHC/RURAL HOSP./PHC.....14 SUB-CENTRE.....15 GOVT. MOBILE CLINIC.....16 GOVT. PARAMEDIC.....17 OTHER PUBLIC SECTOR HEALTH FACILITY.....18 NGO/TRUST HOSP./CLINIC...21 NGO WORKER.....22 PRIVATE MEDICAL SECTOR PVT. HOSPITAL/CLINIC....31 PVT. DOCTOR.....32 PVT. MOBILE CLINIC.....33 PVT. PARAMEDIC.....35 VAIDYA/HAKIM/HOMEOPATH..34 PHARMACY/DRUGSTORE.....36 DAI(TBA).....37 OTHER PRIVATE SECTOR HEALTH FACILITY.....38 OTHER SOURCE SHOP.....41 HUSBAND.....42 FRIEND/OTHER RELATIVE...43 OTHER _____ 96 (SPECIFY)
478	Was anything (else) given to treat the diarrhoea?	YES.....1 NO.....2 (SKIP TO 480) DK.....8	YES.....1 NO.....2 (SKIP TO 480) DK.....8
479	What was given to treat the diarrhoea? Anything else? RECORD ALL MENTIONED.	PILL OR SYRUP.....A INJECTION.....B INTRAVENOUS (I.V./DRIP/ BOTTLE).....C HOMEMADE SUGAR-SALT- WATER SOLUTION.....D HOME REMEDY/ HERBAL MEDICINE.....E OTHER _____ X (SPECIFY)	PILL OR SYRUP.....A INJECTION.....B INTRAVENOUS (I.V./DRIP/ BOTTLE).....C HOMEMADE SUGAR-SALT- WATER SOLUTION.....D HOME REMEDY/ HERBAL MEDICINE.....E OTHER _____ X (SPECIFY)
480	——————>	GO BACK TO 454 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 481	GO TO 481

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
481	CHECK 475 ALL COLUMNS: ORS FLUID FROM PACKET GIVEN TO ANY CHILD ☐ → >483 ORS FLUID FROM PACKET NOT GIVEN TO ANY CHILD OR 475 NOT ASKED ☐ ↓		
482	Have you ever heard of a special product called [LOCAL TERM FOR ORS] you can get for the treatment of diarrhoea? IF SHE NEVER HEARD OF ORS, SHOW GOVERNMENT AND COMMERCIAL ORS PACKETS AND ASK: Have you ever seen a packet like one of these before?	YES, WITHOUT SHOWING PACKETS....1 YES, AFTER SHOWING PACKETS.....2 NO.....3	
483	When a child has diarrhoea, should he/she be given less to drink than usual, about the same amount, or more than usual?	LESS TO DRINK.....1 ABOUT SAME AMOUNT TO DRINK.....2 MORE TO DRINK.....3 DK.....8	
484	When a child is sick with diarrhoea, what signs of illness would tell you that he or she should be taken to a health facility or health worker? Any other signs? RECORD ALL MENTIONED.	REPEATED WATERY STOOLS.....A ANY WATERY STOOLS.....B REPEATED VOMITING.....C ANY VOMITING.....D BLOOD IN STOOLS.....E FEVER.....F MARKED THIRST.....G NOT EATING/NOT DRINKING WELL.....H GETTING SICKER/VERY SICK.....I NOT GETTING BETTER.....J OTHER_____ (SPECIFY) X DK.....Z	
485	When a child is sick with a cough, what signs of illness would tell you that he or she should be taken to a health facility or health worker? Any other signs? RECORD ALL MENTIONED.	RAPID BREATHING.....A DIFFICULT BREATHING.....B NOISY BREATHING.....C FEVER.....D UNABLE TO DRINK.....E NOT EATING/NOT DRINKING WELL.....F GETTING SICKER/VERY SICK.....G NOT GETTING BETTER.....H OTHER_____ (SPECIFY) X DK.....Z	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
486	Now I would like to ask you about some health symptoms you yourself may have. During the past three months, have you had any of the following problems with your vaginal discharge: Any itching or irritation in vaginal area with the discharge? A bad odour along with the discharge? Severe lower abdominal pain with the discharge, not related with menstruation? A fever along with the discharge? Any other problem with the discharge?	YES NO ITCHING/IRRITATION... 1 2 BAD ODOUR..... 1 2 ABDOMINAL PAIN..... 1 2 FEVER..... 1 2 OTHER PROBLEM..... 1 2	
487	During the past three months have you had a problem with pain or burning while urinating, or have you had more frequent or difficult urination?	YES.....1 NO.....2	
488	CHECK 107: CURRENTLY MARRIED SEPARATED DESERTED DIVORCED WIDOWED		→491
489	Another problem some women have is feeling pain in their abdomen or vagina during intercourse. Do you often experience this kind of pain?	YES.....1 NO.....2	
490	Do you ever see blood after having sex, at times when you are not menstruating?	YES.....1 NO.....2	
491	CHECK 486, 487, 489 and 490: YES TO ANY OTHER		→501
492	Have you seen anyone for advice or treatment to help you with (this problem/these problems)? IF YES, ASK: Whom did you see? Anyone else? RECORD ALL PERSONS SEEN.	PUBLIC MEDICAL SECTOR GOVT. DOCTOR.....A PUBLIC HEALTH NURSE.....B ANM/LHV.....C MALE MPW/SUPERVISOR.....D ANGANWADI WORKER.....E VILLAGE HEALTH GUIDE.....F OTHER PUBLIC SECTOR HEALTH WORKER.....G NGO WORKER.....H PRIVATE MEDICAL SECTOR PRIVATE DOCTOR.....I PRIVATE NURSE.....J COMPOUNDER/PHARMACIST.....K VAID/HAKIM/HOMEOPATH.....L DAI(TBA).....M TRADITIONAL HEALER.....N OTHER PRIVATE SECTOR HEALTH WORKER.....O OTHER_____X (SPECIFY) NO, NOBODY SEEN.....Y	

SECTION 5A. FERTILITY PREFERENCES

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
501	CHECK 107: CURRENTLY MARRIED ☐ → SEPARATED / DESERTED / DIVORCED / WIDOWED ☐		→507
502	CHECK 327/327A: NEITHER STERILIZED ☐ → HE OR SHE STERILIZED ☐		→507
503	CHECK 230: NOT PREGNANT OR UNSURE ☐ → PREGNANT ☐ Now I have some questions about the future. Would you like to have (a/another) child or would you prefer not to have any (more) children? Now I have some questions about the future. After the child you are expecting, would you like to have another child or would you prefer not to have any more children?	HAVE A (ANOTHER) CHILD.....1 NO MORE/NONE.....2 SAYS SHE CAN'T GET PREGNANT.....3 UP TO GOD.....4 UNDECIDED/DK.....8	→506 →507 →506
504	Would you prefer your next child to be a boy or a girl or doesn't it matter?	BOY.....1 GIRL.....2 DOESN'T MATTER.....3 UP TO GOD.....4	
505	CHECK 230: NOT PREGNANT OR UNSURE ☐ → PREGNANT ☐ How long would you like to wait from now before the birth of (a/another) child? How long would you like to wait after the birth of the child you are expecting before the birth of another child?	MONTHS.....1 ☐☐ YEARS.....2 ☐☐ SOON/NOW.....993 SAYS SHE CAN'T GET PREGNANT...994 OTHER _____ (SPECIFY) 996 DK.....998	→507

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
506	CHECK 230: NOT PREGNANT OR UNSURE ☐ → v PREGNANT ☐ → v Do you think your husband would like to have (a/another) child or do you think he would prefer not have any (more) children? After the child you are expecting, do you think your husband would like to have another child or do you think he would prefer not have any more children?	HAVE A (ANOTHER) CHILD.....1 NO MORE/NONE.....2 UP TO GOD.....3 UNDECIDED.....4 DK.....8	
507	CHECK 216: HAS LIVING CHILD(REN) ☐ → v NO LIVING CHILDREN ☐ → v If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be? If you could choose exactly the number of children to have in your whole life, how many would that be? RECORD SINGLE NUMBER OR OTHER ANSWER.	NUMBER..... ☐☐ OTHER ANSWER _____ 96	→509 (SPECIFY)
508	How many of these children would you like to be boys, how many would you like to be girls, and for how many would the sex not matter?	BOYS GIRLS EITHER NUMBER... ☐☐ ☐☐ ☐☐ OTHER _____ 999996 (SPECIFY)	
509	In your opinion, how much education should be given to <u>girls</u> these days?	NO EDUCATION.....01 LESS THAN PRIMARY.....02 PRIMARY.....03 MIDDLE.....04 HIGH SCHOOL.....05 HIGHER SECONDARY.....06 GRADUATE AND ABOVE.....07 PROFESSIONAL DEGREE.....08 AS MUCH AS SHE DESIRES.....09 DEPENDS.....10 DK.....98	
510	In your opinion, how much education should be given to <u>boys</u> these days?	NO EDUCATION.....01 LESS THAN PRIMARY.....02 PRIMARY.....03 MIDDLE.....04 HIGH SCHOOL.....05 HIGHER SECONDARY.....06 GRADUATE AND ABOVE.....07 PROFESSIONAL DEGREE.....08 AS MUCH AS HE DESIRES.....09 DEPENDS.....10 DK.....98	

SECTION 5B. STATUS OF WOMAN

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
511	Who makes the following decisions in your household:	1 = RESPONDENT 2 = HUSBAND 3 = JOINTLY WITH HUSBAND 4 = OTHERS IN HOUSEHOLD 5 = JOINTLY WITH OTHERS IN HOUSEHOLD	
	What items to cook?	1 2 3 4 5	
	Obtaining health care for yourself?	1 2 3 4 5	
	Purchasing jewellery or other major household items?	1 2 3 4 5	
	Your going and staying with parents or siblings?	1 2 3 4 5	
512	Do you need permission to:	YES NO NOT ALLOWED TO GO	
	go to the market?	GO TO THE MARKET....1 2 3	
	visit relatives or friends?	VISIT RELATIVES/ FRIENDS.....1 2 3	
513	Are you allowed to have some money set aside that you can use as you wish?	YES.....1 NO.....2	
514	Sometimes a wife can do things that bother her husband. Please tell me if you think that a husband is justified in beating his wife in each of the following situations:	YES NO DK	
	If he suspects her of being unfaithful?	UNFAITHFUL.....1 2 8	
	If her natal family does not give expected money, jewellery, or other items?	MONEY/JEWELLERY/ OTHER ITEMS.....1 2 8	
	If she shows disrespect for in-laws?	DISRESPECT.....1 2 8	
	If she goes out without telling him?	GOING WITHOUT TELLING.1 2 8	
	If she neglects the house or children?	NEGLECT.....1 2 8	
	If she doesn't cook food properly?	NOT COOK PROPERLY.....1 2 8	
515	Since you completed 15 years of age, have you been beaten or mistreated physically by any person?	YES.....1 NO.....2 ——>601	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
516	Who has beaten you or mistreated you physically? Anyone else? RECORD ALL PERSONS MENTIONED.	MOTHER.....A FATHER.....B STEP MOTHER.....C STEP FATHER.....D SON.....E DAUGHTER.....F BROTHER/SISTER.....G BOYFRIEND.....H HUSBAND.....I EX-HUSBAND.....J SON-IN-LAW.....K DAUGHTER-IN-LAW.....L MOTHER-IN-LAW.....M FATHER-IN-LAW.....N BROTHER-IN-LAW.....O SISTER-IN-LAW.....P OTHER RELATIVE.....Q FRIEND/ACQUAINTANCE.....R TEACHER.....S EMPLOYER.....T STRANGER.....U OTHER_____X (SPECIFY)	
517	How often have you been beaten or mistreated physically in the last 12 months: once, a few times, many times, or not at all?	ONCE.....1 A FEW TIMES.....2 MANY TIMES.....3 NOT BEATEN.....4	

SECTION 6. HUSBAND'S BACKGROUND AND WOMAN'S WORK

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
601	CHECK 107: CURRENTLY MARRIED ☐ ↓ SEPARATED, DESERTED, DIVORCED, WIDOWED ☐		→603
602	How old was your husband on his last birthday?	AGE IN COMPLETED YEARS..... ☐☐	
603	Did your (last) husband ever attend school?	YES.....1 NO.....2	→606
604	What is the highest grade he completed?	GRADE..... ☐☐	
605	CHECK 604: GRADE 0-5 ☐ ↓ GRADE 6 AND ABOVE ☐		→607
606	(Can/Could) he read and write?	YES.....1 NO.....2	
607	What kind of work (does/did) your (last) husband mainly do?	☐☐ _____ _____ _____	
608	CHECK 607: WORKS (WORKED) ON FARM ☐ ↓ DOES (DID) NOT WORK ON FARM ☐		→610
609	(Does/did) your husband work mainly on his own land or family land, or (does/did) he rent land, or (does/did) he work on someone else's land?	HIS LAND.....1 FAMILY LAND.....2 RENTED LAND.....3 SOMEONE ELSE'S LAND.....4	
610	Aside from your own housework, are you currently working?	YES.....1 NO.....2	→613
611	As you know, some women take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the family business. Are you currently doing any of these things or any other work?	YES.....1 NO.....2	→613

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
612	Have you done any work in the last 12 months?	YES.....1 NO.....2	>701
613	What is your occupation, that is, what kind of work do/did you mainly do?	_____ [ ][ ] _____ _____	
614	Do you do this work for your family's farm or business, for someone else, or are you self-employed?	FAMILY FARM/BUSINESS.....1 SOMEONE ELSE.....2 SELF-EMPLOYED.....3	
615	Do you usually work throughout the year, or do you work seasonally, or only once in a while?	THROUGHOUT THE YEAR.....1 SEASONALLY/PART OF THE YEAR.....2 ONCE IN A WHILE.....3	
616	Are you paid in cash or kind for this work, or are you not paid at all?	CASH ONLY.....1 CASH AND KIND.....2 KIND ONLY.....3 NOT PAID.....4	>619
617	Generally, how much do your earnings contribute to the total family earnings: almost none, less than half, about half, more than half, or all?	ALMOST NONE.....1 LESS THAN HALF.....2 ABOUT HALF.....3 MORE THAN HALF.....4 ALL.....5	
618	Who mainly decides how the money you earn will be used?	RESPONDENT DECIDES.....1 HUSBAND DECIDES.....2 JOINTLY WITH HUSBAND.....3 SOMEONE ELSE DECIDES.....4 JOINTLY WITH SOMEONE ELSE.....5	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
619	Do you usually work at home or away from home?	HOME.....1 AWAY.....2	>701
620	CHECK 215/218: HAS CHILD BORN SINCE JAN. 1996 AND LIVING AT HOME?	YES ☐ NO ☐	>701
621	While you are working, do you usually have (NAME OF YOUNGEST CHILD AT HOME) with you, sometimes have him/her with you, or never have him/her with you?	USUALLY.....1 SOMETIMES.....2 NEVER.....3	>701
622	Who usually takes care of (NAME OF YOUNGEST CHILD AT HOME) while you are working?	HUSBAND.....01 OLDER BOYS.....02 OLDER GIRLS.....03 OTHER RELATIVES.....04 NEIGHBOURS.....05 FRIENDS.....06 SERVANTS/HIRED HELP.....07 CHILD IS IN SCHOOL.....08 INSTITUTIONAL CHILDCARE.....09 OTHER_____ 96 (SPECIFY)	

SECTION 7 - AIDS

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	TO
701	Have you ever heard of an illness called AIDS?	YES.....1 NO.....2 ——>705	
702	From which sources of information have you learned about AIDS? Any other source? RECORD ALL MENTIONED.	RADIO.....A TELEVISION.....B CINEMA.....C NEWSPAPERS/MAGAZINES.....D POSTERS/HOARDINGS.....E EXHIBITION/MELA.....F HEALTH WORKERS.....G ADULT EDUCATION PROGRAMME.....H RELIGIOUS LEADERS.....I POLITICAL LEADERS.....J SCHOOLS/TEACHERS.....K COMMUNITY MEETINGS.....L FRIENDS/RELATIVES.....M WORK PLACE.....N OTHER_____ X (SPECIFY)	
703	Is there anything a person can do to avoid getting AIDS?	YES.....1 NO.....2 ——>705 DK.....8 ——>705	
704	What can a person do? Any other ways? RECORD ALL MENTIONED.	ABSTAIN FROM SEX.....A USE CONDOMS.....B HAVE ONLY ONE SEX PARTNER.....C AVOID SEX WITH COMMERCIAL SEX WORKERS.....D AVOID SEX WITH HOMOSEXUALS.....E AVOID BLOOD TRANSFUSIONS.....F AVOID INJECTIONS/USE CLEAN NEEDLES.....G AVOID I.V. DRUG USE.....H AVOID KISSING.....I AVOID HUGGING.....J AVOID HAND SHAKING.....K AVOID SHARING CLOTHES.....L AVOID SHARING UTENSILS.....M AVOID SHARING SHAVING KITS/RAZORS.....N AVOID STEPPING ON URINE/STOOL...O AVOID MOSQUITO BITES.....P OTHER_____ X (SPECIFY) DK.....Z	
705	RECORD THE TIME	HOUR..... [ ][ ] MINUTES..... [ ][ ]	
706	PRESENCE OF OTHERS DURING MOST OF THE INTERVIEW TIME.	YES NO CHILDREN UNDER 10.....1 2 HUSBAND.....1 2 MOTHER-IN-LAW.....1 2 OTHER MALES.....1 2 OTHER FEMALES.....1 2	

HEALTH INVESTIGATOR VISITS				
	1	2	3	FINAL VISIT
DATE	_____	_____	_____	DAY ☐☐
				MONTH ☐☐
				YEAR 1 9 ☐☐
INVESTIGATOR'S NAME	_____	_____	_____	NAME CODE ☐☐
RESULT*	_____	_____	_____	RESULT CODE ☐
NEXT VISIT: DATE	_____	_____		TOTAL NUMBER OF VISITS ☐
TIME	_____	_____		

*RESULT CODES:
1 COMPLETED 3 POSTPONED 5 PARTLY COMPLETED
2 NOT AT HOME 4 REFUSED 6 OTHER (SPECIFY)_____

SECTION 8: HEIGHT AND WEIGHT

INTERVIEWER: IN 801 (COLUMNS 2-3) RECORD THE LINE NUMBER FOR EACH CHILD BORN SINCE JANUARY 1996 AND STILL ALIVE.
IN 802 AND 803 RECORD THE NAME OF THE RESPONDENT AND ALL HER LIVING CHILDREN BORN SINCE JANUARY 1996, AND THE DATE OF BIRTH OF THE CHILDREN.
IN 804 AND 806 RECORD THE HEIGHT AND WEIGHT OF THE RESPONDENT AND LIVING CHILDREN.

(NOTE:IF THERE ARE MORE THAN 2 LIVING CHILDREN BORN SINCE JANUARY 1996, CHECK BOX ☐ AND USE ADDITIONAL QUESTIONNAIRE)

	1 RESPONDENT	2 YOUNGEST LIVING CHILD	3 NEXT-TO-YOUNGEST LIVING CHILD
801 LINE NO. FROM Q.212		☐☐	☐☐
802 NAME FROM Q.212 FOR CHILDREN	(NAME) _____	(NAME) _____	(NAME) _____
803 DATE OF BIRTH FROM Q.215 FOR CHILDREN, COPY MONTH AND YEAR OF BIRTH AND ASK FOR DAY OF BIRTH		DAY..... ☐☐ MONTH..... ☐☐ YEAR. ☐☐☐☐	DAY..... ☐☐ MONTH..... ☐☐ YEAR. ☐☐☐☐
804 HEIGHT (in centimetres)	☐☐☐.☐	☐☐☐.☐	☐☐☐.☐
805 WAS HEIGHT/LENGTH OF CHILD MEASURED LYING DOWN OR STANDING UP?		LYING.....1 STANDING.....2	LYING.....1 STANDING.....2
806 WEIGHT (in kilograms)	☐☐.☐	0☐.☐	0☐.☐
807 DATE WEIGHED AND MEASURED	DAY..... ☐☐ MONTH..... ☐☐ YEAR. ☐☐☐☐	DAY..... ☐☐ MONTH..... ☐☐ YEAR. ☐☐☐☐	DAY..... ☐☐ MONTH..... ☐☐ YEAR. ☐☐☐☐
808 RESULT	COMPLETED.....1 NOT PRESENT....2 REFUSED.....3 OTHER.....6 (SPECIFY)	COMPLETED.....1 CHILD SICK.....2 CHILD NOT PRESENT.....3 CHILD DID NOT ALLOW..... 4 MOTHER REFUSED.5 OTHER.....6 (SPECIFY)	COMPLETED.....1 CHILD SICK.....2 CHILD NOT PRESENT.....3 CHILD DID NOT ALLOW.....4 MOTHER REFUSED.5 OTHER.....6 (SPECIFY)
809 NAME OF MEASURER: _____ ☐☐		NAME OF ASSISTANT: _____ ☐☐	

901

As a part of this survey, we are studying anaemia among women and children. We request your co-operation in this regard. This will assist the Government of India to develop programmes to prevent and treat anaemia.

Anaemia is a serious health problem in India, which results from poor nutrition. However, if a person is found to have anaemia, the person can be given iron folic tablets to cure the disease.

If you decide to be tested for anaemia, we will request that you give a drop of blood from your finger for the test. (Also, if you have a child under 3 years old, please allow me to take a(few)drop(s)of blood from him/her for anaemia testing). We will use disposable sterile instruments that are clean and completely safe. Your child will feel a slight pinch when the blood is drawn. There is essentially no risk to your child from this procedure. The blood will be analyzed with new equipment provided by the United Nations. The result(s) of the test(s) will be given to you right after the blood is taken. The results of the tests will be kept confidential and will not be shown to other persons. Are there any questions about the blood testing that you would like to ask me now?

May I ask you now to give your consent to have the test(s) done. If you decide not to have the test(s), it is your right, and we will respect your decision. Now please tell me whether you agree to have the test(s)(and allow me to test your child).

AFTER EXPLAINING THE ABOVE, I HAVE FOUND THAT _____ AGREED TO GIVE
(NAME OF RESPONDENT)

A (FEW) DROP(S) OF BLOOD FOR HERSELF [AND FOR HER CHILD(REN) NAMED _____
_____] (NAME OF CHILD(REN))

Signature of Interviewer: _____ Date : _____

RESPONDENT AGREES TO TESTING OF HERSELF AND/OR HER CHILD(REN)...1

RESPONDENT DOES NOT AGREE TO TESTING.....2 —>END

Signature of Witness: _____ Date : _____

902 RESPONDENT'S HAEMOGLOBIN LEVEL (G/DL) ☐☐.☐

903	RESULT	MEASURED.....1 REFUSED.....2 OTHER_____6 (SPECIFY)
904	CHECK 215/216: ONE OR MORE LIVING CHILDREN BORN SINCE JANUARY 1996 ☐ NO LIVING CHILDREN BORN SINCE JANUARY 1996 ☐ ->910	

IN 905 RECORD THE LINE NUMBER FOR EACH CHILD BORN SINCE JANUARY 1996 AND STILL ALIVE.
IN 906 RECORD THE NAMES OF THE LIVING CHILDREN.
IN 907 RECORD THE HAEMOGLOBIN LEVEL IN THE BLOOD OF THE LIVING CHILDREN.

(NOTE: IF THERE ARE MORE THAN 2 LIVING CHILDREN BORN SINCE JANUARY 1996, CHECK BOX ☐ AND USE ADDITIONAL QUESTIONNAIRE)

		YOUNGEST LIVING CHILD	NEXT-TO-YOUNGEST LIVING CHILD
905	LINE NUMBER FROM Q. 212	☐☐	☐☐
906	NAME FROM Q.212	NAME_____	NAME_____
907	HAEMOGLOBIN LEVEL IN THE BLOOD (G/DL)	☐☐.☐	☐☐.☐
908	RESULT	MEASURED.....1 CHILD SICK.....2 CHILD NOT PRESENT.....3 CHILD DID NOT ALLOW.....4 MOTHER REFUSED.....5 OTHER_____6 (SPECIFY)	MEASURED.....1 CHILD SICK.....2 CHILD NOT PRESENT.....3 CHILD DID NOT ALLOW.....4 MOTHER REFUSED.....5 OTHER_____6 (SPECIFY)

909	NAME OF MEASURER _____	☐☐
910	CHECK 902 AND 907: NO VALUES BELOW 7 G/DL ☐-> GIVE MOTHER RESULT OF HAEMOGLOBIN MEASUREMENT AND END THE INTERVIEW ANY VALUE BELOW 7 G/DL FOR MOTHER AND/OR CHILD(REN) ☐-> GIVE MOTHER RESULT OF HAEMOGLOBIN MEASUREMENT AND CONTINUE WITH 911.	

911 CHECK COLUMN (5) OF HOUSEHOLD SCHEDULE:

RESPONDENT IS USUAL RESIDENT ☐ → V

RESPONDENT IS VISITOR ☐ →END

912

We detected a low level of haemoglobin in your (your child's) blood. This indicates you (your child) have developed severe anaemia, which is a serious health problem. We would like to inform the doctor at _____ about your (your child's) condition. This will assist you to obtain appropriate treatment of your (your child's) condition.

Do you agree that the information about the level of haemoglobin in your (your child's) blood may be given to the doctor.

AFTER EXPLAINING THE ABOVE, I HAVE FOUND THAT _____ AGREED FOR
(NAME OF RESPONDENT)

REFERRAL FOR HERSELF [AND FOR HER CHILD(REN) NAMED_____
_____] (NAME OF CHILD(REN))

Signature of Interviewer:_____ Date :_____

RESPONDENT AGREES FOR REFERRAL FOR HERSELF AND/OR HER CHILD(REN)....1 → V

RESPONDENT DOES NOT AGREE FOR REFERRAL.....2 —> END

913 RECORD NAMES OF WOMAN AND CHILD(REN) WITH HAEMOGLOBIN LEVEL LESS THAN 7 G/DL ON REFERRAL FORM.

INTERVIEWER'S OBSERVATIONS
(To be filled in after completing interview)

Comments About Respondent: _____

_____

_____

Comments on Specific Questions: _____

_____

_____

Any Other Comments: _____

_____

SUPERVISOR'S OBSERVATIONS/COMMENTS

_____

_____

_____

Name of Supervisor: _____ Date: _____

EDITOR'S OBSERVATIONS/COMMENTS

_____

_____

_____

Name of Editor: _____ Date: _____

NATIONAL FAMILY HEALTH SURVEY, 1998-99 (NFHS-2)

INTERNATIONAL INSTITUTE FOR POPULATION SCIENCES, MUMBAI

RESULTS OF HAEMOGLOBIN MEASUREMENT IN THE BLOOD:

Date:_____

Haemoglobin level in the blood (G/DL)	**Woman** NAME_____ □□.□ You have	**Child** NAME_____ □□.□ Your child has	**Child** NAME_____ □□.□ Your child has
WHO CLASSIFICATION OF ANAEMIA			
NORMAL LEVEL HB LEVEL ABOVE 11 G/DL	NORMAL LEVEL	NORMAL LEVEL	NORMAL LEVEL
MILD ANAEMIA HB (10-10.9 G/DL)	MILD ANAEMIA	MILD ANAEMIA	MILD ANAEMIA
MODERATE ANAEMIA HB (7-9.9 G/DL)	MODERATE ANAEMIA	MODERATE ANAEMIA	MODERATE ANAEMIA
SEVERE ANAEMIA HB (LESS THAN 7 G/DL)	SEVERE ANAEMIA	SEVERE ANAEMIA	SEVERE ANAEMIA

In case of severe anaemia (Hb less than 7 G/DL), we recommend that you immediately contact your doctor.

NATIONAL FAMILY HEALTH SURVEY, 1998-99 (NFHS-2)
VILLAGE QUESTIONNAIRE

INDIA

CONFIDENTIAL
For Research
Purpose only

IDENTIFICATION

STATE _____

DISTRICT _____

TEHSIL/TALUK _____

VILLAGE _____

PSU NUMBER.....

TOTAL POPULATION OF THE VILLAGE
ACCORDING TO THE 1991 CENSUS.....

INTERVIEWER'S NAME _____

DATE OF INTERVIEW _____ DATE.....

MONTH.....

YEAR.....

RESULT:

BOTH VILLAGE SCHEDULE AND VILLAGE HEAD SCHEDULE COMPLETED.....1

ONLY VILLAGE SCHEDULE COMPLETED.....2

OTHER _____ 6
(SPECIFY)

	SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
DATE				
NAME				

VILLAGE SCHEDULE

NO.	QUESTIONS	CODING CATEGORIES
1	Current population of the village:	☐☐☐☐☐
2	Area of the village (in Hectares):	☐☐☐
3	Total number of households in the village:	☐☐☐☐
4	Total arable land in the village (in Hectares):	IRRIGATED LAND..... ☐☐☐ NON-IRRIGATED LAND..... ☐☐☐
5	Main source of irrigation in the village:	RAIN WATER.....01 TANK/POND.....02 STREAM/RIVER.....03 CANAL.....04 WELL.....05 TUBE WELL.....06 OTHER_____96 (SPECIFY)
6	Major crops grown in the village:	1 _____ ☐☐ 2 _____ ☐☐ 3 _____ ☐☐
7	Distance to the nearest town (in kilometres):	☐☐
8	Distance to the District Headquarters (in kilometres):	☐☐
9	Distance to the nearest railway station (in kilometres):	☐☐
10	Distance to available transport service to other place (in kilometres):	☐☐
11	Distance of the village from all-weather road in connection to other place (in kilometres):	☐☐
12	Village Electrification:	NOT ELECTRIFIED..... 1 ELECTRIFIED, BUT IRREGULAR SUPPLY..... 2 ELECTRIFIED AND REGULAR SUPPLY..... 3

NO.	QUESTIONS	CODING CATEGORIES
13	Educational Facilities:	DISTANCE TO THE NEAREST FACILITY AVAILABLE (IN KILOMETRES):
	Primary School	PRIMARY SCHOOL.....
	Middle School	MIDDLE SCHOOL.....
	Secondary School	SECONDARY SCHOOL.....
	Higher Secondary School	HIGHER SECONDARY SCHOOL.....
	College	COLLEGE.....
	IF DISTANCE MORE THAN 90 KILOMETRES, RECORD 90; IF FACILITY IS AVAILABLE IN THE VILLAGE, RECORD 95	
14	Health Facilities:	DISTANCE TO THE NEAREST FACILITY AVAILABLE (IN KILOMETRES):
	Sub-Centre	SUB-CENTRE.....
	Primary Health Centre	PRIMARY HEALTH CENTRE.....
	Community Health Centre/Rural Hospital	COMMUNITY HEALTH CENTRE/RURAL HOSPITAL.....
	Government Dispensary	GOVERNMENT DISPENSARY.....
	Government Hospital	GOVERNMENT HOSPITAL.....
	Private Clinic	PRIVATE CLINIC.....
	Private Hospital	PRIVATE HOSPITAL.....
	IF DISTANCE MORE THAN 90 KILOMETRES, RECORD 90; IF FACILITY IS AVAILABLE IN THE VILLAGE, RECORD 95	
15	Other facilities:	DISTANCE TO THE NEAREST FACILITY AVAILABLE (IN KILOMETRES):
	Post Office	POST OFFICE.....
	Telegraph Office	TELEGRAPH OFFICE.....
	STD Booth	STD BOOTH.....
	Bank	BANK.....
	IF DISTANCE MORE THAN 90 KILOMETRES, RECORD 90; IF FACILITY IS AVAILABLE IN THE VILLAGE, RECORD 95	

NO.	QUESTIONS	CODING CATEGORIES
16	Availability of health provider in the village:	YES NO
	Private doctor	PRIVATE DOCTOR..... 1 2
	Visiting doctor	VISITING DOCTOR..... 1 2
	Village health guide (VHG)	VHG..... 1 2
	Traditional birth attendant (dai)	TBA (DAI)..... 1 2
	Mobile health unit/visit	MOBILE HEALTH UNIT..... 1 2
17	Other facilities:	AVAILABLE IN THE VILLAGE YES NO
	Mills/small scale industries (M/SSI)	M/SSI..... 1 2
	Credit cooperative society (CCS)	CCS..... 1 2
	Agricultural cooperative society (ACS)	ACS..... 1 2
	Fishermen's cooperative society (FCS)	FCS..... 1 2
	Milk cooperative society (MCS)	MCS..... 1 2
	Kirana/General Market Shop (K/GMS)	K/GMS..... 1 2
	Weekly market	WEEKLY MARKET..... 1 2
	Fair price shop	FAIR PRICE SHOP..... 1 2
	Paan shop	PAAN SHOP..... 1 2
	Pharmacy/Medical shop	PHARMACY/MEDICAL SHOP.... 1 2
	Mahila Mandal	MAHILA MANDAL..... 1 2
	Youth club	YOUTH CLUB..... 1 2
	Anganwadi centre	ANGANWADI CENTRE..... 1 2
	Community centre	COMMUNITY CENTRE..... 1 2
	Adult education centre	ADULT EDUCATION CENTRE... 1 2
	Community television set	COMMUNITY TV SET..... 1 2
	Cable connection	CABLE CONNECTION..... 1 2
18	Total number of television sets in the village:	☐☐
19	Total number of households having telephone connection:	☐☐
20	The type of drainage facility in the village:	UNDERGROUND DRAINAGE.....1 OPEN DRAINAGE.....2 NO.....3

NO.	QUESTIONS	CODING CATEGORIES
21	Any epidemic in the village during the last one year:	1. _____ 2. _____
22	Number of health or family welfare camps in the last one year?	
23	Any beneficiaries in the village from the following programmes:	BENEFICIARIES
	Integrated Rural Development Programme (IRDP)	IRDP.....
	National Rural Employment Programme (NREP)	NREP.....
	Training Rural Youth for Self Employment (TRYSEM)	TRYSEM.....
	Employment Guarantee Scheme (EGS)	EGS.....
	Development of Women and Children of Rural Areas (DWARCA)	DWACRA.....
	Indira Awas Yojana (IAY)	IAY.....
	Sanjay Gandhi Niradhar Yojana (SGNY)	SGNY.....
24	Community level IEC activities for health and family welfare during the last one year:	YES NO
	Film show	FILM SHOW..... 1 2
	Exhibition	EXHIBITION..... 1 2
	Drama/song/dance performance	DRAMA/SONG/DANCE PERFORM. 1 2
	Puppet show	PUPPET SHOW..... 1 2
	Group meeting	GROUP MEETING..... 1 2
25	Persons providing information for the village schedule: RECORD ALL THE SOURCES.	SARPANCH.....A PATWARI.....B GRAM SEVAK.....C SCHOOL TEACHER.....D HEALTH PERSONNEL.....E OTHERS_____X (SPECIFY)

VILLAGE HEAD SCHEDULE
(SARPANCH/PRADHAN/MUKHIYA)

1. Age : ☐☐

2. Sex : Male....1
Female..2

3. Religion : Hindu...1
Muslim..2
Other...6

4. Caste : SC....1
ST....2
OBC...3
Other.6

5. Education : ☐☐

6. No. of Children : ☐☐

NO.	QUESTIONS	SKIP
7	In your opinion what are the two most important problems in this village? 1. _____ _____ 2. _____	
8	What are the two most important health problems in this village? 1. _____ _____ 2. _____	
9	What are the two most important health problems faced by women and children in this village? 1. _____ _____ 2. _____	
10	Do you feel that it is necessary to encourage couples in this village to have a small number of children? YES..... 1 NO ..... 2 ——>12	
11	If you are asked to prepare a plan to achieve this objective, what are the two most important actions you would suggest? 1. _____ _____ 2. _____	
12	If you are asked to prepare a health plan for this village, what are the two most important actions you would recommend? 1. _____ _____ 2. _____	