NFHS-2

PN-ACC-981 109871

Orissa

National Family Health Survey India 1998-99

International Institute for Population Sciences

MEASURE *DHS+*
ORC MACRO

World Summit for Children Indicators: Orissa, 1999		
BASIC INDICATORS		
Childhood mortality	Infant mortality rate	81 per 1,000
	Under-five mortality rate	104 per 1,000
Childhood malnutrition	Percent stunted (children 0–35 months)	44.0
	Percent wasted (children 0–35 months)	24.3
	Percent underweight (children 0–35 months)	54.4
Clean water supply	Percent of households within 15 minutes of a safe water supply[1]	37.9
Sanitary excreta disposal	Percent of households with flush toilets	10.9
Basic education	Percent of women age 15–49 with completed primary education	40.3
	Percent of men age 15–49 with completed primary education	65.1
	Percent of girls age 6–12 attending school	78.6
	Percent of boys age 6–12 attending school	85.1
	Percent of women age 15–49 who are literate	51.3
Children in especially difficult situations	Percent of children age 0–14 who live in single adult households	2.2
SUPPORTING INDICATORS		
Birth spacing	Percent of births within 24 months of a previous birth	24.8
Safe motherhood	Percent of births with medical antenatal care	79.3
	Percent of births with antenatal care in first trimester	33.7
	Percent of births with medical assistance at delivery	33.4
	Percent of births in a medical facility	22.6
	Percent of births at high risk	45.0
Family planning	Contraceptive prevalence rate (any method, currently married women)	46.8
	Percent of currently married women with an unmet need for family planning	15.5
	Percent of currently married women with an unmet need for family planning to avoid a high-risk birth	10.1
Maternal nutrition	Percent of women with low body mass index (BMI)	48.0
Low birth weight	Percent of births with low birth weight (of those reporting a numeric weight)	25.0
Breastfeeding	Percent of children under 4 months who are exclusively breastfed	58.0
Iodized salt intake	Percent of households that use iodized salt (at least 15 ppm)	35.0
Vaccinations	Percent of children whose mothers received tetanus toxoid vaccinations during pregnancy	81.0
	Percent of children 12–23 months with measles vaccination	54.0
	Percent of children 12–23 months fully vaccinated	43.7
Diarrhoea control	Percent of children with diarrhea in the preceding 2 weeks who received ORS, sugar-salt-water solution, or gruel	48.4
Acute respiratory infection	Percent of children with acute respiratory infection in the preceding 2 weeks seen by medical personnel	57.1

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

B

NATIONAL FAMILY HEALTH SURVEY (NFHS-2)

INDIA

1998–99

ORISSA

International Institute for Population Sciences
Mumbai, India

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

April 2001

C

Suggested citation: International Institute for Population Sciences (IIPS) and ORC Macro. 2001. *National Family Health Survey (NFHS-2), India, 1998–99: Orissa*. Mumbai: IIPS.

For additional information about the National Family Health Survey (NFHS-2), please contact:

International Institute for Population Sciences
Govandi Station Road, Deonar, Mumbai-400 088
Telephone: 5564883, 5563254, 5563255, 5563256
Fax: 5563257
E-mail: iipsnfhs@bom5.vsnl.net.in
Website: http://www.nfhsindia.org

CONTRIBUTORS

Sumati Kulkarni
Robert Retherford
Bipin Bihari Hota
Sayeed Unisa
Pradeep Kumar Panda
Yonah Bhutia

E

CONTENTS

Page

Tables v
Figures ix
Preface xi
Acknowledgements xiii
Fact Sheet xvi
Summary of Findings xvii

CHAPTER 1 INTRODUCTION

1.1 Background of the Survey 1
1.2 Basic Socioeconomic and Demographic Features of Orissa 1
1.3 Questionnaires 3
1.4 Survey Design and Sample Implementation 5
Sample Size and Reporting Domains 5
Sample Design 5
Sample Selection in Rural Areas 5
Sample Selection in Urban Areas 7
Sample Weights 8
Sample Implementation 9
1.5 Recruitment, Training, and Fieldwork 11
1.6 Data Processing 11

CHAPTER 2 BACKGROUND CHARACTERISTICS OF HOUSEHOLDS

2.1 Age-Sex Distribution of the Household Population 13
2.2 Marital Status 15
2.3 Household Composition 17
2.4 Educational Attainment 18
2.5 Housing Characteristics 24
2.6 Lifestyle Indicators 29
2.7 Availability of Facilities and Services to the Rural Population 31

CHAPTER 3 BACKGROUND CHARACTERISTICS OF RESPONDENTS

3.1 Background Characteristics 35
3.2 Educational Level 37
3.3 Age at First Marriage 39
3.4 Exposure to Mass Media 40
3.5 Women's Employment 42
3.6 Women's Autonomy 43
3.7 Women's Educational Aspirations for Their Children 48
3.8 Domestic Violence: Attitudes and Prevalence 49

Page

CHAPTER 4 FERTILITY AND FERTILITY PREFERENCES

4.1 Age at First Cohabitation 55
4.2 Current Fertility Levels 57
4.3 Fertility Differentials and Trends 59
4.4 Children Ever Born and Living 64
4.5 Birth Order 66
4.6 Birth Intervals 67
4.7 Age at First and Last Birth 69
4.8 Postpartum Amenorrhoea, Abstinence, Insusceptibility, and Menopause 71
4.9 Desire for More Children 73
4.10 Ideal Number of Children 78
4.11 Sex Preference for Children 79
4.12 Fertility Planning 82

CHAPTER 5 FAMILY PLANNING

5.1 Knowledge of Family Planning Methods 85
5.2 Contraceptive Use 87
- Ever Use of Family Planning Methods 87
- Current Use of Family Planning Methods 88
- Socioeconomic Differentials in Current Use of Family Planning Methods 90
- Number of Living Children at First Use of Contraception 93
- Problems with Current Method 95

5.3 Timing of Sterilization 96
5.4 Sources of Contraceptive Methods 97
5.5 Reasons for Discontinuation/Non-Use of Contraception 101
5.6 Future Intentions Regarding Contraceptive Use 103
5.7 Exposure to Family Planning Messages 107
5.8 Discussion of Family Planning 109
5.9 Need for Family Planning 111

CHAPTER 6 MORTALITY, MORBIDITY, AND IMMUNIZATION

6.1 Crude Death Rates and Age-Specific Death Rates 116
6.2 Infant and Child Mortality 117
- Assessment of Data Quality 118
- Levels, Trends, and Differentials in Infant and Child Mortality 119
- Socioeconomic Differentials in Infant and Child Mortality 121
- Demographic Differentials in Infant and Child Mortality 122

6.3 Morbidity 125
- Asthma 126
- Tuberculosis 127
- Jaundice 127
- Malaria 127

Page

6.4 Child Immunization 128
6.5 Vitamin A Supplementation 136
6.6 Child Morbidity and Treatment 137
Acute Respiratory Infection 138
Fever 140
Diarrhoea 140
6.7 HIV/AIDS 145
Knowledge of AIDS 146
Source of Knowledge About AIDS 146
Knowledge of Ways to Avoid AIDS 148

CHAPTER 7 NUTRITION AND THE PREVALENCE OF ANAEMIA

7.1 Women's Food Consumption 151
7.2 Nutritional Status of Women 153
7.3 Anaemia Among Women 154
7.4 Infant Feeding Practices 158
7.5 Nutritional Status of Children 164
7.6 Anaemia Among Children 168
7.7 Iodization of Salt 170

CHAPTER 8 MATERNAL AND REPRODUCTIVE HEALTH

8.1 Antenatal Problems and Care 174
Problems During Pregnancy 174
Antenatal Check-Ups 176
Reasons for Not Receiving Antenatal Check-Ups 178
Number and Timing of Antenatal Check Ups 178
Components of Antenatal Check-Ups 180
Tetanus Toxoid Vaccination 181
Iron and Folic Acid Supplementation 183
8.2 Delivery Care 185
Place of Delivery 185
Assistance During Delivery 187
Delivery Characteristics 189
8.3 Postnatal Care 190
Postpartum Complications 192
8.4 Reproductive Health Problems 194

CHAPTER 9 QUALITY OF CARE

9.1 Source of Health Care for Households 199
9.2 Contacts at Home with Health and Family Planning Workers 200
9.3 Quality of Home Visits 202
9.4 Matters Discussed During Home Visits or Visits to Health Facilities 204
9.5 Quality of Services Received at the Most Recent Visit to a Health Facility 205

Page

9.6 Family Planning Information and Advice Received 206
9.7 Availability of Regular Supply of Condoms/Pills 207
9.8 Person Motivating Users of a Modern Contraceptive Method 207
9.9 Quality of Care of Family Planning Services 209

REFERENCES 211

APPENDICES

Appendix A Estimates of Sampling Errors 219
Appendix B Data Quality Tables 229
Appendix C Orissa NFHS-2 Staff 237
Appendix D Survey Instruments 243

TABLES

		Page
Table 1.1	Sampling stratification	6
Table 1.2	Sample results	10
Table 2.1	Household population by age and sex	14
Table 2.2	Population by age and sex from the SRS and NFHS-2	15
Table 2.3	Marital status of the household population	16
Table 2.4	Singulate mean age at marriage	18
Table 2.5	Household characteristics	19
Table 2.6	Educational level of the household population	20
Table 2.7	School attendance	23
Table 2.8	Reasons for children not attending school	24
Table 2.9	Housing characteristics	25
Table 2.10	Household ownership of agricultural land, house, and livestock	27
Table 2.11	Household ownership of durable goods and standard of living	28
Table 2.12	Lifestyle indicators	30
Table 2.13	Distance from the nearest health facility	32
Table 2.14	Availability of facilities and services	32
Table 3.1	Background characteristics of respondents	36
Table 3.2	Respondent's level of education by background characteristics	38
Table 3.3	Age at first marriage	40
Table 3.4	Exposure to mass media	41
Table 3.5	Employment	43
Table 3.6	Household decisionmaking	44
Table 3.7	Women's autonomy	46
Table 3.8	Perceived educational needs of girls and boys	48
Table 3.9	Reasons given for justifying a husband beating his wife	50
Table 3.10	Women's experience with beatings or physical mistreatment	52
Table 3.11	Frequency of beatings or physical mistreatment	54
Table 4.1	Age at first cohabitation with husband	56
Table 4.2	Current fertility	58
Table 4.3	Fertility by background characteristics	60
Table 4.4	Fertility trends	62

Page

Table 4.5 Fertility by marital duration 63
Table 4.6 Children ever born and living 65
Table 4.7 Birth order 66
Table 4.8 Birth interval 68
Table 4.9 Median age at first birth 70
Table 4.10 Age at last birth 71
Table 4.11 Postpartum amenorrhoea, abstinence, and insusceptibility 72
Table 4.12 Menopause 73
Table 4.13 Fertility preferences 74
Table 4.14 Desire to have no more children by background characteristics 77
Table 4.15 Ideal and actual number of children 78
Table 4.16 Ideal number of children by background characteristics 80
Table 4.17 Indicators of sex preference 81
Table 4.18 Fertility planning 83
Table 4.19 Wanted fertility rates 84
Table 5.1 Knowledge of contraceptive methods 86
Table 5.2 Ever use of contraception 87
Table 5.3 Current use of contraception 89
Table 5.4 Current use by background characteristics 91
Table 5.5 Number of living children at first use 94
Table 5.6 Problems with current method 95
Table 5.7 Timing of sterilization 96
Table 5.8 Source of modern contraceptive methods 98
Table 5.9 Reasons for discontinuation/non-use 102
Table 5.10 Future use of contraception 104
Table 5.11 Reasons for not intending to use contraception 105
Table 5.12 Preferred method 106
Table 5.13 Exposure to family planning messages 108
Table 5.14 Discussion of family planning 110
Table 5.15 Need for family planning services 112
Table 6.1 Age-specific death rates and crude death rates 117
Table 6.2 Infant and child mortality 120

Page

Table 6.3 Infant and child mortality by background characteristics 122
Table 6.4 Infant and child mortality by demographic characteristics 123
Table 6.5 Morbidity 126
Table 6.6 Childhood vaccinations by source of information 129
Table 6.7 Childhood vaccinations by background characteristics 132
Table 6.8 Childhood vaccinations received by 12 months of age 134
Table 6.9 Source of childhood vaccinations 135
Table 6.10 Vitamin A supplementation for children 137
Table 6.11 Prevalence of acute respiratory infection, fever, and diarrhoea 139
Table 6.12 Knowledge of diarrhoea care 141
Table 6.13 Treatment of diarrhoea 143
Table 6.14 Source of ORS packets 145
Table 6.15 Source of knowledge about AIDS 147
Table 6.16 Knowledge about avoidance of AIDS 149
Table 7.1 Women's food consumption 152
Table 7.2 Women's food consumption by background characteristics 152
Table 7.3 Nutritional status of women 154
Table 7.4 Anaemia among women 156
Table 7.5 Initiation of breastfeeding 160
Table 7.6 Breastfeeding status by child's age 161
Table 7.7 Type of food received by children 162
Table 7.8 Median duration of breastfeeding 164
Table 7.9 Nutritional status of children by demographic characteristics 166
Table 7.10 Nutritional status of children by background characteristics 167
Table 7.11 Anaemia among children 169
Table 7.12 Iodization of salt 172
Table 8.1 Health problems during pregnancy 175
Table 8.2 Antenatal check-ups 177
Table 8.3 Reason for not receiving an antenatal check-up 179
Table 8.4 Number and timing of antenatal check-ups and stage of pregnancy 180
Table 8.5 Components of antenatal check-ups 181
Table 8.6 Tetanus toxoid vaccination and iron and folic acid tablets or syrup 184

Page

Table 8.7 Place of delivery 186
Table 8.8 Assistance during delivery 188
Table 8.9 Characteristics of births 190
Table 8.10 Postpartum check-ups 191
Table 8.11 Symptoms of postpartum complications 193
Table 8.12 Symptoms of reproductive health problems 196
Table 8.13 Treatment of reproductive health problems 198
Table 9.1 Source of health care 200
Table 9.2 Home visits by a health or family planning worker 201
Table 9.3 Quality of home visits 203
Table 9.4 Matters discussed during contacts with a health or family planning worker 204
Table 9.5 Quality of care during the most recent visit to a health facility 206
Table 9.6 Family planning discussions with a health or family planning worker 207
Table 9.7 Availability of regular supply of condoms/pills 207
Table 9.8 Motivation to use family planning 208
Table 9.9 Discussions about alternative methods of family planning 210
Table 9.10 Information on side effects and follow-up for current method 210

Appendix A

Table A.1 List of selected variables for sampling errors, Orissa, 1999 221
Table A.2 Sampling errors, Orissa, 1999 222

Appendix B

Table B.1 Household age distribution 230
Table B.2 Age distribution of eligible and interviewed women 231
Table B.3 Completeness of reporting 231
Table B.4 Births by calendar year 233
Table B.5 Reporting of age at death in days 234
Table B.6 Reporting of age at death in months 235

FIGURES

Page

Figure 2.1 Population Pyramid 14
Figure 2.2 School Attendance by Age, Sex, and Residence 23
Figure 3.1 Percentage of Women Participating in Different Household Decisions and Percentage with Access to Money 47
Figure 4.1 Age-Specific Fertility Rates by Residence 58
Figure 4.2 Age-Specific Fertility Rates, NFHS-1 and NFHS-2 59
Figure 4.3 Total Fertility Rate by Selected Background Characteristics 61
Figure 4.4 Fertility Preferences Among Currently Married Women 76
Figure 5.1 Current Use of Family Planning by Residence, NFHS-1 and NFHS-2 90
Figure 5.2 Sources of Family Planning Among Current Users of Modern Contraceptive Methods 101
Figure 6.1 Infant Mortality Rates for Five-Year Periods by Residence 120
Figure 6.2 Infant Mortality Rates by Selected Demographic Characteristics 124
Figure 6.3 Percentage of Children Age 12–23 Months Who Have Received Specific Vaccinations 130
Figure 6.4 Percentage of Children Age 12–23 Months Who Have Received All Vaccinations 133
Figure 6.5 Source of Childhood Vaccinations by Residence 136
Figure 7.1 Anaemia Among Women 158
Figure 7.2 Stunting Among Children Under Three Years by Mother's Education and SLI 168
Figure 7.3 Anaemia Among Children 170
Figure 8.1 Problems During Pregnancy 175
Figure 8.2 Source of Antenatal Check-Ups During Pregnancy 176
Figure 8.3 Number and Timing of Antenatal Check-Ups 181
Figure 8.4 Place of Delivery and Assistance During Delivery 187
Figure 8.5 Reproductive Health Problems Among Currently Married Women 195
Figure 9.1 Motivator for Current Users of Modern Contraceptive Methods 209

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 Orissa was the Centre for Population and Development Studies in Hyderabad. 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 about 90,000 eligible 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 four states (Bihar, 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 Orissa, 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.

T.K. Roy
Director
International Institute for
Population Sciences
Mumbai

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, the present 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, 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 houselisters and health investigators. We acknowledge the support of the All India Institute of Medical Sciences, New Delhi, which extended its facilities for training of the health investigators.

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.

We gratefully acknowledge the help and cooperation given by Dr. Rameshwar Sharma, the then Director, and Dr. Shiv Chandra Mathur, Professor, State Institute of Health and Family Welfare (SIHFW), Jaipur, during the national pretest of the NFHS-2 questionnaires in Rajasthan.

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 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 appreciate and acknowledge the untiring efforts, interest, and initiative taken by Dr. Fred Arnold, Dr. Sunita Kishor, Mr. Sushil Kumar, 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 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 for his assistance at every stage of the data processing operation and report-writing. We gratefully acknowledge the valuable contribution of IIPS Senior Research Officers Dr. Rajeshri Chitanand, Dr. Damodar Sahu, and Dr. Yonah Bhutia, and Research Officer Dr. Madhumita Das. Thanks are also due to the other supporting staff of the project, as well as the Administrative and Library staff of IIPS, for their continuous cooperation during the entire project period.

The difficult task of data collection in the state of Orissa was successfully carried out by the Centre for Population and Development Studies (CPDS), Hyderabad. Our special thanks are due to Mr. G. Kumaraswamy Reddy, survey director, and the two survey coordinators (Dr. G. Rama Padma and Dr. P. Sreenivasulu Reddy) for successfully coordinating the fieldwork and data processing for the state. Special thanks go to Mr. B. N. Jena, IIPS Research Officer, NFHS-2, for assisting during the training of the field staff and monitoring the data collection in Orissa. 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 Orissa.

Thanks are due to Mr. Bipin Bihari Hota, Population Research Centre, Bhubaneswar, Dr. Sayeed Unisa, International Institute for Population Sciences, Mumbai, and Dr. Pradeep Kumar Panda, Centre for Development Studies, Thiruvananthapuram, for their contribution in report writing. We extend our sincere thanks to Prof. S.P. Mohanty for reviewing the report and offering his comments.

Last but not the least, credit goes to the 4,425 ever-married women of Orissa and the household respondents who spent their time and responded to the rather lengthy questionnaires with tremendous patience and without any expectation from NFHS-2.

T.K. Roy
Sumati Kulkarni
Arvind Pandey
Kamla Gupta
Parveen Nangia
NFHS-2 Coordinators

FACT SHEET, ORISSA
NATIONAL FAMILY HEALTH SURVEY, 1999

Sample Size

Households	4,689
Ever-married women age 15–49	4,425

Characteristics of Households

Percent with electricity	33.8
Percent within 15 minutes of safe water supply[1]	37.9
Percent with flush toilet	10.9
Percent with no toilet facility	86.5
Percent using govt. health facilities for sickness	83.9
Percent using iodized salt (at least 15 ppm)	35.0

Characteristics of Women[2]

Percent urban	11.0
Percent illiterate	59.5
Percent completed high school and above	7.5
Percent Hindu	96.7
Percent Muslim	1.7
Percent Christian	1.5
Percent regularly exposed to mass media	44.3
Percent working in the past 12 months	30.6

Status of Women[2]

Percent involved in decisions about own health	38.6
Percent with control over some money	46.3

Marriage

Percent never married among women age 15–19	82.6
Median age at marriage among women age 20–49	17.8

Fertility and Fertility Preferences

Total fertility rate (for the past 3 years)	2.46
Mean number of children ever born to women 40–49	4.15
Median age at first birth among women age 25–49	19.6
Percent of births[3] of order 3 and above	42.9
Mean ideal number of children[4]	2.7
Percent of women with 2 living children wanting another child	27.6

Current Contraceptive Use[5]

Any method	46.8
Any modern method	40.3
Pill	3.0
IUD	0.8
Condom	0.9
Female sterilization	33.9
Male sterilization	1.7
Any traditional method	5.6
Rhythm/safe period	3.8
Withdrawal	1.8
Other traditional or modern method	0.9

Unmet Need for Family Planning[5]

Percent with unmet need for family planning	15.5
Percent with unmet need for spacing	8.7

[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	34.9
Percent who received follow-up services	59.6

Childhood Mortality

Infant mortality rate[7]	81.0
Under-five mortality rate[7]	104.4

Safe Motherhood and Women's Reproductive Health

Percent of births[8] within 24 months of previous birth	24.8
Percent of births[3] whose mothers received:	
Antenatal check-up from a health professional	79.3
Antenatal check-up in first trimester	33.7
Two or more tetanus toxoid injections	74.3
Iron and folic acid tablets or syrup	67.6
Percent of births[3] whose mothers were assisted at delivery by a:	
Doctor	24.3
ANM/nurse/midwife/LHV	8.5
Traditional birth attendant	22.5
Percent[5] reporting at least one reproductive health problem	27.5

Awareness of AIDS

Percent of women who have heard of AIDS	39.0

Child Health

Percent of children age 0–3 months exclusively breastfed	58.0
Median duration of breastfeeding (months)	≥ 36.0
Percent of children[9] who received vaccinations:	
BCG	84.7
DPT (3 doses)	61.9
Polio (3 doses)	68.4
Measles	54.0
All vaccinations	43.7
Percent of children[10] with diarrhoea in the past 2 weeks who received oral rehydration	35.1
Percent of children[10] with acute respiratory infection in the past 2 weeks taken to a health facility or provider	57.1

Nutrition

Percent of women with anaemia[11]	63.0
Percent of women with moderate/severe anaemia[11]	17.9
Percent of children age 6–35 months with anaemia[11]	72.3
Percent of children age 6–35 months with moderate/severe anaemia[11]	46.1
Percent of children chronically undernourished (stunted)[12]	44.0
Percent of children acutely undernourished (wasted)[12]	24.3
Percent of children underweight[12]	54.4

[6]For current users of modern methods
[7]For the 5 years preceding the survey (1995–99)
[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, 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 approximately 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 six and one-half 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, and salt iodization.

In Orissa, NFHS-2 field staff collected information from 4,689 households between 15 March 1999 and 23 June 1999 and interviewed 4,425 eligible women in these households. In addition to information on these women and their households, the survey collected information on 1,512 of their children born since January 1996. One health investigator on each survey team measured the height and weight of women and young children and took blood samples to assess the prevalence of anaemia.

Background Characteristics of the Survey Population

Nine-tenths (89 percent) of the population of Orissa live 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-three percent of the population are below age 15, and 6 percent are age 65 and above. The sex ratio is 976 females for every 1,000 males in rural areas but only 929 females for every 1,000 males in urban areas, suggesting that more men than women have migrated to urban areas.

The survey provides a variety of demographic and socioeconomic background information. Three-quarters (76 percent) of males and slightly more than half (51 percent) of females age six and above are literate, an increase of 7 percentage points for males and 10 percentage points for females from literacy rates at the time of NFHS-1. Seventy-nine percent of children age 6–14 are attending school, an increase from 70 percent in NFHS-1. The proportions enrolled are rising rapidly at all levels of schooling, particularly for girls, but girls still lag behind boys in school attendance. Moreover, the disparity in school attendance by sex grows with increasing age of children. At age 15–17, 57 percent of boys attend school, compared with 41 percent of girls.

Questions about housing conditions and the standard of living of household members indicate some improvements since the time of NFHS-1. Thirty-four percent of households in Orissa have electricity and 9 percent have piped drinking water, compared with 28 percent and 10 percent, respectively, in NFHS-1. Eighty-seven percent of households do not have any toilet facility.

In the state as a whole, 97 percent of household heads are Hindu, 2 percent are Muslim, and 2 percent are Christian. Muslims are somewhat more concentrated in urban areas, where they comprise 6 percent of household heads. Twenty-two percent of household heads belong to scheduled castes, 22 percent to scheduled tribes, and 30 percent to other backward classes (OBCs). Twenty-seven percent of household heads do not belong to any of these groups.

Women in Orissa tend to marry relatively late, compared with women in many other Indian states. Seventeen percent of women age 15–19 are already married. This proportion is 12 percent in urban areas and 18 percent in rural areas. Older women are more likely than younger women to have married at an early age: 24 percent of women age 45–49 at the time of the survey married before they were 15, compared with 6 percent of women age 15–19, indicating that the proportion of women who marry young has been declining rapidly. On average, women are 5.4 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 Orissa, 89 percent of women are involved in decisionmaking on at least one of four selected topics. A much lower proportion (39 percent), however, are involved in decisionmaking about their own health care. Thirty-one percent of women do work other than housework, and more than four-fifths of these women work for cash. Only 29 percent of women who earn cash can decide independently how to spend the money that they earn.

Fertility and Family Planning

Fertility continues to decline in Orissa. At current fertility levels, women will have an average of 2.5 children each throughout their childbearing years, down from 2.9 children per woman at the time of NFHS-1. Efforts to encourage the trend toward lower fertility might usefully focus on groups within the population that have higher fertility than average. In Orissa, rural women, illiterate women, Muslim women, women from scheduled castes and scheduled tribes, and poor women have somewhat higher fertility than other women, but for the most part the differences are not large. Another feature is the moderately high level of childbearing among young women. In Orissa, women age 15–19 account for 16 percent of total fertility. Studies in India and elsewhere have shown that health and mortality risks increase when women give birth at such young ages—both for the women themselves and for their children. Family planning programmes focusing on women in this age group could make a significant impact on maternal and child health as well as reducing overall fertility in the state.

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 5 percent of births over the three years preceding NFHS-2, mothers report that they did not want the pregnancy at all, and for another 12 percent of births, mothers say that they would have preferred to delay the pregnancy. When asked about their preferred family size, slightly more than one-third (35 percent) of women who already have three children and slightly less than one-third (31 percent) of women with four or more children respond 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.

If women in Orissa 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 (98 percent), followed by male sterilization (90 percent), the pill (75 percent), the IUD (55 percent), and the condom (53 percent). Overall, knowledge of modern spacing methods increased substantially since NFHS-1. Knowledge of the pill and condom each increased by about 20 percentage points, while knowledge of the IUD increased only by seven percentage points.

Forty-seven percent of currently married women are currently using some method of contraception, up from 36 percent at the time of NFHS-1. Contraceptive prevalence is higher in urban areas (54 percent) than in rural areas (46 percent). Female sterilization is by far the most popular method: 34 percent of currently married women are sterilized, up from 28 percent in NFHS-1. By contrast, only 2 percent of women report that their husbands are sterilized, down from 3 percent in NFHS-1. Overall, sterilization accounts for 76 percent of total contraceptive use. The pill, IUD, and condom together account for 10 percent of total contraceptive use.

Contraceptive prevalence does not vary greatly among socioeconomic groups, although Muslim women and women belonging to scheduled tribes are somewhat less likely than other women to use contraception. Muslim women, more-educated women, and women from better-off households are all more likely than other women to use the three modern spacing methods, but the use of these methods does not exceed 20 percent in any group.

Given the heavy emphasis on sterilization, most women tend to adopt family planning only after they have achieved their desired family size. As a result, contraceptive use tends to rise with age and number of living children. In Orissa, contraceptive use rises with age, peaking at 69 percent for women age 40–44. Use also rises with the number of children, peaking at 68 percent for women with three living children. Son preference has an effect on contraceptive use. Women who have one or more sons are generally more likely to use contraception than are women who have the same number of children but have only daughters. Nevertheless, son preference is not an insuperable obstacle to contraceptive acceptance: Among women with two children but no sons, 9 percent are sterilized or their husbands are sterilized, and among women with three children but no sons, 18 percent are sterilized or their husbands are sterilized.

Nine 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 7 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, who are particularly interested in spacing their births.

For many years, the Government of India has been using electronic and other mass media to promote family planning. Exposure to mass media is low in Orissa. Although 84 percent of rural residents live in villages that are electrified, only 13 percent live in villages that have a cable connection. Among the different types of media, radio has the broadest reach across all categories of women, including those who are poor and illiterate. Overall, 33 percent of currently married women listen to radio at least once a week. Fifty-six percent of women are not regularly exposed to television, radio, or any other type of media. Despite this, 59 percent of women saw or heard a family planning message in the media in the few months before the survey. Exposure to family planning messages is relatively low among disadvantaged socioeconomic groups, yet

messages reached 41 percent of illiterate women and 42 percent of women from households with a low standard of living. Messages reached 56 percent of scheduled caste women, 28 percent of scheduled tribe women, 63 percent of women from other backward classes, and 78 percent of women belonging to none of these groups.

Nine-tenths of women who use modern contraception obtained their method from a government hospital or other source in the public sector. Only 6 percent obtained their method from the private medical sector. The private sector plays a larger role in urban areas (supplying 16 percent of women who use modern methods) than in rural areas (supplying only 4 percent).

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 Orissa, only 12 percent of women who use a modern method were told about other methods by the person who motivated them to use contraception. Thirty-five percent were told by a health or family planning worker about possible side effects of the method they adopted. Sixty percent had at least one follow-up visit.

The median age for female sterilization has changed little in Orissa in recent years and is now 27 years. Only about 5 percent of currently married women use modern spacing methods that could help them delay their first births and increase intervals between pregnancies.

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 annual infant mortality rate (deaths of children up to age one year) was 81 per 1,000 live births, down from 112 per 1,000 in NFHS-1. The annual child mortality rate (probability of dying between exact ages one and five years) was 26 per 1,000, up from 21 per 1,000 in NFHS-1. 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, children belonging to scheduled castes or scheduled tribes, and children from poor households.

Along with these socioeconomic groups, efforts to promote child survival need to concentrate on very young mothers and mothers whose children are closely spaced. Infant mortality is 52 percent higher among children born to mothers under age 20 than among children whose mothers are age 20–29 (120 deaths, compared with 79, 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 (130 deaths, compared with 58, per 1,000 live births). Clearly, efforts to expand the use of 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 has been one of the most important components of the Family Welfare 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 Orissa, mothers of 80 percent of the children born in the three years preceding NFHS-2 received at least one antenatal check-up, and mothers of 47 percent of the children received at least three antenatal check-ups. For 74 percent of the children,

mothers received the recommended number of tetanus toxoid vaccinations, and for 68 percent of the children, mothers received iron and folic acid supplementation. Coverage by all three interventions is somewhat lower for women in disadvantaged socioeconomic groups than for other women. Coverage is also relatively low for women who already have six 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 23 percent of births in Orissa were delivered in a medical facility. Among births delivered at home, one-third were assisted by a health professional and less than one-quarter (23 percent) by a traditional birth attendant. Slightly less than one-fifth (19 percent) of births outside a medical facility were followed by a postpartum check-up within two months of delivery. Overall, these results show that health services in Orissa are reaching many more women during pregnancy than during delivery or after childbirth. They also point to the important role of traditional birth attendants for the substantial proportion of births that occur at home.

The World Health Organization (WHO) recommends that breastfeeding should begin immediately after childbirth and that infants should be exclusively breastfed for about the first six months of life. Although breastfeeding is nearly universal in Orissa, very few children begin breastfeeding immediately after birth—only 25 percent in the first hour and 63 percent in the first day. Fifty-eight percent of children under four months of age are exclusively breastfed. The median length of breastfeeding is greater than 35 months, and the median length of exclusive breastfeeding is 1.8 months. By age seven months, adequate and appropriate supplementary food should be added to an infant's diet to provide sufficient nutrients for optimal growth. However, only 60 percent of children age 7–9 months receive the recommended combination of breast milk and supplements.

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, 54 percent of children under age three years are underweight, 44 percent are stunted, and 24 percent are wasted. Child nutritional status changed little in Orissa since NFHS-1, when 53 percent were underweight, 48 percent were stunted, and 21 percent were wasted. Underweight and stunting are worse in rural areas than in urban areas, but wasting is about the same in urban and rural areas. Undernutrition declines sharply with more education and the standard of living index, and it is much higher among scheduled castes and tribes and other backward classes than among children not belonging to these groups. The prevalence of undernutrition is about the same for girls as for boys. Nearly three-quarters (72 percent) of children age 6–35 months are anaemic, including a majority of children in every subgroup of the population.

Child immunization is an important component of child-survival programmes in India, with efforts focusing 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 Orissa, 44 percent of children age 12–23 months are fully vaccinated, another 47 percent have received some but not all of the recommended vaccinations, and 9 percent have not been vaccinated at all.

Immunization coverage, although far from complete, has improved substantially since NFHS-1, when only 36 percent of children were fully vaccinated and 28 percent had not been vaccinated at all. Child immunization coverage in Orissa is actually higher than would appear from information on full coverage alone. Eighty-five percent of children age 12–23 months have been vaccinated against tuberculosis, 62 percent have received three doses of DPT vaccine, and 68 percent have received three doses of polio vaccine. Full immunization coverage is not as high as it might be primarily because only 54 percent of children have been vaccinated against measles. Dropout rates for the series of DPT and polio vaccinations are also a problem. Eighty percent of children received the first DPT vaccination, but only 62 percent received all three doses; 89 percent received the first polio vaccination, but only 68 percent received all three doses.

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 Orissa, 36 percent of children under age three were ill with fever during the two weeks preceding the survey, 23 percent were ill with ARI, and 28 percent had diarrhoea. Fifty-seven percent of children who became ill with ARI and 47 percent of children who became ill with diarrhoea were taken to a health facility or health provider. Sixty-seven percent of children with diarrhoea received some form of oral rehydration therapy (ORT), an increase from 44 percent in NFHS-1, suggesting that there has been substantial improvement in the treatment of childhood diarrhoea.

The survey collected information on the prevalence of tuberculosis, asthma, malaria, and jaundice among all household members. Disease prevalence based on reports from household heads must be interpreted with caution, however. The survey found that less than 1 percent of the population suffers from tuberculosis, 3 percent suffer from asthma, 7 percent suffered from malaria during the three months preceding the survey, and 1 percent suffered from jaundice during the preceding 12 months. Prevalence of all four conditions is higher in rural areas than in urban areas, although the rural-urban difference is not large except in the case of malaria. Males are more likely than females to suffer from all the conditions, except in urban areas, where females are more likely than males to suffer from tuberculosis and malaria. The differentials by sex are modest, except for jaundice, where morbidity is much higher for males than for females. Only about one-third of households (35 percent) use cooking salt that is iodized at the recommended level, suggesting that iodine deficiency disorders are likely to be a serious problem.

NFHS-2 also collected basic information on selected lifestyle indicators for household members. According to household respondents, 25 percent of adult men and 1 percent of adult women smoke, 19 percent of men and 6 percent of women drink alcohol, and 50 percent of men and 35 percent of women chew *paan masala* or tobacco.

More than one-quarter (28 percent) of currently married women in Orissa report some type of reproductive-health problem, including abnormal vaginal discharge, symptoms of urinary tract infections, and pain or bleeding associated with intercourse. Among these women, 75 percent have not 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.

Twenty-nine percent of all women in Orissa have experienced domestic violence. Most of these women have been beaten or physically mistreated by their husbands. Domestic violence against women is especially prevalent in disadvantaged socioeconomic groups. Half of the women accept at least one reason as a justification for a husband beating his wife.

Based on a weight-for-height index, almost half (48 percent) of women in Orissa are undernourished. Nutritional deficits are particularly serious for women in rural areas and women in disadvantaged socioeconomic groups. Women who are undernourished themselves are also much more likely than other women to have children who are undernourished. Anaemia is a serious problem among women in every population group, with prevalence rates ranging from 44 to 75 percent. Overall, 63 percent of women in Orissa have some degree of anaemia.

Most people in Orissa (84 percent) go to public-sector medical facilities when a family member is ill. Only 15 percent normally use any type of private-sector medical facility or practitioner. Households with a high standard of living are more than twice as likely to use a private facility or practitioner than households with a low standard of living. Most respondents are generally satisfied with the health care they receive.

Overall, only 9 percent of women received a home visit from a health or family planning worker during the 12 months preceding the survey. Women who received visits were not visited regularly—only 1.6 times, on average, in the year preceding the survey. Virtually all of these women express general satisfaction with the services they received at home from health or family planning workers.

Although the spread of HIV/AIDS is a major concern in India, a substantial majority of women in Orissa (61 percent) have never even heard of AIDS. Awareness of AIDS is particularly low among women in rural areas, poor women, and women who are illiterate. Among women who have heard of AIDS, 62 learned about the disease from radio and 74 percent from television, suggesting that the government's efforts to promote AIDS awareness through the electronic mass media have achieved some success. Among women who have heard of AIDS, however, about one-sixth (16 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 Orissa, only 2 percent of women who know about AIDS learned 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. 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, maternal and 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 is also intended to provide estimates at the regional level for four states (Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh) and 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 Orissa.

The NFHS-2 sample covers more than 99 percent of the country's population, living in all 26 states. NFHS-2 is a household survey with a sample size of approximately 90,000 ever-married women in the age group 15–49.

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 Macro International, Calverton, Maryland, USA, and the East-West Center, Honolulu, Hawaii, USA. Thirteen field organizations were selected to collect the data. Some of the field organizations are private-sector organizations, and some 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. The Centre for Population and Development Studies (CPDS) in Hyderabad was selected as the field organization for NFHS-2 in Orissa.

1.2 Basic Socioeconomic and Demographic Features of Orissa

Orissa was formed as a linguistic province in 1936. After independence the ex-princely states were merged and the state was organized into 13 districts (Government of Orissa, 1991). It now has Bhubaneshwar as its capital. The state has an area of 155,707 square kilometres and comprises 30 districts in three revenue divisions: Central, Southern and Northern. The Central division comprises the districts of Cuttack, Jagatsinghpur, Kendrapara, Japur, Baleswar, Bhadrak, Mayurbhanj, Puri, Khordha and Nayagarh. The Southern division comprises the districts of Ganjam, Gajapati, Boudh, Kandhamal, Koraput, Nawarangpur, Rayagada, Malkangiri, Kalahandi and Nawapada. The Northern division comprises the remaining ten districts of Sambalpur, Bargarh, Deogarh, Jharsuguda, Sundargarh, Balangir, Sonepur,

Dhenkanal, Anugul and Kendujhar. These districts were formed by subdividing the 13 pre-1991 districts after the 1991 Census.

Orissa is predominantly an agricultural state, although it has been changing rapidly. The contribution of the agricultural sector to the State Domestic Product declined from 47 percent in 1980–81 to 27 percent in 1996–97. The contribution of manufacturing sector increased from 10 percent to 15 percent, and the share of other sectors increased from 43 to 59 percent during the same period (EPW Research Foundation, 1998). At the time of the 1991 Census, agriculture provided a livelihood for nearly 75 percent of the working population (Office of the Registrar General and Census Commissioner, 1992). Paddy is the main crop of the state. Other crops, including pulses, oil seed, jute, mustard, turmeric and sugarcane, are also extensively cultivated. Orissa is one of the maritime states of India, and it has a long coastline. The harbour at Paradip is a major exporter of iron ore to Japan and other countries. Prawns and fish are also exported from this port, reflecting a rapid increase in pisciculture within the state as well as an increasing number of deep-sea fishing trawlers owned by private companies. Between 1980–81 and 1996–97, annual per capita income in the state (measured in constant 1980–81 prices) increased from Rs. 1314 to Rs. 1595 (equivalent to Rs. 6422 in current prices) (EPW Research Foundation, 1998). According to estimates given by the Planning Commission, 50 percent of the rural population and 42 percent of the urban population in Orissa were below the poverty line[1] in 1993–94 (Central Statistical Organisation, 1999).

According to the 1991 Census, Orissa had a population of 31.7 million, accounting for 4 percent of the total population of India. The 1981–91 intercensal increase in population (20.1 percent) was lower than the increase for the country as a whole (23.9 percent). Population density is lower in Orissa than in India as a whole (203 compared with 273 persons per square kilometre), and the level of urbanization is also lower (13 compared with 26 percent). The sex ratio of the population (number of females per 1,000 males) is higher in Orissa than in India as a whole (971 versus 927). According to the 1991 Census, the proportion of the total population designated as scheduled caste is about the same in Orissa (16 percent) as in all India, whereas the proportion designated as scheduled tribe[2] is much higher in Orissa (22 percent) than in all India (8 percent). The scheduled-caste population of Orissa increased slightly from 15 to 16 percent of the state's population between 1971 and 1991, and the scheduled-tribe population decreased slightly from 23 to 22 percent.

In terms of educational levels of its population, Orissa resembles the country as a whole. According to the 1991 Census, the literacy rate for the population age 7 and above was 49 percent, compared with 52 percent for India as a whole. By sex, literacy rates were 63 percent for males and 35 percent for females in the state, compared with 64 percent for males and 39 percent for females for India as a whole.

[1]The Task Force on "Minimum Needs and Effective Consumption Demand" constituted by the Planning Commission in 1979 defined the poverty line as per capita monthly expenditure of Rs. 49.09 in rural areas and Rs. 56.64 in urban areas at 1973-74 prices, corresponding to the per capita daily calorie requirement of 2,400 in rural areas and 2,100 in urban areas. For subsequent years, the poverty line has been adjusted because of price changes, using the price indices that are implicit in the private consumption expenditure series reported in the National Accounts Statistics. The corresponding levels at 1993-94 prices are Rs. 205.84 for rural areas and Rs. 286.72 for urban areas (Planning Commission figures as reported in Malhotra, 1997).

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

The total population of the state was 21.9 million in 1971, 26.4 million in 1981, and 31.7 million in 1991. The decadal growth rate decreased from 25.1 percent during 1961–71 to 20.2 percent during 1971–81 to 20.1 percent during 1981–91. Population density, which was 141 persons per km^2 in 1971, increased to 169 in 1981 and 203 in 1991. The increase of 62 persons per km^2 in population density between 1971 and 1991 indicates increasing pressure on agricultural and forest land.

Orissa has been urbanizing slowly, especially between 1981 and 1991. The urban population increased from 8 percent of total population in 1971 to 12 percent in 1981 and 13 percent in 1991. The sex ratio of population in the state declined from 988 females per 1,000 males in 1971 to 981 in 1981 and 971 in 1991. The percentage of population age 0–14 years decreased considerably, from 42 to 35 percent, between 1971 and 1991. The percentage of population age 65 and above increased marginally from 3 to 4 percent during the same period.

For 1998, the Sample Registration System (SRS) estimated an infant mortality rate of 98 per 1,000 live births in Orissa, compared with 72 in India. For 1996–2001, life expectancy is projected to be 58.5 years for males and 58.1 years for females, indicating substantial increases from 54.1 years for males and 51.9 years for females in 1981–86. For 1998, the SRS estimate of the crude birth rate and crude death rate are 25.7 and 11.1, respectively. The couple protection rate (defined as the percentage of eligible couples effectively protected against pregnancy by various methods of contraception) in Orissa was 39 percent in 1998, compared with 15 percent in 1971. The couple protection rate of 39 percent in the state is somewhat lower than the rate of 45.4 percent for all India.

Between 1971 and 1998, fertility declined substantially in the state. The crude birth rate declined from 34.6 per 1,000 population in 1971 to 25.7 in 1998. The total fertility rate also declined substantially, from 4.7 to 3.0 children per woman between 1971 and 1997. The crude death rate also declined, from 15.4 to 11.1 per 1,000 population between 1971 and 1998. The infant mortality rate declined from 127 to 98 per 1,000 live births between 1971 and 1998.

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 were bilingual, with questions in both Oriya and English.

The Household Questionnaire lists 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 also asked about deaths occurring to household members in the two years before 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 all 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 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 family planning methods. For women not using family planning, questions are included about reasons for nonuse and intentions for future use.

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

Antenatal, delivery, and postpartum care. Questions cover whether women who had a birth in the past three years received antenatal and postpartum care, who attended the delivery, and the nature of any complications during pregnancy.

Breastfeeding and health: Questions cover the length of breastfeeding, immunizations, and recent occurrences of diarrhoea, fever, and cough for the last two births since January 1995.

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

Status of Women: Questions ask about women's autonomy, gender roles, and violence against women.

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 1995. 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 1995 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 persons were referred to local medical authorities for treatment.

For each village selected in the NFHS-2 sample, the Village Questionnaire collected information about 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 Orissa was 4,000 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 rural and urban areas separately. The sample is not large enough to provide reliable estimates for individual districts. The required sampling rates for rural and urban 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 two 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 size (PPS) in the first stage, followed by 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 several variables. The first level of stratification was geographic, with villages classified into four contiguous regions. The district composition of the four geographic regions (based on the 13 districts in Orissa at the time of 1991 Census) is as follows:

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

In each region, villages were further stratified by village size and the level of female literacy. Table 1.1 provides the details of sample stratification in rural areas along with the

Table 1.1 Sampling stratification

Sampling stratification procedure in rural areas, Orissa

Stratum	Stratification variables: Region	Village population	Percent of females literate	Population[1]
1	1	≤ 1,100	≤ 20	1,326,082
2	1	≤ 1,100	> 20	1,344,638
3	1	> 1,100	NU	1,314,163
4	2	≤ 1,000	≤ 4.5	1,130,982
5	2	≤ 1,000	> 4.5	1,017,088
6	2	> 1,000	NU	1,331,788
7	3	≤ 1,000	≤ 21	1,673,174
8	3	≤ 1,000	> 21	949,518
9	3	> 1,000	≤ 21	1,010,414
10	3	> 1,000	> 21	1,637,807
11	4	≤ 900	≤ 34	1,821,035
12	4	≤ 900	> 34 and ≤ 49	1,462,828
13	4	≤ 900	> 49	1,614,271
14	4	> 900 and ≤ 1,700	≤ 34	1,393,648
15	4	> 900 and ≤ 1,700	> 34 and ≤ 49	1,615,174
16	4	> 900 and ≤ 1,700	> 49	1,632,960
17	4	> 1,700	≤ 34	1,472,424
18	4	> 1,700	> 34 and ≤ 49	2,011,797
19	4	> 1,700	> 49	1,617,023
Total	NA	NA	NA	27,376,814

Note: Percent of scheduled caste/scheduled tribe population is used for implicit stratification.
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.

population of each stratum. The final level of stratification was implicit for all the strata, consisting of an ordering of the villages within each stratum by the proportion of scheduled caste or scheduled tribe population (obtained from the 1991 Census Village Directory). From the list so arranged, villages were selected systematically with probability proportional to 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 rural domain sampling fraction, i.e., the probability of selecting a woman in rural Orissa (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 May 1999.

The probability of selecting a PSU from rural Orissa (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 ith 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 consisted of preparing up-to-date notional and layout sketch maps of each selected PSU, assigning identification numbers to structures, recording addresses of these structures, identifying the residential structures, and listing the names of heads of all the households in the residential structures of the selected PSUs. Sample villages larger than 500 households were segmented into three or more segments, and two segments were selected randomly using the PPS method. Household listing in such 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 3 field supervisors, and 2 field executives. The teams were trained during 18–19 January 1999 in Bhubaneswar by an official from CPDS, Hyderabad, who was trained earlier in a workshop conducted by IIPS. The mapping and household listing operation was carried out between January and March, 1999. The households to be interviewed were selected with equal probability from the household list in each 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 the 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 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 for some reason, 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 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 size. Next, one census enumeration block (CEB), consisting of approximately 150–200 households, was selected from each selected ward using the PPS method. In Orissa, a total of 33 wards were selected. As in rural areas, a household listing was carried out in the selected CEBs and, on average, 30 households per CEB were targeted for selection.

The urban domain sampling fraction, i.e., the probability of selecting a woman in urban Orissa (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 wards selected from the domain
s_i = population size of the ith selected ward
Σs_i = total urban population of the state.

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

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

where B_i = population size of the ith block,
ΣB_i = total population of the ward.

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

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

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

Sample Weights

Sample weights for households and women are calculated to adjust 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 household's and eligible women's response rates, 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 ith domain, calculated as the ratio of the overall sampling fraction ($F = n/N$) and the sampling fraction for the ith domain ($f = n_i/N_i$). Note that $n = \Sigma n_i$ and $N = \Sigma N_i$.

The eligible women'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 the number of cases (households or eligible women) interviewed in the ith 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 who were weighed or measured.

Sample Implementation

A total of 133 PSUs were selected, of which 33 (25 percent) were urban and 100 (75 percent) were rural. Table 1.2 summarizes basic features of the sample and also shows response rates for households and individuals and the reason for nonresponse. Nonresponse can occur at the stage of the household interview or at the stage of the individual woman interview. The last row of the table shows the overall effect of nonresponse at the two stages. The survey succeeded in achieving an overall response rate of 98 percent. As expected, the overall response rate is somewhat lower in urban areas (96 percent) than in rural areas (98 percent). A total of 4,689 households and 4,425 eligible women were interviewed.

Table 1.2 also shows response rates for households and women and reasons for nonresponse. Of the 4,841 households selected in Orissa, interviews were completed in 97 percent of cases; 2 percent of the selected households were absent, and 1 percent were found to be vacant. The household response rate (the number of households interviewed per 100 occupied households) was 99 percent in both urban and rural areas.

Table 1.2 Sample results

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

Result	Urban		Rural		Total	
	Number	Percent	Number	Percent	Number	Percent
Households selected	972	100.0	3,869	100.0	4,841	100.0
Households completed (C)	932	95.9	3,757	97.1	4,689	96.9
Households with no household member at home or no competent respondent at home at the time of interview (HP)	9	0.9	23	0.6	32	0.7
Households absent for extended period (HA)	16	1.6	54	1.4	70	1.4
Households postponed (P)	0	0.0	0	0.0	0	0.0
Households refused (R)	3	0.3	2	0.1	5	0.1
Dwelling vacant/address not a dwelling (DV)	11	1.1	25	0.6	36	0.7
Dwellings destroyed (DD)	1	0.1	6	0.2	7	0.1
Dwellings not found (DNF)	0	0.0	1	0.0	1	0.0
Other (O)	0	0.0	1	0.0	1	0.0
Households occupied	944	100.0	3,783	100.0	4,727	100.0
Households interviewed	932	98.7	3,757	99.3	4,689	99.2
Households not interviewed	12	1.3	26	0.7	38	0.8
Household response rate (HRR)[1]	NA	98.7	NA	99.3	NA	99.2
Eligible women	890	100.0	3,609	100.0	4,499	100.0
Women interviewed (EWC)	868	97.5	3,557	98.6	4,425	98.4
Women not at home (EWNH)	15	1.7	43	1.2	58	1.3
Women postponed (EWP)	0	0.0	0	0.0	0	0.0
Women refused (EWR)	4	0.4	2	0.1	6	0.1
Women partly interviewed (EWPC)	0	0.0	3	0.1	3	0.1
Other (EWO)	3	0.3	4	0.1	7	0.2
Eligible women's response rate (EWRR)[2]	NA	97.5	NA	98.6	NA	98.4
Overall response rate (ORR)[3]	NA	96.3	NA	97.9	NA	97.6

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, 4,499 women were identified as eligible for the individual interview. Interviews were successfully completed for 98 percent of the eligible women. The individual response rate was slightly lower in urban areas (98 percent) than in rural areas (99 percent). Nonresponse at the individual level was primarily due to eligible women not being at home despite repeated household visits. Very few eligible women refused to be interviewed (only six women in the whole state).

1.5 Recruitment, Training, and Fieldwork

Field staff for the main survey were trained in Bhubaneswar by officials of CPDS, who were trained earlier in a Training of Trainers Workshop conducted by IIPS. Training in Orissa consisted of classroom training, general lectures, and demonstration and practice interviews, as well as field practice and additional training for field editors and supervisors. Health investigators attaced 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 in Mumbai. It included classroom training and extensive field practice in schools, *anganwadis*, and communities.

Six interviewing teams conducted the main fieldwork, each team consisting of one field supervisor, one female field editor, four female interviewers, and one health investigator. The fieldwork was carried out between 15 March 1999 and 23 June 1999. Coordinators and senior staff of CPDS monitored and supervised the data collection operations. IIPS also appointed 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 Macro International and the East-West Center, visited the field sites to monitor the data collection operation. The 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 CPDS office in Hyderabad 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 by four data entry operators under the supervision of senior staff at CPDS who were trained at a data-processing workshop in Hyderabad. Data entry and editing operations were completed by June 1999. The 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 Orissa. The chapter also includes some comparisons of NFHS-2 results with results from NFHS-1, the Census of India, and the Sample Registration System.

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 Orissa may differ because of temporary population movements. Table 2.1 shows the *de facto* population in the NFHS-2 household sample for Orissa, classified by age, residence, and sex. The total *de facto* sample population is 23,411. The sample is 11 percent urban and 89 percent rural.

The age distribution of the population in Orissa is typical of populations in which fertility has fallen recently, with relatively low proportions of the population in the younger (below age 5) and older age groups (Figure 2.1). Thirty-three percent are below 15 years of age, and 6 percent are age 65 or older. The proportion below age 15 is almost the same in urban areas (32 percent) and rural areas (33 percent).

The single-year age distributions by sex in the *de facto* population (see Appendix Table B.1) indicate that there is some misreporting of ages, including considerable preference for ages ending in particular digits, especially the digits 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. Values of Myers' Index computed for the age range 10–69 in the household sample population in Orissa are 25 for males and 21 for females. The index is often used as one indicator of survey quality. 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 values of Myers' Index from NFHS-2 are somewhat lower than those from NFHS-1 (28 for males and 25 for females – revised from the published NFHS-1 estimates). This indicates that age reporting on the Household Questionnaire in Orissa improved somewhat between NFHS-1 and NFHS-2.

Table 2.2 compares the age distributions by sex from the NFHS-2 *de jure* sample for Orissa with the age distributions by sex from the Sample Registration System (SRS) for Orissa in 1997. The SRS baseline survey, which is *de jure*, counts all usual residents in a sample area (Office of the Registrar General, 1999a). The NFHS-2 and SRS age distributions are similar for broad age groups, despite the misreporting of age that is evident in the NFHS-2 single-year age data.

PREVIOUS PAGE BLANK

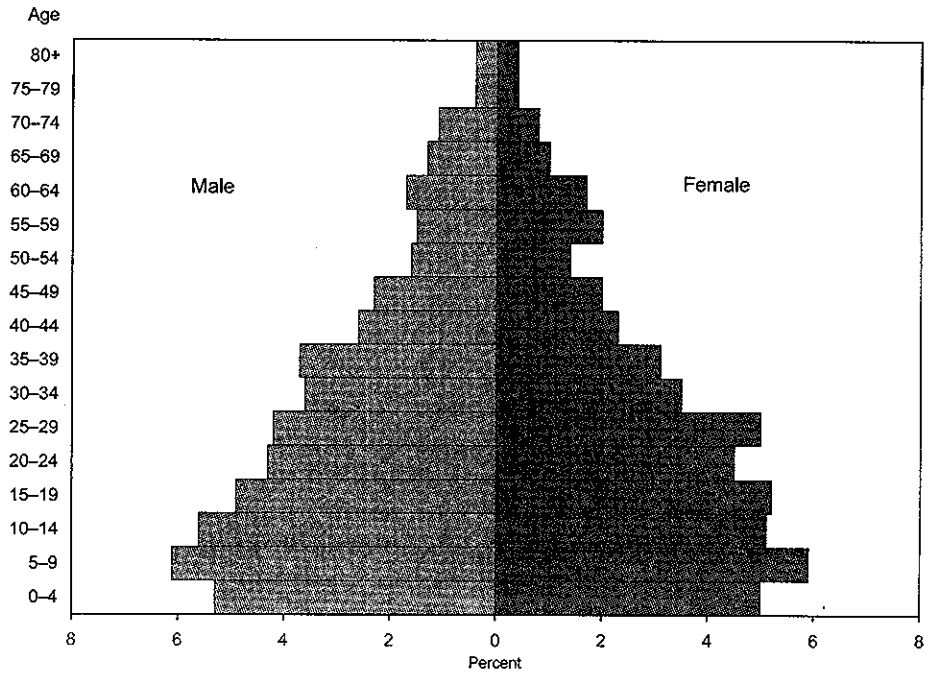
Table 2.1 Household population by age and sex

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

Age	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
< 1	1.7	2.2	1.9	2.2	2.1	2.1	2.1	2.1	2.1
1–4	7.7	8.4	8.0	8.4	8.1	8.3	8.3	8.1	8.2
5–9	12.1	11.5	11.8	12.0	12.0	12.0	12.0	11.9	12.0
10–14	11.3	10.1	10.7	11.1	10.4	10.7	11.1	10.4	10.7
15–19	9.9	9.9	9.9	9.7	10.7	10.2	9.7	10.6	10.2
20–24	10.1	9.6	9.8	8.3	9.1	8.7	8.5	9.2	8.8
25–29	8.9	10.8	9.8	8.3	10.0	9.1	8.4	10.1	9.2
30–34	8.2	8.2	8.2	6.9	6.9	6.9	7.1	7.0	7.1
35–39	7.3	7.2	7.3	7.2	6.1	6.7	7.2	6.2	6.7
40–44	5.2	5.1	5.2	5.1	4.5	4.8	5.1	4.6	4.9
45–49	4.7	3.9	4.4	4.6	4.2	4.4	4.6	4.2	4.4
50–54	3.5	2.9	3.2	3.0	2.8	2.9	3.1	2.8	2.9
55–59	2.5	3.3	2.9	3.0	4.2	3.6	3.0	4.1	3.5
60–64	2.5	2.2	2.3	3.4	3.7	3.5	3.3	3.5	3.4
65–69	1.4	1.9	1.6	2.7	2.2	2.4	2.6	2.1	2.4
70–74	1.6	1.2	1.4	2.1	1.6	1.9	2.1	1.5	1.8
75–79	0.9	0.6	0.7	0.9	0.8	0.8	0.9	0.7	0.8
80+	0.6	0.9	0.8	0.9	0.8	0.9	0.9	0.9	0.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of persons	1,359	1,263	2,623	10,521	10,267	20,788	11,880	11,530	23,411
Sex ratio[1]	NA	NA	929	NA	NA	976	NA	NA	971

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, Orissa, 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, Orissa, 1997 and 1999

	SRS (1997)		NFHS-2 (1999)		
Age	Male	Female	Male	Female	Sex ratio[1]
< 5	11.1	10.8	10.4	10.2	936
5–14	24.1	23.4	22.8	22.4	943
15–29	26.9	28.4	26.9	29.6	1,057
30–49	24.2	22.9	24.1	22.2	881
50–64	9.6	9.7	9.5	10.4	1,055
65+	4.2	4.6	6.4	5.3	788
Total	100.0	100.0	100.0	100.0	959
Median age	U	U	23.7	23.6	NA

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

Tables 2.1 and 2.2 also present sex ratios (females per 1,000 males) in Orissa from NFHS-2. The sex ratio for the *de facto* population of the state is 971 (Table 2.1). The sex ratio of the *de jure* population (959) in Table 2.2 is slightly lower than the sex ratio of the *de facto* population (971). The sex ratio for the *de facto* sample is 929 in urban areas and 976 in rural areas, suggesting that rural-urban migration has been dominated by males in Orissa.

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 percent distribution by marital status of the *de facto* household population, classified by age, residence, and sex. Among females age six and above, 52 percent are currently married and 37 percent have never been married. (Comparable percentages from NFHS-1 are 52 and 38, indicating virtually no change over the six years between the two surveys.) The proportion never married is higher for males (48 percent) than for females (38 percent) and higher in urban areas (52 percent for males and 40 percent for females) than in rural areas (47 percent for males and 37 percent for females). The proportion divorced, separated, or deserted is small in Orissa, and widowhood is not common until older ages. Forty-two percent of women age 50 or older are widowed.

Also of interest is the proportion of persons who marry young. At age 15–19, the proportions ever married are 2 percent for males and 12 percent for females in urban areas, 2 percent for males and 18 percent for females in rural areas, and 2 percent for males and 17 percent for females in the state as a whole. By age 25–29, a large majority of women have ever been married. Among these women, the proportion ever married is 84 percent in urban areas, 94 percent in rural areas, and 93 percent in the state as a whole. For males in this age group, the proportion ever married is 46 percent in urban areas, 65 percent in rural areas, and 63 percent in the state as a whole. Overall, the table shows that women marry at much younger ages than men, and that both men and women marry at younger ages in rural areas than in urban areas.

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, Orissa, 1999

Age	Marital status							Total percent
	Never married	Currently married	Married, *gauna* not performed	Widowed	Divorced	Separated	Deserted	
				URBAN				
				Male				
6–12	99.8	0.2	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	97.5	2.1	0.0	0.0	0.4	0.0	0.0	100.0
20–24	89.4	10.6	0.0	0.0	0.0	0.0	0.0	100.0
25–29	54.5	45.5	0.0	0.0	0.0	0.0	0.0	100.0
30–49	5.3	93.4	0.0	1.0	0.0	0.2	0.2	100.0
50+	0.7	89.2	0.0	9.5	0.3	0.3	0.0	100.0
Total	51.9	46.2	0.0	1.7	0.1	0.1	0.0	100.0
				Female				
6–12	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
13–14	97.8	2.2	0.0	0.0	0.0	0.0	0.0	100.0
15–19	88.4	11.6	0.0	0.0	0.0	0.0	0.0	100.0
20–24	45.7	52.8	0.0	0.0	0.5	1.0	0.0	100.0
25–29	15.6	81.1	0.0	1.6	0.8	0.0	0.8	100.0
30–49	2.7	88.1	0.0	5.9	0.9	1.1	1.3	100.0
50+	0.0	57.9	0.0	40.4	0.0	1.0	0.7	100.0
Total	39.9	50.7	0.0	7.9	0.4	0.6	0.6	100.0
				RURAL				
				Male				
6–12	100.0	0.0	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	97.9	2.1	0.0	0.0	0.0	0.0	0.0	100.0
20–24	83.0	16.7	0.0	0.1	0.1	0.0	0.0	100.0
25–29	34.8	64.0	0.1	0.3	0.4	0.3	0.1	100.0
30–49	3.9	93.9	0.0	1.6	0.2	0.2	0.2	100.0
50+	0.5	85.8	0.0	13.3	0.0	0.0	0.4	100.0
Total	46.9	49.8	0.0	3.0	0.1	0.1	0.1	100.0
				Female				
6–12	99.9	0.1	0.0	0.0	0.0	0.0	0.0	100.0
13–14	98.2	1.5	0.3	0.0	0.0	0.0	0.0	100.0
15–19	82.0	17.6	0.0	0.0	0.1	0.0	0.3	100.0
20–24	30.4	67.4	0.4	1.2	0.2	0.0	0.5	100.0
25–29	6.1	90.6	0.0	1.5	0.2	0.1	1.5	100.0
30–49	1.7	89.6	0.1	6.0	0.9	0.5	1.2	100.0
50+	0.1	56.5	0.0	42.3	0.5	0.3	0.4	100.0
Total	36.8	52.4	0.1	9.5	0.4	0.2	0.6	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, Orissa, 1999

Age	Marital status							Total percent
	Never married	Currently married	Married, *gauna* not performed	Widowed	Divorced	Separated	Deserted	
				TOTAL				
				Male				
6–12	100.0	0.0	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	97.9	2.1	0.0	0.0	0.0	0.0	0.0	100.0
20–24	83.9	15.9	0.0	0.1	0.1	0.0	0.0	100.0
25–29	37.2	61.8	0.1	0.2	0.3	0.2	0.1	100.0
30–49	4.0	93.8	0.0	1.5	0.2	0.2	0.2	100.0
50+	0.5	86.1	0.0	13.0	0.0	0.0	0.4	100.0
Total	47.5	49.4	0.0	2.8	0.1	0.1	0.1	100.0
				Female				
6 –12	99.9	0.1	0.0	0.0	0.0	0.0	0.0	100.0
13–14	98.2	1.6	0.3	0.0	0.0	0.0	0.0	100.0
15–19	82.6	17.0	0.0	0.0	0.1	0.0	0.3	100.0
20–24	32.1	65.7	0.3	1.0	0.3	0.1	0.4	100.0
25–29	7.2	89.5	0.0	1.5	0.3	0.1	1.4	100.0
30–49	1.8	89.4	0.0	6.0	0.9	0.6	1.2	100.0
50+	0.1	56.7	0.0	42.1	0.4	0.3	0.4	100.0
Total	37.2	52.2	0.1	9.3	0.4	0.2	0.6	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 is 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 Orissa tend to marry women about five younger than themselves. Both the censuses and the two surveys indicate that age at marriage has been rising for both men and women.

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 number of usual household members. The table is based on the *de jure* population because household type and number of usual household members pertain to the usual-resident population. The table shows that 91 percent of household heads are male, regardless of area of residence (rural or urban). The median age of household heads varies slightly by residence, being 44 years in urban areas and 45 years in rural areas. Household heads are somewhat more concentrated in the 30–44 age group in urban areas than in rural areas. Ninety-seven percent of household heads are Hindu, 2 percent are Muslim, 2 percent are Christian, and less than 1 percent belong to other religions.

Table 2.4. Singulate mean age at marriage

Singulate mean age at marriage by sex from selected sources, Orissa, 1961–1999

Source	Singulate mean age at marriage (SMAM)		
	Male	Female	Difference
1961 Census	21.9	17.5	4.4
1971 Census	22.7	17.3	5.4
1981 Census	24.3	19.1	5.2
1991 Census	25.0	20.2	4.7
1992-93 NFHS-1			
Urban	27.2	21.8	5.4
Rural	25.3	20.4	4.9
Total	25.6	20.7	4.9
1999 NFHS-2			
Urban	27.7	22.8	5.0
Rural	26.4	21.0	5.4
Total	26.6	21.2	5.4

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.

Muslims are concentrated in urban areas; they constitute 6 percent of urban households, but only 1 percent of rural households. Twenty-two percent of household heads belong to scheduled castes and 22 percent to scheduled tribes. Both of these groups constitute higher proportions of the population in rural areas than in urban areas. The largest group of household heads belong to other backward classes (OBC)[1]. Sixty-one percent of all households are nuclear family households (consisting of an unmarried adult living alone or a married person or couple and their unmarried children, if any). Mean household size is the same in urban areas and rural areas (5.1 persons per household).

2.4 Educational Attainment

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.)

Table 2.6 shows that 49 percent of females and 24 percent of males age six and above are illiterate. Comparable figures from NFHS-1 are 59 percent of females and 31 percent of males, indicating a substantial decline in illiteracy in only six years. The rapid increase in educational attainment can also be seen by examining the differences in educational levels by age. For example, in NFHS-2 the proportion of males completing at least high school rises from 10 percent at age 50 and above to 28 percent at ages 15–19. For females, the proportion completing at least high school is negligible (only 1 percent) at age 50 and above but is 18 percent at age 15–19.

[1]Scheduled castes, scheduled tribes, and other backward classes are groups that have been designated by the Government of India as socially and educationally backward and in need of protection from social injustice.

Table 2.5 Household characteristics

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

Characteristic	Urban	Rural	Total
Sex of household head			
Male	90.5	91.1	91.0
Female	9.5	8.9	9.0
Age of household head			
< 30	12.0	10.9	11.0
30–44	39.8	36.8	37.1
45–59	30.1	27.7	28.0
60+	18.1	24.6	23.9
Median age	43.9	45.3	45.3
Religion of household head			
Hindu	91.2	97.1	96.5
Muslim	5.9	1.0	1.6
Christian	2.8	1.8	1.9
Sikh	0.1	0.0	0.0
No religion	0.1	0.0	0.0
Caste/tribe of household head			
Scheduled caste	17.0	22.2	21.6
Scheduled tribe	8.5	23.3	21.7
Other backward class	30.0	29.6	29.6
Other	44.4	24.9	27.0
Household type			
Nuclear household	62.3	60.6	60.8
Non-nuclear household	37.7	39.3	39.2
Number of usual members			
1	4.6	4.3	4.3
2	7.6	9.7	9.5
3	13.3	12.9	13.0
4	20.7	18.4	18.6
5	18.0	19.0	18.9
6	14.6	14.1	14.1
7	7.9	8.6	8.6
8	4.9	4.7	4.7
9+	8.3	8.3	8.3
Mean household size	5.1	5.1	5.1
Total percent	100.0	100.0	100.0
Number of households	521	4,168	4,689

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

A higher percentage of males than of females has completed each level of schooling. The proportion illiterate is lowest at age 10–14 for males and at age 6–9 for females and is highest at age 50 and above for either sex. The median number of years of schooling is 5.1 for males and 1.2 for females.

Education levels are much higher in urban areas than in rural areas. For females, the proportion illiterate is 51 percent in rural areas and 30 percent in urban areas. For males, the proportion illiterate is 25 percent in rural areas and 15 percent in urban areas.

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, Orissa,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	16.8	83.2	0.0	0.0	0.0	0.0	0.0	100.0	130	1.8
10–14	8.4	27.2	50.9	13.5	0.0	0.0	0.0	100.0	153	5.7
15–19	6.7	9.3	12.1	27.2	31.4	13.3	0.0	100.0	135	9.7
20–29	8.2	5.7	14.9	17.5	15.8	37.8	0.0	100.0	258	10.3
30–39	17.0	7.8	13.8	16.4	15.6	29.4	0.0	100.0	211	9.6
40–49	21.2	8.7	15.3	11.6	16.6	26.5	0.0	100.0	135	9.2
50+	25.0	11.7	20.3	8.2	14.5	20.2	0.0	100.0	176	7.2
Total	14.5	18.9	18.2	14.0	13.7	20.8	0.0	100.0	1,197	7.8
Female										
6–9	23.7	76.3	0.0	0.0	0.0	0.0	0.0	100.0	116	1.9
10–14	11.9	24.2	51.2	12.6	0.0	0.0	0.0	100.0	128	6.0
15–19	13.0	8.5	14.3	22.5	26.2	15.5	0.0	100.0	126	9.5
20–29	25.2	8.1	14.2	13.0	12.7	26.8	0.0	100.0	257	8.7
30–39	35.2	9.2	20.1	7.2	12.0	16.3	0.0	100.0	195	5.8
40–49	35.4	9.2	25.8	7.8	12.1	9.7	0.0	100.0	115	5.5
50+	60.8	13.0	16.0	3.1	3.5	3.7	0.0	100.0	164	0.0
Total	30.3	18.2	19.6	9.6	9.9	12.5	0.0	100.0	1,100	5.2
Total										
6–9	20.0	80.0	0.0	0.0	0.0	0.0	0.0	100.0	246	1.8
10–14	10.0	25.8	51.1	13.1	0.0	0.0	0.0	100.0	281	5.8
15–19	9.8	8.9	13.1	24.9	28.9	14.4	0.0	100.0	260	9.6
20–29	16.7	6.9	14.6	15.2	14.3	32.3	0.0	100.0	515	9.7
30–39	25.8	8.5	16.8	12.0	13.9	23.1	0.0	100.0	406	7.8
40–49	27.7	9.0	20.2	9.9	14.5	18.8	0.0	100.0	249	7.3
50+	42.3	12.3	18.2	5.7	9.2	12.3	0.0	100.0	340	3.9
Total	22.0	18.6	18.9	11.9	11.9	16.8	0.0	100.0	2,297	6.5

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, Orissa,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	17.9	82.0	0.1	0.0	0.0	0.0	0.0	100.0	971	1.7
10–14	11.8	33.5	44.4	10.3	0.0	0.0	0.0	100.0	1,165	5.3
15–19	13.8	10.2	21.8	28.5	18.4	7.3	0.0	100.0	1,021	8.6
20–29	21.5	10.9	17.0	20.4	12.0	18.2	0.0	100.0	1,744	8.2
30–39	28.9	15.5	21.5	14.8	8.2	11.1	0.0	100.0	1,492	5.5
40–49	32.5	15.1	24.1	12.7	10.9	4.7	0.0	100.0	1,018	5.2
50+	42.2	27.4	19.1	4.4	5.0	2.0	0.0	100.0	1,695	2.8
Total	25.3	25.6	21.2	13.1	7.9	7.0	0.0	100.0	9,107	4.9
Female										
6–9	21.4	78.6	0.0	0.0	0.0	0.0	0.0	100.0	950	1.6
10–14	24.0	31.5	36.0	8.6	0.0	0.0	0.0	100.0	1,069	4.5
15–19	33.4	9.5	18.1	23.6	11.3	4.1	0.0	100.0	1,096	6.1
20–29	47.4	11.5	16.8	12.0	6.4	5.9	0.0	100.0	1,960	3.0
30–39	61.7	12.0	16.6	5.3	2.8	1.5	0.0	100.0	1,335	0.0
40–49	66.7	12.9	16.2	1.6	2.0	0.6	0.0	100.0	897	0.0
50+	84.3	9.6	5.6	0.3	0.1	0.0	0.1	100.0	1,637	0.0
Total	51.0	20.6	15.3	7.6	3.4	2.1	0.0	100.0	8,943	0.0
Total										
6–9	19.6	80.3	0.1	0.0	0.0	0.0	0.0	100.0	1,922	1.6
10–14	17.6	32.5	40.4	9.5	0.0	0.0	0.0	100.0	2,233	5.0
15–19	23.9	9.8	19.9	26.0	14.7	5.7	0.0	100.0	2,116	7.6
20–29	35.2	11.2	16.9	16.0	9.0	11.7	0.0	100.0	3,704	5.5
30–39	44.4	13.9	19.2	10.3	5.6	6.5	0.0	100.0	2,827	3.4
40–49	48.5	14.1	20.4	7.5	6.7	2.8	0.0	100.0	1,915	2.7
50+	62.9	18.7	12.5	2.4	2.6	1.0	0.0	100.0	3,331	0.0
Total	38.0	23.1	18.3	10.3	5.7	4.6	0.0	100.0	18,050	3.2

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, Orissa,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	17.7	82.2	0.1	0.0	0.0	0.0	0.0	100.0	1,101	1.7
10–14	11.4	32.7	45.2	10.7	0.0	0.0	0.0	100.0	1,318	5.3
15–19	12.9	10.1	20.7	28.3	19.9	8.0	0.0	100.0	1,155	8.9
20–29	19.8	10.2	16.7	20.0	12.5	20.8	0.0	100.0	2,003	8.9
30–39	27.5	14.6	20.5	15.0	9.1	13.3	0.0	100.0	1,702	5.8
40–49	31.2	14.4	23.1	12.6	11.6	7.2	0.0	100.0	1,153	5.4
50+	40.6	25.9	19.2	4.7	5.9	3.7	0.0	100.0	1,871	3.1
Total	24.0	24.8	20.8	13.2	8.5	8.6	0.0	100.0	10,304	5.1
Female										
6–9	21.7	78.3	0.0	0.0	0.0	0.0	0.0	100.0	1,066	1.6
10–14	22.7	30.7	37.6	9.0	0.0	0.0	0.0	100.0	1,196	4.7
15–19	31.3	9.4	17.7	23.5	12.8	5.3	0.0	100.0	1,221	6.9
20–29	44.9	11.1	16.5	12.1	7.1	8.3	0.0	100.0	2,217	3.6
30–39	58.4	11.7	17.1	5.6	4.0	3.4	0.0	100.0	1,530	0.0
40–49	63.2	12.5	17.3	2.3	3.1	1.6	0.0	100.0	1,011	0.0
50+	82.2	9.9	6.6	0.5	0.4	0.3	0.1	100.0	1,801	0.0
Total	48.7	20.4	15.8	7.8	4.1	3.2	0.0	100.0	10,043	1.2
Total										
6–9	19.7	80.3	0.1	0.0	0.0	0.0	0.0	100.0	2,168	1.7
10–14	16.7	31.8	41.6	9.9	0.0	0.0	0.0	100.0	2,514	5.1
15–19	22.4	9.7	19.1	25.8	16.3	6.6	0.0	100.0	2,377	7.9
20–29	33.0	10.7	16.6	15.9	9.7	14.2	0.0	100.0	4,220	5.9
30–39	42.1	13.2	18.9	10.5	6.7	8.6	0.0	100.0	3,232	3.9
40–49	46.1	13.5	20.4	7.8	7.6	4.6	0.0	100.0	2,164	3.3
50+	61.0	18.1	13.0	2.7	3.2	2.0	0.0	100.0	3,671	0.0
Total	36.2	22.6	18.3	10.5	6.4	6.0	0.0	100.0	20,347	3.5

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 1 male from a rural area with missing information on age, who is 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.

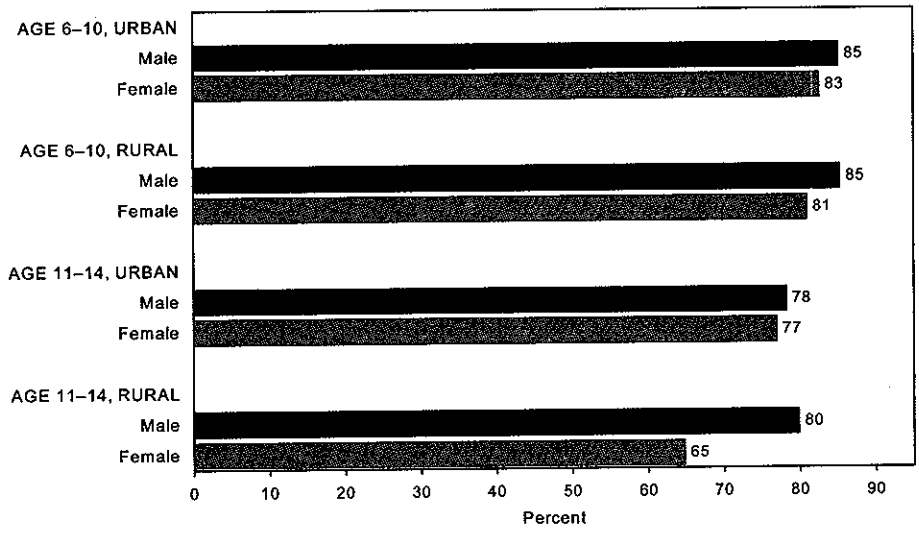
Table 2.7 and Figure 2.2 show school attendance rates for the school-age household population by age, sex, and residence. In the state as a whole, 79 percent of children age 6–14 are attending school, up from 70 percent in NFHS-1. The attendance rate drops off sharply at age 15–17. For the age group 6–17, the attendance rate is 77 percent for males, 67 percent for females, and 72 percent for the population of both sexes. Attendance rates are higher in urban areas than in rural areas except for the age group 6–10. In urban areas, attendance rates are almost the same for males and females, although males have a slight edge. In rural areas, however, attendance rates are higher for males than for females, especially in the older age groups.

Table 2.7 School attendance

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

	Male			Female			Total		
Age	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
6–10	85.2	85.4	85.4	82.7	81.0	81.2	84.1	83.2	83.3
11–14	78.3	79.9	79.7	77.0	64.8	66.1	77.7	72.7	73.3
15–17	64.6	55.4	56.5	60.7	39.0	41.4	62.7	46.8	48.7
6–14	82.4	83.1	83.0	80.3	74.5	75.1	81.4	78.9	79.2
6–17	78.2	77.1	77.2	75.4	65.8	66.8	76.9	71.5	72.1

Figure 2.2
School Attendance by Age, Sex, and Residence



NFHS-2, Orissa, 1999

Table 2.8 shows reasons for children never attending school or not currently attending school. For boys, 'costs too much', 'not interested in studies', 'education not considered necessary' and 'required for outside work for payment in cash or kind' stand out as reasons for never attending school or (except for 'education not considered necessary') for not currently attending school. These reasons are mentioned in about three-quarters of cases. Not surprisingly, the need for children to work in the household is mentioned more for girls than for boys. The accessibility of schools ('school too far away' and 'transport not available') is mentioned infrequently for both boys and girls. The need for children to remain out of school in order to work (including household work, taking care of siblings, working in a family farm or business, and working outside for payment in cash or kind) is mentioned as the main reason for never attending school for 15 percent of boys and 23 percent of girls, and as the main reason for not currently attending school for 27 percent of boys and 34 percent of girls. In rural areas, 6 percent of girls are not currently attending school because they got married. These girls married below the legal age at marriage of 18 years.

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, Orissa, 1999

Reason	Urban		Rural		Total	
	Male	Female	Male	Female	Male	Female
Main reason for never attending school[1]						
School too far away	0.0	2.5	4.1	2.0	3.7	2.1
Transport not available	0.0	0.0	0.0	0.2	0.0	0.2
Education not considered necessary	12.7	20.0	11.2	15.9	11.3	16.2
Required for household work	5.4	13.6	5.7	16.0	5.7	15.8
Required for work on farm/family business	0.0	3.8	2.4	1.7	2.2	1.8
Required for outside work for payment in cash or kind	14.7	1.3	5.8	2.0	6.5	2.0
Costs too much	32.5	28.6	29.8	31.7	30.0	31.4
No proper school facilities for girls	0.0	0.0	0.0	0.8	0.0	0.7
Required for care of siblings	3.7	5.1	0.3	3.5	0.6	3.6
Not interested in studies	20.0	15.0	30.4	21.3	29.5	20.9
Other	9.1	8.8	9.1	4.1	9.1	4.4
Don't know	1.9	1.2	1.4	0.7	1.4	0.8
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of children	31	45	330	599	361	644
Main reason for not currently attending school[2]						
School too far away	0.0	0.0	0.0	2.1	0.0	1.9
Transport not available	1.1	0.0	0.0	1.0	0.2	0.9
Further education not considered necessary	1.1	4.8	1.9	3.9	1.8	4.0
Required for household work	3.4	17.8	7.8	24.8	7.2	24.1
Required for work on farm/family business	6.9	0.0	6.7	1.7	6.7	1.6
Required for outside work for payment in cash or kind	22.8	9.7	11.0	3.8	12.6	4.4
Costs too much	18.2	24.3	21.7	18.5	21.2	19.1
No proper school facilities for girls	0.0	1.6	0.0	1.1	0.0	1.1
Required for care of siblings	2.3	3.3	0.0	3.5	0.3	3.5
Not interested in studies	29.7	24.1	43.5	22.4	41.5	22.6
Repeated failures	5.6	0.0	3.4	7.7	3.7	6.9
Got married	0.0	1.6	0.0	6.3	0.0	5.8
Other	7.9	12.8	3.0	2.1	3.7	3.2
Don't know	1.1	0.0	1.1	1.1	1.1	1.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of children	50	35	296	316	345	351

[1]For children who have never attended school
[2]For children who have dropped out of school

2.5 Housing Characteristics

Table 2.9 provides information on housing characteristics by residence. Thirty-four percent of households in Orissa have electricity (up from 28 percent in NFHS-1). The proportion of households with electricity is 75 percent in urban areas and 29 percent in rural areas.

Table 2.9 Housing characteristics

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

Housing characteristic	Urban	Rural	Total
Electricity			
Yes	74.9	28.7	33.8
No	25.1	71.3	66.2
Total percent	100.0	100.0	100.0
Source of drinking water			
Piped	46.8	3.9	8.6
Hand pump	34.2	59.5	56.7
Well water	17.6	27.8	26.7
Surface water	1.1	8.8	8.0
Other	0.2	0.0	0.0
Total percent	100.0	100.0	100.0
Time to get drinking water			
Percentage < 15 minutes	65.8	53.4	54.7
Median time (minutes)	4.8	9.8	9.8
Method of drinking water purification[1]			
Strains water by cloth	16.3	11.0	11.6
Uses alum	0.1	0.5	0.4
Uses water filter	25.4	2.8	5.3
Boils water	14.5	4.3	5.4
Uses electronic purifier	1.3	0.2	0.3
Uses other method	0.4	0.5	0.5
Does not purify water	54.1	83.0	79.8
Sanitation facility			
Flush toilet	48.1	6.2	10.9
Pit toilet/latrine	6.9	2.1	2.6
No facility	45.0	91.7	86.5
Total percent	100.0	100.0	100.0
Main type of fuel used for cooking			
Wood	34.6	70.9	66.9
Crop residues	2.3	13.5	12.2
Dung cakes	3.6	8.2	7.7
Coal/coke/lignite/charcoal	7.4	2.2	2.8
Kerosene	20.4	1.6	3.6
Electricity	7.2	1.9	2.5
Liquid petroleum gas	23.4	1.4	3.8
Biogas	1.1	0.3	0.4
Total percent	100.0	100.0	100.0
Type of house			
Kachha	26.3	55.3	52.0
Semi-*pucca*	33.0	33.2	33.1
Pucca	40.7	11.5	14.8
Missing	0.0	0.1	0.0
Total percent	100.0	100.0	100.0
Persons per room			
< 3	69.8	67.5	67.7
3–4	20.1	22.4	22.1
5–6	8.1	8.4	8.4
7+	2.0	1.7	1.7
Missing	0.1	0.0	0.0
Total percent	100.0	100.0	100.0
Mean number of persons per room	2.3	2.4	2.4
Number of households	521	4,168	4,689

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

Water sources and sanitary facilities have an important influence on the health of household members, especially children. NFHS-1 and NFHS-2 contained questions on sources of drinking water and types of sanitary facilities. NFHS-2 found that 9 percent of households use piped drinking water (slightly down from 10 percent in NFHS-1), 57 percent drink water from hand pumps, and 27 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 47 percent in urban areas but only 4 percent in rural areas. The median time to get drinking water is 4.8 minutes in urban areas, 9.8 minutes in rural areas, and 9.8 minutes overall. The proportion of households that purify water by any method is 46 percent in urban areas and 17 percent in rural areas.

Regarding sanitation facilities, only 11 percent of households have a flush toilet (using either piped water or bucket water for flushing—up slightly from 7 percent in NFHS-1), 3 percent have a pit toilet or latrine, and 87 percent have no facility (a decline of only one percentage point since NFHS-1). Again there are large urban-rural differences: 48 percent of urban households have a flush toilet, whereas 92 percent of rural households have no toilet facility at all.

Several types of fuel are used for cooking in Orissa, with wood as the most common type. In the state as a whole, 67 percent of households rely mainly on wood, 12 percent on crop residues, 8 percent on dung cakes, 4 percent on kerosene, 4 percent on liquid petroleum gas, 3 percent on coal/coke/lignite, and 3 percent on other fuels. Again there are large urban-rural differences. Forty-four percent of urban households rely mainly on liquid petroleum gas or kerosene, while 93 percent of rural households rely mainly on either wood, crop residues or dung cakes.

Regarding type of house construction, 52 percent of houses are *kachha* (made from mud, thatch, or other low-quality materials), down from 59 percent in NFHS-1; 33 percent are semi-*pucca* (partly low-quality and partly high-quality materials); and 15 percent are *pucca* (high-quality materials throughout, including roof, walls, and floor). By residence, the proportion of houses that are *pucca* is 41 percent in urban areas and 12 percent in rural areas.

Crowded conditions may affect health as well as the quality of life. Thirty-two percent of households live in houses with three or more persons per room. The mean number of persons per room is 2.3 in urban areas, 2.4 in rural areas, and 2.4 (unchanged from 2.4 in NFHS-1) in the state as a whole.

Table 2.10 gives a number of measures related to the socioeconomic status of the household (ownership of land, house, and livestock). Overall, 42 percent of households do not own any agricultural land. Thirty-nine percent of rural households do not own agricultural land (down from 42 percent in NFHS-1), compared with 65 percent of urban households. In rural areas, among those who own land, 32 percent have at least some irrigated land. The proportion of households owning a house is 87 percent in urban areas, 98 percent in rural areas, and 96 percent overall. The proportion of households owning livestock is 23 percent in urban areas, 56 percent in rural areas, and 52 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

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, Orissa, 1999

Asset	Urban	Rural	Total
No agricultural land	65.4	39.3	42.2
Irrigated land only			
< 1 acre	1.6	3.6	3.4
1–5 acres	7.8	7.2	7.3
6+ acres	1.9	0.6	0.8
Nonirrigated land only			
< 1 acre	1.7	8.4	7.7
1–5 acres	13.8	28.2	26.6
6+ acres	3.7	4.3	4.2
Both irrigated and nonirrigated land			
< 1 acre	0.2	0.6	0.5
1–5 acres	1.5	6.1	5.6
6+ acres	1.7	1.4	1.5
Missing	0.5	0.2	0.3
Total percent	100.0	100.0	100.0
Percentage owning a house	86.8	97.6	96.4
Percentage owning livestock	22.6	55.7	52.0
Number of households	521	4,168	4,689

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 in the state as a whole, the majority of households have a cot or a bed (71 percent), a bicycle (56 percent), a clock or watch (47 percent), a chair (32 percent), or a radio (31 percent). Other durable goods often found in households are electric fans (28 percent), tables (27 percent), mattresses (13 percent), and black and white televisions (15 percent), with smaller proportions owning pressure cookers (13 percent), water pumps (4 percent), sewing machines (5 percent), motorcycles or scooters or mopeds (7 percent), colour televisions (3 percent), refrigerators (4 percent), telephones (3 percent), or cars (1 percent). Urban households are much more likely than rural households to own each of these durable goods. In rural areas, 10 percent of households own a bullock cart, 5 percent own a thresher, and less than 1 percent own a tractor. Fifteen percent of households in Orissa do not own any of the above durable goods. Most households (67 percent) use aluminium kitchenware; 29 percent use stainless steel kitchenware.

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, Orissa, 1999

Asset	Urban	Rural	Total
Durable goods			
Mattress	37.7	10.0	13.1
Pressure cooker	44.9	9.1	13.0
Chair	60.2	28.1	31.7
Cot/bed	79.5	70.3	71.4
Table	57.8	23.6	27.4
Clock/watch	76.8	43.5	47.2
Electric fan	69.9	22.3	27.6
Bicycle	69.9	54.5	56.2
Radio/transistor	47.6	28.6	30.7
Sewing machine	21.0	3.5	5.4
Telephone	15.5	1.0	2.6
Refrigerator	20.7	1.6	3.7
Television (black and white)	41.6	11.3	14.6
Television (colour)	16.4	1.3	3.0
Moped/scooter/motorcycle	25.6	4.8	7.1
Car	3.4	0.2	0.6
Water pump	8.5	3.1	3.7
Bullock cart	3.0	9.8	9.0
Thresher	3.0	4.8	4.6
Tractor	0.4	0.2	0.2
None of the above	9.3	15.3	14.6
Main type of kitchenware used			
Clay	0.3	2.1	1.9
Aluminium	55.7	68.1	66.7
Cast iron	0.0	0.2	0.1
Brass/copper	0.5	2.8	2.5
Stainless steel	43.3	26.9	28.7
Missing	0.1	0.0	0.0
Total percent	100.0	100.0	100.0
Standard of living index			
Low	29.2	62.6	58.9
Medium	39.5	30.7	31.6
High	30.4	6.3	9.0
Missing	0.9	0.4	0.4
Total percent	100.0	100.0	100.0
Number of households	521	4,168	4,689

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 household 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 and 25–67 for a high SLI. By this measure, 59 percent of households in Orissa have a low standard of living, 32 percent have a medium standard of living, and 9 percent have a high standard of living. The proportion with a low standard of living is much higher in rural areas than in urban areas (63 and 29 percent, respectively), and the proportion with a high standard of living is much higher in urban areas than in rural areas (30 and 6 percent, respectively). The proportion with a medium standard of living is somewhat higher in urban areas than in rural areas.

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 males and females age 15 and above who chew *paan masala* or tobacco, drink alcohol, or smoke. These lifestyle indicators are of considerable interest because *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 have been aware of use that took 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 of consumption of *paan masala,* tobacco, and alcohol is likely.

Forty-two percent of persons age 15 and above are reported to chew *paan masala* or tobacco. This proportion rises from 18 percent of males and 10 percent of females at age 15–19 to 64 percent of males and 50 percent of females at age 50–59. The proportion is highest at age 60 and above for both males (66 percent) and females (54 percent). Chewing of *paan masala* or tobacco is more common in rural areas than in urban areas, particularly for females. It is twice as common among illiterate males as among males who have completed at least high school. Chewing *paan masala* or tobacco is rare among women who have completed at least high school. It is more common among men and women living in households with a low standard of living than among men and women living in households with a high standard of living.

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, Orissa, 1999

Background characteristic	Chew *paan masala* or tobacco	Drink alcohol	Currently smoke	Ever smoked[1]	Number of household members
MALE					
Age					
15–19	17.5	5.1	4.6	5.4	1,183
20–24	31.3	10.7	13.0	14.2	1,061
25–29	45.9	18.4	21.8	25.1	1,023
30–39	58.2	26.0	32.8	37.5	1,744
40–49	62.6	28.4	38.5	45.3	1,189
50–59	64.2	24.8	37.0	42.9	744
60+	65.5	18.9	29.3	34.6	1,184
Residence					
Urban	44.5	14.3	20.9	25.5	929
Rural	50.1	19.8	26.0	29.9	7,198
Education					
Illiterate	58.5	38.4	34.3	38.5	2,194
Literate, < middle school complete	59.7	18.1	31.0	35.9	2,883
Middle school complete	38.7	10.2	17.3	20.0	1,253
High school complete and above	29.4	3.8	11.3	14.7	1,798
Standard of living index					
Low	54.8	30.1	31.5	35.9	3,922
Medium	47.4	10.8	21.3	24.8	3,160
High	35.2	3.2	15.0	18.9	1,016
Total	49.5	19.2	25.4	29.4	8,127
FEMALE					
Age					
15–19	10.1	2.8	0.2	0.2	1,226
20–24	16.8	4.0	0.2	0.2	1,068
25–29	29.7	6.8	0.6	0.6	1,158
30–39	41.1	7.2	1.7	1.8	1,556
40–49	48.7	6.9	1.0	1.0	1,028
50–59	50.4	10.6	2.4	2.7	801
60+	53.6	5.7	0.5	0.7	1,025
Residence					
Urban	27.7	2.3	0.5	0.6	860
Rural	35.7	6.6	1.0	1.0	7,002
Education					
Illiterate	44.3	10.2	1.5	1.6	4,447
Literate, < middle school complete	33.0	1.2	0.2	0.2	2,017
Middle school complete	9.3	0.7	0.2	0.2	673
High school complete and above	6.2	0.1	0.2	0.2	724
Standard of living index					
Low	40.1	10.1	1.3	1.4	4,052
Medium	31.4	2.5	0.5	0.6	2,833
High	22.6	0.2	0.3	0.3	944
Total	34.9	6.2	0.9	1.0	7,862
Total male and female	42.3	12.8	13.4	15.4	15,989

Note: Total include 1 female with missing information on education, and 29 males and 33 females with missing information on the standard of living index, who are not shown separately.
[1]Includes household members who currently smoke

Nineteen percent of males but only 6 percent of females age 15 and above drink alcohol. By age, the proportion who drink alcohol peaks at 40–49 for males and 50–59 for females. The proportion who drink is somewhat higher in rural areas than in urban areas, higher among illiterate persons than among literate persons, and much higher among persons living in households with a low standard of living than among persons living in households with a high standard of living. Only 1 percent of females age 15 and above have ever smoked, and 1 percent currently smoke. Among males, 29 percent have ever smoked, and 25 percent currently smoke. The proportion of males who currently smoke rises from 5 percent at age 15–19 to 39 percent at age 40–49 and then falls to 29 percent at age 60 and above. The proportion of males who smoke is somewhat higher in rural areas than in urban areas. It is about three times higher among illiterate males than males with at least a high school education, and about twice as high among males living in households with a low standard of living as among males living in households with a high standard of living. Eighty-six percent of males 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.

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 that can affect health and family planning. 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 units of analysis are ever-married women age 15–49 who reside in rural areas. Ten percent of rural women live in a village with a Primary Health Centre, 13 percent live in a village with a sub-centre, and 19 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 7 percent for hospitals and 12 percent for dispensaries or clinics. Only one-quarter of the women live in a village that has any kind of health facility. Median distances from particular health facilities are 6.1 km for a Primary Health Centre, 3.5 km for a sub-centre, 7.8 km for a hospital, and 5.0 km for a dispensary or a clinic.

Table 2.14 shows the proportion of rural residents (the *de jure* rural population) in Orissa who live in villages that have various facilities and services. Seventy percent of rural residents live in villages that have a primary school, 40 percent live in villages with a middle school, and 22 percent live in villages that have a secondary school. Fifty-seven percent live in villages that have an *anganwadi*[2] (a nursery school for children age 3–6 years), and 20 percent live in villages with an adult education centre. Only 14 percent live in villages that have a private doctor, and 48 percent live in villages with a traditional birth attendant.

Eighty-four percent of rural residents live in villages that are at least partly electrified. Although only 7 percent of rural residents live in villages with an STD booth (for telephoning within India), 27 percent live in villages that have at least one household with a private telephone. Thirteen percent of rural residents live in villages that have cable television service,

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

Table 2.13 Distance from the nearest health facility

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

Distance	Health facility					
	Primary Health Centre	Sub-centre	Either PHC or sub-centre	Hospital[1]	Dispensary/ clinic	Any health facility
Within village	10.0	12.5	18.5	7.3	12.3	25.5
< 5 km	31.2	49.1	56.3	33.9	37.7	55.3
5–9 km	25.1	24.6	22.2	20.4	19.6	17.2
10+ km	33.7	12.9	3.0	38.4	30.3	2.1
Don't know/missing	0.0	0.9	0.0	0.0	0.0	0.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Median distance (in km)	6.1	3.5	2.9	7.8	5.0	1.9

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

Table 2.14 Availability of facilities and services

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

Facility/service	Percentage of residents	Facility/service	Percentage of residents
Primary school	70.2	At least one village household has a telephone	26.9
Middle school	39.9	Mill/small-scale industry	26.3
Secondary school	22.1	Credit cooperative society	21.3
Higher secondary school	10.3	Agricultural cooperative society	14.1
College	5.5	Fishermen's cooperative society	3.6
		Milk cooperative society	4.5
Anganwadi	56.9	*Kirana*/general market shop	39.6
Adult education centre	20.2	Weekly market	24.9
		Fair price shop	35.1
Primary Health Centre	10.1	*Paan* shop	77.1
Sub-centre	12.1	Pharmacy/medical shop	14.6
Hospital[1]	7.5	*Mahila mandal*	36.2
Dispensary/clinic	13.1	Youth club	68.6
		Community centre	27.2
Private doctor	13.7	Community television set	6.5
Visiting doctor	28.2	Cable connection	12.6
Village health guide	32.3		
Traditional birth attendant	48.0	Integrated Rural Development Programme (IRDP)	80.9
Mobile health unit	25.3	National Rural Employment Programme (NREP)	9.6
		Training Rural Youth for Self-Employment (TRYSEM)	28.6
Electricity	83.9	Employment Guarantee Scheme (EGS)	11.2
Bank	10.6	Development of Women and Children of Rural Areas (DWACRA)	24.1
Post office	26.9	Indira Awas Yojana (IAY)	86.1
Telegraph office	6.9	Sanjay Gandhi Niradhar Yojana (SGNY)	0.0
STD (Subscriber Trunk Dialling) phone booth	7.2	Total population	21,170

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

indicating that exposure to modern influences through the mass media is low in the state. Thirty-six percent live in villages with a *mahila mandal*, a women's community group. The only facilities and clubs listed that are available in the village for a majority of rural residence are *paan* shop (available in the village for 77 percent of rural residents) and youth club (69 percent). The most widely available rural development programmes as reported by the respondents to the Village Questionnaire are the Integrated Rural Development Programme (IRDP) (available in the village for 81 percent of rural respondents) and the Indira Awas Yojana (IAY)(86 percent).

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 women's and men's education, exposure to mass media, and women's work participation 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, 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 by the Household Questionnaire as eligible respondents for the NFHS-2 Women's Questionnaire. In addition, data are presented on the extent to which women in Orissa enjoy autonomy as measured by their participation in household decisionmaking, freedom of movement, and access to money they control. Finally, data on women's attitudes towards the 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, coresidence with husband, education, religion, caste/tribe, work status, and husband's education.

In Orissa, the proportion of respondents in five-year age groups increases from 7 percent at age 15–19 years to 21 percent at age 25–29 years and then falls steadily to 9 percent at age 45–49 years. The initial increase between 15–19 and 25–29 reflects the increasing share of ever-married women in each of the intervening age groups. The decline after age 25–29 (an age by which most women have been married) reflects the normal pyramid shape of the population's age distribution. The age distribution of rural and urban respondents is similar, with the notable exception that the proportions of rural respondents who are age 15–19 (7 percent) and 20–24 (19 percent) are higher than the proportions of urban respondents in those age groups (5 percent and 14 percent, respectively). The higher share of respondents age 15–19 and 20–24 among rural women than among urban women is largely a consequence of the lower age at marriage in rural areas.

Ninety-four percent of respondents are currently married, 4 percent are widowed, and 2 percent are divorced, separated, or deserted. The proportion of respondents living with their husbands is 91 percent, implying that the vast majority of currently married women were coresident with their husbands at the time of the survey. The distribution of respondents by marital status and coresidence with husbands does not vary by urban-rural residence.

PREVIOUS PAGE BLANK

Table 3.1 Background characteristics of respondents

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

Background characteristic	Residence		Total	Number of women	
	Urban	Rural		Weighted	Unweighted
Age					
15–19	4.9	7.0	6.8	300	291
20–24	13.9	18.9	18.3	811	792
25–29	23.0	20.8	21.0	931	939
30–34	20.2	18.3	18.5	820	826
35–39	15.3	13.4	13.6	601	609
40–44	14.1	12.3	12.5	554	562
45–49	8.7	9.3	9.2	407	406
Marital status					
Currently married	93.0	93.7	93.6	4,143	4,141
Widowed	4.2	4.1	4.1	180	181
Divorced	0.7	0.2	0.3	11	13
Separated	1.2	1.3	1.3	58	57
Deserted	0.8	0.7	0.7	33	33
Coresidence with husband					
Living with husband	90.9	90.5	90.6	4,007	4,009
Not living with husband	2.2	3.2	3.1	135	132
Not currently married	7.0	6.3	6.4	282	284
Education					
Illiterate	37.9	62.2	59.5	2,633	2,536
Literate, < primary school complete	7.9	9.8	9.6	423	417
Primary school complete	20.6	16.0	16.5	730	750
Middle school complete	10.4	6.5	6.9	305	320
High school complete	11.3	3.5	4.4	194	225
Higher secondary complete and above	11.9	2.1	3.1	139	177
Religion					
Hindu	91.4	97.3	96.7	4,279	4,257
Muslim	6.0	1.2	1.7	75	92
Christian	2.5	1.4	1.5	68	73
Sikh	0.1	0.0	0.0	1	1
Jain	0.0	0.0	0.0	1	1
No religion	0.0	0.0	0.0	1	1
Caste/tribe					
Scheduled caste	16.8	21.7	21.2	938	918
Scheduled tribe	8.5	21.0	19.6	868	818
Other backward class	32.2	30.8	31.0	1,371	1,377
Other	42.5	26.4	28.2	1,246	1,311
Missing	0.0	0.0	0.0	1	1
Work status					
Working in family farm/business	4.1	7.5	7.2	317	302
Employed by someone else	10.7	16.6	15.9	706	681
Self-employed	7.5	7.5	7.5	332	331
Not worked in past 12 months	77.7	68.4	69.4	3,071	3,111
Husband's education					
Illiterate	20.6	35.3	33.7	1,491	1,429
Literate, < primary school complete	8.2	14.2	13.5	599	577
Primary school complete	16.2	22.2	21.6	954	934
Middle school complete	13.5	13.3	13.3	588	590
High school complete	15.7	8.3	9.2	405	434
Higher secondary complete and above	25.8	6.5	8.7	383	458
Missing	0.0	0.1	0.1	3	3
Total percent	100.0	100.0	100.0	NA	NA
Number of women					
Weighted	488	3,937	4,425	4,425	NA
Unweighted	868	3,557	4,425	NA	4,425

NA: Not applicable

By contrast, there are noticeable urban-rural differences in the composition of respondents by religion and caste/tribe. The proportion of women who are Hindu is lower in urban areas (91 percent) than it is in rural areas (97 percent), whereas the proportion who are Muslim is greater in urban areas (6 percent) than in rural areas (1 percent). For Orissa as a whole, 97 percent of all respondents are Hindu and less than 2 percent each are Muslim and Christian. Overall, one-fifth of women belong to scheduled tribes, and the percentage who belong to scheduled tribes is more than twice as high in rural areas (21 percent) as in urban areas (9 percent). Scheduled-caste women constitute 21 percent of all women, 22 percent of rural women, and 17 percent of urban women. By caste/tribe, the largest proportion of women (31 percent) belong to other backward classes.

The educational levels of respondents and their husbands are important influences on respondents' demographic and health-seeking behaviour. Sixty percent of women age 15–49 in Orissa are illiterate, down from 67 percent at the time of NFHS-1. This decline is due to a fall in illiteracy among both rural and urban women. Among rural women illiteracy declined from 72 percent in NFHS-1 to 62 percent in NFHS-2 and among urban women from 45 percent in NFHS-1 to 38 percent in NFHS-2. The urban-rural difference in illiteracy remains high. Only 8 percent of all respondents have at least completed high school, a gain of only 2 percentage points since NFHS-1. Twenty-three percent of urban respondents have attained this educational level, compared with 6 percent of rural respondents. Among respondents who are literate, the largest proportion have completed primary school (but not middle school). Twenty-one percent of women in urban areas have completed primary school (but not middle school) compared with only 16 percent in rural areas.

Thirty-four percent of all women age 15–49 have illiterate husbands, down from 38 percent in NFHS-1. The proportion of respondents with illiterate husbands is 1.7 times as high in rural areas (35 percent) as in urban areas (21 percent). However, in contrast to women's education, only in rural areas has the proportion of women with illiterate husbands declined since NFHS-1 (when the proportion was 42 percent). At the other educational extreme, nearly one-fifth of women (18 percent) have husbands who have at least completed high school, the same as in NFHS-1, and the percentage in urban areas (42 percent) is much higher than in rural areas (15 percent). Rural proportions of women exceed the corresponding urban proportions at all the levels of husband's education below completion of middle school, where the difference by residence is negligible.

More than two-thirds of respondents (69 percent) in Orissa did not participate in work other than their regular housework during the 12 months preceding the NFHS-2 survey. Sixty-eight percent of rural respondents fall into this category, compared with 78 percent of urban respondents. The highest proportion of working women in both urban and rural areas were employed by someone else (17 percent of rural women and 11 percent of urban women). Only 8 percent of rural women and 4 percent of urban women worked on their own family farm or family business. The proportion of self-employed women was the same in urban and rural areas (8 percent).

3.2 Educational Level

Table 3.2 presents the percent distribution of ever-married women age 15–49 by the highest level of education attained, according to age, religion, caste/tribe, and husband's education.

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, Orissa, 1999

Background characteristic	Respondent's level of education						Total percent	Number of women
	Illiterate	Literate, < primary school complete	Primary school complete	Middle school complete	High school complete	Higher secondary complete and above		
Age								
15–19	60.3	7.2	15.6	11.7	4.5	0.7	100.0	300
20–24	54.7	8.4	16.6	12.0	4.2	4.2	100.0	811
25–29	56.0	9.7	14.9	8.8	6.2	4.4	100.0	931
30–34	62.5	7.8	15.8	5.3	4.7	3.9	100.0	820
35–39	60.2	10.5	19.2	4.3	3.7	2.1	100.0	601
40–44	61.8	11.4	17.7	2.8	4.0	2.3	100.0	554
45–49	66.5	12.9	16.4	1.5	1.6	1.1	100.0	407
Religion								
Hindu	59.5	9.5	16.6	6.8	4.4	3.1	100.0	4,279
Muslim	54.8	20.9	14.2	8.0	0.0	2.2	100.0	75
Christian	67.5	1.6	9.7	9.8	6.5	4.9	100.0	68
Caste/tribe								
Scheduled caste	72.6	8.5	12.6	4.2	1.6	0.5	100.0	938
Scheduled tribe	87.7	3.9	4.7	2.3	1.0	0.4	100.0	868
Other backward class	55.9	11.7	18.9	7.2	4.1	2.3	100.0	1,371
Other	33.9	12.0	25.1	11.8	9.2	8.0	100.0	1,246
Husband's education								
Illiterate	91.7	3.8	3.5	1.0	0.0	0.0	100.0	1,491
Literate, < primary school complete	70.6	16.5	10.9	1.5	0.6	0.0	100.0	599
Primary school complete	56.2	13.9	24.9	4.0	0.7	0.3	100.0	954
Middle school complete	34.2	15.0	29.9	17.3	2.9	0.6	100.0	588
High school complete	22.0	8.8	34.9	18.0	13.6	2.7	100.0	405
Higher secondary complete and above	3.6	2.9	15.0	17.5	29.3	31.7	100.0	383
Total	59.5	9.6	16.5	6.9	4.4	3.1	100.0	4,425

Note: Total includes 3 women belonging to 'other' religions and 1 and 3 women with missing information on caste/tribe and husband's education, respectively, who are not shown separately.

The educational distribution of women in different age groups indicates progress in the spread of education in Orissa over a period of about three decades. Although the proportion illiterate among women age 15–19 (60 percent) is greater than among women age 20–29 (55 percent), illiteracy generally declines with declining age. A greater proportion of women age 40–49 (64 percent) are illiterate than of women age 15–24 (56 percent). At the other end of the educational spectrum, the proportion of respondents who have at least completed high school, though still very low (8 percent overall), is almost twice as high among women age 20–24 as among women age 40 and above. The proportion of respondents who have completed middle school also increases with decreasing age.

A lower proportion of Muslim women are illiterate (55 percent) than of Hindu women (60 percent) or Christian women (68 percent). However, Muslim women are less likely to have at least completed high school (2 percent) than Hindu women (8 percent) or Christian women (11 percent). Women's educational attainment also varies greatly by caste/tribe. Whereas one-third of women not belonging to any scheduled caste, scheduled tribe, or other backward class are illiterate, much larger proportions are illiterate among women belonging to scheduled tribes

(88 percent), scheduled castes (73 percent), and other backward classes (56 percent). Scheduled-tribe women, followed by scheduled-caste women, are less likely than other women to have completed primary school, middle school, or high school.

Ninety-two percent of women with illiterate husbands are themselves illiterate. Twenty-two percent of women whose husbands have completed high school (but not higher secondary school) and 4 percent of women whose husbands have completed higher secondary school are also illiterate. Husbands at each level of education are more likely to have wives with a lower level of education than an equal or a higher level of education. The proportion of women who have lower education than their husbands is 71 percent for women whose husbands are literate but have not completed primary school, 70 percent for women whose husbands have completed primary school, 79 percent for women whose husbands have completed middle school, 84 percent for women whose husbands have completed high school, and 68 percent for women whose husbands have completed higher secondary school. Among women with literate husbands, women whose husbands have completed primary school are most likely to have equal or higher education than their husbands (30 percent).

3.3 Age at First Marriage

Table 3.3 gives information on age at first marriage. The table shows the percentage of all women (ever married and never married) who first married by specified exact ages, and the median age at first marriage and median age at first cohabitation by current age and residence. The median age at first marriage/cohabitation for a cohort of women is the age by which 50 percent of the cohort marries/cohabits.

In Orissa, there is strong evidence that age at first marriage is rising. The proportion married by age 15 falls steadily from the oldest to the youngest age group, and, in particular, from 10 percent for women age 20–24 to 6 percent for women age 15–19 who are only five years younger, on average. This decline in the proportion married by age 15 is evident in both rural and urban areas. The median age at first marriage has also risen over the past three decades. In urban areas the median age at first marriage is three years higher for women age 25–29 than for women age 45–49, and in rural areas, it is almost three years higher for women age 20–24 than for women age 45–49.

Despite this evidence of rising age at marriage, the table also shows that a slight majority of women age 20–49 in Orissa were married before they had reached the legal minimum age at marriage of 18 years, as required by the Child Marriage Restraint Act of 1978. Specifically, 53 percent of all women, 54 percent of rural women, and 41 percent of urban women age 20–49 married before age 18. The median age at first marriage for women age 20–49 in urban areas (18.8) is one year higher than in rural areas (17.7). In rural areas, the median age at first marriage reaches 18 years only for women age 20–29, whereas in urban areas it is 18 years or above for women in every five-year age group below age 45. Almost one-third of even the younger (age 20–29) urban women married before reaching the legal minimum age at marriage.

The difference between the median age at first marriage and the median age at first cohabitation is very small among women of all ages. This suggests that *gauna* or other similar cultural practices that introduce a lag between marriage and cohabitation are uncommon in Orissa.

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, Orissa, 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	4.5	NA	NA	NA	NA	NC	NC
20–24	0.4	7.5	30.2	41.6	NA	NA	NC	NC
25–29	2.6	10.8	33.5	55.0	68.8	80.1	19.5	19.6
30–34	2.7	11.9	41.4	63.8	74.5	84.1	18.6	18.7
35–39	5.2	14.1	45.1	73.4	84.4	92.5	18.3	18.5
40–44	4.9	17.7	50.5	76.3	86.5	95.4	18.0	18.1
45–49	5.1	17.2	66.9	87.8	93.0	96.9	16.5	16.7
20–49	3.0	12.1	40.6	61.5	NA	NA	18.8	18.8
25–49	3.7	13.4	43.6	67.2	78.3	87.5	18.5	18.5
				RURAL				
15–19	0.5	5.6	NA	NA	NA	NA	NC	NC
20–24	1.1	10.1	38.4	53.6	NA	NA	19.3	19.5
25–29	1.0	12.2	50.7	69.9	83.0	90.6	18.0	18.1
30–34	2.2	13.1	59.1	77.7	89.1	94.6	17.4	17.6
35–39	3.3	14.8	61.3	84.8	93.6	96.5	17.3	17.5
40–44	2.7	19.2	67.5	89.1	96.5	98.3	16.9	17.1
45–49	7.2	24.4	74.3	90.8	97.1	98.0	16.6	16.9
20–49	2.3	14.1	54.4	73.0	NA	NA	17.7	17.8
25–49	2.7	15.5	60.2	80.1	90.3	94.8	17.3	17.5
				TOTAL				
15–19	0.5	5.5	NA	NA	NA	NA	NC	NC
20–24	1.0	9.8	37.6	52.3	NA	NA	19.6	19.7
25–29	1.2	12.0	48.4	67.9	81.1	89.2	18.1	18.2
30–34	2.3	13.0	56.9	76.0	87.3	93.3	17.5	17.7
35–39	3.5	14.7	59.3	83.3	92.4	95.9	17.4	17.6
40–44	3.0	19.0	65.4	87.5	95.3	97.9	17.0	17.2
45–49	6.9	23.6	73.5	90.5	96.7	97.9	16.6	16.9
20–49	2.4	13.8	52.8	71.6	NA	NA	17.8	17.9
25–49	2.8	15.2	58.2	78.5	88.8	93.8	17.5	17.6

NA: Not applicable
NC: Not calculated because less than 50 percent of women in the age group 15–19 or 20–24 have married or started living with their husband by age 15 or 20
[1]The current age group includes both never-married and ever-married women.

3.4 Exposure to Mass Media

In a country like India, where the majority of women are illiterate or have little formal education, informal channels such as the mass media play an important role in bringing about modernization. In NFHS-2, women were asked questions on 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 Orissa more than half (56 percent) of women are not regularly exposed to any mass media. Surprisingly, regular exposure to media is lower among women age 15–19 (36 percent) than among women of all other age groups (42–46 percent). Exposure varies most widely by

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, Orissa, 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	7.5	19.6	28.6	5.6	64.1	300
20–24	10.7	23.3	32.8	4.8	56.2	811
25–29	12.3	28.4	34.4	5.1	53.5	931
30–34	11.1	28.3	30.5	5.7	57.6	820
35–39	11.1	33.8	32.6	5.4	54.6	601
40–44	10.0	29.2	35.4	2.8	54.1	554
45–49	9.4	29.2	36.7	1.8	53.8	407
Residence						
Urban	29.4	67.1	41.7	17.3	23.2	488
Rural	8.4	22.9	32.0	3.0	59.8	3,937
Education						
Illiterate	0.0	11.6	18.9	1.2	75.8	2,633
Literate, < middle school complete	14.2	41.7	49.8	5.3	34.0	1,153
Middle school complete	31.1	53.8	61.1	11.3	20.2	305
High school complete and above	64.7	82.8	61.6	22.9	5.3	334
Religion						
Hindu	10.6	27.8	33.0	4.5	55.8	4,279
Muslim	12.5	38.6	44.0	12.0	44.8	75
Christian	15.4	13.0	26.0	6.4	65.1	68
Caste/tribe						
Scheduled caste	4.1	15.6	27.4	2.1	65.4	938
Scheduled tribe	1.4	8.2	10.9	0.4	84.1	868
Other backward class	9.9	29.0	34.1	4.3	52.8	1,371
Other	23.1	49.0	51.5	9.8	32.0	1,246
Standard of living index						
Low	2.1	8.4	17.5	1.4	78.6	2,376
Medium	11.8	37.4	47.4	4.6	37.0	1,559
High	50.7	92.5	63.6	20.3	3.3	474
Total	10.7	27.7	33.1	4.6	55.7	4,425

Note: Total includes 3 women belonging to 'other' religions and 1 and 15 women with missing information on caste/tribe and the standard of living index, respectively, who are not shown separately.

education and standard of living. As expected, regular exposure to media increases sharply with education. The percentage not regularly exposed to the media is more than twice as high among illiterate women (76 percent) as among women in any literate category, and is by far the lowest (5 percent) among women who have at least completed high school. Regular exposure to media also increases markedly with standard of living. The percentage not regularly exposed to any mass media is 79 percent among women with a low standard of living, 37 percent among women with a medium standard of living, and 3 percent among women with a high standard of living.

Sixty percent of rural women are not regularly exposed to any media, compared with only 23 percent of urban women. The proportion of Muslim women not regularly exposed to any media (45 percent) is lower than that of Hindu women (56 percent) or Christian women (65 percent), perhaps because Muslim women live disproportionately in urban areas, where media exposure is high. The percentages by caste/tribe vary more widely. Eighty-four percent of scheduled-tribe women are not regularly exposed to any media, compared with 65 percent of scheduled-caste women, 53 percent of women from other backward classes, and 32 percent of women not in any backward class.

Among the different types of mass media, radio and television have the greatest reach, with exposure to radio more common among illiterate and poor women. Overall, one-third of respondents listen to the radio and 28 percent watch television at least once a week, compared with less than 11 percent regularly exposed to any other single medium. The proportion of women who watch television at least once a week has risen sharply since the time of NFHS-1, when it was 16 percent. By contrast, regular exposure to radio declined slightly over the same period, from 35 percent in NFHS-1 to 33 percent in NFHS-2. The cinema is not an important source of media exposure. Women who are literate are much more likely to be regularly exposed to printed media than to cinema. Exposure to each individual medium increases sharply with education and with standard of living but varies little by age.

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). However, in a developing country such as India, 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 on women are likely to depend on their occupation, the continuity of their workforce participation, and whether they earn income. It is expected that women who work at a regular job, who earn cash, and who perceive that their contribution is a substantial part of total family earnings are more likely to be empowered than other employed or unemployed women (Youssef, 1982; Sen, 1990; Mahmud and Johnston, 1994). Table 3.5 provides information on these aspects of women's employment for ever-married women age 15–49 according to residence.

In Orissa, less than one-third (31 percent) of ever-married women age 15–49 were either currently employed at the time of NFHS-2 or were employed during the 12 months preceding the survey. Thirty-two percent of rural respondents but only 22 percent of urban respondents worked at any time during the year before the survey. The majority of women who worked during the year before the survey worked throughout the year in both urban areas (84 percent) and rural areas (53 percent). The majority of both urban and rural women who worked during the year before the survey earned cash for their work, but the proportion earning cash was higher in urban areas (94 percent) than in rural areas (84 percent). Nearly one in nine (11 percent) working women in rural areas and 1 in 20 (5 percent) in urban areas were unpaid workers.

About one-half (51 percent) of women who work in Orissa are farm workers. Farm workers account for 55 percent of working women in rural areas. In urban areas, by contrast, there is greater occupational diversity. Ten percent of urban women who work are farm workers,

Table 3.5 Employment

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

Employment characteristic	Urban	Rural	Total
Employment status			
Currently working	20.6	29.2	28.2
Worked in past 12 months (not currently working)	1.6	2.5	2.4
Not worked in past 12 months	77.7	68.4	69.4
Continuity of employment[1]			
Throughout the year	83.5	53.3	55.8
Seasonally/part of the year	13.4	43.7	41.3
Once in a while	3.1	3.0	3.0
Type of earning[1]			
Cash only	88.8	56.7	59.3
Cash and kind	5.1	27.2	25.5
Kind only	1.5	5.3	5.0
Not paid	4.6	10.8	10.3
Occupation[1]			
Professional	19.0	3.8	5.0
Sales worker	10.4	6.0	6.4
Service worker	3.6	0.9	1.1
Production worker	18.7	13.1	13.6
Agricultural worker	10.3	54.8	51.3
Other worker	38.0	21.3	22.7
Earnings contribution to total family earnings[2]			
Almost none	6.0	6.3	6.3
Less than half	43.9	57.8	56.6
About half	25.6	21.2	21.6
More than half	7.7	5.1	5.3
All	16.8	9.6	10.2
Total percent	100.0	100.0	100.0
Number of women	488	3,937	4,425
Number of employed women[1]	109	1,246	1,354
Number of women earning cash	102	1,045	1,147

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

19 percent are production workers, 14 percent are in sales and services, and 19 percent are professionals.

A significant feature of women's work participation in Orissa is women's considerable contribution to family earnings. Nearly 17 percent of urban women and 10 percent of rural women who worked and earned cash in the past 12 months report that the family is entirely dependent on their earnings. Another 33 percent in urban areas and 26 percent in rural areas report that they contribute at least half of the total family earnings. In both urban and rural areas, only 6 percent of women who are earning cash report that they contribute almost nothing to total 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 important aspects of their empowerment. To measure

Table 3.6 Household decisionmaking

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

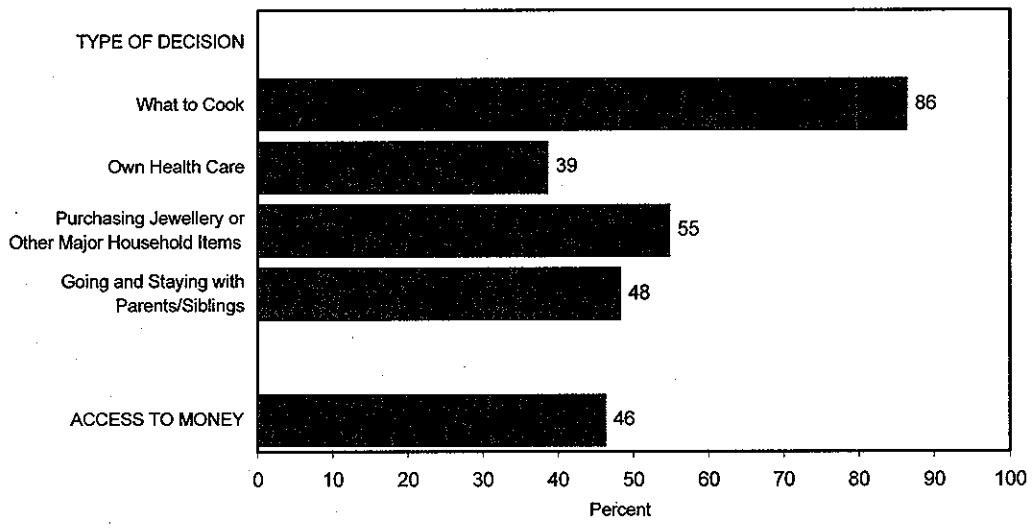
Household decision	Respondent only	Husband only	Respondent with husband	Others in household only	Respondent with others in household	Total percent
			URBAN			
What items to cook	71.6	4.4	3.7	9.6	10.6	100.0
Obtaining health care for herself	16.4	53.0	18.8	7.4	4.5	100.0
Purchasing jewellery or other major household items	11.7	34.1	36.5	8.8	9.0	100.0
Going and staying with her parents or siblings	12.6	41.7	27.4	9.8	8.5	100.0
How the money she earns will be used[1]	44.1	20.1	33.5	0.6	1.7	100.0
			RURAL			
What items to cook	71.6	4.8	2.7	8.8	12.1	100.0
Obtaining health care for herself	11.0	54.5	19.6	7.1	7.8	100.0
Purchasing jewellery or other major household items	7.8	35.8	34.3	9.7	12.4	100.0
Going and staying with her parents or siblings	8.2	41.8	26.8	9.9	13.3	100.0
How the money she earns will be used[1]	27.7	32.5	33.3	2.5	4.0	100.0
			TOTAL			
What items to cook	71.6	4.8	2.8	8.9	11.9	100.0
Obtaining health care for herself	11.6	54.4	19.5	7.1	7.4	100.0
Purchasing jewellery or other major household items	8.3	35.6	34.5	9.6	12.0	100.0
Going and staying with her parents or siblings	8.7	41.8	26.9	9.9	12.7	100.0
How the money she earns will be used[1]	29.1	31.4	33.3	2.3	3.8	100.0

[1]For women earning cash

women's autonomy and empowerment more directly, NFHS-2 asked about women's participation in household decisionmaking, their freedom of movement, and their 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, their attitudes towards the sex composition of their 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 the respondent, purchasing jewellery or other major household items, and the respondent 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 age 15–49 by the category of person (or persons) who makes each of the specified household decisions according to residence.

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



NFHS-2, Orissa, 1999

As expected, women in Orissa are most likely to participate in the decision about what to cook: 72 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 (Figure 3.1). However, 14 percent of women are not involved in the decision of what to cook. Furthermore, more than three of every five women are not involved at all in decisions about seeking their own health care (62 percent), and approximately half of women are not involved in decisions about purchasing jewellery or other major household items (45 percent) or about going and staying with parents or siblings (52 percent). The percentages of women who make these three types of decisions on their own are only 12, 8, and 9 percent, respectively. Surprisingly, there are no sharp differences by residence in the proportion of women participating in the different types of decisions.

One-third of women who earn cash report that only their husbands or only others in the household make the decision on how the money they earn will be used, another 29 percent report that they make the decision on their own, and the remaining 37 percent report that they make the decision together with their husbands or someone else in the household. The proportion of women who do not participate in the decision on how the money they earn should be used is higher in rural areas (35 percent) than in urban areas (21 percent), and the proportion who alone make this decision is higher in urban areas (44 percent) than in rural areas (28 percent).

Women's participation in household decisionmaking, alone or jointly with others in the household, increases with age, suggesting that autonomy increases with age (Table 3.7). For women age 30 and above, only 7–9 percent in each five-year age group do not participate in any decisionmaking, compared with 18 percent of women age 15–19. Participation in each of the four specified decisions increases more or less steadily with age. The proportion of women not involved in any decisionmaking also varies considerably by religion and type of employment.

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, Orissa, 1999

Background characteristic	Percentage not involved in any decision-making	Percentage involved in decisionmaking on:				Percentage who do not need permission to:		Percent-age 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	18.1	74.8	32.7	44.1	41.4	10.0	7.4	29.1	300
20–24	15.2	80.3	36.5	54.8	47.2	9.6	8.2	38.4	811
25–29	11.4	84.7	37.8	54.4	46.9	15.7	12.4	42.3	931
30–34	7.6	91.1	38.0	53.6	48.7	20.6	17.9	48.6	820
35–39	7.3	90.8	41.0	57.1	50.3	22.6	19.9	54.5	601
40–44	8.8	89.0	40.9	57.4	48.8	27.3	22.3	55.1	554
45–49	7.1	90.6	42.9	59.1	54.6	22.8	21.6	55.1	407
Residence									
Urban	10.6	86.0	39.6	57.2	48.5	28.4	22.4	66.4	488
Rural	10.6	86.3	38.4	54.5	48.3	16.9	14.5	43.8	3,937
Education									
Illiterate	9.6	87.9	38.5	53.1	45.4	19.9	17.1	41.1	2,633
Literate, < middle school complete	11.0	85.4	37.9	56.9	51.9	13.2	11.0	49.4	1,153
Middle school complete	14.2	80.7	36.3	56.4	53.5	13.0	10.1	51.7	305
High school complete and above	13.2	82.1	43.3	59.5	54.6	26.4	22.2	71.8	334
Religion									
Hindu	10.7	86.2	38.5	54.8	48.1	18.0	15.2	46.0	4,279
Muslim	4.5	93.2	36.2	57.1	56.1	19.5	18.7	61.4	75
Christian	10.3	82.5	47.8	50.4	52.7	29.1	21.0	46.8	68
Caste/tribe									
Scheduled caste	9.2	88.7	36.8	55.3	48.3	20.8	17.0	42.9	938
Scheduled tribe	9.7	87.5	33.9	48.6	37.6	23.4	19.8	37.5	868
Other backward class	11.7	85.0	36.5	52.3	45.5	14.4	12.3	45.4	1,371
Other	11.0	85.1	45.3	61.5	58.9	16.7	14.5	56.0	1,246
Cash employment									
Working for cash	6.9	90.6	44.5	60.2	49.2	32.0	27.6	51.9	1,147
Working but not for cash	12.5	84.2	38.7	59.9	48.9	16.0	14.0	38.8	207
Not worked in past 12 months	11.8	84.8	36.3	52.4	47.9	13.1	11.0	44.7	3,071
Standard of living index									
Low	9.7	88.2	39.1	54.3	45.8	19.5	16.6	40.3	2,376
Medium	11.7	84.1	37.0	54.2	51.1	14.9	12.6	47.1	1,559
High	11.0	84.2	40.7	59.8	52.7	22.4	18.7	73.1	474
Total	10.6	86.3	38.6	54.8	48.3	18.2	15.4	46.3	4,425

Note: Total includes 3 women belonging to 'other' religions and 1 and 15 women with missing information on caste/tribe and the standard of living index, respectively, who are not shown separately.

Muslim women are more likely than Hindu women or Christian women to participate in any decisionmaking and in each of the separate decisions except decisions about their own health care. Women who earn cash are more likely than other women to be involved in any decisionmaking and in each of the separate decisions. The proportion of women not involved in any decisionmaking varies little by place of residence, education, caste/tribe, or standard of living. However, illiterate women are more likely than literate women to be involved in decisions

about what to cook. By education, women who have completed middle school are least likely to participate in any decisionmaking and in decisions about what to cook and about their own health care. Illiterate women are less likely than literate women to be involved in decisions about whether to purchase jewellery or to stay with their parents/siblings. Generally, however, these differences by education in the individual decisions are not large. There are substantial differences across caste/tribe groups in participation in decisionmaking about 'own health care', 'purchasing jewellery' or 'staying with her parents/siblings'. Scheduled-tribe women are less likely than other women to take any of these three decisions.

Table 3.7 also gives information on two other dimensions of women's autonomy measured in NFHS-2, 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?'

Most women say that they need permission to go to the market or to visit friends or relatives. Only 18 percent say they do not need permission to go to the market, and 15 percent say that they do not need permission to visit friends or relatives. Freedom of movement generally increases with age. But the proportion of women who do not need permission to go to the market is never greater than 32 percent for any category, and the proportion who do not need permission to go to visit friends and relatives is never greater than 28 percent. Freedom of movement varies sharply, however, by women's employment. Women who earn cash are about two and one-half times as likely as women who did not work in the past 12 months, and about twice as likely as women who worked but did not earn cash, to report that they do not need permission to go to the market or to visit friends/relatives. Also, women who have at least completed high school are about twice as likely as other literate women, but only 1.3 times as likely as illiterate women, to report that they do not need permission to go to the market or to visit friends/relatives.

Interestingly, scheduled-tribe women have more freedom of movement than women of other caste/tribe groups, and women with a medium standard of living have less freedom of movement compared to women with a high or low standard of living. Rural women have less freedom of movement than do urban women.

In contrast to freedom of movement, there is great variation in women's access to money by background characteristics. Overall, 46 percent of women say that they are allowed to have some money set aside that they can spend as they wish, but this proportion varies widely by all background characteristics. Access to money increases considerably with age, and it is much greater for urban women than for rural women. Muslim women are much more likely to have access to money (61 percent) than are Hindu women (46 percent) or Christian women (47 percent). Scheduled-tribe women have slightly less access to money (38 percent) than women from scheduled castes or other backward classes (43–45 percent). Women who have completed high school are much more likely to have access to cash (72 percent) than are women in other educational categories (41–52 percent). Access increases with standard of living: 40 percent of women with a low standard of living have access to money, compared with 73 percent of women with a high standard of living. As might be expected, women who worked for cash during the past year are more likely than women in other employment categories to have access to money

(52 percent compared with 45 and 39 percent for women who did not work and women who worked during the past year but did not earn cash, respectively).

3.7 Women's Educational Aspirations for Their Children

The desire to invest in improving the quality of children, including investing in their education, is important for bringing about the transition from uncontrolled to controlled fertility. In order to obtain information on this subject and on the relative importance given to educating girls as compared with boys, NFHS-2 asked ever-married women how much education should, in their opinion, be given to a girl or a boy.

As shown in Table 3.8, 44 percent of women believe that a boy should be given as much education as he wants, compared with only 31 percent who believe that a girl should be given as much education as she wants. Thirty percent of women believe that an education above high school (higher secondary school, graduate and above, or professional degree) is appropriate for boys, compared with 19 percent who believe that it is appropriate for girls. Only 1 percent of women feel that girls should not be given any education, and only 11 percent feel that girls should be given an education but not beyond middle school. The corresponding proportions for boys are negligible. Thirteen percent of women did not specify a level of education appropriate for girls, and 12 percent did not specify an appropriate level for boys.

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, Orissa, 1999

Educational level	Urban	Rural	Total
Education for girls			
No education	0.6	0.8	0.8
Less than primary school	0.5	1.1	1.0
Primary school	2.6	5.7	5.3
Middle school	2.7	5.0	4.8
High school	18.1	26.3	25.4
Higher secondary school	5.7	6.8	6.6
Graduate and above	15.9	8.2	9.1
Professional degree	6.0	2.6	3.0
As much as she desires	39.2	30.3	31.3
Depends	5.5	5.6	5.6
Don't know	3.4	7.7	7.2
Total percent	100.0	100.0	100.0
Education for boys			
No education	0.2	0.2	0.2
Less than primary school	0.1	0.2	0.2
Primary school	0.4	1.0	1.0
Middle school	0.3	1.3	1.2
High school	7.4	12.5	11.9
Higher secondary school	3.8	6.4	6.1
Graduate and above	12.9	12.8	12.8
Professional degree	16.8	10.2	10.9
As much as he desires	50.2	43.1	43.9
Depends	5.0	5.5	5.4
Don't know	2.8	6.9	6.4
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 both girls and boys. Rural respondents have lower educational aspirations than urban respondents, particularly for girls.

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 an increasing amount of research is highlighting the health burdens, intergenerational effects, and demographic consequences of such violence (Heise et al., 1994; 1998; 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). 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.

In order to assess women's attitudes about 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 the various reasons for wife-beating by background characteristics.

One out of two women in Orissa accept at least one reason as justification for wife-beating. Women are most likely to agree that reasons including 'husband suspects she is unfaithful', 'disrespecting in-laws', or 'going out without telling husband' justify wife-beating (one in three women agree in each case) and least likely to agree that reasons including 'not bringing expected money, jewellery, or other items from natal house' (7 percent) or 'not cooking food properly' (19 percent) justify wife-beating. Thirty percent of the women agree that 'neglecting house or children' justifies wife-beating.

Table 3.9 indicates that there are no sharp differences by marital duration in women's attitudes about wife-beating, but that there are notable differences by age and residence. Agreement with at least one reason and with each of the different reasons for wife-beating tends to decline with increasing age. Fifty-eight percent of women age 15–19 agree with at least one reason justifying wife-beating, compared with 47 percent of women age 40–49.

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, Orissa, 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	58.4	40.9	11.1	38.3	36.6	40.2	25.7	300
20–29	51.2	33.6	7.3	34.1	34.1	30.7	19.7	1,742
30–39	48.2	31.8	6.3	31.0	30.4	28.5	17.4	1,421
40–49	47.3	28.1	5.8	30.9	29.6	27.2	17.7	961
Marital duration (in years)								
< 5	51.1	33.2	6.6	32.3	31.6	31.1	19.6	951
5–9	49.6	32.2	7.8	32.8	32.6	30.8	19.1	692
10 or more	49.8	31.8	6.9	32.9	32.3	29.5	18.4	2,500
Not currently married	47.0	34.7	6.2	32.1	31.0	27.1	21.0	282
Residence								
Urban	43.5	29.2	5.9	30.3	28.5	26.7	16.3	488
Rural	50.7	32.7	7.1	33.0	32.5	30.3	19.3	3,937
Education								
Illiterate	55.1	36.2	9.3	37.0	36.4	34.5	22.5	2,633
Literate, < middle school complete	45.5	28.8	4.9	27.9	27.8	26.1	15.1	1,153
Middle school complete	42.3	25.8	1.8	28.5	25.8	20.3	14.6	305
High school complete and above	30.9	19.7	0.2	18.7	18.5	15.5	7.9	334
Religion								
Hindu	49.6	31.9	7.0	32.5	32.0	29.8	19.0	4,279
Muslim	56.0	41.7	3.7	32.8	31.6	29.5	18.8	75
Christian	62.7	50.7	9.6	42.0	38.7	36.1	17.9	68
Caste/tribe								
Scheduled caste	52.1	34.7	6.2	34.0	33.4	32.4	19.4	938
Scheduled tribe	60.0	43.0	13.8	44.8	43.3	39.6	26.8	868
Other backward class	48.6	29.4	6.0	31.4	31.5	29.5	18.4	1,371
Other	42.5	26.3	3.8	24.8	24.0	21.7	13.7	1,246
Cash employment								
Working for cash	55.3	38.2	8.7	37.3	36.5	34.6	22.8	1,147
Working but not for cash	54.5	38.0	9.4	38.4	32.2	33.1	19.2	207
Not worked in past 12 months	47.5	29.7	6.1	30.6	30.5	27.9	17.5	3,071
Standard of living index								
Low	56.6	38.9	9.0	38.0	37.9	35.6	23.4	2,376
Medium	44.8	26.5	5.4	28.8	27.4	25.6	15.4	1,559
High	32.7	18.6	1.9	18.7	18.6	15.4	8.4	474
Total	49.9	32.3	6.9	32.7	32.1	29.9	18.9	4,425

Note: Total includes 3 women belonging to 'other' religions and 1 and 15 women with missing information on caste/tribe and the standard of living index, respectively, who are not shown separately.

Not only do a higher proportion of rural women (51 percent) than urban women (44 percent) agree with at least one reason justifying wife-beating, but also rural women are more likely than urban women to agree with each specific reason. Agreement with at least one reason and with each of the specific reasons for wife-beating tends to decline with increasing education.

Fifty-five percent of illiterate women agree with at least one reason justifying wife-beating, compared with 42–46 percent of literate women who have not completed high school and 31 percent of women who have completed high school.

As expected, agreement with at least one reason and with each of the different reasons for wife-beating declines steadily with increasing standard of living. Fifty-seven percent of women with a low standard of living agree with at least one reason justifying wife-beating, compared with 45 percent of women with a medium standard of living and 33 percent of women with a high 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. Women who have not worked in the past 12 months are less likely than women who have worked to justify wife-beating for at least one reason (48 percent compared with 55 percent) and for each individual reason given in Table 3.9. Overall, in every category of women at least 30 percent agree with at least one reason for wife-beating, and at least 40 percent agree in every category of women except 'high school complete and above' (31 percent) and 'high standard of living' (33 percent). 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.

In order to assess the prevalence of domestic violence, NFHS-2 also asked women if they had ever 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 around 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 of 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) rather 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 must 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 category of person(s) who beat or physically mistreated women—their husbands, in-laws, or other persons.

Twenty-nine percent of women in Orissa report having experienced violence, and 23 percent say they have been beaten or physically mistreated by their husbands. Three percent say they have been beaten or physically mistreated by in-laws and 8 percent by other persons. This implies that among women who report beatings, almost 8 out of 10 (79 percent) are beaten by their husbands, and more than one out of four (27 percent) are beaten by other persons such as parents or other relatives.

[1]The question does not limit women to reporting only domestic violence. Nonetheless, 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 and 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, Orissa, 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	23.0	14.3	1.5	10.9	300
20–29	28.4	22.3	3.0	7.7	1,742
30–39	30.3	25.2	3.5	7.1	1,421
40–49	29.6	23.1	2.5	8.4	961
Marital duration (in years)					
< 5	21.7	14.7	2.4	8.8	951
5–9	28.7	23.7	2.1	6.6	692
10 or more	31.0	25.0	3.2	7.9	2,500
Not currently married	35.7	29.9	5.0	7.5	282
Residence					
Urban	27.9	20.6	2.3	9.5	488
Rural	29.1	23.2	3.0	7.7	3,937
Education					
Illiterate	34.3	28.2	3.2	7.9	2,633
Literate, < middle school complete	22.8	17.8	3.5	6.9	1,153
Middle school complete	23.2	16.4	1.1	9.2	305
High school complete and above	13.5	4.6	1.3	9.4	334
Religion					
Hindu	28.8	22.6	2.9	7.9	4,279
Muslim	31.3	28.5	7.5	7.5	75
Christian	34.4	31.1	4.7	8.0	68
Caste/tribe					
Scheduled caste	36.9	30.7	4.5	7.9	938
Scheduled tribe	30.1	27.7	1.9	5.0	868
Other backward class	27.1	20.3	2.8	8.5	1,371
Other	24.2	16.5	2.7	9.2	1,246
Household type					
Nuclear household	31.6	26.3	3.1	7.5	2,243
Non-nuclear household	26.2	19.4	2.8	8.2	2,181
Cash employment					
Working for cash	37.0	30.4	3.1	9.4	1,147
Working but not for cash	28.3	23.0	3.8	6.4	207
Not worked in past 12 months	26.0	20.1	2.8	7.4	3,071
Standard of living index					
Low	35.1	29.8	3.6	7.6	2,376
Medium	23.3	16.9	2.6	7.7	1,559
High	16.8	8.0	1.2	9.6	474
Living children					
No living children	24.9	16.5	3.7	10.3	558
Only daughters	30.9	23.7	4.0	10.1	659
Only sons	27.8	23.0	2.2	6.6	902
Both daughters and sons	29.8	24.2	2.8	7.2	2,306
Total	28.9	22.9	3.0	7.9	4,425

Note: Total includes 3 women belonging to 'other' religions, 1 woman from a household with no usual resident, and 1 and 15 women with missing information on caste/tribe and the standard of living index, respectively, who are not shown separately.

Women age 15–19 are less likely than older women to have been beaten, as might be expected because younger women 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 (22 percent) than women who have been married longer (29–36 percent). There is little difference between urban and rural women in the prevalence of domestic violence. Illiterate women (34 percent) are two and one-half times as likely to experience violence as are women who have completed high school (14 percent). The prevalence of domestic violence decreases as the standard of living increases. Thirty-five percent of women living in households with a low standard of living have experienced violence, compared with 23 percent of women living in households with a medium standard of living and 17 percent of women living in households with a high standard of living.

Women from non-nuclear households are less likely than women from nuclear households to experience domestic violence (26 percent as compared with 32 percent). Women who worked for cash in the past 12 months have experienced more domestic violence than women who did not work (37 percent compared with 26 percent).

In Orissa women with no living children are somewhat less likely than women with living children to have experienced violence (25 percent compared with 28–31 percent). This may be due in part to the fact that childless women tend to be younger, and younger women have a lower prevalence of domestic violence than do older women. For women who have children, there are no substantial differences by the sex composition of the children.

The relative proportions of women who have been beaten or physically mistreated by their husbands according to various background characteristics are similar to the relative proportions of women who have experienced domestic violence from all sources (husbands, in-laws, or other persons). This is not surprising since, as already noted, a large majority 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 characteristics.

NFHS-2 asked women who experienced violence 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. Almost half of women (47 percent) who experienced violence were beaten at least once during the 12 months preceding the survey, and more than one-third (38 percent) were beaten more than once in this period. Among women who have been beaten or physically mistreated since age 15, there are particularly large differences in the frequency of beatings in the last 12 months by education and the standard of living index.

As mentioned earlier, largely due to the inherent tendency for underreporting of domestic violence, these results need to be interpreted with caution. Nevertheless, the NFHS-2 estimates set a lower bound to the proportion of women experiencing domestic violence in Orissa: *at least* two in seven ever-married women in Orissa has experienced domestic violence since age 15, and *at least* one in eight has experienced domestic violence in the past 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, Orissa, 1999

Background characteristic	Beaten or physically mistreated in the past 12 months					Total percent	Number of women
	Many times	A few times	Once	Not beaten	Missing		
Age							
15–19	9.7	37.7	7.2	43.8	1.6	100.0	69
20–29	12.8	29.0	10.4	47.3	0.5	100.0	496
30–39	12.0	24.5	10.0	53.1	0.3	100.0	431
40–49	11.7	18.4	6.8	62.0	1.2	100.0	285
Marital duration (in years)							
< 5	8.9	32.5	11.7	46.4	0.5	100.0	207
5–9	15.6	28.4	11.0	45.1	0.0	100.0	198
10 or more	12.8	25.6	8.9	51.9	0.7	100.0	775
Not currently married	6.9	6.1	3.9	82.0	1.1	100.0	101
Residence							
Urban	13.1	25.7	7.1	54.1	0.0	100.0	136
Rural	12.0	25.6	9.6	52.1	0.7	100.0	1,144
Education							
Illiterate	14.0	25.4	8.7	51.4	0.6	100.0	902
Literate, < middle school complete	8.9	26.9	11.9	51.9	0.4	100.0	263
Middle school complete	6.2	29.3	7.2	55.7	1.5	100.0	71
High school complete and above	3.7	17.2	9.8	69.3	0.0	100.0	45
Religion							
Hindu	12.3	25.9	9.2	52.0	0.6	100.0	1,233
Muslim	(14.3)	(26.1)	(2.5)	(57.2)	(0.0)	100.0	24
Caste/tribe							
Scheduled caste	14.7	23.5	9.9	51.6	0.3	100.0	346
Scheduled tribe	13.3	32.2	9.8	44.3	0.4	100.0	262
Other backward class	11.9	23.2	7.7	55.8	1.5	100.0	371
Other	8.6	25.3	10.2	55.9	0.0	100.0	302
Household type							
Nuclear household	12.6	26.6	10.3	50.0	0.5	100.0	710
Non-nuclear household	11.6	24.4	8.0	55.3	0.8	100.0	571
Cash employment							
Working for cash	14.0	24.2	8.2	53.1	0.5	100.0	424
Working but not for cash	10.4	27.3	13.1	49.3	0.0	100.0	59
Not worked in past 12 months	11.3	26.2	9.6	52.2	0.7	100.0	798
Standard of living index							
Low	14.2	27.5	9.4	48.3	0.5	100.0	835
Medium	8.6	24.0	8.0	58.5	0.9	100.0	363
High	6.9	14.6	14.6	63.9	0.0	100.0	80
Living children							
No living children	12.0	25.7	6.0	55.5	0.8	100.0	139
Only daughters	16.3	23.9	7.9	51.9	0.0	100.0	204
Only sons	13.3	25.2	11.3	49.7	0.4	100.0	251
Both daughters and sons	10.5	26.3	9.7	52.8	0.8	100.0	687
Total	12.1	25.6	9.3	52.3	0.6	100.0	1,281

Note: Total includes 23 women belonging to the Christian religion, 1 woman belonging to an 'other' religion, and 4 women with missing information on the standard of living index, who are not shown separately.
( ) Based on 25-49 unweighted cases

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. 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, information was collected 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 difficulties can bias estimates of fertility 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, however, formal marriage is not always immediately followed by cohabitation. Rather, the husband and the wife only begin to cohabit after the *gauna* ceremony. Even in states where *gauna* is not practised, a marriage may not be consummated immediately if it occurs at a very young age. In such instances, there is a difference between age at marriage and age at consummation of marriage. 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. Accordingly, Table 4.1 presents information on the median age at first cohabitation to supplement the information on the median age at first marriage presented in Chapter 3. 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, Orissa, 1999

Background characteristic	Current age						
	20–24	25–29	30–34	35–39	40–49	20–49	25–49
Residence							
Urban	NC	19.6	18.7	18.5	17.6	18.8	18.5
Rural	19.5	18.1	17.6	17.5	17.0	17.8	17.5
Education							
Illiterate	17.5	17.2	16.9	17.1	16.6	17.0	16.9
Literate, < middle school complete	20.0	18.6	18.1	17.9	17.7	18.3	18.1
Middle school complete	NC	20.4	20.2	(18.2)	(18.4)	NC	19.7
High school complete and above	NC	23.4	22.6	20.8	20.5	NC	22.3
Religion							
Hindu	19.7	18.3	17.7	17.5	17.1	17.9	17.6
Muslim	NC	(17.3)	*	*	*	17.6	17.2
Christian	*	*	*	*	*	18.1	18.1
Caste/tribe							
Scheduled caste	18.1	17.8	17.0	17.4	16.7	17.3	17.2
Scheduled tribe	17.8	17.1	17.0	17.2	16.4	17.0	16.9
Other backward class	20.0	18.4	17.8	17.6	16.9	18.0	17.6
Other	NC	19.5	18.7	17.8	17.7	18.8	18.3
Standard of living index							
Low	18.3	17.4	17.1	17.3	16.7	17.3	17.1
Medium	NC	18.8	18.3	17.6	17.2	18.3	18.0
High	NC	21.9	20.0	19.0	17.8	19.8	19.2
Total	19.7	18.2	17.7	17.6	17.1	17.9	17.6

NC: Not calculated because less than 50 percent of the women have started living with 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 Orissa, the median age at first cohabitation with husband is 17.9 years for women age 20–49. The lowest median age at first cohabitation is 17.1 for women age 40–49, and the highest is 19.7 for women age 20–24, indicating an increase of 2.6 years in the median age at first cohabitation over a period of approximately 23 years. The value of 19.7 for the younger age group suggests that the decline in fertility that has occurred in Orissa has resulted partly from an increase in age at first cohabitation and not solely from family limitation within marriage.

Table 4.1 also shows that the median age at first cohabitation is one year higher for urban women than for rural women. Over time, the median age at first cohabitation has risen in both urban and rural areas. Differentials by education in the median age at first cohabitation are even larger than differentials by residence. For example, for women age 25–49, the median age at first cohabitation ranges from 16.9 years for illiterate women to 22.3 years for women who have at least completed high school. Within education categories, the median age has increased over time by almost one year for illiterate women, by about two years for women who are literate but have not completed middle school, and by about three years for women who have at least completed

high school. By religion, the median age at first cohabitation ranges from 17.2 for Muslims to 17.6 for Hindus to 18.1 for Christians. By caste/tribe, it ranges from 16.9 for scheduled-tribe women to 18.3 for women not in any backward class. The median age of first cohabitation increases steadily with the standard of living, from 17.1 for women living in households with a low standard of living to19.2 for women living in households with a high 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 Orissa 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 closer 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. The TFR is calculated as five times the sum of the ASFRs in five-year age groups. The CBR is defined as the annual number of births per 1,000 population.

Based on estimates for the three-year period before NFHS-2, the CBR was 22.1 births per 1,000 population, and the TFR was 2.46 births per woman, as shown in Table 4.2. Both the CBR and the TFR are higher for rural areas (22.4 and 2.50 respectively) than for urban areas (20.1 and 2.19 respectively). The urban TFR is 4 percent above the replacement level of about 2.1 children per woman, and the rural TFR is 19 percent above the replacement level.

Table 4.2 and Figure 4.1 also show that the TFR is lower in urban areas than in rural areas mainly because ASFRs for ages from 15–19 to 30–34 are lower in urban areas. Urban-rural differences in ASFRs at the older reproductive ages are negligible. Sixty-six percent of urban total fertility and 63 percent of rural total fertility are concentrated in the prime childbearing age range 20–29. Early childbearing at age 15–19 accounts for 13 percent of urban total fertility and 16 percent of rural total fertility. Fertility at ages 35 and above accounts for 7 percent of urban total fertility and 6 percent of rural total fertility.

Based on estimates for the two three-year periods preceding NFHS-1 and NFHS-2, the CBR fell from 26.5 to 22.1 between the two surveys, a decline of 17 percent in approximately seven years. Over the same period, the TFR fell from 2.92 to 2.46, a decline of 16 percent. Fertility fell at all ages except 45–49, where fertility was already negligible at the time of NFHS-1 (Figure 4.2). Although fertility fell at age 40–44, fertility in this age group was already very low in NFHS-1, so that fertility decline above age 40 had a negligible impact on the CBR and the TFR during the approximately seven years between the two surveys.

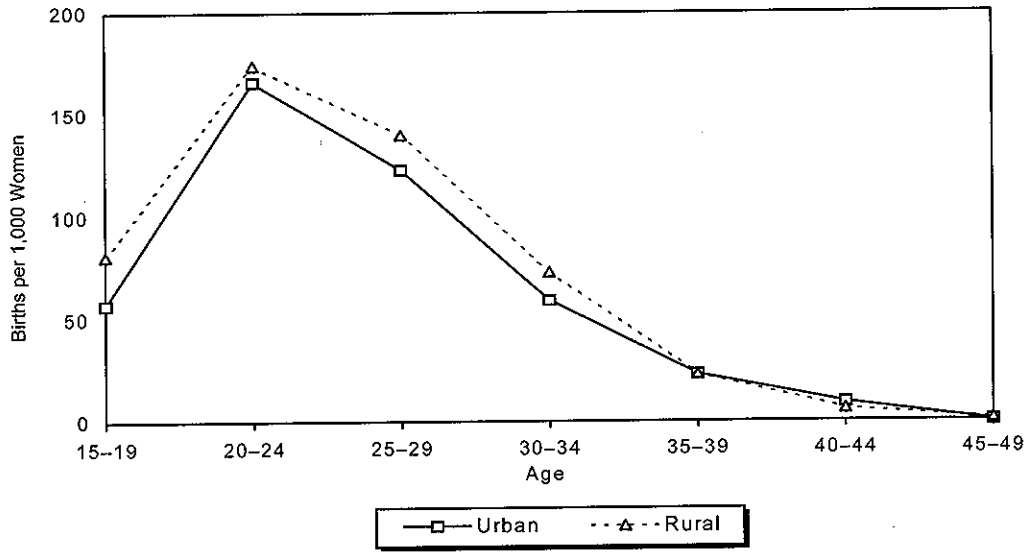
Table 4.2 Current fertility

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

	NFHS-1 (1990–92)	NFHS-2 (1996–98)			SRS (1997)		
Age	Total	Urban	Rural	Total	Urban	Rural	Total
15–19	0.086	0.057	0.081	0.079	0.025	0.046	0.043
20–24	0.204	0.166	0.175	0.174	0.149	0.211	0.203
25–29	0.163	0.123	0.140	0.138	0.175	0.193	0.191
30–34	0.089	0.059	0.073	0.071	0.066	0.102	0.097
35–39	0.031	0.023	0.023	0.023	0.024	0.053	0.050
40–44	0.010	0.009	0.006	0.006	0.009	0.019	0.018
45–49	0.000	0.000	0.001	0.001	0.001	0.004	0.004
TFR 15–44	2.92	2.19	2.49	2.45	2.24	3.12	3.01
TFR 15–49	2.92	2.19	2.50	2.46	2.25	3.14	3.03
CBR	26.5	20.1	22.4	22.1	21.3	27.2	26.5

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
Source for SRS: Office of the Registrar General, 1999a

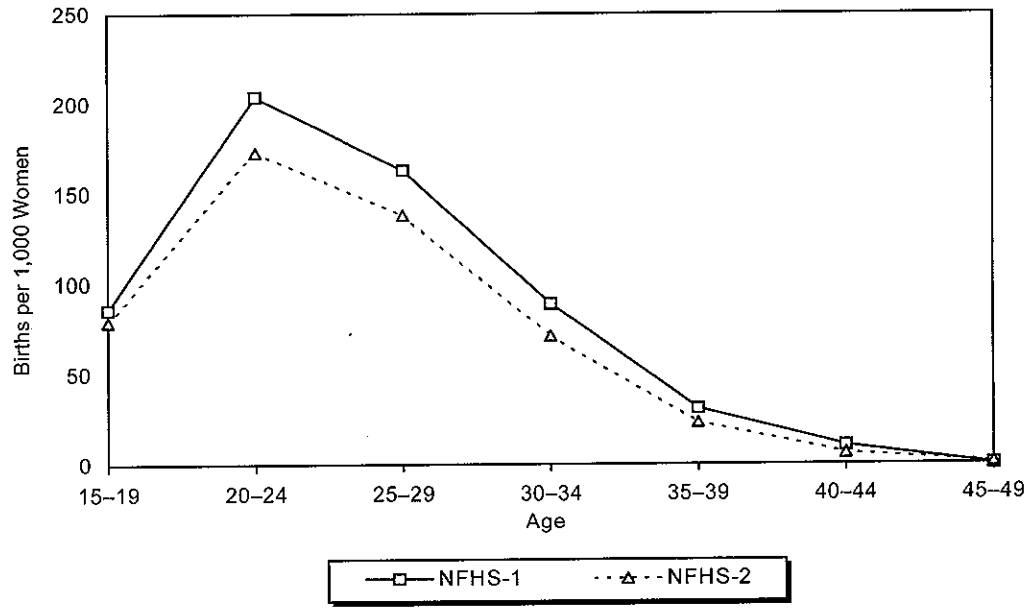
Figure 4.1
Age-Specific Fertility Rates by Residence



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

NFHS-2, Orissa, 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

Orissa

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 CBR estimate of 22.1 is 17 percent lower than the SRS CBR estimate of 26.5. The NFHS-2 estimate of the TFR of 2.46 is 19 percent lower than the SRS estimate of 3.03. The NFHS-2 estimate of 2.19 for the urban TFR is 3 percent lower than the SRS estimate of 2.25. The larger discrepancy in rural areas (the NFHS-2 estimate is 0.64 child per woman lower than the SRS estimate) may be caused partly by greater age misreporting in rural areas, which tends to result in the 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. Nonetheless, since the SRS estimates are not subject to displacement, they are likely to be closer to the true level of fertility than the NFHS-1 estimates. This argument is probably equally valid for the NFHS-2 estimates of fertility as compared with the corresponding SRS 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. The TFR is 0.3 child higher for rural women than for urban women. By education, the TFR is more than one child higher for illiterate women than for women with at least a high school education. By religion, the TFR is about half a child higher for Muslim women than for Hindu or

Table 4.3 Fertility by background characteristics

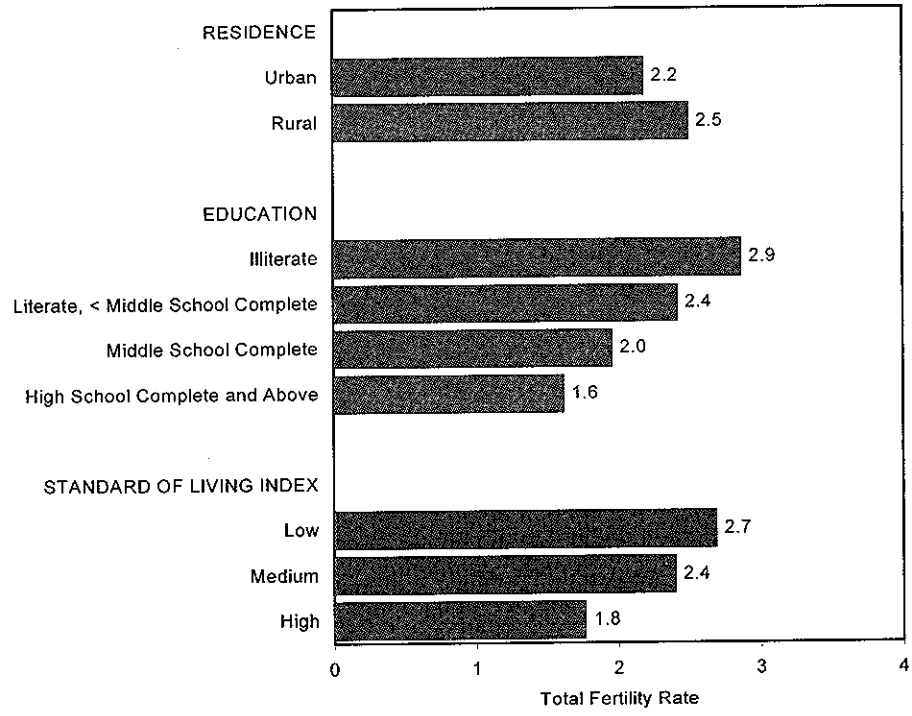
Total fertility rate for the three years preceding the survey, percentage of all women age 15–49 currently pregnant, and mean number of children ever born to ever-married women age 40–49 by selected background characteristics, Orissa, 1999

Background characteristic	Total fertility rate[1]	Percentage currently pregnant[2]	Mean number of children ever born to ever-married women age 40–49 years
Residence			
Urban	2.19	4.6	4.01
Rural	2.50	5.2	4.17
Education			
Illiterate	2.87	4.6	4.29
Literate, < middle school complete	2.42	5.7	4.14
Middle school complete	1.96	5.3	(3.81)
High school complete and above	1.62	6.2	2.77
Religion			
Hindu	2.45	5.1	4.14
Muslim	3.01	3.3	*
Christian	2.43	6.5	*
Caste/tribe			
Scheduled caste	2.85	6.0	4.04
Scheduled tribe	2.66	5.1	4.23
Other backward class	2.47	5.2	4.18
Other	2.07	4.5	4.17
Standard of living index			
Low	2.69	5.2	4.11
Medium	2.40	5.4	4.32
High	1.77	4.2	3.83
Total	2.46	5.1	4.15

( ) Based on 25–49 unweighted cases
* 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.

Christian women. By caste/tribe, the TFR is 0.78 child higher for scheduled-caste women, 0.59 child higher for scheduled-tribe women, and 0.40 child for women in other backward classes than for women not in any backward class. By standard of living index, the TFR is 0.92 child higher for women in households with a low standard of living than for women in households with a high standard of living. 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. In Orissa, fertility differentials are still fairly large.

Figure 4.3
Total Fertility Rate by Selected Background Characteristics



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

NFHS-2, Orissa, 1999

Differentials in the percentage of all women who are currently pregnant, which are also shown in Table 4.3, do not always parallel differentials in the TFR, and this is also true in Orissa. The percentage currently pregnant is higher in rural areas than in urban areas, higher among scheduled-caste women, scheduled-tribe women, and women in other backward classes than for women not in any backward class, and higher among women with a lower standard of living. The percentage currently pregnant is, however, lower for illiterate women than for women who are literate with less than a middle school education, perhaps because the more educated women tend to be younger than illiterate women inasmuch as educational levels have been rising rapidly over time.

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. Because only women age 40–49 are considered, age variations among the different categories of women do not affect the interpretation of differentials. The pattern of differentials in the mean number of children ever born parallels the pattern of differentials in the TFR only for differentials by residence and education. By categories of caste/tribe, scheduled-caste women have the highest TFR but the lowest mean number of children for ever-married women age 40–49. By standard of living index, women in households with a low standard of living have the highest TFR, but women in households with a medium standard of living have the highest mean number of children ever born at age 40–49. Such differences can occur because the mean number of children ever born at

Table 4.4 Fertility trends

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

Age	Years preceding survey			
	0–4	5–9	10–14	15–19
	URBAN			
15–19	0.072	0.107	0.120	0.122
20–24	0.185	0.225	0.220	0.271
25–29	0.123	0.169	0.172	0.195
30–34	0.055	0.083	0.122	[0.160]
35–39	0.017	0.043	[0.062]	U
40–44	0.016	[0.025]	U	U
45–49	[0.000]	U	U	U
	RURAL			
15–19	0.094	0.135	0.155	0.161
20–24	0.194	0.242	0.275	0.271
25–29	0.142	0.177	0.188	0.231
30–34	0.065	0.077	0.108	[0.158]
35–39	0.024	0.031	[0.061]	U
40–44	0.006	[0.015]	U	U
45–49	[0.003]	U	U	U
	TOTAL			
15–19	0.092	0.132	0.151	0.156
20–24	0.193	0.240	0.268	0.271
25–29	0.140	0.176	0.186	0.227
30–34	0.064	0.078	0.110	[0.158]
35–39	0.023	0.033	[0.061]	U
40–44	0.007	[0.016]	U	U
45–49	[0.002]	U	U	U

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

age 40–49 reflects fertility in the past whereas the TFR only reflects fertility in the three years preceding the survey.

Table 4.4 shows fertility trends for five-year time periods preceding the survey. It is not possible to show TFRs because of progressively greater age truncation as one goes back in time. In NFHS-2, birth histories were collected only for women age 15–49. This means that for the period 5–9 years before the survey it is not possible to compute an ASFR for age 45–49. Similarly, for the period 10–14 years preceding the survey, it is not possible to compute ASFRs for the oldest two age groups 40–44 or 45–49, and for the period 15–19 years preceding the survey, it is not possible to compute ASFRs for the oldest three age groups. Thus Table 4.4 shows only the 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 over a 15-year period in both urban and rural areas. In many cases, age-specific fertility declined by half or more. The proportionate decline is somewhat greater at the older reproductive ages.

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 age groups

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, Orissa, 1999

Duration since first cohabitation (in years)	Years preceding survey			
	0–4	5–9	10–14	15–19
	URBAN			
< 5	0.327	0.349	0.328	0.349
5–9	0.190	0.217	0.240	0.236
10–14	0.059	0.102	0.135	0.170
15–19	0.019	0.067	0.107	*
20–24	0.015	0.048	*	*
25–29	0.018	*	*	U
	RURAL			
< 5	0.300	0.329	0.335	0.318
5–9	0.199	0.247	0.257	0.272
10–14	0.103	0.125	0.148	0.200
15–19	0.045	0.052	0.091	0.142
20–24	0.015	0.026	0.062	*
25–29	0.003	0.014	*	U
	TOTAL			
< 5	0.303	0.332	0.334	0.322
5–9	0.198	0.243	0.255	0.268
10–14	0.098	0.122	0.146	0.197
15–19	0.042	0.053	0.093	0.139
20–24	0.015	0.028	0.060	*
25–29	0.005	0.016	*	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

15–19 through 35–39 and multiplying the sum by five. For the state as a whole, CFR (15–39) declined from 3.30 to 2.56 over the two five-year periods, a decline of 0.74 child. The decline was 0.88 for urban areas and 0.71 for rural areas, indicating that fertility fell more rapidly in urban areas than in rural areas over the two five-year periods before the survey. It should be noted that these estimated fertility declines may exaggerate to some degree the magnitude of the decline between these two five-year periods because there is considerable age misreporting in Orissa which could result in displacement of births from the first five years into the second five years before the survey (Narasimhan et al., 1997).

Another way of looking at fertility is to calculate fertility rates by duration (in 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 of cohabitation for ever-married women for four five-year periods preceding the survey[1]. Fertility has declined at all durations, but more so at the longer durations. The limited fertility decline at duration <5 is typical of populations in which

[1]Because NFHS-2 collected information only on a woman's age at the time of first cohabitation and not 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.

contraception is initiated only after the first birth or later, as is the case in Orissa (see Table 5.5). The large overall declines in fertility rates by duration suggest that fertility within marriage has declined substantially over the last two decades in Orissa. Again, however, this finding must be interpreted with caution because of displacement of births from the first five years before the survey into the second five years before the survey.

It is also evident from Table 4.5 that marital fertility is lower in urban areas than in rural areas for most durations and time periods. During the first five years after cohabitation, however, urban women have higher fertility than rural women. This pattern is not uncommon in populations in which the age at first cohabitation is higher in urban areas than in rural areas, as is the case in Orissa (Table 4.1). Women who marry when they are older tend to have their first birth sooner after marriage and concentrate their births earlier in their marriages than women who marry when they are younger (Basu, 1993; Pandey et al., 1990). In addition, because breastfeeding is shorter in urban areas (see Table 7.8), another contributing factor may be a shorter period of postpartum amenorrhoea, which results in shorter birth intervals in the absence of birth control (which is rarely practiced during the first few years of marriage in Orissa).

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 the number of children ever born (CEB) to all women and to currently married women by woman's age at the time of the survey. The table also shows the mean number of children ever born and the mean number of living children by woman's age.

Among women age 15–49 in Orissa, the mean number of children ever born is 2.1 for all women irrespective of marital status and 2.9 for currently married women. The mean number of children ever born increases steadily with age, reaching a high of 4.4 children among all women age 45–49 and 4.5 among currently married women in this age group. The table also shows that early childbearing is not very common in Orissa. Only 12 percent of all 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 both all woman and currently married women in this age group, the modal number of children is four, with 22 percent having reached the end of childbearing with this number of children. Only three percent of currently married women age 45–49 have never given birth. This suggests that primary infertility (which is the proportion of couples who are unable to have any children) is very low in Orissa.

Among all women age 15–49, the average number of dead children per woman is 0.31. Among currently married women it is 0.42. Fifteen percent of children ever born to currently married women have died. The proportion of children ever born who have died increases with woman's age. Among currently married women, for example, the proportion of children ever born who have died increases from 13 percent for women age 20–24 to 20 percent for women age 45–49.

Table 4.6 Children ever born and living

Percent distribution of all women and of currently married women by number of children ever born (CEB) and mean number of children ever born and living, according to age, Orissa, 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	87.8	9.2	2.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	1,215	0.16	0.14
20–24	47.2	21.4	19.0	9.4	2.3	0.4	0.3	0.1	0.0	0.0	0.0	100.0	1,228	1.01	0.87
25–29	14.7	14.4	28.6	21.3	12.9	6.0	1.4	0.7	0.0	0.0	0.0	100.0	1,016	2.31	2.05
30–34	8.7	7.7	20.0	24.9	21.0	10.7	4.1	2.4	0.3	0.1	0.1	100.0	851	3.06	2.66
35–39	6.7	4.5	19.3	24.6	20.0	11.8	7.1	3.0	2.1	0.4	0.5	100.0	615	3.45	2.95
40–44	5.4	4.2	12.2	19.4	20.6	18.0	11.4	4.5	2.4	1.4	0.7	100.0	560	3.97	3.27
45–49	4.3	4.2	10.1	14.3	21.7	16.2	12.9	8.1	4.5	2.6	1.2	100.0	410	4.41	3.53
Total	33.2	11.1	16.1	14.8	11.3	6.7	3.6	1.8	0.8	0.4	0.2	100.0	5,895	2.12	1.81
CURRENTLY MARRIED WOMEN															
15–19	50.3	37.4	9.5	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	293	0.65	0.57
20–24	20.0	32.2	28.8	14.3	3.5	0.6	0.4	0.1	0.0	0.0	0.0	100.0	790	1.53	1.33
25–29	6.3	14.3	31.7	24.0	14.6	6.9	1.4	0.8	0.0	0.0	0.0	100.0	885	2.57	2.29
30–34	4.1	7.5	21.1	26.1	22.5	11.2	4.3	2.6	0.3	0.1	0.1	100.0	769	3.23	2.83
35–39	3.2	4.2	19.6	25.9	20.9	12.5	7.5	3.0	2.3	0.5	0.5	100.0	549	3.61	3.10
40–44	2.8	3.5	11.7	19.6	21.9	19.0	12.3	4.6	2.7	1.2	0.8	100.0	495	4.14	3.42
45–49	2.6	4.5	10.6	12.5	22.2	16.4	13.3	9.2	4.9	2.5	1.4	100.0	361	4.54	3.63
Total	10.5	14.6	21.8	19.8	15.3	9.0	4.8	2.4	1.1	0.5	0.3	100.0	4,143	2.86	2.44

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 before the survey by birth order for selected background characteristics. Overall, as expected, the percentage of births at each order decreases as birth order increases. Twenty-nine percent of all births are first-order births, 28 percent are second-order births, 18 percent are third-order births, and 25 percent are births of order four or higher.

Table 4.7 Birth order

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

Background characteristic	Birth order 1	2	3	4+	Total percent	Number of births
Mother's current age						
15–19	74.6	20.6	4.7	0.0	100.0	154
20–29	28.6	34.0	19.9	17.5	100.0	1,056
30–39	8.3	12.2	20.6	58.9	100.0	287
Residence						
Urban	29.7	28.3	17.0	24.9	100.0	153
Rural	28.9	28.0	18.6	24.5	100.0	1,365
Mother's education						
Illiterate	21.7	26.0	20.3	32.0	100.0	895
Literate, < middle school complete	32.8	27.3	19.6	20.2	100.0	367
Middle school complete	47.3	34.3	11.0	7.4	100.0	136
High school complete and above	51.0	38.8	8.8	1.4	100.0	120
Religion						
Hindu	29.4	28.3	18.5	23.9	100.0	1,461
Muslim	(22.5)	(18.7)	(7.7)	(51.1)	100.0	30
Christian	(18.1)	(24.8)	(26.5)	(30.5)	100.0	27
Caste/tribe						
Scheduled caste	29.2	26.2	17.3	27.3	100.0	350
Scheduled tribe	23.5	24.1	22.2	30.1	100.0	334
Other backward class	28.6	33.5	16.5	21.4	100.0	475
Other	34.5	26.4	18.6	20.5	100.0	359
Mother's work status						
Working in family farm/business	15.1	30.2	21.7	33.0	100.0	92
Employed by someone else	19.7	24.2	18.8	37.4	100.0	195
Self-employed	23.9	29.3	15.7	31.1	100.0	91
Not worked in past 12 months	32.2	28.5	18.3	21.1	100.0	1,140
Standard of living index						
Low	25.3	24.6	20.0	30.2	100.0	870
Medium	31.1	31.8	17.3	18.8	100.0	514
High	43.4	35.5	13.4	7.6	100.0	124
Total	29.0	28.1	18.4	24.5	100.0	1,518

Note: Total includes 21 births to mothers age 40–49 and 9 births with missing information on the standard of living index, which are not shown separately.
( ) Based on 25–49 unweighted cases

The highest proportion of births to mothers age 15–19 are of order one, whereas the highest proportion of births to mothers age 30–39 are of order four or higher. Despite lower fertility in urban areas than in rural areas, the proportion of births that are of order four or higher is almost the same in urban and rural areas, reflecting the higher proportion of women in the older reproductive ages in urban areas than in rural areas (Table 2.1). By education, the proportion of births that are of order 4 or higher declines from 32 percent for illiterate women to only 1 percent for women who have completed high school, reflecting the much lower fertility of the latter group of women. By religion, the proportion of births of order 4 or higher is greatest for Muslims, reflecting their relatively high fertility. By caste/tribe, the proportion is highest for scheduled-tribe women. By mother's work status, it is higher for women who work than for women who do not work, reflecting the lower socioeconomic status and higher fertility of the former group. By standard of living index, it is highest among women living in households with a low standard of living, reflecting the relatively high fertility of this group of women.

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 Orissa, 11 percent of births occur within 18 months of a previous birth, and 25 percent occur within 24 months. Forty-four percent of births occur after an interval of three years or more.

The median birth interval in Orissa is 33 months. The median birth interval for women age 15–19 is 26 months, which is substantially less than the median interval of 38 months for women age 30–39 and 50 months for women age 40–49. The relatively short birth interval for women age 15–19 at the time of the survey 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 be more fecund than average. Given the finding that median birth interval increases with mother's age, it is surprising that it does not also increase substantially with the order of the previous birth. Perhaps this is due to the absence of the selection effect just noted in the case of age. 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.

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, Orissa, 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	(2.6)	(28.4)	(11.5)	(34.3)	(20.7)	(2.6)	100.0	25.5	44
20–29	2.5	9.9	15.6	34.1	21.2	16.7	100.0	31.0	1,246
30–39	0.4	6.3	10.9	26.2	23.0	33.2	100.0	38.0	515
40–49	0.0	2.2	2.3	25.5	16.7	53.3	100.0	49.5	50
Residence									
Urban	2.1	11.4	14.4	32.5	23.2	16.4	100.0	31.5	193
Rural	1.9	8.9	13.8	31.5	21.4	22.6	100.0	33.0	1,662
Mother's education									
Illiterate	1.7	9.5	13.0	31.9	20.9	22.9	100.0	33.0	1,225
Literate, < middle school complete	2.6	8.9	14.5	29.8	22.7	21.6	100.0	33.1	429
Middle school complete	2.8	8.1	20.5	33.4	20.3	14.9	100.0	30.2	121
High school complete and above	0.0	7.0	12.5	34.6	27.4	18.5	100.0	34.7	81
Religion									
Hindu	1.9	8.7	13.8	31.5	21.8	22.2	100.0	33.1	1,766
Muslim	2.3	21.3	23.7	28.9	10.6	13.2	100.0	24.7	47
Christian	(0.0)	(12.2)	(2.6)	(41.3)	(25.0)	(18.9)	100.0	32.8	41
Caste/tribe									
Scheduled caste	1.3	7.9	14.8	31.2	20.1	24.7	100.0	32.8	423
Scheduled tribe	2.1	9.8	12.0	31.8	24.6	19.6	100.0	33.0	431
Other backward class	2.1	8.9	13.3	31.2	21.5	23.0	100.0	34.0	573
Other	1.9	9.9	15.4	32.5	20.1	20.1	100.0	31.5	428
Standard of living index									
Low	1.8	9.8	12.6	31.5	20.9	23.4	100.0	33.1	1,141
Medium	2.4	7.7	16.5	32.8	21.8	18.8	100.0	31.7	593
High	0.0	8.6	13.2	26.6	26.8	24.8	100.0	37.0	110
Order of previous birth									
1	1.9	9.5	14.0	31.0	21.3	22.2	100.0	32.8	720
2	2.2	8.6	15.5	31.8	23.6	18.3	100.0	32.3	487
3	0.9	8.2	11.6	34.4	20.8	24.0	100.0	34.0	317
4+	2.3	10.1	13.0	30.2	19.9	24.4	100.0	32.4	332
Sex of previous birth									
Male	1.7	8.7	14.4	30.1	22.6	22.4	100.0	33.3	861
Female	2.1	9.5	13.3	33.0	20.7	21.5	100.0	32.6	995
Survival of previous birth									
Living	1.1	7.7	13.8	31.9	22.6	22.9	100.0	33.7	1,610
Dead	6.8	18.7	14.1	29.7	14.9	15.8	100.0	26.9	245
Total	1.9	9.1	13.8	31.6	21.6	21.9	100.0	32.9	1,855

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 1 birth whose mother belongs to an 'other' religion and 11 births with missing information on the standard of living index, which are not shown separately.
( ) Based on 25–49 unweighted cases

The median birth interval is slightly shorter if the previous child was a girl (32.6) than if it was a boy (33.3). This pattern may result from a shorter duration of breastfeeding for girls, which is indicative of son preference (see Table 7.8). Birth intervals are much shorter if the previous child died (27 months) than if the previous child survived (34 months). In part, this reflects the shortening of postpartum amenorrhoea that occurs when the preceding child dies in infancy and breastfeeding stops prematurely. Women are also less likely to use temporary methods of contraception to postpone fertility if the previous child died and they want to replace the dead child. Temporary methods of contraception are used by very few women in Orissa, however, so that the main effect is probably through prematurely terminated breastfeeding.

Probably because of shorter breastfeeding among urban women (Table 7.8), birth intervals are one and a half months shorter for urban women than for rural women. Mothers with at least a high school education have a median birth interval that is about two months longer than that for illiterate mothers, but mothers with middle school complete have the shortest birth interval, which is about three months shorter than that for illiterate women. Muslims have a much shorter median birth interval than either Hindus or Christians. By caste/tribe, mothers not in any backward class have a median birth interval that is somewhat shorter than the interval for scheduled castes, scheduled tribes, or other backward classes. Mothers living in households with a medium standard of living have a median birth interval that is slightly shorter than the interval for mothers living in households with a low standard of living. Mothers living in households with a high standard of living have a longer median birth interval of 37 months.

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. The median age at first birth for any group of women is defined in this table 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 biased and is not shown.

As shown in the last row of the table, the median age at first birth in the state as a whole has been rising very slowly over the past 15 years. This is shown by the fact that the median increases from 19.6 years for women age 35–39 to only 20 years for women age 25–29. The median age is not calculated for the age-group 20–24, because less than 50 percent women in this age group had their first birth by age 20. It is evident from these findings that childbearing in Orissa does not commence at an especially early age, relative to many other Indian states.

Among all women age 25–49, the median age at first birth is one year higher in urban areas than in rural areas. By religion, it is highest for Christians, lower for Hindus, and lower yet for Muslims. By caste/tribe, it is lowest for scheduled tribe women and highest for women not in any backward class. By standard of living index, it is lowest for women in households with a low standard of living, and highest for women in households with a high standard of living. The

Table 4.9 Median age at first birth

Median age at first birth among women age 20–49 years by current age and selected background characteristics, Orissa, 1999

Background characteristic	Current age							
	20–24	25–29	30–34	35–39	40–44	45–49	20–49	25–49
Residence								
Urban	NC	21.4	20.9	20.4	19.7	19.7	NC	20.6
Rural	NC	19.8	19.6	19.5	19.2	19.3	20.0	19.5
Education								
Illiterate	19.7	18.8	18.7	19.0	18.6	18.8	18.9	18.8
Literate, < middle school complete	NC	20.1	20.2	20.2	19.7	20.2	NC	20.1
Middle school complete	NC	21.8	(21.7)	(20.3)	*	*	NC	21.3
High school complete and above	NC	24.8	24.9	(22.4)	(23.2)	*	NC	24.0
Religion								
Hindu	NC	20.1	19.7	19.6	19.3	19.3	NC	19.6
Muslim	NC	(19.0)	*	*	*	*	19.2	18.8
Christian	*	*	*	*	*	*	NC	20.7
Caste/tribe								
Scheduled caste	NC	19.5	18.8	19.6	18.4	18.8	19.3	19.1
Scheduled tribe	NC	18.8	18.7	19.0	18.8	19.8	19.1	18.8
Other backward class	NC	20.2	19.4	19.3	19.1	19.6	NC	19.6
Other	NC	21.3	21.3	20.1	20.2	19.3	NC	20.5
Standard of living index								
Low	NC	18.9	18.9	19.3	18.7	19.4	19.3	19.0
Medium	NC	20.8	20.3	19.9	19.6	19.3	NC	20.1
High	NC	22.9	22.0	20.8	20.5	19.2	NC	21.2
Total	NC	20.0	19.7	19.6	19.3	19.3	NC	19.6

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

biggest differentials are by education. The median age at first birth is 18.8 years for illiterate women and 24.0 years for women who have completed high school.

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 in the age group 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. Sixty percent of women age 40–49 either had no birth or had their last birth by age 30, and 85 percent by age 35. The median age at last birth in Orissa for women age 40–49 is 29.1 years. It is 28.2 for women age 40–44 and 30.2 for women age 45–49. The difference between the median age at first birth and the median age at last birth provides an estimate of the typical reproductive age span. Among women age 45–49, this estimated reproductive age span is the difference between 19.3 and 30.2, or 10.9 years. Thus, reproduction in Orissa is concentrated in a span of about 11 years.

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, Orissa, 1999

Current age	No birth	Age at last birth							Total percent	Median age at last birth	Number of women
		< 20	20–24	25–29	30–34	35–39	40–44	45–49			
40–44	4.3	4.3	20.9	37.6	20.7	10.5	1.6	NA	100.0	28.2	554
45–49	3.5	4.9	12.8	28.5	31.2	13.8	5.0	0.3	100.0	30.2	407
40–49	4.0	4.6	17.5	33.7	25.2	11.9	3.0	0.1	100.0	29.1	961

NA: Not applicable

4.8 Postpartum Amenorrhea, 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 if they are not at risk of conception because they are amenorrhoeic, are abstaining from sexual relations, or both, following a birth.

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 birth. These distributions are based on current status information, i.e., on the proportions of births occurring within the 36 months before the survey whose mothers were amenorrhoeic, abstaining, or insusceptible at the time of the survey. In other words, the table is based on cross-sectional data and does not represent the experience of a real cohort of births over time. The data are grouped into two-month intervals to minimize fluctuations in the distributions. Median and mean durations of amenorrhoea, abstinence, and insusceptibility are also shown in the table. 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-nine percent of all women who had a birth in the two months before the survey are still amenorrhoeic, and 82 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 last birth increases. Nearly half of all women who had births 8–9 months before the survey are still amenorrhoeic, but the proportion amenorrhoeic drops off rapidly thereafter. The proportion of mothers abstaining from sexual intercourse within two months after the birth of a child (95 percent) is slightly lower than the proportion amenorrhoeic, but the proportion abstaining at durations of 2–3 months or longer tends to be substantially lower than the proportion amenorrhoeic. Thirty-eight percent of women still abstain from sexual intercourse 6–7 months after a birth, but this percentage drops off rapidly at longer durations. Overall, when amenorrhoea and abstinence are considered together, 43 percent of women are still insusceptible to pregnancy 14–15 months after giving birth, but the proportion drops off very rapidly thereafter.

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, Orissa, 1999

Months since birth	Percentage of births whose mothers are:			Number of births
	Amenorrhoeic	Abstaining	Insusceptible	
< 2	99.0	95.2	99.0	57
2–3	82.0	70.0	90.7	78
4–5	68.3	44.4	79.3	86
6–7	59.9	37.7	64.9	98
8–9	48.3	33.3	65.2	92
10–11	44.1	24.1	46.4	92
12–13	36.0	22.3	44.0	69
14–15	33.4	22.9	42.9	124
16–17	24.1	12.1	29.8	79
18–19	24.4	13.3	28.0	75
20–21	15.0	13.9	21.4	81
22–23	8.6	16.4	19.5	70
24–25	3.9	3.8	7.7	87
26–27	3.0	1.8	4.1	96
28–29	1.5	3.7	5.2	75
30–31	5.6	7.5	10.3	83
32–33	3.5	4.3	5.7	78
34–35	3.9	6.6	7.9	86
Median[1]	8.7	4.4	11.1	NA
Mean	11.5	8.9	13.7	NA
Prevalence/incidence mean	10.9	8.2	13.1	NA

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

The median and mean durations of insusceptibility are 11.1 and 13.7 months, respectively. Because the mean is affected by extreme values and the median is not, and because the distribution is skewed toward the higher durations, the mean is somewhat higher than the median. The median duration of amenorrhoea (8.7 months) is almost twice as high as the median duration of abstinence (4.4 months). The results indicate that women in Orissa remain insusceptible to conception for about one year 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 increasing proportions 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 for women age 30–49. In Orissa, one-fifth of women age 40–41 have already reached menopause, and the incidence of menopause increases rapidly after age 43. By age 44–45, 32 percent of women are in menopause.

Table 4.12 Menopause

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

Age	Urban		Rural		Total	
	Percentage	Number	Percentage	Number	Percentage	Number
30–34	1.2	92	1.8	678	1.7	769
35–39	4.0	69	5.5	480	5.3	549
40–41	(22.9)	24	19.1	191	19.5	215
42–43	(16.4)	27	25.0	163	23.8	190
44–45	(30.7)	22	31.8	156	31.7	178
46–47	*	13	51.5	135	50.6	148
48–49	*	11	61.1	114	62.4	125
30–49	13.3	258	15.9	1,917	15.6	2,175

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

By age 46–47, half of the women are in menopause, and the proportion rises to more than three-fifths for women age 48–49.

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.

Table 4.13 and Figure 4.4 show future fertility preferences of currently married women, classified by their number of living children. Overall, 28 percent of currently married women say that they do not want any more children, an additional 36 percent cannot have another child because either the wife or the husband has been sterilized, and 2 percent of women say that they cannot get pregnant (that is, they are 'declared infecund'). One-third of the women say they would like to have another child. Seventeen percent want a child within two years, and fifteen percent want to wait at least two years before the birth of the next child. The desire to stop childbearing increases rapidly with the number of living children. Only 2 percent of women with no living children do not want any children (the woman or her husband is sterilized or the woman says she wants no more children), compared with 69 percent of women with two living children and 88 percent or more of women with three living children. Less than 1 percent of the women say that the decision about having any (more) children is up to God. Overall, 79 percent of women want to either space their next birth or do not want any more children. This proportion is 83 percent in urban areas and 78 percent in rural areas.

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, Orissa, 1999

Desire for children	Number of living children[1] 0	1	2	3	4+	Total
URBAN						
Desire for additional child						
Wants another soon[2]	74.5	23.3	7.1	5.0	1.1	12.7
Wants another later[3]	11.9	45.0	9.9	5.5	1.6	12.8
Wants another, undecided when	3.3	0.7	0.8	0.0	0.0	0.6
Undecided	0.0	2.2	0.4	0.5	0.0	0.6
Up to God	1.7	0.8	0.0	0.0	0.5	0.4
Wants no more	1.8	19.0	49.8	35.9	48.3	37.8
Sterilized	0.0	8.3	30.6	51.5	44.4	32.8
Declared infecund	6.9	0.7	1.2	1.6	4.1	2.3
Missing	0.0	0.0	0.0	0.0	0.0	0.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	33	75	135	103	109	454
Preferred sex of additional child[4]						
Boy	23.4	42.0	(62.7)	*	*	44.7
Girl	1.9	23.7	(18.7)	*	*	16.0
Doesn't matter	65.2	30.2	(13.5)	*	*	33.5
Up to God	9.6	4.1	(5.2)	*	*	5.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more[4]	29	43	21	10	3	106
RURAL						
Desire for additional child						
Wants another soon[2]	72.5	37.1	12.5	2.8	1.9	17.9
Wants another later[3]	13.3	44.5	16.1	7.1	2.7	15.6
Wants another, undecided when	2.5	0.8	0.3	0.1	0.2	0.6
Undecided	0.6	1.0	1.1	0.3	0.1	0.6
Up to God	3.1	0.5	0.8	0.4	0.6	0.8
Wants no more	0.6	7.7	32.2	31.3	39.7	26.5
Sterilized	1.6	6.8	35.5	56.8	52.3	35.9
Declared infecund	5.7	1.5	1.4	1.1	2.4	2.0
Missing	0.0	0.0	0.0	0.0	0.1	0.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	350	659	961	791	927	3,688
Preferred sex of additional child[4]						
Boy	31.9	52.9	63.9	83.3	(78.9)	52.5
Girl	0.7	16.3	14.6	6.0	(10.5)	10.8
Doesn't matter	54.2	24.7	16.6	9.2	(10.5)	29.5
Up to God	13.1	6.1	4.9	1.5	(0.0)	7.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more[4]	311	454	249	73	42	1,129

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, Orissa, 1999

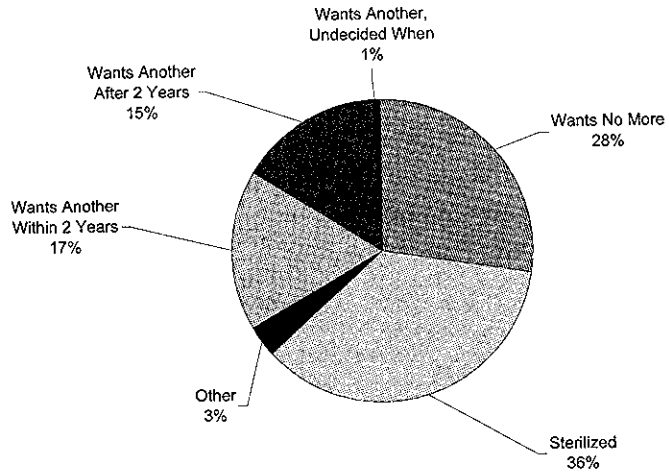
Desire for children	Number of living children[1]					Total
	0	1	2	3	4+	
			TOTAL			
Desire for additional child						
Wants another soon[2]	72.7	35.7	11.8	3.0	1.8	17.3
Wants another later[3]	13.1	44.5	15.4	6.9	2.5	15.3
Wants another, undecided when	2.6	0.8	0.4	0.1	0.2	0.6
Undecided	0.6	1.1	1.1	0.3	0.1	0.6
Up to God	3.0	0.5	0.7	0.4	0.6	0.8
Wants no more	0.7	8.9	34.4	31.8	40.6	27.7
Sterilized	1.5	6.9	34.9	56.2	51.5	35.6
Declared infecund	5.8	1.4	1.4	1.2	2.6	2.0
Missing	0.0	0.0	0.0	0.0	0.1	0.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	383	734	1,096	894	1,036	4,143
Preferred sex of additional child[4]						
Boy	31.2	52.0	63.8	82.5	(77.7)	51.8
Girl	0.8	16.9	15.0	8.0	(9.9)	11.2
Doesn't matter	55.1	25.2	16.3	8.1	(11.2)	29.8
Up to God	12.8	5.9	4.9	1.3	(1.2)	7.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more[4]	340	497	271	82	45	1,235

( ) 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

The desire to have a child within two years drops rapidly with the number of living children, from 73 percent for women without any living children to 12 percent or less for women with two or more living children. Forty-five percent of women with one living child (the percentage is the same in both urban and rural areas) would like to wait at least two years before having the next child. And yet, as will be seen in the next chapter, very few women in Orissa use any temporary method of contraception. These findings suggest that encouraging the use of temporary methods would lower overall fertility and population growth, as well as provide health benefits to mothers and their children through increased birth spacing.

Slightly more than half (52 percent) of the women who want another child say they want the next child to be a boy, 11 percent say they want the child to be a girl, and the rest say that the sex of the child does not matter (30 percent) or that it is up to God (7 percent). Irrespective of their number of living children, women are much more likely to express a desire for a son than for a daughter. In addition, the proportion of women expressing a desire specifically for a son increases rapidly with the number of living children. Among women who have no living children, only a negligible proportion express a specific desire for a daughter (0.8 percent), but

Figure 4.4
Fertility Preferences Among Currently Married Women



NFHS-2, Orissa, 1999

55 percent say it does not matter whether they have a son or a daughter. Even among this group, one in three say they would like their first child to be a boy.

Table 4.14 provides information about differentials in the desire to limit family size by selected background characteristics. Women who are sterilized (or whose husbands are sterilized) are included among those who say they 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, 70 percent of women want no more children. The proportion who want no more children is higher among urban women (71 percent) than among rural women (62 percent). By religion, it is higher among Hindus (64 percent) than among Muslims (60 percent) or Christians (51 percent). By caste/tribe, it is highest for women not in any backward class (71 percent) and lowest for scheduled-tribe women (54 percent). The proportion who want no more children increases with standard of living from 60 percent for women living in households with a low standard of living to 73 percent for women living in households with a high standard of living. The proportion who want no more children is highest for women with three living sons (93 percent) and lowest for women with no living sons (17 percent). Differences associated with the number of living daughters are also large, but not as large as the differences associated with the number of living sons, again indicating a certain amount of son preference. Despite the existence of son preference, one-third of the women with two daughters and no sons do not want to have a third child. Overall, the table shows that an overwhelming majority of women in every subgroup with two or more living children want no more children. It also shows that within each subgroup, the proportion who want no more children rises sharply with the number of living children.

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, Orissa, 1999

Background characteristic	Number of living children[1]					Total
	0	1	2	3	4+	
Age						
15–24	0.0	3.7	42.7	65.4	*	20.4
25–34	2.6	22.4	72.2	87.2	87.9	70.0
35–49	11.4	60.0	90.4	95.4	94.6	88.6
Residence						
Urban	1.8	27.3	80.4	87.4	92.7	70.6
Rural	2.2	14.5	67.7	88.1	92.0	62.4
Education						
Illiterate	2.5	18.3	60.8	83.3	90.3	62.9
Literate, < middle school complete	3.2	12.3	73.9	95.4	95.3	68.3
Middle school complete	(0.0)	6.1	83.6	(96.2)	(100.0)	54.5
High school complete and above	(0.0)	19.8	84.8	96.3	*	58.4
Religion						
Hindu	2.1	16.3	69.6	88.1	92.5	63.6
Muslim	*	*	*	*	(84.6)	60.2
Christian	*	*	*	*	*	50.9
Caste/tribe						
Scheduled caste	1.6	11.4	64.7	85.6	90.0	60.2
Scheduled tribe	4.2	17.6	52.1	74.0	84.9	53.8
Other backward class	0.8	16.3	68.2	91.8	94.7	64.2
Other	2.9	17.8	81.8	95.3	95.7	71.0
Standard of living index						
Low	1.7	15.5	63.1	81.5	89.4	59.8
Medium	3.2	15.5	70.2	96.1	94.5	65.6
High	(0.0)	18.0	86.8	96.0	97.4	72.6
Number of living sons[2]						
0	2.2	12.9	35.0	50.5	(75.7)	17.3
1	NA	21.9	75.0	85.2	88.1	66.1
2	NA	NA	81.9	97.0	95.5	92.2
3+	NA	NA	NA	90.9	93.4	92.8
Number of living daughters[2]						
0	2.2	21.9	81.9	90.9	(92.3)	39.5
1	NA	12.9	75.0	97.0	94.4	70.6
2	NA	NA	35.0	85.2	96.3	79.6
3+	NA	NA	NA	50.5	88.8	84.1
Total	2.2	15.8	69.3	88.0	92.0	63.3

Note: Women who have been sterilized or whose husbands have been sterilized are considered to want no more children.
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

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 had difficulty in answering these hypothetical questions, and hence the question often had to be repeated to ensure that the meaning was understood. Ninety-eight percent of respondents in Orissa were able to give a numerical response when asked for their ideal number of children.

Table 4.15 shows that half of the women in Orissa consider two to be the ideal number of children, and 79 percent consider two or three to be ideal. Among all women who gave a numeric response, the average number of children considered ideal is 2.7, ranging from 2.3 for women who have only one living child to 3.2 for women who already have four or more living children.

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, Orissa, 1999

	Number of living children[1]					
Ideal number of children	0	1	2	3	4+	Total
1	6.2	4.5	1.9	1.2	0.7	2.3
2	61.0	69.5	63.3	34.6	30.9	50.1
3	19.0	15.5	23.6	48.5	29.8	28.5
4	7.9	6.8	8.8	11.1	26.7	13.3
5	1.9	2.1	1.2	2.1	4.9	2.5
6+	0.2	0.4	0.3	1.0	3.0	1.1
Non-numeric response	3.8	1.1	0.9	1.5	4.1	2.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	450	794	1,151	941	1,089	4,425
Mean ideal number[2]	2.4	2.3	2.4	2.8	3.2	2.7
Number of women giving numeric response	432	786	1,140	928	1,044	4,330

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

Asking a question on ideal family size is sometimes criticized on the grounds that women tend to adjust their ideal family size upward as the number of their 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 Orissa. Among women with four or more living children, for example, 61 percent state that fewer than four children would be ideal. Similarly, among women with three living children, 36 percent state that their ideal family size is smaller than three children. It is evident that large proportions

of women already have more children than they now consider ideal. This proportion may be taken as another indicator of surplus or unwanted fertility.

Table 4.16 shows the mean ideal number of children for ever-married women by age and selected background characteristics. Differentials in the ideal number of children are generally small. The mean ideal number increases steadily from 2.5 children for women age 15–24 to 3.0 children for women age 45–49. The mean ideal number is somewhat lower in urban areas than in rural areas. It ranges from 2.9 for illiterate women to 2.0 for women with at least a high school education. The mean ideal number of children is almost the same (about 2.7) for Muslim and Hindu women, but somewhat higher (3.1) for Christian women. By caste/tribe, scheduled-tribe women have the highest ideal number of children (3.1) and women not in any backward class have the lowest (2.4). The mean ideal number of children is slightly higher for woman who work (2.8 to 2.9) than for women who do not work (2.6). Women in households with a low standard of living have a mean ideal family size that is 0.6 child higher than that for women in households with a high standard of living. The mean ideal number of children is 0.5 child higher for women whose husbands are illiterate than for women whose husbands have completed high school.

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; Dasgupta, 1987; Kishor, 1995; Koenig and Foo, 1992; Kulkarni et al., 1996; 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 also 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 the mean ideal number of sons and daughters, the percentage who desire more sons than daughters, the percentage who desire more daughters than sons, the percentage who desire at least one son, and the percentage who desire at least one daughter, by selected background characteristics. The table shows a consistent, moderate preference for sons over daughters. Overall, the average ideal family size of 2.7 children consists of 1.5 sons, 1.0 daughter, and 0.2 child of either sex. Thirty-eight percent of women want more sons than daughters, but only 2 percent want more daughters than sons. Ninety-three percent women say they want at least one son, and 85 percent want at least one daughter. One reason why 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 parents to acquire the highest level of merit (*punya*). Some studies have also found that in India parents feel that although sons provide economic security to them, it is the daughters who are the true source of emotional security (Jejeebhoy and Kulkarni 1988).

Son preference is relatively weak in urban areas and among women who have completed at least middle school and among women whose husbands have completed at least higher secondary. Son preference does not differ much among Hindus and Muslims, but Christians have relatively more son preference. Similarly, scheduled-caste and scheduled-tribe women have more son preference than women belonging to other backward classes or women not in any backward class. Women who have not worked in the past 12 months have somewhat less preference for sons than do working women. Women living in households with a high standard of living also have less preference for sons than women living in households with a medium or low standard of living.

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, Orissa, 1999

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

Note: Means are calculated excluding women who gave non-numeric responses.
( ) 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, Orissa, 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	1.3	0.9	0.2	30.8	2.5	88.9	83.1	478
Rural	1.5	1.0	0.2	38.5	2.0	93.3	85.6	3,851
Education								
Illiterate	1.7	1.1	0.1	44.5	2.3	95.1	86.6	2,550
Literate, < middle school complete	1.3	1.0	0.2	32.7	1.7	92.3	86.2	1,143
Middle school complete	1.1	0.9	0.2	19.5	1.3	86.6	81.4	303
High school complete and above	1.0	0.8	0.3	19.1	3.0	83.2	75.5	334
Religion								
Hindu	1.5	1.0	0.2	37.5	2.1	92.9	85.4	4,190
Muslim	1.5	1.0	0.3	36.1	2.4	87.5	81.0	71
Christian	1.8	1.2	0.1	46.7	1.6	94.2	85.2	67
Caste/tribe								
Scheduled caste	1.6	1.0	0.1	43.5	2.0	95.4	87.6	919
Scheduled tribe	1.8	1.2	0.2	43.6	2.6	95.0	87.8	826
Other backward class	1.4	1.0	0.2	35.7	1.9	92.1	83.5	1,356
Other	1.3	0.9	0.2	31.5	2.0	90.2	83.9	1,229
Work status								
Working in family farm/business	1.7	1.1	0.1	41.3	1.9	95.1	85.1	300
Employed by someone else	1.6	1.1	0.2	43.4	2.4	93.6	87.4	688
Self-employed	1.7	1.0	0.2	44.6	1.7	92.5	82.7	326
Not worked in past 12 months	1.4	1.0	0.2	35.2	2.1	92.5	85.1	3,016
Standard of living index								
Low	1.6	1.1	0.2	42.7	2.5	94.3	86.1	2,313
Medium	1.4	1.0	0.2	34.1	1.6	92.5	85.4	1,531
High	1.1	0.9	0.2	24.6	2.0	87.3	81.7	470
Husband's education								
Illiterate	1.7	1.1	0.2	44.2	2.2	94.5	85.3	1,443
Literate, < primary school complete	1.6	1.1	0.1	39.8	2.5	94.5	88.8	577
Primary school complete	1.5	1.0	0.1	39.5	1.8	94.0	86.7	935
Middle school complete	1.3	1.0	0.2	31.8	2.1	92.1	86.0	588
High school complete	1.3	0.9	0.2	30.6	1.6	89.7	81.8	403
Higher secondary complete and above	1.1	0.8	0.2	21.4	2.2	86.0	79.7	381
Total	1.5	1.0	0.2	37.6	2.1	92.8	85.3	4,330

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 2 women belonging to 'other' religions and 1, 15, and 3 women with missing information on caste/tribe, the standard of living index, and husband's education, respectively, who are not shown separately.

4.12 Fertility Planning

In India, some studies have shown that women do not want all the children that they have given birth to, implying that if women are helped to achieve the family size that they want, fertility would decline considerably (Kulkarni and Choe, 1997). In further pursuit of this question, NFHS-2 asked women, for each child born in the three years before the survey and for each current pregnancy, 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 demand for contraception and of the degree to which couples successfully control childbearing. It should be noted that the proportion 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. Seventeen percent of all pregnancies that resulted in live births in the three years preceding the survey (including current pregnancies) were unplanned (that is, unwanted at the time the woman became pregnant). Of these 70 percent were wanted later, and 30 percent were not wanted at all. The proportion of births that were unplanned is highest for women age 35–39 (30 percent) and lowest for women below age 20 (13 percent). Within the unplanned category, the proportion of births that were wanted later fluctuates with mother's age, whereas the proportion that were not wanted at all rises with mother's age. The proportion of births that were unplanned or unwanted is slightly lower in rural areas (17 percent) than in urban areas (20 percent). By education, the proportion unplanned is highest for births to women who have completed middle school (23 percent) and lowest for births to illiterate women (15 percent). The proportion is lower for Hindus (17 percent) than for Christians (20 percent) or Muslims (18 percent). By caste/tribe, the proportion unplanned is highest for scheduled-caste women (20 percent) and lowest for scheduled-tribe women (10 percent). The proportion unplanned is higher for births to women in households with a medium standard of living (20 percent) than for births to women in households with a low standard of living (15 percent) or a high standard of living (17 percent). Not surprisingly, births of higher order are more likely to be unplanned: The proportion unplanned increases from 10 percent for first-order births to 23 percent for births of order four or higher.

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. (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 4.18 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, Orissa, 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	87.2	11.7	1.1	0.0	100.0	320
20–24	85.2	12.5	2.3	0.1	100.0	737
25–29	80.7	11.4	7.6	0.3	100.0	500
30–34	76.9	12.2	10.4	0.6	100.0	198
35–39	(70.4)	(6.3)	(23.3)	(0.0)	100.0	45
Residence						
Urban	79.0	12.9	7.5	0.6	100.0	184
Rural	83.3	11.7	4.8	0.1	100.0	1,629
Mother's education						
Illiterate	85.0	9.7	5.1	0.2	100.0	1,031
Literate, < middle school complete	80.6	13.4	6.0	0.0	100.0	451
Middle school complete	76.4	17.0	5.9	0.6	100.0	170
High school complete and above	82.4	15.8	1.7	0.0	100.0	161
Religion						
Hindu	82.9	11.8	5.0	0.2	100.0	1,747
Muslim	(81.8)	(10.8)	(7.4)	(0.0)	100.0	32
Christian	(80.3)	(13.0)	(6.7)	(0.0)	100.0	33
Caste/tribe						
Scheduled caste	79.2	14.5	5.8	0.4	100.0	420
Scheduled tribe	89.8	7.2	2.8	0.1	100.0	391
Other backward class	81.1	13.1	5.8	0.0	100.0	567
Other	82.6	11.6	5.5	0.3	100.0	435
Standard of living index						
Low	85.0	9.9	5.0	0.1	100.0	1,022
Medium	79.6	13.9	6.2	0.3	100.0	628
High	82.3	15.1	1.9	0.7	100.0	154
Birth order[2]						
1	89.6	9.4	1.0	0.0	100.0	623
2	83.3	15.1	1.3	0.3	100.0	472
3	77.4	14.5	7.7	0.3	100.0	316
4+	76.4	9.6	13.8	0.1	100.0	402
Total	82.9	11.8	5.1	0.2	100.0	1,813

Note: Table includes only the two most recent births in the three years preceding the survey. Total includes 12 and 1 births to women age 40–44 and 45–49, 1 birth to a woman belonging to an 'other' religion and 9 births with missing information on the standard of living index, who are not shown separately.

( ) Based on 25–49 unweighted cases

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

[2] Includes current pregnancy, if any

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, Orissa, 1999

Background characteristic	Total wanted fertility rate	Total fertility rate
Residence		
Urban	1.74	2.19
Rural	1.92	2.50
Education		
Illiterate	2.24	2.87
Literate, < middle school complete	1.80	2.42
Middle school complete	1.47	1.96
High school complete and above	1.42	1.62
Religion		
Hindu	1.90	2.45
Muslim	1.92	3.01
Christian	1.63	2.43
Caste/tribe		
Scheduled caste	2.20	2.85
Scheduled tribe	2.15	2.66
Other backward class	1.92	2.47
Other	1.53	2.07
Standard of living index		
Low	2.08	2.69
Medium	1.81	2.40
High	1.50	1.77
Total	1.90	2.46

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.

Overall the total wanted fertility rate of 1.90 is lower than the total fertility rate of 2.46 by 0.56 child (i.e., by 23 percent). This means that if unwanted births could be eliminated, the TFR would drop to 1.90 children per woman. Almost every group of women (except illiterate women, scheduled caste/tribe women and women in households with a low standard of living) would have fewer than two children under these circumstances. The difference between the total fertility rate and the total wanted fertility rate is larger for rural women (0.58 child) than for urban women (0.45 child), larger for illiterate women (0.63 child) than for women with at least high school complete (0.20 child), larger for Muslims (1.09 children) than for Hindus (0.55 child) or Christians (0.80 child), and larger for scheduled-caste women (0.65 child) than for scheduled-tribe women (0.51 child), women in other backward classes (0.55 child), or women not in any backward class (0.54 child). The difference is also larger for women in households with a low standard of living (0.61 child) or a medium standard of living (0.59 child) than for women in households with a high standard of living (0.27 child). The actual TFR exceeds the wanted TFR to the greatest extent for illiterate women, scheduled-caste women, Muslim women, and women in households with a low standard of living.

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, 1998b). In April 1996, the programme was renamed the Reproductive and Child Health Programme and given a new orientation to better meet the health needs of women and children. The Reproductive and Child Health Programme aims to cover all aspects of women's reproductive health throughout their lives. With regard to family planning, this new approach emphasizes the target-free promotion of contraceptive use among eligible couples, the provision to couples of a choice of various contraceptive methods (including condoms, oral pills, IUDs, and male and female sterilization), and the assurance of high-quality care. One important component of the programme is encouraging the 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 before moving on to the sources of supply of modern contraceptive methods. Special attention is focused on reasons for discontinuation and nonuse 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 Orissa is being met effectively.

5.1 Knowledge of Family Planning Methods

Lack of knowledge of contraceptive methods is 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, Orissa, 1999

Method	Urban	Rural	Total
Any method	99.0	98.5	98.6
Any modern method	99.0	98.3	98.3
Pill	88.1	73.8	75.4
IUD	77.5	52.6	55.3
Condom	76.2	50.2	53.1
Female sterilization	98.6	97.6	97.7
Male sterilization	95.5	89.6	90.2
Any traditional method	68.2	50.0	52.0
Rhythm/safe period	61.8	44.3	46.3
Withdrawal	57.1	41.3	43.0
Other method[1]	6.4	3.1	3.5
Number of women	454	3,688	4,143

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

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

Table 5.1 shows the extent of knowledge of contraceptive methods among currently married women by specific method and residence. Knowledge of contraceptive methods is nearly universal in Orissa, with 99 percent of currently married women recognizing at least one method of contraception and 98 percent recognizing at least one modern method of contraception.

Female sterilization is the most widely known method of contraception in Orissa, followed by male sterilization. Overall, 98 percent of currently married women know about female sterilization, and 90 percent know about male sterilization. There is little difference by residence in knowledge of female sterilization, but 96 percent of urban women know about male sterilization, compared with 90 percent of rural women. Knowledge of the officially sponsored spacing methods (the pill, IUD and condom) is less widespread. The best-known spacing method is the pill, which is known by 75 percent of currently married women, followed by the IUD (55 percent) and the condom (53 percent). A considerably lower proportion of rural women than urban women have knowledge of spacing methods. For example, 74 percent of rural women know about pills, compared with 88 percent of urban women. Although knowledge of these spacing methods is lower than knowledge of sterilization, these results suggest that knowledge of spacing methods has grown substantially since NFHS-1, particularly for pills and condom. At the time of NFHS-1, only 52 percent of currently married women knew about pills, 48 percent knew about IUDs, and 35 percent knew about condoms.

In Orissa as a whole, traditional methods of contraception are less known than modern spacing methods. Slightly more than 50 percent of currently married women report knowledge of any traditional method, with the rhythm/safe period method and withdrawal being known by similar proportions of women (46 and 43 percent, respectively). Knowledge of traditional methods is much higher in urban areas (68 percent) than in rural areas (50 percent).

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 further 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, Orissa, 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	(14.6)	(7.2)	(7.2)	(0.0)	(2.5)	(0.0)	(0.0)	(9.8)	(4.9)	(7.2)	(0.0)	23
20–24	34.8	28.2	18.1	7.6	5.7	5.1	0.0	12.3	6.6	8.1	0.9	67
25–29	62.3	55.5	25.6	11.7	8.0	23.0	0.6	14.7	7.9	11.1	3.2	106
30–34	76.1	66.9	23.8	17.7	13.0	37.9	0.0	20.3	15.4	12.9	4.9	92
35–39	77.9	72.2	24.2	13.0	16.5	45.2	2.4	18.9	14.0	12.3	3.2	69
40–44	83.2	76.0	11.8	10.1	9.3	53.0	6.4	15.3	12.6	6.3	1.8	61
45–49	73.8	61.5	15.3	0.0	4.6	40.1	6.1	23.0	16.8	13.8	6.1	36
Total	64.7	57.0	20.3	10.8	9.6	30.9	1.8	16.6	11.3	10.6	3.1	454
						RURAL						
15–19	6.9	4.5	3.2	0.4	0.8	0.8	0.0	2.9	2.1	1.6	0.0	270
20–24	24.7	18.9	8.6	1.2	1.7	9.1	0.5	7.2	4.3	4.4	0.9	723
25–29	51.1	43.5	11.3	3.0	3.2	29.7	1.1	11.9	7.8	6.7	1.1	778
30–34	64.5	58.1	12.6	4.8	3.8	45.2	2.2	12.3	9.0	6.6	2.0	678
35–39	72.0	67.4	10.5	5.3	2.1	55.9	1.4	11.9	9.0	6.0	1.1	480
40–44	72.4	63.5	5.8	1.5	1.3	56.7	2.0	15.5	11.0	8.9	1.8	434
45–49	66.7	56.5	5.7	0.7	0.3	43.9	8.2	13.3	11.2	6.1	3.7	325
Total	51.8	45.1	9.2	2.7	2.2	34.2	1.9	10.9	7.7	6.0	1.5	3,688
						TOTAL						
15–19	7.5	4.7	3.6	0.4	1.0	0.7	0.0	3.4	2.3	2.1	0.0	293
20–24	25.6	19.7	9.4	1.8	2.0	8.8	0.4	7.6	4.5	4.7	0.9	790
25–29	52.5	44.9	13.0	4.0	3.8	28.9	1.0	12.2	7.8	7.2	1.4	885
30–34	65.9	59.2	14.0	6.3	4.9	44.3	1.9	13.2	9.8	7.3	2.3	769
35–39	72.7	68.0	12.2	6.3	3.9	54.5	1.5	12.8	9.6	6.8	1.4	549
40–44	73.8	65.1	6.6	2.6	2.3	56.2	2.6	15.5	11.2	8.6	1.8	495
45–49	67.4	57.0	6.7	0.6	0.8	43.6	8.0	14.3	11.8	6.8	4.0	361
Total	53.2	46.4	10.4	3.6	3.0	33.9	1.9	11.6	8.1	6.5	1.6	4,143

( ) Based on 25–49 unweighted cases
[1]Includes both modern and traditional methods that are not listed separately

Although nearly all currently married women know at least one method of contraception, only 53 percent have ever used a method, up from 40 percent in NFHS-1. Forty-six percent of currently married women have ever used a modern method, but only 12 percent have ever used a traditional method. Ever use of any method is higher in urban areas (65 percent) than in rural areas (52 percent). Ever use of both modern methods and traditional methods is also higher in urban areas. The most commonly used method is female sterilization, which has been adopted by 34 percent of currently married women, but only 2 percent have adopted male sterilization. Ten percent have used the pill, but only 3–4 percent have ever used the condom or IUD. Ever use of every method of family planning except sterilization is higher in urban than in rural areas. Ever use of female sterilization is slightly higher in rural areas (34 percent) than urban areas (31 percent), whereas ever use of male sterilization shows no variation by place of residence.

Ever use of any modern method increases with women's age up to age 35–39 (peaking at 68 percent) and then declines at older ages. This increase in contraceptive use with age likely reflects a life-cycle effect, with women adopting contraception as their fertility goals are met. On the other hand, the lower level of ever use of modern methods by older women reflects, at least in part, the lower acceptability and availability of modern contraceptive methods at the time when these women were having their children. The pattern of ever use of modern methods by age is similar for urban and rural areas, except that use peaks at age 40–44 for urban women and 35–39 for rural women. Urban women are more likely to have used contraception than rural women at every age.

Current Use of Family Planning Methods

Table 5.3 provides information on current use of family planning methods for currently married women in Orissa by age and residence. Current contraceptive prevalence in Orissa is almost the same as for India as a whole (48 percent), with 47 percent of currently married women using some method of contraception. For women age 15–44 the current contraceptive use was reported to be 48 percent in the Rapid Household Survey (International Institute for Population Sciences, 2000). Current use of any method is slightly higher in urban areas (54 percent) than in rural areas (46 percent). Among current users, most (86 percent) are using a modern method, although some (12 percent) use traditional methods. Most of the currently married women who have ever used contraception are current users. This is because in Orissa, as in most of the states of India, sterilization dominates the contraceptive method mix. However, the difference of 6 percentage points between ever use and current use indicates some discontinuation in the use of other methods. Thirty-four percent of currently married women are sterilized, and female sterilization accounts for 72 percent of total current contraceptive prevalence. Another 2 percent of currently married women report that their husbands are sterilized. Thus female sterilization and male sterilization together account for 76 percent of current contraceptive prevalence. No other individual modern method of family planning is used by more than 1 percent of currently married women except the pill (3 percent). Six percent of currently married women use traditional methods. By residence, female and male sterilization together account for 61 percent of contraceptive prevalence in urban areas and 78 percent in rural areas. A total of 12 percent of urban women, but only 4 percent of rural women, are currently using a modern spacing method. Current use of female sterilization is lower, but current use of all other modern methods is higher in urban areas than in rural areas. By age, current contraceptive use increases from 5 percent for women age 15–19 to a peak of 69 percent for women age 40–44, and then decreases to 61 percent for women age 45–49. The pattern of variation by age is similar in both urban areas (peaking at 75 percent) and rural areas (peaking at 68 percent).

Table 5.3 Current use of contraception

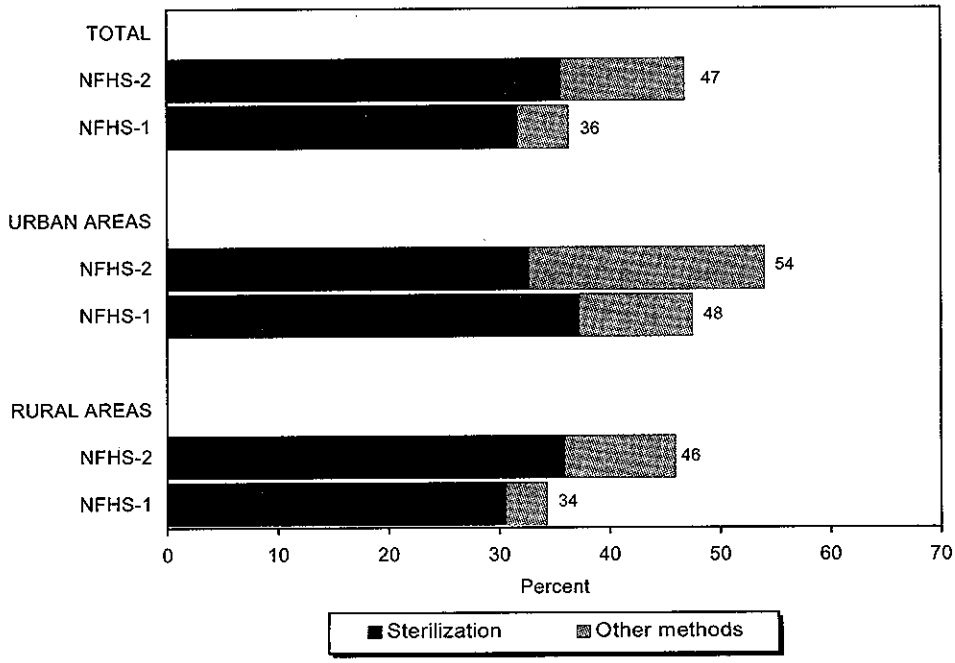
Percent distribution of currently married women by contraceptive method currently used, according to age and residence, Orissa, 1999

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	(12.3)	(4.8)	(4.8)	(0.0)	(0.0)	(0.0)	(0.0)	(7.4)	(2.5)	(4.9)	(0.0)	(87.7)	100.0	23
20–24	24.1	21.6	10.7	4.2	1.7	5.1	0.0	1.6	[illegible]	0.8	0.9	75.9	100.0	67
25–29	48.9	41.1	10.1	4.8	2.7	23.0	0.6	7.4	5.3	2.1	0.5	51.1	100.0	106
30–34	64.4	52.1	5.5	5.5	3.1	37.9	0.0	9.3	5.6	3.7	3.0	35.6	100.0	92
35–39	69.7	58.2	4.9	0.0	5.8	45.2	2.4	10.6	4.9	5.7	0.9	30.3	100.0	69
40–44	74.9	66.8	1.9	0.9	4.7	53.0	6.4	7.2	7.2	0.0	0.9	25.1	100.0	61
45–49	60.1	47.8	1.6	0.0	0.0	40.1	6.1	10.7	9.1	1.6	1.5	39.9	100.0	36
Total	54.0	45.2	6.4	3.0	3.0	30.9	1.8	7.6	5.0	2.6	1.2	46.0	100.0	454
RURAL														
15–19	4.1	3.2	2.0	0.0	0.4	0.8	0.0	0.8	0.8	0.0	0.0	95.9	100.0	270
20–24	17.9	13.6	3.4	0.5	0.1	9.1	0.5	3.8	1.5	2.3	0.5	82.1	100.0	723
25–29	42.5	36.2	3.5	0.7	1.1	29.7	1.1	5.8	4.4	1.4	0.6	57.5	100.0	778
30–34	59.8	53.1	3.8	1.1	1.0	45.2	2.0	5.9	3.8	2.1	0.8	40.2	100.0	678
35–39	68.1	60.9	2.1	0.7	1.1	55.9	1.2	6.4	4.8	1.6	0.7	31.9	100.0	480
40–44	67.8	59.5	0.8	0.0	0.3	56.7	1.8	7.4	5.1	2.3	1.0	32.2	100.0	434
45–49	60.6	51.4	0.0	0.0	0.0	43.9	7.5	6.5	5.4	1.0	2.7	39.4	100.0	325
Total	45.9	39.7	2.6	0.5	0.7	34.2	1.7	5.4	3.7	1.7	0.8	54.1	100.0	3,688
TOTAL														
15–19	4.7	3.4	2.2	0.0	0.4	0.7	0.0	1.4	1.0	0.4	0.0	95.3	100.0	293
20–24	18.4	14.3	4.0	0.8	0.3	8.8	0.4	3.6	1.5	2.2	0.5	81.6	100.0	790
25–29	43.3	36.7	4.3	1.2	1.3	28.9	1.0	6.0	4.5	1.5	0.6	56.7	100.0	885
30–34	60.3	52.9	4.0	1.7	1.2	44.3	1.8	6.3	4.0	2.3	1.1	39.7	100.0	769
35–39	68.3	60.6	2.4	0.6	1.7	54.5	1.3	6.9	4.8	2.1	0.7	31.7	100.0	549
40–44	68.7	60.4	0.9	0.1	0.8	56.2	2.4	7.3	5.4	2.0	1.0	31.3	100.0	495
45–49	60.6	51.1	0.2	0.0	0.0	43.6	7.3	6.9	5.8	1.1	2.6	39.4	100.0	361
Total	46.8	40.3	3.0	0.8	0.9	33.9	1.7	5.6	3.8	1.8	0.9	53.2	100.0	4,143

( ) Based on 25–49 unweighted cases

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

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



A comparison of NFHS-2 results for current contraceptive use with those from NFHS-1 reveals a 29 percent increase in contraceptive prevalence since NFHS-1, when prevalence was 36 percent (Figure 5.1). The share of female sterilization in contraceptive prevalence declined by 5 percent over the period. The share of male sterilization also declined, and the share of female and male sterilization together in total contraceptive prevalence decreased by 11 percent between NFHS-1 and NFHS-2. By contrast, the proportion of currently married women using the officially-sponsored spacing methods increased slightly from 3 percent in NFHS-1 to almost 5 percent in NFHS-2, implying that the share of spacing methods in the overall contraceptive prevalence rate also increased over the period (from 8 to 10 percent). However, these results still suggest that despite the increased emphasis on contraceptive choice and on spacing methods in the Reproductive and Child Health Programme, female sterilization continues to dominate the method mix in Orissa, and spacing methods still account for only a small amount of contraceptive use.

Socioeconomic Differentials in Current Use of Family Planning Methods

Table 5.4 shows differences in current contraceptive use by background characteristics. Current use of contraceptive methods is slightly lower among illiterate women (45 percent) than among literate women who have not completed high school (48–49 percent). It is highest among women who have completed high school (53 percent). Because the use of modern methods in Orissa varies little by education, these differences by education are largely the result of increasing use of traditional methods with increasing education. The use of spacing methods (which are particularly appropriate for women who have not yet reached their desired family size) steadily

Table 5.4 Current use by background characteristics

Percent distribution of currently married women by contraceptive method currently used, according to selected background characteristics, Orissa, 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
Residence														
Urban	54.0	45.2	6.4	3.0	3.0	30.9	1.8	7.6	5.0	2.6	1.2	46.0	100.0	454
Rural	45.9	39.7	2.6	0.5	0.7	34.2	1.7	5.4	3.7	1.7	0.8	54.1	100.0	3,688
Education														
Illiterate	45.2	39.9	1.6	0.2	0.2	35.5	2.4	4.3	3.1	1.2	1.0	54.8	100.0	2,420
Literate, < middle school complete	48.5	41.9	3.3	0.5	0.8	36.3	1.0	5.8	4.0	1.8	0.8	51.5	100.0	1,095
Middle school complete	47.5	37.6	7.8	1.3	1.3	27.2	0.0	9.6	5.5	4.0	0.4	52.5	100.0	301
High school complete and above	52.7	41.0	8.3	5.8	6.1	20.1	0.7	11.1	6.8	4.3	0.7	47.3	100.0	327
Religion														
Hindu	47.1	40.7	2.9	0.8	0.9	34.5	1.7	5.6	3.8	1.8	0.8	52.9	100.0	4,011
Muslim	34.6	24.2	10.4	0.9	2.6	10.2	0.0	8.7	5.1	3.5	1.7	65.4	100.0	64
Christian	43.2	32.8	1.7	4.3	2.6	19.0	5.1	7.9	7.9	0.0	2.5	56.8	100.0	64
Caste/tribe														
Scheduled caste	42.7	38.8	1.4	0.5	0.3	35.5	1.1	3.6	1.8	1.8	0.4	57.3	100.0	876
Scheduled tribe	37.5	31.8	1.0	0.1	0.3	25.8	4.5	4.3	3.9	0.4	1.4	62.5	100.0	778
Other backward class	47.1	40.0	3.0	1.1	0.6	34.3	1.0	6.1	4.1	2.0	1.1	52.9	100.0	1,306
Other	55.7	47.6	5.6	1.1	2.2	37.5	1.1	7.5	5.1	2.5	0.6	44.3	100.0	1,182
Standard of living index														
Low	42.4	37.8	1.6	0.3	0.4	33.2	2.4	3.9	3.0	0.9	0.7	57.6	100.0	2,168
Medium	48.1	40.2	4.0	0.6	0.6	34.4	0.6	6.7	4.0	2.7	1.2	51.9	100.0	1,498
High	63.4	52.6	6.4	4.1	4.6	35.4	2.2	10.2	6.8	3.3	0.6	36.6	100.0	462

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, Orissa, 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
Number and sex of living children														
No children	2.2	1.4	0.2	0.0	0.0	0.7	0.5	0.8	0.7	0.1	0.0	97.8	100.0	491
1 child	18.8	14.3	4.7	1.3	1.2	5.3	1.8	4.2	1.8	2.4	0.4	81.2	100.0	715
1 son	19.4	14.5	3.6	1.4	1.4	6.4	1.7	4.2	1.4	2.8	0.6	80.6	100.0	390
No sons	18.2	13.9	6.0	1.2	0.9	4.1	1.8	4.1	2.2	1.9	0.2	81.8	100.0	325
2 children	50.9	42.8	3.9	1.3	1.6	33.7	2.4	7.5	4.4	3.1	0.5	49.1	100.0	1,060
2 sons	59.9	53.2	2.5	1.4	1.3	46.5	1.4	6.1	3.0	3.0	0.7	40.1	100.0	311
1 son	54.4	45.2	3.9	1.5	1.6	35.1	3.1	8.6	5.5	3.1	0.6	45.6	100.0	566
No sons	24.6	17.9	6.1	0.6	2.2	7.6	1.5	6.7	3.3	3.4	0.0	75.4	100.0	183
3 children	68.1	61.9	2.5	0.5	1.1	55.7	2.1	5.4	4.7	0.7	0.8	31.9	100.0	869
3 sons	76.4	67.6	0.5	0.0	1.9	63.3	2.0	6.0	5.1	0.9	2.8	23.6	100.0	118
2 sons	78.3	72.4	1.5	0.4	0.1	68.4	1.9	5.0	4.6	0.4	0.9	21.7	100.0	375
1 son	60.7	54.6	3.6	0.4	2.0	46.4	2.2	6.1	5.4	0.7	0.0	39.3	100.0	308
No sons	31.1	26.9	6.4	1.7	0.9	15.5	2.4	3.3	1.7	1.6	0.8	68.9	100.0	68
4+ children	65.9	56.7	2.8	0.6	0.3	51.6	1.3	7.2	5.5	1.8	2.0	34.1	100.0	1,007
2+ sons	68.3	59.1	2.9	0.7	0.3	53.7	1.6	7.2	6.0	1.2	2.1	31.7	100.0	746
1 son	63.2	52.7	1.8	0.5	0.5	49.3	0.7	8.4	4.5	3.9	2.0	36.8	100.0	223
No sons	(33.3)	(31.9)	(7.1)	(0.0)	(0.0)	(24.8)	(0.0)	(1.4)	(1.4)	(0.0)	(0.0)	(66.7)	100.0	38
Total	46.8	40.3	3.0	0.8	0.9	33.9	1.7	5.6	3.8	1.8	0.9	53.2	100.0	4,143

Note: Total includes 3 women with 'other' religions, and 1 and 14 women with missing information on 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

rises with education, whereas the use of sterilization generally declines with education. These two effects compensate for each other so that, as already mentioned, the overall use of modern methods varies little by education. Modern spacing methods account for 4 percent of all contraceptive use by illiterate women and 38 percent of all contraceptive use by women who have at least completed high school. Female and male sterilization account for 84 percent of contraceptive use by illiterate women but only 39 percent of contraceptive use by women who have at least completed high school. Contraceptive use has increased since NFHS-1 among women in every educational category. The increase, however, has been much more rapid among illiterate women (34 percent) and those who have completed middle school (41 percent) than among women who have at least completed high school (11 percent).

Contraceptive prevalence is higher among Hindus (47 percent) than among Christians (43 percent) or Muslims (35 percent). Spacing-method use, however, is highest among Muslims and lowest among Hindus. Male sterilization is rare among Muslims, and the use of female sterilization is much lower among Muslims than among Hindus or Christians.

Contraceptive prevalence is highest among women who do not belong to a scheduled caste, scheduled tribe, or other backward class (56 percent), followed by women belonging to other backward classes (47 percent) and scheduled castes (43 percent). Contraceptive use is lowest among women belonging to scheduled tribes (38 percent). The use of male sterilization, however, is higher for husbands of women from scheduled tribes (5 percent) than for husbands of women from any other caste/tribe/class group (1 percent).

The use of any contraception as well as the use of almost every specific contraceptive method is positively related to the standard of living index. Whereas contraceptive prevalence is 42 percent among the poorest women (low standard of living), it is 63 percent among women with a high standard of living. The use of officially sponsored spacing methods is higher among women with a high standard of living (15 percent) than among women with a medium standard (5 percent) or a low standard of living (2 percent).

Table 5.4 also shows differences in current use by the number and sex of living children. Contraceptive use increases sharply from 2 percent for women with no living children to 68 percent for women with three children and then falls slightly to 66 percent for women with four or more living children. A similar pattern is evident for female sterilization, whereas the use of male sterilization increases steadily with the number of living children up to two children and falls thereafter. Prevalence rates by sex composition of living children indicate the existence of some son preference. At each parity, current use of family planning is lower among women with no sons than among women with one or more sons. Son preference does not completely outweigh parity in determining contraceptive use, however. This is evident from the fact that a substantial proportion (31–33 percent) of higher-parity women with no sons use family planning.

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 number of living children at the time of first contraceptive use, according to current age and residence. Only 1 percent of ever-married women (2 percent of women who have ever used contraception) began using contraception when they

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, Orissa, 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	(85.8)	(4.8)	(9.5)	(0.0)	(0.0)	(0.0)	100.0	24
20–24	65.5	4.9	12.3	12.4	2.5	2.5	100.0	68
25–29	40.2	2.5	21.0	19.1	10.7	6.6	100.0	112
30–34	27.5	1.2	20.6	21.4	13.2	16.1	100.0	99
35–39	25.7	1.5	12.8	19.7	22.1	18.2	100.0	75
40–44	24.5	0.8	10.4	16.4	22.8	25.1	100.0	69
45–49	30.4	0.0	10.5	9.2	14.5	35.4	100.0	42
Total	38.1	2.1	15.5	16.6	13.3	14.5	100.0	488
				RURAL				
15–19	93.2	1.6	4.0	1.2	0.0	0.0	100.0	277
20–24	75.9	0.7	11.5	6.7	4.3	0.9	100.0	743
25–29	50.7	1.4	10.4	16.2	13.1	8.3	100.0	818
30–34	38.1	0.6	8.0	16.4	19.0	17.8	100.0	721
35–39	31.9	0.8	6.7	15.3	22.7	22.5	100.0	527
40–44	30.9	0.2	4.3	13.7	16.5	34.4	100.0	485
45–49	35.7	0.0	3.3	9.4	15.2	36.3	100.0	365
Total	49.8	0.8	7.8	12.3	13.5	15.8	100.0	3,937
				TOTAL				
15–19	92.6	1.9	4.4	1.1	0.0	0.0	100.0	300
20–24	75.0	1.1	11.5	7.2	4.2	1.0	100.0	811
25–29	49.4	1.5	11.7	16.6	12.8	8.1	100.0	931
30–34	36.9	0.7	9.5	17.0	18.3	17.6	100.0	820
35–39	31.1	0.9	7.5	15.9	22.6	22.0	100.0	601
40–44	30.1	0.3	5.1	14.0	17.3	33.2	100.0	554
45–49	35.1	0.0	4.1	9.4	15.1	36.2	100.0	407
Total	48.5	0.9	8.7	12.8	13.5	15.6	100.0	4,425

( ) Based on 25–49 unweighted cases

did not have any children, and another 9 percent (17 percent of ever users) began using when they had one living child. Although early use of contraception is rare, 36 percent of ever-married women (70 percent of ever users) began when they had three or fewer living children. This pattern of first acceptance at low parities means that family planning has a larger demographic impact than it would if contraceptive use were initiated later. A similar age pattern is observed among women in urban and rural areas, but urban women are twice as likely to begin using when they have fewer than two living children. Given the predominance of sterilization in the contraceptive mix, women are likely to begin contraceptive use only after achieving their desired family size. Clearly, spacing methods need to be promoted if further reductions are sought in the parity at which women first accept contraception.

Problems with Current Method

Women who were using a contraceptive method were asked if they had experienced any problem with their current method. Table 5.6 presents the percentage of current modern contraceptive users who report specific problems. Overall, three-fourths of current users report having no problem 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 70 percent of sterilized women and 83 percent of women whose husbands are sterilized report having no problem with their method. The most common problems experienced by sterilized women are headache, body ache or backache (19 percent), weakness or tiredness (15 percent), abdominal pain (7 percent), and irregular periods (4 percent). Among women whose husbands are sterilized and who report problems with this method, the three most common complaints are abdominal pain (8 percent) and weight loss (6 percent). These results point to a continuing need to strengthen post-operative care and counselling for sterilization acceptors. It is not possible to assess the problems experienced by women using spacing methods, because the number of women using these methods is too small.

Table 5.6 Problems with current method

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

	Contraceptive method								
Problem	Pill	IUD	Condom	Female ster-ilization	Male ster-ilization	Rhythm/ safe period	With-drawal	Other methods[1]	Total
No problem	87.9	(69.6)	(92.7)	69.9	82.9	97.9	92.5	(98.4)	75.6
Weight gain	0.4	(0.0)	(0.0)	1.5	1.5	0.0	0.0	(0.0)	1.2
Weight loss	0.4	(5.0)	(0.0)	3.1	6.3	0.0	0.0	(0.0)	2.6
Too much bleeding	2.3	(8.5)	(1.6)	1.3	0.0	0.0	0.0	(0.0)	1.3
Hypertension	0.0	(0.0)	(0.0)	1.4	1.5	0.0	1.6	(0.0)	1.2
Headache/bodyache/backache	4.0	(10.0)	(2.9)	19.2	3.1	0.0	0.0	(0.0)	14.5
Nausea/vomiting	1.7	(0.0)	(0.0)	1.2	0.0	0.0	0.0	(0.0)	1.0
No menstruation	0.0	(0.0)	(0.0)	0.4	0.0	0.0	0.0	(0.0)	0.3
Weakness/tiredness	5.3	(10.0)	(1.6)	14.7	3.1	1.1	4.5	(0.0)	11.5
Dizziness	1.0	(3.3)	(1.6)	3.4	0.0	0.0	0.0	(0.0)	2.6
Fever	0.9	(1.6)	(0.0)	1.7	3.0	0.0	0.0	(0.0)	1.4
Cramps	0.0	(0.0)	(0.0)	0.6	0.0	0.0	0.0	(0.0)	0.4
Spotting	0.0	(3.5)	(0.0)	0.0	0.0	0.0	0.0	(0.0)	0.1
Abdominal pain	1.8	(11.9)	(0.0)	7.2	7.8	0.7	0.0	(0.0)	5.9
White discharge	0.0	(10.1)	(0.0)	1.9	0.0	0.0	0.0	(0.0)	1.5
Irregular periods	1.8	(3.5)	(0.0)	3.5	0.0	1.1	0.0	(1.6)	2.9
Breast tenderness	0.0	(0.0)	(0.0)	0.5	0.0	0.0	0.0	(0.0)	0.3
Allergy	1.3	(0.0)	(0.0)	0.8	0.0	0.0	0.0	(0.0)	0.7
Reduced sexual satisfaction	0.0	(0.0)	(2.9)	0.0	1.6	1.0	7.5	(0.0)	0.5
Other	0.0	(0.0)	(0.0)	1.3	0.0	0.0	0.0	(0.0)	0.9
Number of users	125	34	38	1,403	71	159	74	35	1,940

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

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 1,475 sterilizations reported, 95 percent are female sterilizations. Thirty-seven percent of female sterilizations took place less than 6 years before the survey, another 22 percent took place 6–9 years before the survey, and the remaining 41 percent took place 10 or more years before the survey. By contrast, 66 percent of male sterilizations took place 10 or more years before the survey. The median age of the wife at the time of sterilization (female or male) was 26.3 years, with 38 percent of sterilized couples having undergone sterilization before the wife reached age 25. Seventy-seven percent of sterilizations took place before the wife reached age 30, and less than 1 percent took place when the wife was in her forties.

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 women at the time of sterilization, according to the number of years since sterilization, Orissa, 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			
STERILIZED WOMEN									
< 2	0.7	29.8	39.7	23.7	4.4	1.7	100.0	164	27.1
2–3	4.8	32.8	38.8	16.3	4.2	3.1	100.0	163	26.4
4–5	2.7	32.7	42.2	15.0	5.5	2.0	100.0	192	26.4
6–7	6.3	34.9	39.6	13.3	4.9	1.0	100.0	168	26.1
8–9	7.0	29.7	39.7	19.0	4.6	0.0	100.0	142	26.3
10+	6.5	32.1	40.0	19.5	1.9	U	100.0	575	NC
Total	5.1	32.1	40.1	18.2	3.6	1.0	100.0	1,403	26.4
WIVES OF STERILIZED MEN									
Total	13.6	34.9	27.4	18.6	4.7	0.8	100.0	71	25.1
STERILIZED WOMEN AND WIVES OF STERILIZED MEN									
< 2	0.7	29.6	38.9	24.6	4.3	2.0	100.0	167	27.2
2–3	4.7	33.3	38.4	16.6	4.1	3.0	100.0	167	26.4
4–5	2.6	33.7	41.2	14.6	5.9	2.0	100.0	197	26.3
6–7	6.7	34.1	40.9	12.7	4.7	1.0	100.0	175	26.0
8–9	7.6	29.6	38.9	18.5	5.3	0.0	100.0	146	26.3
10+	7.2	32.3	39.0	19.6	2.0	U	100.0	622	NC
Total	5.5	32.2	39.4	18.2	3.6	0.9	100.0	1,475	26.3

NC: Not calculated due to censoring
U: Not available
[1]To avoid censoring, median age is calculated only for sterilizations that took place when the woman was less than 40 years old.

The median age of women at the time of sterilization has apparently increased, but by less than one year. The increase is from just over age 26 during the period 2–9 years before the survey to about age 27 during the two years preceding the survey. A comparison of NFHS-1 and NFHS-2 data, however, suggests that, by and large, women's age at sterilization has varied little during the late 1980s and throughout the 1990s, with no obvious upward or downward long-term trend.

5.4 Sources of Contraceptive Methods

Family planning methods and services in Orissa 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.

In order to assess the relative importance of the various sources of contraceptive methods, NFHS-2 included a question about where current contraceptive users obtained their methods. Table 5.8 and Figure 5.2 show the percent distribution of current modern contraceptive users by the most recent source, 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 90 percent of current users of modern methods. The private medical sector, including private hospitals or clinics, private doctors, private mobile clinics, private paramedics, *vaidyas, hakims,* homeopaths, traditional healers, and pharmacies or drugstores, is the source for only 6 percent of current users. Four percent of current users obtain their methods from other sources such as shops, friends, and relatives. Current users rarely obtain their methods from NGOs. Community Health Centres/rural hospitals/PHCs are the main source (46 percent) for female sterilization, followed by government/municipal hospitals (30 percent) and camps (18 percent). A similar pattern is evident for male sterilizations. By contrast, private shops are the primary source for condoms (49 percent), with the private and public medical sectors less common sources (22 percent each). Also, private shops and the private medical sector each provide pills to more than one-third of current pill users, compared with one-fourth of current users who obtain their pills from the public sector.

Ninety-two percent of rural users obtain their contraceptives from the public medical sector, compared with 74 percent of urban users. The private medical sector is more active in providing female sterilization services in urban areas (9 percent) than in rural areas (2 percent), although both percentages are small. The private medical sector is particularly active in providing the pill in urban areas, where it is the source for 42 percent of current pill users, compared with 27 percent for whom private shops are the source and 19 percent for whom the public medical sector is the source. The corresponding percentages for rural areas are 34, 37, and 26, respectively.

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, Orissa, 1999

Source	Contraceptive method					All modern methods
	Pill	IUD	Condom	Female sterilization	Male sterilization	
			URBAN			
Public medical sector	19.3	*	*	91.2	*	74.2
Government/municipal hospital	19.3	*	*	71.9	*	59.4
UHC/UHP/UFWC	0.0	*	*	2.7	*	2.1
CHC/rural hospital/PHC	0.0	*	*	12.1	*	9.1
Sub-centre	0.0	*	*	0.0	*	0.0
Government mobile clinic	0.0	*	*	0.0	*	0.0
Government paramedic	0.0	*	*	0.0	*	0.0
Camp	0.0	*	*	4.1	*	2.8
Other public medical sector	0.0	*	*	0.4	*	0.8
NGO or trust	1.9	*	*	0.0	*	0.6
Hospital/clinic	1.9	*	*	0.0	*	0.6
Private medical sector	42.1	*	*	8.8	*	15.9
Private hospital/clinic	15.3	*	*	8.8	*	10.4
Private doctor	1.9	*	*	0.0	*	0.3
Private mobile clinic	0.0	*	*	0.0	*	0.0
Private paramedic	0.0	*	*	0.0	*	0.0
Vaidya/hakim/homeopath	3.7	*	*	0.0	*	0.5
Pharmacy/drugstore	15.5	*	*	0.0	*	3.3
Other private medical sector	5.7	*	*	0.0	*	1.3
Other source	27.2	*	*	0.0	*	8.0
Shop	27.2	*	*	0.0	*	8.0
Other	0.0	*	*	0.0	*	0.0
Don't know[1]	9.5	*	*	0.0	*	1.3
Missing	0.0	*	*	0.0	*	0.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of users	29	13	14	141	8	205

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, Orissa, 1999

Source	Contraceptive method					All modern methods
	Pill	IUD	Condom	Female sterilization	Male sterilization	
	RURAL					
Public medical sector	26.3	*	*	97.8	96.5	91.6
Government/municipal hospital	12.5	*	*	25.7	12.3	24.2
UHC/UHP/UFWC	0.0	*	*	0.5	1.7	0.5
CHC/rural hospital/PHC	10.3	*	*	49.8	73.6	47.4
Sub-centre	1.2	*	*	0.0	0.0	0.1
Government mobile clinic	0.0	*	*	1.2	1.7	1.1
Government paramedic	0.0	*	*	0.0	0.0	0.1
Camp	0.0	*	*	19.5	7.1	17.2
Other public medical sector	2.3	*	*	1.1	0.0	1.1
NGO or trust	0.0	*	*	0.1	0.0	0.1
Hospital/clinic	0.0	*	*	0.1	0.0	0.1
Private medical sector	34.2	*	*	1.8	1.7	4.4
Private hospital/clinic	9.1	*	*	1.6	1.7	2.3
Private doctor	0.0	*	*	0.2	0.0	0.2
Private mobile clinic	0.0	*	*	0.1	0.0	0.1
Private paramedic	1.1	*	*	0.0	0.0	0.1
Vaidya/hakim/homeopath	7.9	*	*	0.0	0.0	0.5
Pharmacy/drugstore	14.8	*	*	0.0	0.0	1.1
Other private medical sector	1.2	*	*	0.0	0.0	0.1
Other source	37.3	*	*	0.3	0.0	3.5
Shop	37.3	*	*	0.0	0.0	3.1
Other	0.0	*	*	0.3	0.0	0.4
Don't know[1]	2.3	*	*	0.0	0.0	0.3
Missing	0.0	*	*	0.0	1.8	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of users	96	20	24	1,263	63	1,466

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, Orissa, 1999

Source	Contraceptive method					
	Pill	IUD	Condom	Female sterilization	Male sterilization	All modern methods
	TOTAL					
Public medical sector	24.6	(73.3)	(21.7)	97.2	96.1	89.5
Government/municipal hospital	14.1	(42.1)	(8.7)	30.4	21.8	28.5
UHC/UHP/UFWC	0.0	(1.6)	(0.0)	0.7	1.5	0.7
CHC/rural hospital/PHC	7.9	(24.8)	(5.8)	46.1	65.0	42.7
Sub-centre	0.9	(0.0)	(0.0)	0.0	0.0	0.1
Government mobile clinic	0.0	(0.0)	(3.0)	1.0	1.5	1.0
Government paramedic	0.0	(0.0)	(2.9)	0.0	0.0	0.1
Camp	0.0	(3.2)	(0.0)	18.0	6.3	15.4
Other public medical sector	1.7	(1.6)	(1.5)	1.0	0.0	1.0
NGO or trust	0.4	(0.0)	(1.6)	0.1	0.0	0.1
Hospital/clinic	0.4	(0.0)	(1.6)	0.1	0.0	0.1
Private medical sector	36.0	(19.9)	(22.0)	2.5	2.4	5.8
Private hospital/clinic	10.6	(13.3)	(7.2)	2.3	2.4	3.3
Private doctor	0.4	(3.3)	(0.0)	0.2	0.0	0.2
Private mobile clinic	0.0	(0.0)	(0.0)	0.1	0.0	0.1
Private paramedic	0.9	(0.0)	(2.9)	0.0	0.0	0.1
Vaidya/hakim/homeopath	6.9	(0.0)	(0.0)	0.0	0.0	0.5
Pharmacy/drugstore	15.0	(0.0)	(11.9)	0.0	0.0	1.4
Other private medical sector	2.2	(3.3)	(0.0)	0.0	0.0	0.2
Other source	34.9	(6.8)	(49.0)	0.2	0.0	4.1
Shop	34.9	(0.0)	(49.0)	0.0	0.0	3.7
Other	0.0	(6.8)	(0.0)	0.2	0.0	0.3
Don't know[1]	3.9	(0.0)	(5.8)	0.0	0.0	0.4
Missing	0.0	(0.0)	(0.0)	0.0	1.6	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of users	125	34	38	1,403	71	1,671

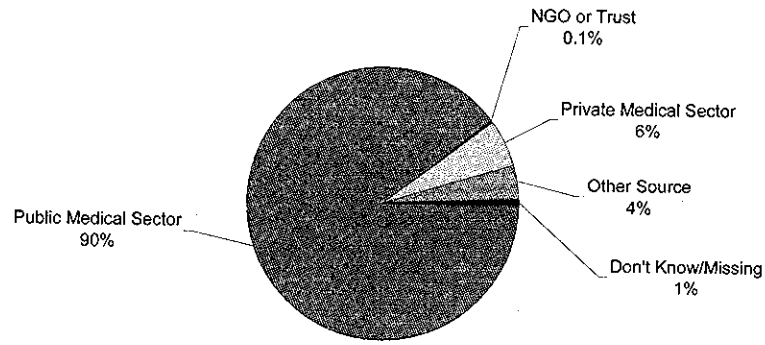
UHC: Urban health centre; UHP: Urban health post; UFWC: Urban family welfare centre; CHC: Community health centre; PHC: Primary Health Centre; NGO: Nongovernmental organization

( ) 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.

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, Orissa, 1999

5.5 Reasons for Discontinuation/Non-Use of Contraception

All 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 only 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 asked women who had never used contraception the main reason they had never used a method. Table 5.9 shows that 208 nonpregnant women who ever used family planning methods have discontinued use. Because 67 percent of ever users are sterilized, only one-third of couples have the option of discontinuing use. Among those who discontinued contraception, the most commonly mentioned reason for discontinuing is that the couple wanted to have a child (32 percent). The other most commonly mentioned reason is that the method created a health problem (14 percent). Eight percent mentioned each of the following: 'method created a menstrual problem', 'did not like the method' or 'husband was away'. Eighteen percent of the respondents gave reasons other than those specified in Table 5.9.

Among women who never used contraception, the most commonly mentioned reason for never using a method is the desire for more children (56 percent). Another 9 percent of women say they have never used contraception because they are menopausal, have had a hysterectomy, or are infecund or subfecund, and an additional 9 percent have never used because of being in the postpartum/breastfeeding stage. Only 6 percent mention a health-related problem (health concerns or worry about side effects), 3 percent mention any type of opposition to family planning, and 1 percent mention a lack of knowledge as reasons for never using contraception. Eight percent say they have never used contraception because they are afraid of sterilization (thereby implicitly equating family planning with sterilization). There are no substantial urban-rural differences in the pattern of reported reasons for never using contraception.

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, Orissa, 1999

Reason	Urban	Rural	Total
REASON FOR STOPPING USE			
Method failed/got pregnant	9.1	3.2	4.3
Lack of sexual satisfaction	4.6	2.6	3.0
Created menstrual problem	8.5	7.2	7.5
Created health problem	20.6	11.9	13.5
Inconvenient to use	2.9	1.3	1.6
Gained weight	1.5	0.0	0.3
Did not like the method	10.6	7.1	7.8
Wanted to have a child	21.9	33.7	31.5
Wanted to replace dead child	0.0	1.3	1.1
Lack of privacy for use	0.0	1.3	1.0
Husband away	3.0	9.7	8.4
Costs too much	1.5	1.9	1.9
Other	15.7	18.8	18.2
Total percent	100.0	100.0	100.0
Number of women	38	170	208
REASON FOR NOT CURRENTLY USING			
Husband away	0.4	1.8	1.7
Fertility-related reasons	78.6	78.1	78.1
Not having sex	6.0	4.0	4.2
Infrequent sex	1.2	1.3	1.3
Menopausal/had hysterectomy	7.3	5.7	5.8
Subfecund/infecund	3.5	2.8	2.9
Postpartum/breastfeeding	11.1	8.3	8.5
Wants more children	49.5	56.0	55.5
Opposition to use	5.4	2.4	2.7
Opposed to family planning	0.0	0.6	0.5
Husband opposed	2.1	1.1	1.2
Other people opposed	0.4	0.3	0.4
Against religion	2.9	0.4	0.6
Lack of knowledge	0.8	1.3	1.3
Knows no method	0.4	0.4	0.4
Knows no source	0.4	0.9	0.9
Method-related reasons	14.7	15.6	15.5
Health concerns	5.8	4.1	4.2
Worry about side effects	3.2	1.9	2.0
Costs too much	0.0	0.7	0.7
Afraid of sterilization	4.9	8.2	7.9
Doesn't like existing methods	0.8	0.7	0.7
Other	0.0	0.1	0.1
Don't know/missing	0.0	0.8	0.7
Total percent	100.0	100.0	100.0
Number of women	139	1,554	1,693

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 currently pregnant) 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 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.

Fifty-eight 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, 32 percent intend to use a method within the next 12 months. The proportion of women who intend to use contraception any time in the future increases from 47 percent of women with no living children to 68 percent of women with one living child and then declines to 63 percent of women with two living children and 58 percent of women with three living children. Fifty-four percent of women with four or more living children say they do not intend to use contraception at any time in the future.

The expressed timing of expected 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 increases from 45 percent for women with no living children to 54 percent for women with one living child and then falls steadily with increasing number of living children to 16 percent for women with four or more children. The proportion expressing an intention to use contraception within the next 12 months increases from 3 percent among those with no children to 28 percent among those with three living children and then falls slightly to 27 percent among those with four or more children. The overall proportion of women who intend to use contraception at some time in the future does not differ greatly by residence, but the timing of intended future use is different for women in rural and urban areas. Eighteen percent of women in rural areas intend to use contraception in the next 12 months, compared with 25 percent in urban areas. By contrast, 39 percent of women in rural areas intend to use contraception at some time after 12 months, compared with 32 percent in urban areas. The proportion intending to use contraception after 12 months is higher for women in rural than in urban areas at each parity except parity three, at which the proportion for urban women (31 percent) slightly exceeds that for rural women (30 percent).

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 5.11shows that 67 percent of women mention a fertility-related reason for not intending to use contraception in the future, 26 percent mention a method-related reason, and 6 percent mention a reason related to opposition to or lack of knowledge of family planning. The major single reason given for not intending to use contraception is that the woman wants as many children as possible (34 percent). Other important reasons are that the woman is menopausal or she has undergone a hysterectomy (16 percent), that she is afraid of sterilization (14 percent), or that the couple is not having sex (11 percent). Sixty-six percent of young women (age less than 30) mention the desire to have as many children as possible as the main reason for not intending to use contraception, compared with 16 percent of women age 30–49. By contrast, 30 percent of older

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, Orissa, 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	0.0	27.4	33.7	30.3	27.0	25.4
Intends to use later	43.3	42.7	33.7	30.6	8.3	32.0
Intends to use, unsure when	0.0	2.3	1.1	0.0	0.0	0.8
Unsure as to intention	16.2	3.5	4.0	1.7	1.5	4.8
Does not intend to use	40.4	24.1	27.5	37.4	63.2	36.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	31	51	55	32	40	209
RURAL						
Intends to use in next 12 months	2.9	11.7	22.3	27.3	26.6	17.5
Intends to use later	44.8	54.9	39.1	29.8	16.4	39.4
Intends to use, unsure when	0.0	0.6	1.1	0.4	0.3	0.6
Unsure as to intention	12.4	7.7	5.5	2.9	3.7	6.6
Does not intend to use	39.6	25.1	31.9	39.7	53.0	35.9
Missing	0.3	0.0	0.0	0.0	0.0	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	341	548	501	271	332	1,994
TOTAL						
Intends to use in next 12 months	2.7	13.1	23.4	27.6	26.6	18.2
Intends to use later	44.7	53.8	38.6	29.9	15.5	38.7
Intends to use, unsure when	0.0	0.8	1.1	0.4	0.3	0.6
Unsure as to intention	12.7	7.4	5.4	2.7	3.5	6.5
Does not intend to use	39.6	25.0	31.5	39.4	54.1	36.0
Missing	0.3	0.0	0.0	0.0	0.0	0.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	372	599	556	302	372	2,203

[1]Includes current pregnancy, if any

women mention reasons related to menopause, hysterectomy, infecundity, or subfecundity, compared with only 2 percent of younger women.

Since younger women account for nearly 80 percent of total current fertility in Orissa, the reasons they give for not intending to use contraception are extremely important from a policy perspective. Of the 31 percent of younger women age 15–29 who give reasons not related to fertility, 27 percent mention health concerns or concerns about side effects, and another 9 percent mention lack of knowledge. These findings suggests that improved quality of services and information programmes could enhance the family welfare programme in Orissa. Nevertheless, among younger women who are not using contraception, the desire for high fertility remains the major reason for not intending to use contraception in the future.

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, Orissa, 1999

Reason	Current age		Total
	15–29	30–49	
Fertility-related reasons	68.2	66.0	66.8
Not having sex	0.2	16.6	10.7
Infrequent sex	0.8	3.4	2.5
Menopausal/had hysterectomy	0.4	24.1	15.6
Subfecund/infecund	1.2	5.6	4.0
Wants as many children as possible	65.6	16.4	34.1
Opposition to use	6.9	3.5	4.7
Opposed to family planning	2.9	1.2	1.8
Husband opposed	1.9	1.3	1.5
Against religion	2.1	1.0	1.4
Lack of knowledge	2.7	0.5	1.3
Knows no method	1.7	0.5	0.9
Knows no source	1.0	0.0	0.4
Method-related reasons	20.9	28.6	25.8
Health concerns	4.1	6.7	5.8
Worry about side effects	4.0	3.0	3.4
Costs too much	0.8	0.6	0.7
Inconvenient	0.0	0.1	0.1
Afraid of sterilization	11.6	15.4	14.0
Doesn't like existing methods	0.4	2.8	1.9
Other	0.4	1.2	0.9
Don't know/missing	0.8	0.2	0.4
Total percent	100.0	100.0	100.0
Number of women	286	507	793

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 the results according to the timing of intended use. A large majority of women who intend to use contraception (67 percent) say they intend to use female sterilization. The next most preferred method is the pill, which was the preference of 21 percent of women. Less than 2 percent of women prefer that their husbands get sterilized, and less than 1 percent each prefer to use the condom or IUD. There are important differences in the choice of preferred method by timing of intended use. Women who intend to use within the next 12 months show only a slight preference for permanent methods over spacing methods, whereas women who plan to use contraception later intend to rely almost exclusively on female sterilization.

Among the spacing methods mentioned by women intending to use contraception within the next 12 months, the pill is mentioned much more often (39 percent) than the IUD (2 percent) or the condom (1 percent). Very few women mention male sterilization as the preferred method, but a slightly larger proportion mention this method among women planning to use contraception within the next 12 months than among women planning to use contraception later. Results are similar for urban and rural areas, with some exceptions. Among women who intend to use a method within the

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, Orissa, 1999

Preferred method	Timing of intended use: Next 12 months	Timing of intended use: Later	Total[1]
	URBAN		
Pill	38.7	14.3	25.2
IUD	5.3	0.0	2.3
Condom	2.0	0.0	0.9
Female sterilization	40.5	76.5	60.6
Male sterilization	1.0	1.6	1.3
Rhythm/safe period	4.1	0.8	2.3
Withdrawal	0.0	0.8	0.4
Other	6.2	2.5	4.1
Unsure	2.1	3.4	2.8
Total percent	100.0	100.0	100.0
Number	53	67	122
	RURAL		
Pill	39.3	12.6	20.8
IUD	1.3	0.3	0.6
Condom	1.0	0.4	0.6
Female sterilization	45.4	77.9	68.0
Male sterilization	1.9	1.2	1.4
Rhythm/safe period	2.9	3.0	2.9
Withdrawal	2.9	0.1	1.0
Other	3.5	1.5	2.1
Unsure	1.9	3.0	2.6
Total percent	100.0	100.0	100.0
Number	348	785	1,144
	TOTAL		
Pill	39.2	12.8	21.3
IUD	1.8	0.3	0.7
Condom	1.1	0.4	0.6
Female sterilization	44.7	77.8	67.3
Male sterilization	1.8	1.2	1.4
Rhythm/safe period	3.1	2.8	2.8
Withdrawal	2.5	0.2	0.9
Other	3.8	1.6	2.3
Unsure	1.9	3.0	2.6
Total percent	100.0	100.0	100.0
Number	401	852	1,266

[1]Includes a small number of women who are not sure about the timing of intended use, who are not shown separately

next 12 months, similar proportions of rural and urban women prefer the pill (39 percent each) or the condom (2 percent of urban women and 1 percent of rural women), but the proportion preferring the IUD is higher for urban women (5 percent) than for rural women (1 percent).

Overall, the mix of contraceptive methods that intended future users say they would prefer to use is not very different from the methods currently being used, especially for those who intend to use more than 12 months later. For those who intend to use within the next 12 months, there is less heavy reliance on female sterilization and greater reliance on the pill. The fact that more than two-fifths of the women intending to use contraception within the next year plan to use a spacing method suggests that there is a significant short-term potential demand for spacing methods that will need to be met.

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. 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. Results indicate that messages disseminated through the mass media have reached 59 percent of ever-married women in Orissa. The most common source of exposure to family planning messages is radio. Forty-four percent of ever-married women report having heard a family planning message on radio, followed by 35 percent on television, 33 percent on wall paintings or hoardings, 12 percent in newspapers or magazines, and 7 percent each at cinema/film shows and at drama, folk dance, or street plays.

Ever-married women age 25–34 years report greater exposure to family planning messages in general, and greater exposure through every form of mass media in particular, than other women age 15–24 or 35–49, except for younger (age 15–24) women's exposure through drama, folk dance, or street plays. For most media, however, the exposure of women age 15–24 is similar to that of women age 35–49. Overall exposure to mass media messages on family planning is much higher in urban areas than in rural areas. Eighty-two percent of urban ever-married women report seeing or hearing a family planning message from at least one media source, compared with only 56 percent of women in rural areas. Urban women are 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 greatly by education. More than 90 percent of women who have at least completed middle school have heard or seen a family planning message from at least one media source in the past few months, compared with 79 percent of women who are literate but have not completed middle school and 41 percent of illiterate women. Exposure to family planning messages through certain specific media sources is even more closely linked to education than is exposure in general. For example, 89 percent of women who have at least completed high school have heard or seen a family planning message on television, compared with only 16 percent of illiterate women.

Exposure to family planning messages also differs greatly by religion. Seventy-nine percent of Muslim women say they have heard or seen a family planning message through the media, followed by 59 percent of Hindu women and 36 percent of Christian women. Muslim women also

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, Orissa, 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	42.2	31.0	6.7	11.2	31.0	7.5	56.5	1,112
25–34	46.5	37.2	8.1	13.9	36.1	7.4	62.1	1,751
35–49	41.6	34.0	5.9	10.2	30.2	6.6	57.1	1,562
Residence								
Urban	51.5	69.0	21.0	31.0	47.7	9.8	81.7	488
Rural	42.7	30.2	5.2	9.5	30.9	6.8	56.1	3,937
Education								
Illiterate	27.3	15.6	1.9	1.8	20.3	4.7	41.4	2,633
Literate, < middle school complete	62.4	51.4	7.5	13.4	43.5	8.8	78.9	1,153
Middle school complete	79.5	74.3	17.0	36.8	56.2	10.3	92.6	305
High school complete and above	76.0	88.8	35.9	64.3	72.6	17.1	97.3	334
Religion								
Hindu	43.7	34.3	6.9	11.8	32.8	7.2	58.9	4,279
Muslim	61.6	61.6	13.3	16.0	44.2	4.4	78.8	75
Christian	29.1	14.6	4.0	11.3	19.5	3.2	36.3	68
Caste/tribe								
Scheduled caste	41.7	23.7	3.7	6.4	31.3	7.1	55.9	938
Scheduled tribe	16.2	10.0	1.0	3.0	16.6	5.5	27.5	868
Other backward class	45.1	36.4	5.8	11.0	36.5	6.5	63.3	1,371
Other	62.9	57.6	14.9	23.3	41.1	9.0	78.3	1,246
Standard of living index								
Low	29.2	14.9	1.7	2.7	23.6	4.8	42.2	2,376
Medium	57.7	47.0	7.8	14.2	38.0	8.1	73.2	1,559
High	70.3	91.6	30.0	50.1	61.8	15.6	95.9	474
Use of contraception								
Ever used	49.2	41.9	9.1	16.0	37.3	8.4	66.0	2,279
Never used	37.9	26.7	4.7	7.5	27.9	5.7	51.4	2,146
Total	43.7	34.5	7.0	11.9	32.8	7.1	58.9	4,425

Note: Total includes 3 women with 'other' religions and 1 and 15 women with missing information on caste/tribe and the standard of living index, respectively, who are not shown separately.

report more exposure through every individual medium except drama, folk dance, or street plays than do women of other religions.

Seventy-eight percent of ever-married women not belonging to scheduled castes/tribes or other backward classes have seen or heard a family planning message, followed by 63 percent of women from other backward classes, 56 percent of women from scheduled castes, and 28 percent of women from scheduled tribes. This pattern of differential exposure by caste/tribe/class status is also observed for most specific media sources. Exposure to family planning messages rises steadily

with increasing standard of living, both for media in general and for each specific media source. Finally, as expected, women who have ever used contraception are considerably more likely to report hearing or seeing a media message on family planning than are women who have never used contraception. All of these differentials are likely to reflect some combination of the greater access to broadcast signals in urban areas, the greater ability of higher-income households to own radios and televisions, 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 last 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 31 percent of women in Orissa discussed family planning with their husband, friends, neighbours, or other relatives in the past few months. Twenty-four percent of currently married women discussed family planning with their husbands, and 17 percent discussed family planning with friends or neighbours. Discussions of family planning with relatives other than the husband are much less common.

Women age 25–34 years are most likely to have discussed family planning with someone (38 percent), followed by women age 15–24 (35 percent) and women age 35–49 (20 percent). More specifically, women age 25–34 are more likely than either women age 15–24 or 35–49 to discuss family planning with their husbands, friends and neighbours, sisters-in-law, mothers-in-law, sisters, and other relatives. In general, the proportion of women who have discussed family planning with other persons varies predictably by most other background characteristics. Urban women are more likely than rural women to have discussed family planning. The proportion of women reporting such discussions rises with women's education, the standard of living index, and, except for the proportion of middle school complete exceeding that of high school complete and above, husband's education. Muslim women are considerably more likely to have discussed family planning than Hindu or Christian women. The proportion who have discussed family planning is slightly lower for scheduled-caste women than for other groups. Women who have ever used contraception are more likely to have discussed family planning (35 percent) than women who have never used contraception (27 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, Orissa, 1999

Background characteristic	Person with whom discussed family planning								Any of these persons	Number of women
	Husband	Mother	Sister	Daughter	Mother-in-law	Sister-in-law	Friend/ neighbour	Other relative		
Age										
15–24	28.9	1.1	0.9	0.0	1.8	1.8	17.3	0.4	35.3	1,083
25–34	31.6	0.8	1.4	0.3	2.0	3.2	19.8	1.0	38.2	1,654
35-49	12.4	0.2	0.8	0.4	0.2	1.8	13.0	0.1	19.5	1,405
Residence										
Urban	30.3	1.7	1.0	0.5	1.5	1.9	19.6	1.1	37.7	454
Rural	23.7	0.5	1.0	0.3	1.3	2.4	16.5	0.5	30.3	3,688
Education										
Illiterate	19.9	0.4	0.7	0.2	1.4	1.4	16.9	0.6	27.6	2,420
Literate, < middle school complete	25.1	1.0	1.4	0.3	1.3	3.8	15.7	0.4	30.8	1,095
Middle school complete	40.0	0.7	1.1	0.4	0.0	4.1	18.0	0.4	45.1	301
High school complete and above	40.9	1.0	2.7	0.7	2.0	2.7	18.6	1.2	44.6	327
Religion										
Hindu	24.2	0.6	1.0	0.3	1.4	2.3	16.7	0.6	30.9	4,011
Muslim	37.3	0.0	3.4	0.0	0.9	0.9	19.3	0.0	42.6	64
Christian	24.3	1.7	0.0	0.0	0.0	1.7	24.3	0.0	30.5	64
Caste/tribe										
Scheduled caste	21.4	1.1	0.7	0.7	1.6	1.7	16.2	0.7	27.9	876
Scheduled tribe	20.6	0.0	0.7	0.0	1.1	0.4	19.1	0.5	30.4	778
Other backward class	25.4	0.8	1.2	0.3	1.4	2.7	17.0	0.6	31.7	1,306
Other	28.2	0.6	1.3	0.2	1.2	3.8	15.6	0.5	33.3	1,182
Standard of living index										
Low	20.5	0.4	0.6	0.2	1.2	1.2	16.1	0.6	27.6	2,168
Medium	27.2	0.8	1.3	0.5	1.4	3.5	17.3	0.5	33.6	1,498
High	33.4	1.2	2.4	0.2	1.8	3.8	18.8	0.5	39.4	462
Use of contraception										
Ever used	27.5	0.7	1.3	0.4	1.5	2.7	19.3	0.5	34.9	2,203
Never used	20.9	0.6	0.8	0.2	1.1	1.9	14.0	0.6	26.8	1,939
Husband's education										
Illiterate	18.3	0.7	0.9	0.2	1.1	0.8	16.1	0.7	26.6	1,324
Literate, < middle school complete	21.9	0.3	0.5	0.3	0.9	2.2	15.1	0.3	28.0	1,481
Middle school complete	34.6	1.3	1.9	0.7	3.1	5.3	23.5	0.5	40.8	573
High school complete and above	32.2	0.7	1.7	0.2	1.3	2.9	16.4	0.9	37.6	763
Total	24.4	0.6	1.0	0.3	1.3	2.3	16.8	0.6	31.1	4,143

Note: Total includes 3 women with 'other' religions and 1, 14, and 2 women with missing information on 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, only 16 percent of currently married women in Orissa have an unmet need for family planning. Unmet need is greater for spacing births (9 percent) than for limiting births (7 percent). If all of the women who say they want to space or limit their births were to use family planning, the contraceptive prevalence rate would increase from 47 percent to 63 percent of currently married women. This means that current programmes are meeting 75 percent of the family planning need (as shown in the last column of Table 5.15). Between NFHS-1 and NFHS-2, unmet need declined from 22 to 16 percent, and the proportion of need satisfied increased from 62 to 75 percent.

Unmet need is highest among women age 20–24; the unmet need in this age group is primarily for spacing (83 percent) rather than for limiting. Unmet need is also relatively high for women below age 20 (22 percent), with the need being almost entirely for spacing. Among women age 25–29, 20 percent have an unmet need, and more than half of this need is for spacing. Only 18 percent of the total demand for family planning is being met for married women age 15–19. This proportion rises sharply to 43 percent for women age 20–24, 68 percent for women age 25–29, 80 percent for women age 30–34, and 88 percent or more for women age 35–49. The met and unmet need for contraception among women age 35 years and above is almost exclusively for limiting.

Unmet need for family planning does not show much variation by residence, but total demand is higher in urban areas. Comparing educational levels, unmet need for family planning is highest among women who have completed middle school (21 percent), followed by women who have completed high school (18 percent), literate women who have not completed middle school (17 percent), and illiterate women (14 percent). The majority of unmet need in all educational groups is for spacing. The percentage of demand satisfied is somewhat lower for women who have completed middle school but not high school (70 percent) than for other women (74–77 percent).

Hindu women have less unmet need for family planning (15 percent) than either Muslim women (20 percent) or Christian women (19 percent). The percentage of total demand satisfied is also greater for Hindu women (75 percent) than for Muslim women (63 percent) or Christian women (70 percent). Unmet need is higher for scheduled-caste and other backward class women (18 percent) than for women in other groups (12–14 percent). Similarly, the percent of demand satisfied is lower for scheduled-caste women (71 percent) and other backward class women (73 percent) than for women in other groups (75–80 percent). By standard of living, unmet need is highest among women in households with a medium standard of living (17 percent) and lowest among women with a high standard of living (14 percent). Women with a high standard of living have a higher percentage of demand satisfied (82 percent) than do other women (74 percent).

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, Orissa, 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	20.8	1.0	21.8	3.2	1.5	4.7	24.0	2.5	26.5	17.9
20–24	20.2	4.2	24.4	5.8	12.6	18.4	26.0	16.8	42.8	43.0
25–29	10.6	9.4	20.1	3.6	39.7	43.3	14.2	49.2	63.4	68.3
30–34	4.5	10.9	15.3	1.2	59.1	60.3	5.7	69.9	75.6	79.7
35–39	1.4	8.4	9.8	0.3	67.9	68.3	1.7	76.3	78.0	87.5
40–44	0.4	5.1	5.5	0.5	68.3	68.7	0.9	73.3	74.2	92.6
45–49	0.0	2.6	2.6	0.0	60.6	60.6	0.0	63.2	63.2	95.9
Residence										
Urban	6.5	8.8	15.4	3.8	50.2	54.0	10.3	59.0	69.4	77.9
Rural	8.9	6.6	15.5	2.2	43.7	45.9	11.2	50.3	61.5	74.7
Education										
Illiterate	7.3	6.5	13.8	1.1	44.1	45.2	8.4	50.6	59.0	76.6
Literate, < middle school complete	9.1	7.8	17.0	1.4	47.1	48.5	10.5	54.9	65.4	74.1
Middle school complete	13.9	6.9	20.8	9.7	37.8	47.5	23.7	44.7	68.4	69.5
High school complete and above	12.5	5.8	18.3	8.8	43.9	52.7	21.3	49.7	71.0	74.2
Religion										
Hindu	8.6	6.8	15.4	2.3	44.7	47.1	11.0	51.5	62.5	75.4
Muslim	8.8	11.4	20.2	5.1	29.4	34.6	13.9	40.9	54.8	63.1
Christian	12.9	6.1	19.0	4.5	38.7	43.2	17.3	44.8	62.2	69.5
Caste/tribe										
Scheduled caste	10.2	7.3	17.5	2.0	40.8	42.7	12.2	48.1	60.3	70.9
Scheduled tribe	6.9	5.4	12.3	1.2	36.3	37.5	8.1	41.7	49.8	75.4
Other backward class	10.0	7.6	17.5	2.2	44.9	47.1	12.1	52.5	64.6	72.9
Other	7.3	6.7	14.0	3.8	51.9	55.7	11.1	58.6	69.7	80.0
Standard of living index										
Low	8.3	6.7	15.0	1.2	41.2	42.4	9.5	47.9	57.4	73.9
Medium	9.5	7.2	16.7	2.8	45.3	48.1	12.3	52.4	64.7	74.3
High	7.5	6.1	13.5	6.7	56.7	63.4	14.1	62.8	76.9	82.4
Number of living children										
0	12.3	0.0	12.3	1.0	1.1	2.2	13.3	1.1	14.4	15.0
1	18.7	1.3	20.0	9.1	9.8	18.8	27.8	11.0	38.8	48.5
2	9.6	8.7	18.3	2.2	48.7	50.9	11.8	57.4	69.2	73.5
3	4.6	8.9	13.5	0.4	67.6	68.1	5.0	76.6	81.6	83.5
4	2.6	9.4	12.0	0.4	69.1	69.5	2.9	78.5	81.5	85.3
5	1.3	11.0	12.3	0.0	70.1	70.1	1.3	81.1	82.4	85.0
6+	3.2	12.7	15.9	0.7	45.2	45.9	3.9	58.0	61.8	74.3
Total	8.7	6.8	15.5	2.4	44.4	46.8	11.1	51.2	62.3	75.1

[1]Unmet need for *spacing* includes pregnant women whose pregnancy was mistimed, amenorrhoeic women whose last birth was mistimed, and women who are neither pregnant nor amenorrhoeic and who are not using any method of family planning and who say they want to wait 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 and 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.

Unmet need is higher for women with one living child (20 percent) than for women with no living children (12 percent), two living children (18 percent), or three or more living children (12–16 percent). Among women with no children or one child, unmet need is almost exclusively for spacing, whereas for women with two children 48 percent of unmet need is for limiting, and for women with three or more children unmet need is mostly for limiting. For women with no living children, only 15 percent of the total demand for family planning is satisfied; for women with one living child, less than half (49 percent) of the demand is satisfied. The percentage of demand satisfied rises sharply to 74 percent for women with two living children and 83–85 percent for women with 3–5 living children. These results show that the almost exclusive emphasis of the family planning program on sterilization fails to meet the needs of young women who are still in the process of family formation. Many of these women have an unmet need for spacing, especially before their first birth and between their first and second births.

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 awareness and prevention 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, first 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, 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 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 past two years. 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 infection, fever, and diarrhoea among children and treatment of these illnesses; and mothers' knowledge and use of oral rehydration therapy.

PREVIOUS PAGE BLANK

The information on child health and health-care practices was collected from mothers for children born since 1 January 1995. If a woman had more than two live births during the three years preceding the survey, 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 Orissa 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 in question on the basis of the intercensal population growth rate in the state. The intercensal growth rate is assumed to be the same for all age and sex groups.

Questions on the number of deaths occurring to usual residents in each household during a particular time period have been included in demographic surveys in many countries and have often resulted in a substantial understatement of deaths. The Sample Registration System (SRS), maintained by the Office of the Registrar General of India, provides the most useful comparison. The most recent report on mortality estimates by age for Orissa is for 1997 (Office of the Registrar General, 1999a).

Table 6.1 shows an estimated average annual CDR for Orissa of 12.9 deaths per 1,000 population based on NFHS-2 data (covering roughly 1997–98), compared with 10.9 from the 1997 SRS. Contrary to expectations, the CDR estimated from NFHS-2 is higher than the corresponding SRS estimate. The NFHS-2 age-specific death rates are much higher than the SRS rates at age 60 and above and much lower at age 50–59 and below age 5.

The NFHS-2 CDR estimate of 12.9 is higher than the corresponding NFHS-1 estimate of 11.0 (covering roughly 1991–92). In the SRS, on the other hand, the CDR for Orissa declined from 12.8 in 1991 to 10.9 in 1997. In the two NFHS surveys, age-specific death rates for each of the broad age groups except below age 5 are also higher in NFHS-2 than in NFHS-1, especially at the older ages. This comparison suggests an increase in death rates among the older age groups and a decrease in death rates for children under age 5 in Orissa since 1991–92 if the completeness of reporting of deaths is the same in the two surveys. It is possible that differences in the pattern of age misreporting between the two surveys could account, at least in part, for the unexpected age pattern of mortality change between the two surveys.

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). In Orissa, the male CDR is lower than the female CDR according to NFHS-2, but the two rates are virtually identical according to the SRS. The age-specific death rates in NFHS-2 are higher for males than for females at age 0–4 and 50–59 and lower for males than for females at 5–14, 15–49, and 60+.

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, Orissa

	NFHS-1 (1991–92)	NFHS-2 (1997–98)			SRS (1997)		
Age	Total	Male	Female	Total	Male	Female	Total
< 5	27.3	23.8	20.3	22.1	28.0	28.2	28.1
5–14	2.1	1.7	2.8	2.3	1.5	2.0	1.7
15–49	3.5	3.2	5.8	4.5	4.6	3.7	4.1
50–59	9.0	14.0	9.9	11.9	16.6	16.8	16.6
60+	59.1	71.8	80.6	75.9	59.9	55.0	57.0
CDR	11.0	12.3	13.5	12.9	11.0	10.7	10.9

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 SRS, on the other hand, shows very little difference in mortality between males and females at any age.

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, information on sex of child, month and year of birth, survival status at the time of the survey, and age at the time of the survey or, if dead, age at death. Age at death was recorded in days for children dying in the first month of life, in months for children dying before their second birthday, and in years for children dying at later ages. This information was used to calculate the following direct estimates of infant and child mortality[1]:

Neonatal mortality: The probability of dying in the first month of life

Postneonatal mortality: The 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

[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:

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

Assessment of Data Quality

The reliability of mortality estimates calculated from retrospective birth histories depends on 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 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 the child's 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 estimates that are too low, and if underreporting is more severe for children born longer ago than for children born more recently, the rate of mortality decline will tend to be underestimated.

Results from Table B.5 (Appendix B) suggest that early infant deaths have not been seriously underreported in the NFHS-2 in Orissa, inasmuch as the ratios of deaths under seven days to all neonatal deaths are consistently high (between 61 and 72 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 62 and 65 percent) for the different time periods preceding the survey.

Another problem inherent in most retrospective surveys is heaping of reported ages at death on certain values, e.g., 6, 12, and 18 months. If the net result of 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 or older. Thus, heaping at 12 months can bias the age-specific 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 Orissa NFHS-2, there appears to be a slight preference for reporting age at death at 3, 7, and 8 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 slight heaping of deaths at 3, 6, 12, 15, and 18 months of age. The amount of heaping on 12 months is relatively minor, probably due to the strong emphasis on this problem during the training of interviewers for the NFHS-2[2]. This brief assessment of the internal consistency of NFHS-2 childhood mortality data for Orissa suggests that, although there may be some heaping

[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'.

of ages at death at certain ages, the amount of heaping is relatively small, so that any resulting bias in infant and child mortality rates is insubstantial.

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 progressively truncated (censored) further 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, because these women were over age 50 at the time of the survey and not eligible to be interviewed. Because these excluded births to older women were likely to be at a somewhat greater risk of dying than births to younger women, the mortality rates for the period may be slightly underestimated. Estimates for more recent periods are less affected by truncation bias, because fewer older women are excluded. The extent of this bias depends on the proportion of births omitted. Table 4.18 (Chapter 4) shows that very few of the 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 estimates 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 five-year periods preceding the survey. Infant mortality in Orissa declined from 96 deaths per 1,000 live births during 1984–88 (10–14 years before the survey) to 81 deaths per 1,000 live births during 1994–98 (0–4 years before the survey), an average rate of decline of one and one-half infant deaths per 1,000 live births per year. A 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 (112 deaths per 1,000 live births) suggests a much faster decline averaging more than 5 deaths per 1,000 live births annually over the six years between the two surveys.

All other measures of infant and child mortality presented in Table 6.2 have also declined, based on comparison of estimates 10–14 years preceding NFHS-2 with estimates 0–4 years preceding NFHS-2. However, all measures except postneonatal mortality are higher 5–9 years preceding the survey than 10–14 years preceding the survey, possibly suggesting a rise in mortality before the decline. Comparing NFHS-1 to NFHS-2, all measures except child mortality (age 1–4) declined between the two surveys, and the comparison for infant mortality suggests a more rapid decline than reflected by NFHS-2 alone, as already mentioned.

Despite the overall decline in infant and child mortality, approximately 1 in every 12 children born in Orissa during the five years before NFHS-2 died within the first year of life, and more than 1 in every 10 children died before reaching age five. Clearly, child survival programmes in Orissa need to be intensified to achieve further reductions in infant and child mortality.

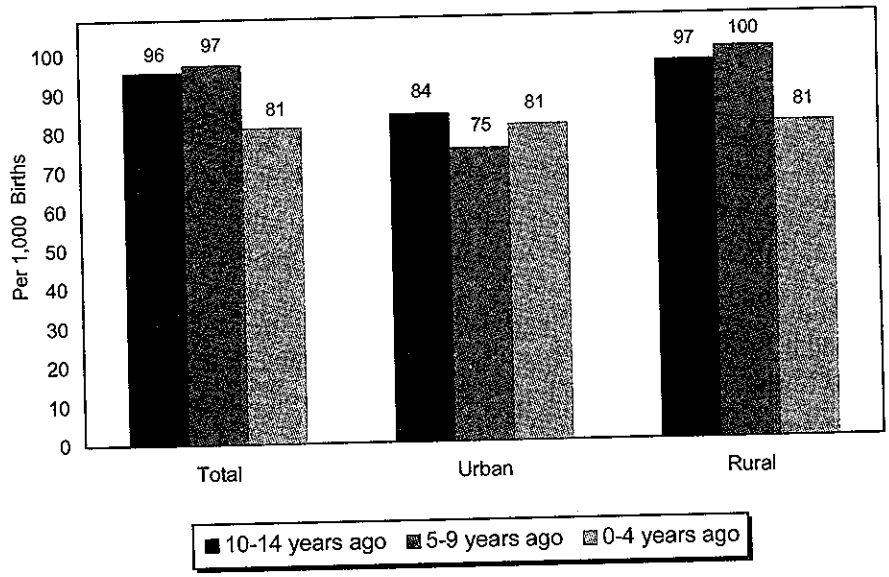
Table 6.2 Infant and child mortality

Neonatal, postneonatal, infant, child, and under-five mortality rates for five-year periods preceding the survey by residence, Orissa, 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	(49.3)	(31.9)	(81.1)	(22.7)	(102.0)
5–9	61.0	14.1	75.1	24.4	97.7
10–14	50.7	33.3	84.1	(28.9)	110.6
			RURAL		
0–4	48.6	32.4	80.9	25.9	104.8
5–9	62.4	37.9	100.3	33.2	130.1
10–14	61.4	35.5	97.0	30.7	124.7
			TOTAL		
0–4	48.6	32.3	81.0	25.5	104.4
5–9	62.2	35.2	97.4	32.2	126.5
10–14	60.3	35.3	95.5	30.5	123.1

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, Orissa, 1999

Urban and rural areas of Orissa differ little in infant and child mortality rates—in fact, in any of the five mortality measures of Table 6.2—during the five years preceding NFHS-2. Infant mortality in rural areas declined from 97 deaths per 1,000 live births during 1984–88 to 81 deaths per 1,000 live births during 1994–98. Neonatal mortality declined by 21 percent and postneonatal mortality declined by 9 percent over the same period. By contrast, neither neonatal nor postneonatal mortality declined much in urban areas over this period. In urban areas neonatal mortality is considerably higher and postneonatal mortality is considerably lower during the period 5–9 years preceding NFHS-2 than during the other two periods. Between 1984-88 and 1994–98 child mortality declined 21 percent in urban areas and 16 percent in rural areas.

A comparison of NFHS-2 measures with corresponding measures from NFHS-1 for the respective periods 0–4 years preceding the surveys shows a decline in all rural and urban indicators of infant and child mortality, except for urban neonatal mortality and rural child mortality.

The estimated NFHS-2 infant mortality rate of 81 deaths per 1,000 live births during 1994–98 is somewhat higher than the SRS value of 72 deaths per 1,000 live births for 1995-97. Likewise, the NFHS-2 estimate of the infant mortality rate for rural areas during 1994–98 (81 deaths per 1,000 live births) is somewhat higher than the SRS estimate for 1995-97 (78 deaths per 1,000 live births). However, the NFHS-2 estimate for urban areas (81 deaths per 1,000 live births) is considerably higher than the average SRS estimate for urban areas (46 deaths per 1,000 live births), and the difference is statistically significant (the lower and upper 95 percent confidence limits for the NFHS-2 estimate are 48 and 114, respectively (Appendix Table A.2)).

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. The infant mortality rate is one-sixth higher in rural areas than in urban areas, and the child mortality rate is one-fourth higher in rural areas than in urban areas. Children in rural areas of Orissa experience an 18 percent higher probability of dying before their fifth birthday than do urban children. A comparison of the urban and rural measures of Table 6.3 with those of Table 6.2 for 0–4 years preceding the survey suggests that, whereas mortality in rural areas declined during the 10 years preceding NFHS-2 by all five measures, only neonatal mortality declined comparably in urban areas. But that has been counteracted by an increase in postneonatal mortality, so that infant mortality increased in urban areas during the 10 years preceding the survey. Of course, Table 6.2 shows this even more directly.

Infant mortality declines very sharply with increasing education of mothers, as expected, ranging from a high of 104 deaths per 1,000 live births for illiterate mothers to a low of 22 deaths per 1,000 live births for mothers who have at least completed high school. In fact, all mortality indicators shown in the table decline sharply as mother's education increases.

Children of women belonging to scheduled tribes and other backward classes have higher rates of infant mortality than children of women belonging to scheduled castes or children of women not in any backward class. The higher infant mortality for children of women belonging to other backward classes is due to their considerably higher neonatal mortality compared with that of other children. Child mortality, however, is highest among children born to scheduled-

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, Orissa, 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	55.6	22.3	77.9	23.6	99.7
Rural	55.7	35.2	90.9	29.4	117.7
Mother's education					
Illiterate	62.4	41.7	104.1	37.1	137.3
Literate, < middle school complete	55.4	23.2	78.6	17.8	95.0
Middle school complete	(34.4)	(14.8)	(49.2)	(10.1)	(58.8)
High school complete and above	(10.2)	(11.5)	(21.7)	(0.0)	(21.7)
Caste/tribe					
Scheduled caste	48.9	35.0	83.9	42.4	122.7
Scheduled tribe	56.1	42.6	98.7	44.0	138.4
Other backward class	71.0	24.7	95.6	20.1	113.8
Other	43.1	36.0	79.1	15.0	92.9
Standard of living index					
Low	59.0	42.2	101.1	40.9	137.9
Medium	59.5	24.0	83.5	14.4	96.7
High	18.9	13.9	32.8	1.4	34.1
Total	55.7	33.8	89.5	28.8	115.7

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.
( ) 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

caste and scheduled-tribe women. As expected, all indicators of infant and child mortality decline substantially with increase in household standard of living, except that there is no difference in neonatal mortality between children in households with a low standard of living and children in households with a medium standard of living. Infant mortality is more than three times higher for children in households with a low standard of living than for children in households with a high standard of living.

Demographic Differentials in Infant and Child Mortality

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

Table 6.4 shows that the infant mortality rate during the 10-year period before the survey is higher for boys (95 deaths per 1,000 live births) than for girls (84 deaths per 1,000 live births). This is the result of considerably higher neonatal mortality for boys (65 deaths per 1,000 live births) than for girls (46 deaths per 1,000 live births) which more than counteracts the higher postneonatal mortality for girls (38 deaths per 1,000 live births) than for boys (30 deaths per 1,000 live births). Higher male mortality during the first month of life is expected because neonatal mortality (which reflects largely congenital conditions) tends to be higher for boys than girls in most populations. Also, child mortality is slightly higher for boys (30 deaths per 1,000

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, Orissa, 1999

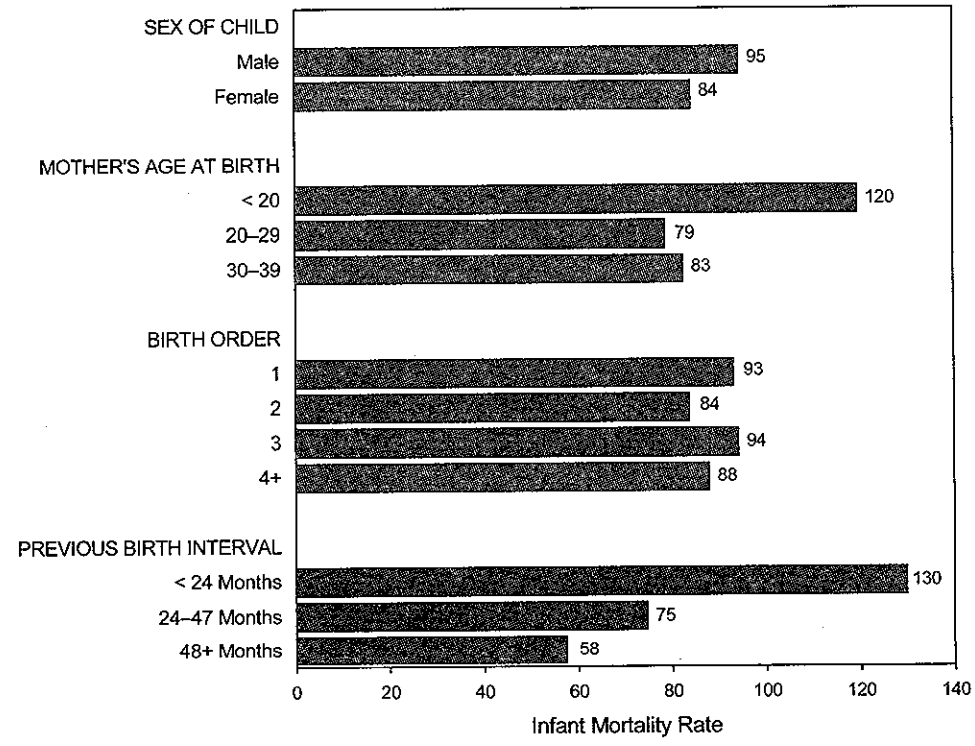
Demographic characteristic	Neonatal mortality (NN)	Postneonatal mortality[1] (PNN)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
Sex of child					
Male	64.6	29.9	94.5	29.6	121.3
Female	46.4	37.8	84.3	27.9	109.9
Mother's age at birth					
< 20	80.1	39.5	119.6	33.1	148.7
20–29	46.3	32.4	78.7	27.5	104.0
30–39	52.1	30.5	82.5	27.6	107.8
Birth order					
1	62.3	30.7	93.1	17.4	108.8
2	46.9	36.9	83.8	30.3	111.5
3	65.1	29.1	94.2	35.8	126.6
4+	50.2	37.7	87.9	34.9	119.8
Previous birth interval					
< 24 months	88.3	41.8	130.0	48.5	172.2
24–47 months	41.2	33.4	74.7	33.3	105.4
48+ months	31.0	26.5	57.5	8.0	65.0
Size at birth[2]					
Large	(27.8)	(23.0)	(50.8)	U	U
Average	37.2	31.3	68.5	U	U
Small	(64.5)	(34.9)	(99.4)	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.
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] Birth size as reported by mother; rates are for the three-year period preceding the survey.

live births) than for girls (28 deaths per 1,000 live births). Thus, Orissa may not be experiencing the reversal of sex differentials in mortality with increasing age that has been observed in other studies in South Asia, and that is thought to reflect the relative medical and nutritional neglect of the girl child (Das Gupta, 1987; Basu, 1989). The male-female differences in Orissa, particularly in postneonatal and child mortality rates, may not be significant, however, given the large sampling errors associated with the various estimates of infant and child mortality (Appendix Table A.2).

For both social and biological reasons, infant mortality and child mortality often exhibit a U-shaped pattern with respect to mother's age at childbirth, with children of both very young and very old mothers experiencing higher mortality rates than children whose mothers are in the prime reproductive ages. Children born to young mothers are more likely to be of low birth weight, which is probably an important factor contributing to their higher neonatal mortality rate. Similarly, children born to mothers above age 30 are at relatively high risk of experiencing congenital problems. Orissa weakly exhibits the expected U-shaped pattern (more resembling a backward J-shaped pattern) of mortality by mother's age, with higher infant mortality among children of mothers under age 20 (120 deaths per 1,000 live births) and age 30–39 (83 deaths per 1,000) than among children of mothers age 20–29 (79 deaths per 1,000). This results from a U-shaped pattern (again more resembling a backward J-shape) for neonatal mortality because, in

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, Orissa, 1999

contrast, postneonatal mortality decreases slightly with increasing mother's age at childbirth. An L-shaped relationship is observed in the case of child mortality. Mortality among children age 1–4 years tends to decrease initially, then remain almost constant, as mother's age at childbirth increases.

Birth order also commonly has a U-shaped relationship to infant deaths, with first births and higher-order births having elevated mortality rates. This association is likely to reflect the effect of not just birth order but also the effect of mother's age at childbirth. In Table 6.4, however, the rates by birth order do not show the expected U-shaped pattern for neonatal, postneonatal, and infant mortality rates. A considerably lower neonatal mortality rate for children of birth order four or more than for children of birth order three results in the same relationship for infant mortality, despite the opposite relationship for postneonatal mortality. Child mortality tends to increase with birth order, except that children of birth order three have slightly higher child mortality than children of birth order four or more. Under-five mortality has a similar relationship, but with greater excess mortality for children of birth order three, reflecting the same excess for neonatal mortality. The general increase in child mortality with birth order may reflect a more intense competition faced by higher birth-order children for the caregiver's time, for medical resources, and for nutritious food once children are weaned. It is also likely that higher birth-order children are disproportionately from lower socioeconomic groups, where mortality tends to be higher.

The length of time between successive births has a powerful effect on the survival chances of children in Orissa. Infant and child mortality rates decrease sharply as the length of the previous birth interval increases, and both measures are especially high for children born less than 24 months after a previous birth. Infant mortality is more than twice as high for children with a previous birth interval of less than 24 months as for children with a previous interval of 48 months or more (130 deaths compared with 58 deaths per 1,000 live births), and child mortality is more than six times as high (49 deaths compared with 8 deaths per 1,000 live births). Previous birth interval has a similar effect on all other indicators of infant and child mortality as 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 intervals and mortality risks may reflect the effect of factors that are correlated with birth intervals. 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 and 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).

As Table 6.4 indicates, neonatal, postneonatal, and infant mortality all decrease with increasing size of the child at birth. However, these results are based on a sample of children in which relatively few were other than average size at birth.

6.3 Morbidity

There is 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 limbs, and malaria—among all members of the sampled households. The results were found to be generally plausible and useful. For this reason, it was decided to include similar 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 an additional question on medical treatment of tuberculosis was included to get a better measure of the prevalence of tuberculosis. The household head or other knowledgeable adult in the household reported for all household members, and no effort was made to test for any of the disease conditions clinically.

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. Diseases carrying a stigma, such as tuberculosis, may be underreported due to intentional concealment by respondents. Underestimation may also occur because the 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 recognise the term used by the enumerator to describe the condition. On the other hand, a factor contributing to a possible overestimation of prevalence is that, without clinical verification, some other disease can be mistaken by the respondent as one of the listed diseases; for example, chronic bronchitis may be reported as tuberculosis or common flu as malaria.

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, Orissa, 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	3,191	131	131	2,127	5,361	866
15–59	2,411	974	766	691	4,297	1,602
60+	7,170	2,678	2,083	590	3,250	187
Sex						
Male	3,163	730	730	1,488	4,320	1,382
Female	2,823	915	567	787	4,842	1,273
Total	3,000	819	652	1,152	4,571	2,655
RURAL						
Age						
< 15	2,963	222	191	1,556	8,369	6,968
15–59	2,755	939	812	1,191	7,419	12,179
60+	7,611	2,315	1,928	711	7,824	2,023
Sex						
Male	3,376	918	763	1,572	8,151	10,783
Female	3,195	749	663	947	7,375	10,387
Total	3,288	835	714	1,265	7,770	21,170
TOTAL						
Age						
< 15	2,988	212	184	1,619	8,036	7,834
15–59	2,715	943	806	1,133	7,056	13,781
60+	7,573	2,345	1,941	701	7,438	2,209
Sex						
Male	3,352	896	759	1,562	7,716	12,164
Female	3,155	767	652	930	7,098	11,660
Total	3,255	833	707	1,253	7,414	23,824

[1]Includes medically treated tuberculosis

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 Orissa, more than 3 percent of the population was reported to be suffering from asthma at the time of the survey. The prevalence of asthma is slightly higher in rural areas (3,288 per 100,000 population) than in urban areas (3,000 per 100,000 population), and slightly higher among males (3,352 per 100,000) than among females (3,155 per 100,000). Age differences are marked, with the prevalence of asthma increasing from 2,988 per 100,000 at age 0–14 and 2,715 per 100,000 at age 15–59 to 7,573 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 occurring form, is characterized by coughing up mucus and sputum, fever, weight loss, and chest pain. The overall prevalence of tuberculosis in Orissa is 833 per 100,000 population. This is considerably higher than the prevalence of 560 per 100,000 recorded in NFHS-1. The prevalence of tuberculosis is slightly lower in urban areas (819 per 100,000) than in rural areas (835 per 100,000). The prevalence rate is higher for males (896 per 100,000) than for females (767 per 100,000). Probable causes for higher prevalence of tuberculosis among males than females are that men are more likely than women to come in contact with people who suffer from active tuberculosis and that men in Orissa smoke more than women. The prevalence of tuberculosis increases rapidly with age. It is much higher among persons age 60 and above (2,345 per 100,000) than among those age 15–59 (943 per 100,000) or age 0–14 (212 per 100,000).

Medically treated tuberculosis is expected to give a more reliable measure of the prevalence of active tuberculosis than a measure based on all reported cases considered in the preceding paragraph. As expected, the prevalence of medically treated tuberculosis is lower (707 per 100,000) than the prevalence based on all reported cases (833 per 100,000). The prevalence of medically treated tuberculosis reported in NFHS-2 is somewhat higher than the prevalence of all reported cases in NFHS-1, indicating that tuberculosis may be increasing in Orissa. Differentials in the prevalence of medically treated tuberculosis by residence, age, and sex are similar to differentials in the prevalence of all reported cases.

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 Orissa, 1,253 persons per 100,000 population were reported to have suffered from jaundice during the past 12 months. People living in rural areas were slightly more likely to have suffered from jaundice (1,265 per 100,000) than those living in urban areas (1,152 per 100,000). Males were 68 percent more likely to have suffered from jaundice than females. The prevalence of jaundice was highest at age 0–14 (1,619 per 100,000) followed by 15–59 (1,133 per 100,000) and 60+ (701 per 100,000). Age and sex differentials in the prevalence of jaundice are similar in urban and rural areas, except that a considerably higher proportion of cases occur below age 15, and a considerably lower proportion at age 15–59, in urban than rural areas.

Malaria

Malaria is characterized by recurrent high fever with shivering. NFHS-2 asked household respondents whether any member of their household had suffered from malaria at any time during the three months preceding the survey. In Orissa, 7,414 persons per 100,000 population were reported to have suffered from malaria during the three months before the survey. 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 also misleading to compare this estimate with the lower NFHS-1 estimate because the months of the year comprising the reference period for the malaria estimates from the two surveys are different.

Rural residents are 70 percent more likely to suffer from malaria (7,770 per 100,000) than urban residents (4,571 per 100,000). The reported prevalence of malaria is higher for males than for females in rural areas, but higher for females than for males in urban areas. The prevalence of malaria during the past three months decreases with age in urban areas. However, the prevalence of malaria is U-shaped with respect to age in rural areas and in the state as a whole (rural and urban areas combined), with the prevalence highest at age 0–14 and next highest at age 60 and above.

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 (Gupta and Murli, 1989). 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 for school children was added in 1980–81. Immunization against tuberculosis (BCG) was brought under the EPI in 1981–82. The latest addition to the Programme was vaccination against measles in 1985–86 (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 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). Vaccinations received by infants and children are usually recorded on a vaccination card that is issued for the child.

NFHS-2 asked mothers in Orissa whether they had a vaccination card for each child born since January 1995. 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

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, Orissa, 1999

Source of information	Percentage vaccinated											Number of children
			DPT			Polio						
	BCG	Polio 0	1	2	3	1	2	3	Measles	All[1]	None	
URBAN												
Vaccinated at any time before the interview												
Vaccination card	(98.0)	(48.4)	(96.0)	(90.0)	(79.5)	(96.0)	(92.0)	(79.5)	(79.3)	(75.3)	(0.0)	27
Mother's report	(59.2)	(5.5)	(56.5)	(51.0)	(40.3)	(70.1)	(64.6)	(45.6)	(42.7)	(32.0)	(29.9)	21
Either source	81.1	29.7	78.8	73.0	62.4	84.7	80.1	64.8	63.4	56.4	13.0	48
Vaccinated by 12 months of age[2]	79.3	29.7	75.4	69.3	58.9	81.1	76.1	61.1	56.0	49.3	16.6	48
RURAL												
Vaccinated at any time before the interview												
Vaccination card	95.3	20.2	98.8	91.7	84.0	98.2	91.7	84.0	60.6	57.0	0.0	186
Mother's report	76.7	6.7	65.1	61.2	43.7	81.7	80.1	56.4	46.6	30.1	16.4	227
Either source	85.1	12.8	80.3	75.0	61.8	89.1	85.4	68.8	52.9	42.2	9.0	413
Vaccinated by 12 months of age[2]	83.5	12.8	78.8	73.9	59.1	87.5	84.2	65.7	39.3	31.4	10.6	413
TOTAL												
Vaccinated at any time before the interview												
Vaccination card	95.6	23.8	98.5	91.5	83.4	97.9	91.8	83.4	63.0	59.3	0.0	213
Mother's report	75.3	6.6	64.4	60.3	43.4	80.7	78.8	55.5	46.3	30.3	17.5	248
Either source	84.7	14.6	80.1	74.8	61.9	88.7	84.8	68.4	54.0	43.7	9.4	461
Vaccinated by 12 months of age[2]	83.0	14.6	78.4	73.4	59.0	86.7	83.3	65.2	41.3	33.3	11.3	461

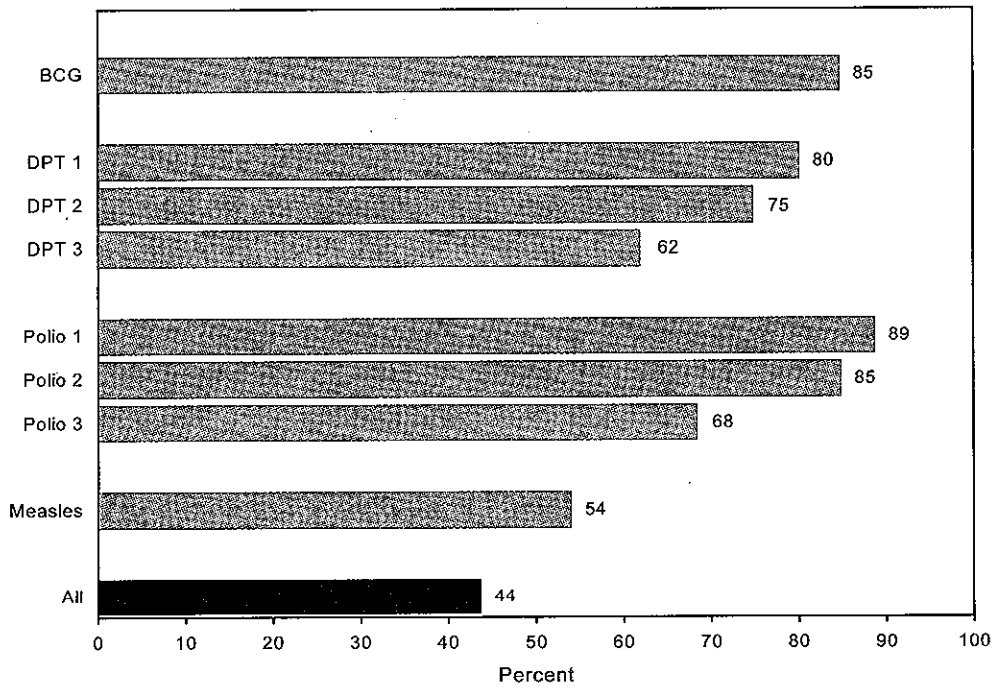
Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey.
( ) Based on 25–49 unweighted cases
[1]BCG, measles, and three doses each of DPT and polio vaccines (excluding Polio 0)
[2]For children whose information was based on the mother's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

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 proportions 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 12–23-month age group was chosen for analysis because international and Government of India guidelines specify that children should be fully

[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 vaccines 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 was assumed to really be Polio 1, Polio 1 was assumed to be Polio 2, etc. For comparative purposes, this same adjustment was made to the NFHS-1 vaccination estimates.

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



NFHS-2, Orissa, 1999

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 among children whose information is based on the mother's report is assumed to be the same as the proportion of vaccinations given during the first year of life among children with an exact date of vaccination on the card.

In NFHS-2, children who received BCG, measles, and three doses each of DPT and polio (excluding Polio 0) are considered to be fully vaccinated. Based on information obtained from a card or reported by the mother ('either source'), 44 percent of children age 12–23 months are fully vaccinated, and 9 percent have not received any vaccinations. Coverage for BCG, DPT, and polio (except Polio 0) vaccinations is much higher than the percentage fully vaccinated. BCG, the first dose of DPT, and the first and second doses of polio have each been received by at least 80 percent of children (see Figure 6.3). Sixty-two percent of children have received three doses of DPT, and 68 percent have received three doses of polio vaccine. Although DPT and polio vaccinations are given at the same time as part of the routine immunization programme, the coverage rates are somewhat higher for polio than DPT, undoubtedly because of the Pulse Polio campaigns. Not all children who begin with the DPT and polio vaccination series go on to complete them, however. The difference between the percentages of children receiving the first and third doses is 18 percentage points for DPT and 21 percentage points for polio. Fifty-four percent of children 12–23 months have been vaccinated against measles.

There has been considerable improvement in vaccination coverage in Orissa since the time of NFHS-1 when the proportion of children fully vaccinated was 36 percent and the proportion who had received no vaccinations was 28 percent. The coverage of each specific vaccination has also improved considerably since NFHS-1, suggesting that government programmes are making a difference. Nonetheless, these data suggest that the goal of universal immunization coverage for children is far from being met.

Government of India statistics suggest a much higher level of vaccination coverage than estimated by NFHS-2. According to Government statistics for Orissa for 1997–98, 81 percent of children age 12–23 months are fully vaccinated, and coverage is 94 percent for BCG, 92 percent for the third dose of DPT, 93 percent for the third dose of polio vaccine, and 92 percent for measles (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 one-third of all children (or three-fourths of all fully vaccinated children) were fully vaccinated by age 12 months. The percentages of children who received BCG, each dose of DPT, and each dose of polio by age 12 months is only slightly lower than the percentage who received these vaccines at any time before the survey. The gap is wider for the measles vaccination, however (54 percent at any time before the survey compared with 41 percent by age 12 months), even though it is supposed to be given when the child is nine months old. Twenty-four percent of children who were vaccinated against measles received the vaccination after their first birthday.

The analysis of vaccine-specific data indicates higher coverage for each type of vaccine in rural areas than in urban areas, except for Polio 0, the third dose of DPT, and measles. However, 56 percent of children age 12–23 months in urban areas were fully immunized at some time before the survey, compared with 42 percent in rural areas. The proportion fully vaccinated during the first year of life is also higher in urban areas (49 percent) than in rural areas (31 percent).

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 could show vaccination cards for 46 percent of the children age 12–23 months compared with 42 percent in NFHS-1. Vaccination cards were shown for 57 percent of children in urban areas and 45 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).

The male-female differential in full vaccination coverage is negligible. Female children are more likely than male children to have received Polio 0 and the measles vaccination, but males are more likely than females to have received the other individual vaccinations. Mothers showed vaccination cards for 48 percent of male children and 44 percent of female children. In NFHS-1, vaccination coverage was somewhat higher for male than female children, and a vaccination card was shown for a higher proportion of male than female children. The negligible difference in the vaccination coverage by sex in NFHS-2 suggests that discrimination against female children in Orissa with regard to immunization has diminished.

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, Orissa, 1999

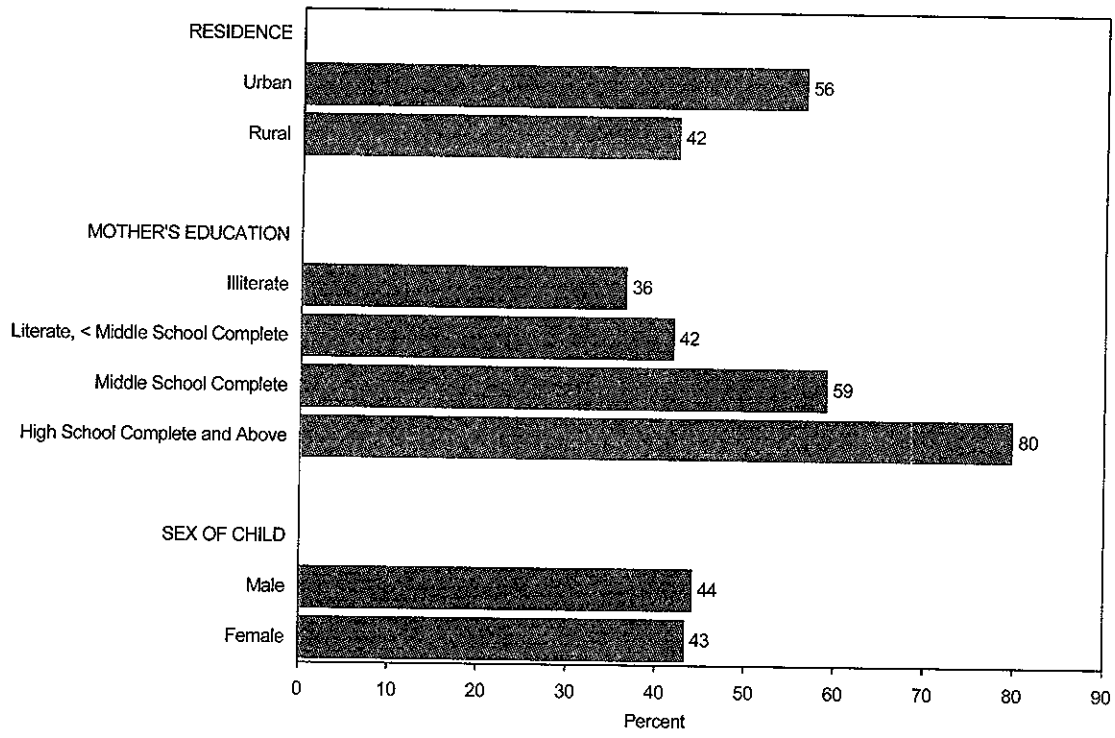
Background characteristic	Percentage vaccinated											Percentage showing vaccination card	Number of children
			DPT			Polio							
	BCG	Polio 0	1	2	3	1	2	3	Measles	All[1]	None		
Sex of child													
Male	86.0	13.3	81.3	77.1	64.2	89.8	85.6	70.2	52.4	44.1	8.3	48.1	260
Female	83.0	16.2	78.6	71.8	58.9	87.1	83.8	66.1	56.1	43.3	11.0	43.8	201
Birth order													
1	90.6	22.7	84.0	79.1	69.8	94.3	92.5	79.5	59.6	52.1	4.0	52.5	124
2	86.4	10.8	86.5	78.3	63.4	89.4	81.7	68.2	59.2	46.1	8.9	54.0	130
3	88.7	11.3	80.5	75.4	55.2	90.6	88.7	63.5	48.7	36.7	7.5	34.4	88
4+	73.6	12.5	69.1	65.9	57.0	80.6	77.3	60.8	46.3	37.6	17.1	39.9	120
Residence													
Urban	81.1	29.7	78.8	73.0	62.4	84.7	80.1	64.8	63.4	56.4	13.0	56.5	48
Rural	85.1	12.8	80.3	75.0	61.8	89.1	85.4	68.8	52.9	42.2	9.0	45.0	413
Mother's education													
Illiterate	81.1	11.3	75.3	68.8	54.5	84.4	80.1	61.2	45.1	36.4	13.0	41.9	272
Literate, < middle school complete	85.8	14.9	81.6	75.9	62.7	92.7	87.5	71.7	55.0	41.8	5.7	46.6	106
Middle school complete	(94.6)	(28.0)	(93.2)	(90.5)	(81.0)	(97.3)	(95.9)	(81.0)	(74.0)	(59.0)	(2.7)	(51.7)	40
High school complete and above	95.1	21.7	94.9	94.9	88.7	97.5	97.5	93.8	88.6	79.8	2.5	67.1	44
Caste/tribe													
Scheduled caste	88.3	11.2	83.8	75.8	62.4	90.4	85.2	70.0	53.2	44.5	8.6	44.7	109
Scheduled tribe	71.7	10.5	58.7	55.4	41.5	74.6	72.5	49.5	36.8	26.4	18.2	29.7	84
Other backward class	87.2	15.0	86.2	79.1	66.3	90.9	86.2	70.0	59.9	48.5	8.1	49.5	163
Other	87.4	20.7	84.1	82.5	70.9	94.7	92.1	79.5	59.3	49.3	5.3	56.1	105
Standard of living index													
Low	79.4	10.9	73.4	66.5	52.5	84.7	79.7	59.8	42.2	33.5	12.8	40.6	265
Medium	91.5	18.7	88.7	84.4	72.2	93.7	91.2	78.3	66.1	53.3	5.6	53.2	154
High	(91.6)	(24.2)	(92.9)	(92.9)	(87.4)	(97.3)	(95.9)	(90.3)	(87.4)	(76.1)	(2.7)	(57.9)	39
Total	84.7	14.6	80.1	74.8	61.9	88.7	84.8	68.4	54.0	43.7	9.4	46.2	461

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey. Total includes 3 children with missing information on the standard of living index, 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)

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



The relationship between vaccination coverage and birth order is more or less negative for all vaccinations. A large majority of first-order births occur to younger women who are more likely than older women to utilize maternal health care services. As with use of maternal health care services, there is a strong positive relationship between mother's education and children's vaccination coverage. Only 36 percent of children of illiterate mothers are fully vaccinated, compared with 80 percent of children with mothers who have at least completed high school. Scheduled-tribe children are less likely to be fully vaccinated than are scheduled-caste, other backward caste, or children of mothers not in any backward class. Household standard of living has a strong positive relationship with vaccination coverage. Thirty-four percent of children in households with a low standard of living are fully vaccinated compared with 76 percent of children in households with a high standard of living.

Table 6.8 shows, for children age 12–35 months, the percentage with a vaccination card that was shown to the interviewer and the percentage who received various vaccinations during the first year of life by current age of child and place of residence. The table suggests a slight decline in vaccination coverage, particularly for certain individual vaccinations in urban areas and full vaccination in rural areas, over a short period of time. 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 age 12 months.

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, Orissa, 1999

Vaccination status	Urban		Rural		Total	
	12–23 months	24–35 months	12–23 months	24–35 months	12–23 months	24–35 months
Vaccination card shown to interviewer	56.5	52.2	45.0	32.5	46.2	34.6
Percentage vaccinated by 12 months of age[1]						
BCG	79.3	81.8	83.5	82.6	83.0	82.4
Polio 0	29.7	21.6	12.8	13.1	14.6	13.6
DPT						
1	75.4	81.4	78.8	77.3	78.4	77.8
2	69.3	78.8	73.9	73.7	73.4	74.4
3	58.9	62.9	59.1	58.3	59.0	58.6
Polio						
1	81.1	85.0	87.5	85.8	86.7	85.8
2	76.1	83.6	84.2	83.7	83.3	83.9
3	61.1	70.4	65.7	68.2	65.2	68.3
Measles	56.0	58.5	39.3	48.8	41.3	50.2
All vaccinations[2]	49.3	49.9	31.4	37.6	33.3	39.3
No vaccinations	16.6	15.6	10.6	12.6	11.3	12.9
Number of children	48	48	413	412	461	460

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 proportion of children whose vaccination status was determined from a vaccination card declines with child's age. This may reflect an upward trend in the use of vaccination cards, despite no indication of an upward trend in overall vaccination coverage. 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 increases with age from 33 percent for children age 12–23 months to 39 percent for children age 24–35 months. The increase in full vaccination coverage with age in rural areas is similar, from 31 percent for children age 12–23 months to 38 percent for children age 24–35 months. The measles vaccine is primarily responsible for the increase in full vaccination with age, because coverage by every other individual vaccination varies little by age in rural areas. By contrast, in urban areas coverage for every individual vaccination except Polio 0 increases with child's age, but full immunization varies little by age.

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.

Table 6.9 Source of childhood vaccinations

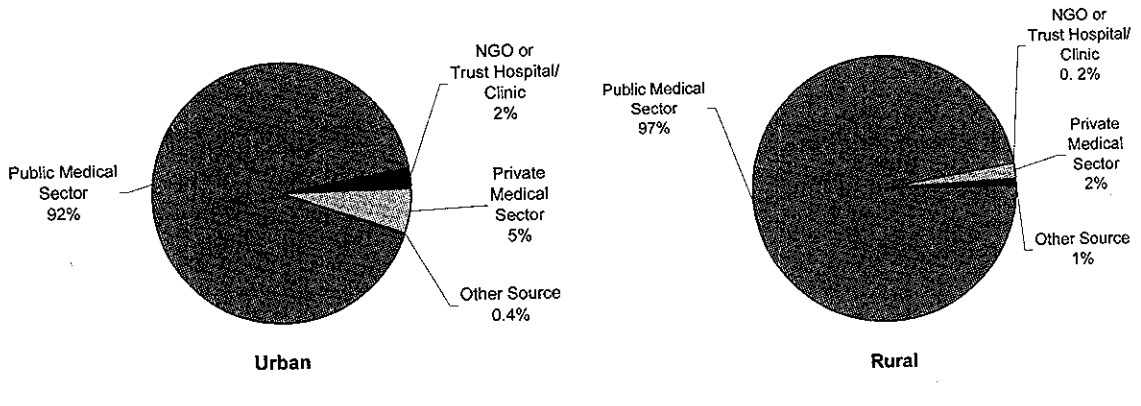
Percent distribution of children under age 3 who have received any vaccinations by source of most of the vaccinations, according to selected background characteristics, Orissa, 1999

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	97.2	0.8	1.9	0.2	100.0	354
12–23 months	97.9	0.0	1.8	0.3	100.0	418
24–35 months	94.5	0.6	3.1	1.8	100.0	426
Sex of child						
Male	97.4	0.1	2.0	0.5	100.0	640
Female	95.4	0.8	2.7	1.1	100.0	559
Birth order						
1	95.3	0.3	3.2	1.2	100.0	366
2	96.2	0.3	2.4	1.1	100.0	352
3	99.2	0.0	0.8	0.0	100.0	208
4+	96.4	1.1	2.2	0.4	100.0	273
Residence						
Urban	91.8	2.4	5.4	0.4	100.0	125
Rural	97.0	0.2	1.9	0.8	100.0	1,074
Mother's education						
Illiterate	97.3	0.2	1.5	1.0	100.0	654
Literate, < middle school complete	96.2	0.9	2.0	0.9	100.0	309
Middle school complete	95.3	1.0	3.7	0.0	100.0	121
High school complete and above	93.7	0.0	6.3	0.0	100.0	115
Religion						
Hindu	96.5	0.4	2.3	0.8	100.0	1,156
Muslim	(97.5)	(0.0)	(2.5)	(0.0)	100.0	24
Caste/tribe						
Scheduled caste	97.3	0.0	1.3	1.5	100.0	266
Scheduled tribe	96.4	0.5	2.2	0.9	100.0	245
Other backward class	96.2	0.9	2.1	0.8	100.0	389
Other	96.3	0.2	3.5	0.0	100.0	298
Standard of living index						
Low	96.5	0.0	2.2	1.3	100.0	651
Medium	97.0	1.1	1.7	0.3	100.0	423
High	94.6	0.0	5.4	0.0	100.0	115
Total	96.5	0.4	2.3	0.8	100.0	1,199

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey. Total includes 19 Christian children and 9 children with missing information on the standard of living index, who are not shown separately.
NGO: Nongovernmental organization
( ) Based on 25–49 unweighted cases

The public sector is the primary provider of childhood vaccinations. Most of the children who have received any vaccinations received most of them from a public-sector source, and only 2 percent received them from a private-sector source. The percentage of children receiving vaccinations from the private sector is slightly lower in rural areas (2 percent) than in urban areas (5 percent), where private-sector services tend to be concentrated. Even in urban areas, however, 92 percent of children received their vaccinations from the public sector. Children of more

Figure 6.5
Source of Childhood Vaccinations by Residence



Note: Percents add to more or less than 100.0 due to rounding

NFHS-2, Orissa, 1999

educated mothers and children in households with a high standard of living are slightly more likely to receive vaccinations from the private sector. Muslim children are almost equally likely to receive vaccinations from the private sector as Hindu children. Children from scheduled tribes, scheduled castes, and other backward classes are slightly less likely than children of mothers not in any backward class to receive vaccinations from the private sector. However, the percentages and differences in percentages of children receiving vaccinations from the private sector are very small in all of these cases.

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 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 the percentage who received a dose of Vitamin A within the past six months by selected background characteristics. In the state as a whole, more than two-fifths of children age 12–35 months received at least one dose of Vitamin A, but only 26 percent received a dose within the past six months. This indicates that a large majority of children in Orissa have not received Vitamin A supplementation at all, and even fewer children receive vitamin A supplementation regularly.

Table 6.10 also shows that children living in urban areas are somewhat more likely to receive Vitamin A supplementation than children living in rural areas. The proportion of children receiving vitamin A supplementation differs little by sex of child or by religion, but increases markedly as mother's education or household standard of living increases. The percentage receiving Vitamin A supplementation is particularly low among scheduled-tribe children. Children of birth order 4 or above are much less likely than children of birth orders 1 or 2 to have received any Vitamin A supplementation. In most cases, children from categories that are less

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, Orissa, 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	41.0	32.2	461
24–35 months	43.0	20.6	460
Sex of child			
Male	40.8	26.1	493
Female	43.3	26.8	428
Birth order			
1	46.3	27.2	259
2	49.6	33.1	272
3	36.7	21.1	163
4+	31.8	21.5	227
Residence			
Urban	47.8	32.5	96
Rural	41.3	25.7	825
Mother's education			
Illiterate	33.2	20.1	522
Literate, < middle school complete	44.9	30.1	228
Middle school complete	54.7	32.6	88
High school complete and above	75.9	49.9	83
Religion			
Hindu	41.8	26.2	884
Muslim	(42.8)	(22.6)	20
Caste/tribe			
Scheduled caste	42.1	26.5	203
Scheduled tribe	30.5	17.7	187
Other backward class	45.8	30.3	297
Other	46.3	28.5	234
Standard of living index			
Low	34.4	21.6	520
Medium	47.3	29.5	313
High	70.9	45.6	82
Total	42.0	26.4	921

Note: Table includes only surviving children from among the two most recent births in the three years preceding the survey. Total includes 18 Christian children and 6 children with missing information on the standard of living index, who are not shown separately.
( ) Based on 25–49 unweighted cases

likely to have received at least one dose of Vitamin A supplementation are also less 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 born during the three years preceding the survey were asked

if their children suffered from cough, fever, or diarrhoea during the past two weeks, and if so, the type of treatment given. The accuracy of 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 23 percent of children under age three in Orissa suffered from acute respiratory infection (cough accompanied by short, rapid breathing) at some time during the two-week period before the survey. A comparison with NFHS-1 ARI data is not meaningful because the two surveys took place at different times of the year and rates of ARI are affected by the time of the year when the measurements are taken.

Table 6.11 shows that there was not much variation in the prevalence of ARI by most of the background characteristics included in the table. ARI was somewhat more common among boys than girls. Children of mothers who have at least completed high school had a considerably lower occurrence of ARI than other children, and children from households with a high standard of living had a somewhat lower occurrence. The prevalence of ARI was lower among Hindu children (22 percent) than among Muslim (29 percent) or Christian (36 percent) children, but the percentages for Muslim and Christian children are based on small samples. Scheduled-tribe and other-backward-class children had lower prevalence of ARI (19 and 20 percent, respectively) than scheduled-caste children (27 percent) or children of mothers not in any backward class (24 percent). Children living in households with piped water had a somewhat lower incidence of ARI than children living in households with surface or ground water. The relatively small variation in the prevalence of ARI by most socioeconomic characteristics indicates that respiratory infections affect children of all strata irrespective of their socioeconomic background.

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. Fifty-seven percent of children received some advice or treatment from a health facility or health provider when ill with ARI. This percentage varies most by caste/tribe, with only 40 percent of scheduled-tribe children having been taken to a health facility or provider, compared with 52 percent of scheduled-caste children, 61 percent of other-backward-class children, and 71 percent of children of mothers not in any backward class. Older children age 24–35 months and female children are somewhat less likely to be taken to a health facility. The percentage who were taken to a health facility or provider does not vary much by most other background characteristics, although small samples for certain key categories (e.g., children of mothers who have at least completed high school or who are from households with a high standard of living) preclude some important comparisons.

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, Orissa, 1999

Background characteristic	Percentage of children suffering in past two weeks from:					Percentage with ARI taken to a health facility or provider	Number of children with ARI
	Cough accompanied by fast breathing (ARI)	Fever	Diarrhoea		Number of children		
			Any diarrhoea[1]	Diarrhoea with blood			
Age of child							
1–5 months	21.7	24.5	20.8	0.0	189	(47.3)	41
6–11 months	28.7	42.1	34.9	5.3	262	66.5	75
12–23 months	24.7	40.9	34.0	5.9	461	59.2	114
24–35 months	17.0	32.4	21.5	4.5	460	50.0	78
Sex of child							
Male	24.5	37.2	26.5	4.7	727	61.7	178
Female	20.2	34.7	30.0	4.2	644	50.7	130
Birth order							
1	25.5	36.5	27.4	3.5	393	63.6	100
2	21.9	32.0	28.2	5.6	394	49.8	86
3	20.2	35.9	27.9	3.9	247	56.5	50
4+	21.4	40.2	29.1	4.7	337	57.1	72
Residence							
Urban	23.3	31.7	29.2	3.6	142	53.5	33
Rural	22.4	36.5	28.0	4.6	1,229	57.5	275
Mother's education							
Illiterate	22.6	37.5	29.4	5.3	792	52.5	179
Literate, < middle school complete	26.5	34.2	30.5	3.9	338	62.5	90
Middle school complete	21.0	36.6	21.5	5.4	124	(57.4)	26
High school complete and above	11.8	30.8	19.8	0.0	118	*	14
Religion							
Hindu	22.1	35.6	27.9	4.2	1,319	57.1	291
Muslim	(28.7)	(45.1)	(44.8)	(6.1)	28	*	8
Christian	(35.7)	(46.0)	(24.8)	(15.6)	25	*	9
Caste/tribe							
Scheduled caste	27.3	41.7	34.1	7.4	315	52.2	86
Scheduled tribe	19.3	32.1	22.3	4.0	304	40.0	59
Other backward class	20.1	32.8	25.5	2.5	425	61.0	85
Other	23.9	38.4	31.3	4.7	327	70.9	78
Standard of living index							
Low	22.7	38.7	30.4	5.4	771	56.0	175
Medium	23.6	33.9	25.8	4.1	472	53.6	111
High	16.1	25.7	23.3	0.5	119	*	19
Source of drinking water							
Piped water	15.8	32.3	29.5	0.0	104	*	16
Hand pump	24.0	36.8	27.2	5.8	753	55.5	180
Well water	20.9	33.8	28.9	3.4	399	62.3	83
Surface water	24.3	42.2	30.5	3.9	115	(44.7)	28
Purification of water[2]							
Straining by cloth	25.2	38.0	32.9	5.6	152	(66.7)	38
Water filter	24.4	40.3	16.0	0.0	64	*	16
Boiling	25.9	36.2	23.2	3.5	95	(65.5)	25
Nothing	22.1	36.0	28.0	4.6	1,101	54.5	243
Total	22.5	36.0	28.1	4.5	1,372	57.1	308

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 a small number of children in households using alum to purify water, electronic water purifiers, or 'other' methods to purify water, and children with missing information on 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 add to more than the respective totals because multiple methods of purification of water could be recorded.

Fever

Fever was the most common of the three conditions examined, with 36 percent of children suffering from fever during the two weeks before the survey. The prevalence of fever is somewhat lower among children under age six months (25 percent) and age 24–35 months (32 percent) than among children age 6–23 months (41 to 42 percent). Scheduled-caste children suffer somewhat more from fever than other children, and incidence of fever decreases with increase in standard of living. Fever is slightly more prevalent among male children than female children, and more prevalent in rural areas than in urban areas. There is relatively little variation in the prevalence of fever by other background characteristics. As with acute respiratory infection, fever tends to strike young children irrespective of their demographic and socioeconomic background.

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 born during the past three years 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 and treatment of diarrhoea, and about their knowledge and use of ORS.

Table 6.11 shows that 28 percent of children under age three suffered from diarrhoea in the two-week period before the interview. There are seasonal variations in the incidence 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 6–23 months are most susceptible to diarrhoea. Girls (30 percent) are slightly more likely to have diarrhoea than boys (27 percent). Among all background characteristics, the prevalence of diarrhoea is lowest for children whose water is purified by water filter. It is higher for children whose mothers have not completed middle school than for children whose mothers have. It decreases somewhat with increasing standard of living, and it is higher for scheduled-caste children than for children of other caste/tribe categories. There is little variation in the incidence of diarrhoea by other background characteristics.

Sixteen percent of children who suffered from diarrhoea in Orissa suffered from bloody diarrhoea with blood, a symptom of dysentery. Children under age six months had no incidence of diarrhoea with blood, compared with 5 to 6 percent among older children. Children living in rural areas, children belonging to scheduled castes, children in households with a low or medium standard of living, and children in households without piped water for drinking or without a water filter for purification all have a somewhat elevated risk of diarrhoea with blood.

Table 6.12 Knowledge of diarrhoea care

Among mothers with births during the three years preceding the survey, percentage who know about oral rehaydration 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, Orissa, 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	61.6	18.3	20.3	57.8	3.6	100.0	35.9	138
20–24	72.7	10.0	26.4	60.3	3.3	100.0	41.0	495
25–29	78.8	10.8	23.3	64.3	1.6	100.0	51.2	452
30–34	72.1	5.9	25.3	64.4	4.4	100.0	43.4	215
35–49	61.1	6.7	24.2	61.6	7.5	100.0	44.1	74
Residence								
Urban	78.8	8.2	11.6	77.8	2.4	100.0	50.3	139
Rural	72.2	10.5	25.9	60.3	3.2	100.0	43.7	1,235
Education								
Illiterate	63.6	14.0	29.4	52.1	4.5	100.0	40.7	803
Literate, < middle school complete	84.7	5.7	22.0	70.7	1.6	100.0	43.8	332
Middle school complete	82.5	5.3	12.5	80.5	1.7	100.0	52.6	126
High school complete and above	93.2	2.9	9.8	87.3	0.0	100.0	62.7	113
Religion								
Hindu	72.8	10.5	24.6	61.6	3.2	100.0	44.3	1,321
Muslim	(71.9)	(4.6)	(32.2)	(63.2)	(0.0)	100.0	(44.1)	26
Christian	(74.8)	(4.5)	(8.6)	(82.9)	(4.1)	100.0	(47.6)	27
Caste/tribe								
Scheduled caste	76.5	13.7	22.4	62.1	1.8	100.0	41.5	309
Scheduled tribe	53.7	11.7	36.7	45.6	5.9	100.0	36.4	305
Other backward class	76.8	12.4	22.0	62.1	3.5	100.0	47.1	432
Other	82.1	3.0	18.2	77.2	1.5	100.0	50.9	329
Exposure to media								
Exposed to any media	83.5	5.7	18.9	73.9	1.5	100.0	53.5	567
Watches television weekly	85.9	5.8	15.2	77.7	1.3	100.0	54.8	328
Listens to radio weekly	84.1	5.3	18.2	75.5	1.0	100.0	56.1	435
Visits cinema/theatre monthly	85.5	1.0	7.8	90.3	0.9	100.0	57.8	58
Reads newspaper/magazine weekly	88.0	5.4	15.2	78.6	0.8	100.0	59.9	136
Not regularly exposed to any media	65.4	13.5	28.4	53.8	4.3	100.0	38.0	807
Total	72.9	10.3	24.5	62.1	3.2	100.0	44.4	1,374

( ) Based on 25–49 unweighted cases
[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 73 percent of mothers with births during the three years preceding NFHS-2 know about ORS packets, up from 43 percent among women who gave birth during the three years before NFHS-1. This comparison suggests that awareness of ORS has increased substantially during the six years between the two surveys. Knowledge of ORS packets is somewhat lower among mothers age 15–19 and mothers age 35 years or older than among mothers in intermediate age groups. As expected, knowledge is somewhat higher among urban mothers than rural mothers, and substantially higher among more educated mothers, especially literate mothers as compared with illiterate mothers. Knowledge of ORS does not vary by

religion. 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 are less likely to know about ORS than mothers with any other background characteristics.

In order to assess mothers' knowledge of children's need for extra fluids during episodes of diarrhoea, all mothers of children born in the past three years were asked: 'When a child is sick with diarrhoea, should he/she be given less to drink than usual, about the same, or more than usual?' Table 6.12 shows the response of mothers to this question by selected background characteristics. In Orissa, 62 percent of mothers report that children should be given more to drink than usual during an episode of diarrhoea, compared with 10 percent who report that children should be given less and 25 percent who report that children should be given the same amount. This suggests that many mothers in Orissa still need education in the proper treatment of diarrhoea. The proportion reporting correctly that children with diarrhoea should be given more to drink is particularly low among rural mothers, less educated mothers, mothers belonging to scheduled tribes, and mothers not regularly exposed to any mass media. Mothers age 15–24 and 35 years or older are slightly less likely to answer correctly than mothers age 25–34.

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 stools, fever, marked thirst, not eating or not drinking well, getting sicker or very sick, and not getting better. Table 6.12 shows that 44 percent of mothers were able to name two or more signs of diarrhoea that indicate that a child with diarrhoea should be given medical treatment. As expected, the percentage is lower among rural than urban mothers, lower among less-educated than more-educated mothers, and much lower among mothers not regularly exposed to any media than mothers exposed to some media. It is also lower among mothers belonging to scheduled tribes than mothers in other caste/tribe categories. Knowledge of two or more signs of diarrhoea that suggest the need for medical treatment is universally low across demographic and socioeconomic groups. This suggests a need for further educating mothers with regard to 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 various types of oral rehydration therapy (ORT), and the percentage who received other types of treatment, by selected background characteristics. Among children in Orissa who suffered from diarrhoea during the two weeks preceding NFHS-2, 47 percent were taken to a health facility or provider. This is the same percentage as reported in NFHS-1. Thirty-five percent of children with diarrhoea did not receive any treatment at all. Medical advice or treatment was more likely to be sought for boys than for girls, for urban children than for rural children, for children of more-educated mothers than for children of less-educated mothers, and for children in households with a high standard of living than children in households with a low or medium standard of living. The likelihood of seeking treatment is much lower for scheduled-tribe children than for children with any other background characteristics, once again emphasizing the great disadvantages associated with being a scheduled-tribe child in Orissa.

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, Orissa, 1999

Background characteristic	Taken to a health facility or provider	Oral rehydration					Other treatment					No treatment	Number of children with diarrhoea
		Oral rehydration salt (ORS) packets	Gruel	Homemade sugar-salt-water solution	Increased fluids	ORT not given	Pill or syrup	Injection	Intravenous (IV/drip/ bottle)	Home remedy/ Herbal medicine	Other		
Age of child													
1–11 months	43.8	29.1	11.5	3.8	36.9	40.4	25.7	2.2	0.8	5.8	0.0	44.3	131
12–23 months	49.4	37.1	15.6	11.4	39.0	31.1	22.1	5.7	0.0	7.0	0.0	27.5	157
24–35 months	46.8	39.8	16.2	12.4	53.0	25.5	24.3	6.8	0.0	6.6	0.6	32.7	99
Sex of child													
Male	50.6	35.3	14.4	10.7	42.3	35.1	23.5	2.9	0.6	4.6	0.0	33.8	193
Female	43.1	34.8	14.3	7.5	41.5	30.6	24.2	6.6	0.0	8.5	0.3	35.2	193
Residence													
Urban	51.1	34.6	13.7	15.3	33.0	32.8	26.1	4.1	0.0	0.0	1.4	27.1	42
Rural	46.4	35.1	14.4	8.4	43.0	32.8	23.6	4.8	0.3	7.3	0.0	35.4	344
Mother's education													
Illiterate	42.3	32.3	12.2	6.5	37.8	39.1	23.1	6.7	0.5	6.6	0.0	38.5	233
Literate, < middle school complete	50.5	34.9	18.7	12.5	44.3	28.2	22.1	1.1	0.0	7.3	0.0	35.9	103
Middle school complete	(61.0)	(48.6)	(22.8)	(8.1)	(39.4)	(20.5)	(31.3)	(6.2)	(0.0)	(8.1)	(0.0)	(12.3)	27
High school complete and above	(59.8)	(47.8)	(7.3)	(21.4)	(74.2)	(4.6)	(31.0)	(0.0)	(0.0)	(0.0)	(2.5)	(14.1)	23
Caste/tribe													
Scheduled caste	48.1	35.7	8.8	5.2	37.6	38.0	22.9	4.2	1.0	6.1	0.0	37.4	107
Scheduled tribe	21.2	27.9	12.3	0.8	34.1	46.1	15.6	1.6	0.0	8.2	0.0	47.6	68
Other backward class	55.1	35.2	20.4	10.4	43.0	29.6	31.4	8.1	0.0	7.1	0.0	30.2	109
Other	53.8	39.1	15.1	17.3	50.3	22.0	22.2	3.9	0.0	5.3	0.6	27.4	102
Standard of living index													
Low	45.7	34.1	10.7	8.0	35.9	36.4	22.8	5.3	0.5	4.7	0.0	39.9	234
Medium	44.5	34.5	19.9	10.8	48.2	29.1	25.8	5.0	0.0	9.9	0.0	28.5	122
High	(70.3)	(48.5)	(17.9)	(12.1)	(64.5)	(17.5)	(22.0)	(0.0)	(0.0)	(7.8)	(2.1)	(17.7)	28
Total	46.9	35.1	14.4	9.1	41.9	32.8	23.9	4.8	0.3	6.5	0.2	34.5	386

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 2 children with missing information on the standard of living index, who are not shown separately.
( ) Based on 25–49 unweighted cases

Thirty-five percent of the children age 1–35 months who suffered from diarrhoea during the two weeks preceding the survey were treated with ORS packets. Although this is up from 17 percent in NFHS-1, indicating considerable improvement in the use of ORS packets in Orissa for the treatment of childhood diarrhoea, there is still much room for improvement.

The proportion of children who did not receive any of the various types of oral rehydration therapy (ORT) when sick with diarrhoea decreased from 59 percent in NFHS-1 to 33 percent in NFHS-2. In NFHS-2, 42 percent of children with diarrhoea received increased fluids, and 14 percent received gruel.

The use of antibiotics and other antidiarrhoeal drugs is not generally recommended for the treatment of childhood diarrhoea. Yet 24 percent of the children who had diarrhoea in the two weeks before NFHS-2 were treated with pills or syrup, and 5 percent received an injection. These figures indicate the need for increased knowledge about the proper treatment of diarrhoea, not only among mothers but also among health-care providers. More generally, all of these results underscore the need for informational programmes for mothers and supplemental training for health-care providers that emphasize the importance of ORT, increased fluid intake, and continued feeding, and discourage the use of drugs to treat childhood diarrhoea.

The youngest children (age 1–11 months), male children, and children belonging to scheduled castes and scheduled tribes are less likely than other children to receive any of the various types of oral rehydration therapy. Children are more likely to receive oral rehydration therapy with an increase in their mother's level of education or their household's standard of living. The use of unnecessary drugs or injections varies little except by mother's education (higher for children whose mothers have completed middle school) and by caste/tribe status (highest for other-backward-class children and lowest for scheduled-tribe children).

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. Only 135 children were treated with ORS packets in the Orissa sample, so the results in this table should be interpreted with caution. For 58 percent of children who were treated with ORS, the packets were obtained from public-sector sources, for 12 percent the packets were obtained from private-sector sources, for 1 percent the packets were obtained from nongovernmental organizations or trusts, and for the remaining 30 percent the packets were obtained from other sources, primarily shops. Among the public-sector sources, community health centres (CHC), rural hospitals, or Primary Health Centres (PHC) are most often mentioned, followed by government or municipal hospitals, sub-centres, and government dispensaries, although 1 in 10 mention some other public medical sector source. Among the private-sector sources, nearly all ORS packets were obtained from a private hospital or clinic, private doctor, or pharmacy or drugstore. The pharmacy or drugstore category, listed under private-sector sources, accounts for almost 2 percent of all cases. If this category is added to the 'other source' category, the proportion purchasing ORS packets from shops, pharmacies, or drugstores becomes 31 percent.

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, Orissa, 1999

Source	Percent
Public medical sector	58.0
Government/municipal hospital	14.9
Government dispensary	2.1
CHC/rural hospital/PHC	22.8
Sub-centre	8.3
Other public medical sector	9.9
NGO or trust	0.8
NGO worker	0.8
Private medical sector	11.5
Private hospital/clinic	7.0
Private doctor	1.6
Private mobile clinic	0.8
Private paramedic	0.4
Pharmacy/drugstore	1.6
Other source	29.6
Shop	24.7
Husband	3.3
Other	1.7
Total percent	100.0
Number of children treated with ORS	135

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; NGO: Nongovernmental organization

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 the placenta of HIV-infected women to their unborn children, or through contact with contaminated needles (injections) or blood. HIV and AIDS prevalence 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 Organization (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-one percent of women in Orissa have never heard of an illness called AIDS. NFHS-1 did not include AIDS-awareness questions for Orissa, so it is not possible to assess any trend in AIDS awareness between NFHS-1 and NFHS-2.

Knowledge of AIDS varies little by woman's age. Urban residence, education, and standard of living have a strong positive association with AIDS knowledge. Sixty-eight percent of urban women in Orissa have heard about AIDS, compared with only 36 percent of rural women. Knowledge of AIDS increases from 17 percent among illiterate women to 94 percent among women who have at least completed high school. Similarly, knowledge of AIDS increases from 20 percent among women in households with a low standard of living to 90 percent among women in households with a high standard of living. Hindu women are much less likely to know about AIDS (39 percent) than Muslim women (59 percent) but more likely to know about AIDS than Christian women (29 percent). Greater knowledge of AIDS among Muslims than Hindus may in part be due to the greater concentration of Muslims in urban areas. Only 11 percent of scheduled-tribe women have heard about AIDS, compared with 33 percent of scheduled-caste women, 38 percent of women belonging to other backward classes, and 64 percent of 'other' women. Exposure to mass media increases women's knowledge about AIDS substantially. Ninety-two percent of women who read a newspaper or magazine at least once a week know about AIDS, compared with 15 percent of women who are not regularly exposed to any mass media (newspapers, magazines, radio, television, cinema, or theatre).

Source of Knowledge About AIDS

As part of the 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 also gives the percentages of ever-married women who have heard about AIDS from specific sources. Television is the most important source of information about AIDS among ever-married women in Orissa. Seventy-four percent of women report television as a source of their information about AIDS, followed by radio (62 percent), and friends or relatives (40 percent). Only 2 percent report that they received information about AIDS from a health worker.

Television is the most important source of information about AIDS in both rural and urban areas, followed by radio. 'Friends or relatives' is the third most important source in rural areas, whereas 'newspapers or magazines' is the third most important source by a slight margin over 'friends or relatives' in urban areas. Rural women are more likely than urban women to have learned about AIDS from the radio or from friends or relatives. On the other hand, urban women are more likely to have learned about AIDS from television, cinema, or a newspaper or magazine. More-educated women are more likely than less-educated women to have learned about AIDS from the radio, television, newspaper or magazine, cinema, or a poster or hoarding but less likely to have learned from a friend or relative. Hindu women are slightly more likely than Muslim women to have learned about AIDS from the radio or a newspaper or magazine, but somewhat less likely to have learned about AIDS from a friend or relative. As standard of living

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, Orissa, 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	36.3	1,112	64.0	69.6	5.1	17.0	7.1	1.5	0.7	43.1	0.8	1.7	404
25–34	41.4	1,751	62.2	74.9	5.7	17.4	7.1	2.2	0.4	40.1	0.5	3.0	724
35–49	38.3	1,562	59.9	77.2	4.4	15.6	6.8	2.5	0.4	38.4	1.3	3.6	599
Residence													
Urban	67.7	488	47.8	91.1	9.8	29.5	8.1	3.6	1.0	27.9	0.7	3.8	331
Rural	35.5	3,937	65.1	70.5	3.9	13.6	6.8	1.8	0.3	43.1	0.9	2.7	1,396
Education													
Illiterate	17.3	2,633	52.9	55.6	1.6	1.3	4.9	1.1	0.2	46.3	0.6	3.3	455
Literate, < middle school complete	60.5	1,153	62.7	75.1	2.1	9.3	6.2	1.4	0.2	39.3	0.3	2.2	698
Middle school complete	85.0	305	69.0	79.8	7.0	24.3	7.1	2.6	0.0	39.2	0.9	1.1	259
High school complete and above	94.4	334	66.8	95.7	15.2	48.8	11.9	5.0	1.8	34.4	2.3	5.5	315
Religion													
Hindu	38.8	4,279	62.0	74.5	5.0	16.6	6.8	2.0	0.5	40.0	0.8	2.8	1,661
Muslim	58.8	75	56.8	75.6	1.3	13.4	8.9	5.0	0.0	48.1	0.0	2.6	44
Christian	28.5	68	(65.9)	(59.9)	(14.2)	(31.3)	(20.1)	(8.6)	(0.0)	(40.0)	(8.6)	(17.1)	19
Caste/tribe													
Scheduled caste	33.1	938	61.3	60.2	1.8	7.7	5.0	3.2	0.2	48.5	1.1	4.5	311
Scheduled tribe	11.0	868	47.0	57.7	2.3	10.9	3.5	4.0	0.0	35.8	1.8	4.8	96
Other backward class	38.4	1,371	57.5	73.4	3.9	13.6	7.3	1.5	0.4	41.9	0.7	1.5	527
Other	63.7	1,246	66.7	82.7	7.5	22.9	8.0	2.0	0.6	36.4	0.8	3.0	794
Standard of living index													
Low	20.1	2,376	57.8	50.0	1.6	3.5	6.5	2.2	0.2	50.3	0.6	4.6	478
Medium	52.4	1,559	63.6	76.7	3.7	12.7	5.5	0.9	0.3	39.2	0.5	1.8	818
High	89.5	474	62.9	97.1	11.6	39.2	10.8	4.6	1.0	30.7	1.7	2.9	425
Exposure to mass media													
Exposed to any media	69.6	1,958	66.8	82.9	6.2	20.6	8.1	2.1	0.5	35.1	1.0	2.7	1,363
Listens to radio weekly	67.4	1,463	80.9	79.3	6.3	19.8	8.9	1.7	0.3	36.0	1.3	2.3	985
Watches television weekly	82.4	1,228	61.7	95.4	7.2	23.7	8.3	2.3	0.7	32.1	1.1	2.6	1,012
Goes to cinema/theatre monthly	87.7	205	70.5	92.9	14.3	32.7	14.6	3.1	1.2	28.8	1.2	2.5	179
Reads newspaper/magazine weekly	91.6	475	71.2	90.7	12.4	46.7	11.7	3.8	1.0	28.8	1.4	3.3	435
Not regularly exposed to any media	14.8	2,467	43.3	42.7	0.9	2.1	3.0	2.4	0.3	59.5	0.3	3.8	364
Total	39.0	4,425	61.8	74.4	5.1	16.7	7.0	2.2	0.4	40.2	0.8	2.9	1,727

Note: Total includes a small number of women belonging to 'other' religions or with missing information on caste/tribe and the standard of living index, who are not shown separately.
( ) Based on 25–49 unweighted cases

increases, women are more likely to have learned about AIDS from television, less likely to have learned from a friend or relative, and equally likely to have learned from the radio. Women who are not regularly exposed to mass media are much more likely to have learned about AIDS from a friend or relative than from any other source, as might be expected.

Knowledge of Ways to Avoid AIDS

Respondents who had heard of AIDS were asked if a person could do anything to avoid becoming infected. Those who reported that something could be done were asked what a person could 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, 16 percent do not know any way to avoid infection. As expected, this percentage is higher among rural women than among urban women and among women not regularly exposed to mass media than among women who are regularly exposed. The percentage who do not know any way to avoid becoming infected with AIDS increases slightly with age and decreases sharply with increasing levels of education and household standard of living. This percentage is higher among Hindu women (16 percent) than among Muslim women (5 percent) or Christian women (11 percent). Scheduled-tribe women are less likely to know any way to avoid AIDS than women in other caste/tribe/class groups.

Among women who report that something can be done to prevent AIDS, 'avoiding injections or using clean needles' (62 percent) and 'having only one sex partner' (40 percent) are the most commonly mentioned ways of avoiding AIDS. 'Avoiding sex with commercial sex workers' and 'avoiding blood transfusion' are also mentioned as ways to avoid AIDS by substantial proportions of women (35 percent and 27 percent, respectively). Only 15 percent of women mention using a condom during intercourse as a way of avoiding AIDS. Seventeen percent mention abstaining from sex, 5 percent mention avoiding intravenous drug use, and 3 percent mention avoiding sex with homosexuals. The percentage reporting each of these means of avoiding AIDS is lower among rural than among urban women, except for the percentage who mention avoiding sex with commercial sex workers, and is lower among women not regularly exposed to mass media than among women who are regularly exposed. The level of education and the household standard of living are strongly and positively associated with women mentioning each of these ways of avoiding AIDS. Among all background characteristics, the use of condoms as a way of avoiding AIDS is mentioned most often by women who have at least completed high school, followed by women from households with a high standard of living, women who go to the cinema or theatre at least once a month, and women who read a newspaper or magazine weekly.

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, Orissa, 1999

Background characteristic	Percentage who believe AIDS can be avoided by:										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	Knows no way to avoid AIDS	
Age											
15–24	17.7	17.0	42.3	33.5	4.5	25.7	62.9	4.6	28.6	11.9	404
25–34	18.3	15.4	40.2	36.1	2.2	27.3	61.8	3.9	24.2	16.0	724
35–49	14.6	11.6	36.7	33.4	2.3	27.8	61.2	6.3	24.0	17.8	599
Residence											
Urban	21.1	20.9	40.2	33.9	3.2	32.7	68.8	5.6	22.7	13.6	331
Rural	15.9	13.0	39.3	34.7	2.7	25.7	60.2	4.7	25.7	16.1	1,396
Education											
Illiterate	10.0	5.4	30.8	28.6	0.9	19.7	48.3	4.5	14.3	26.8	455
Literate, < middle school complete	17.4	12.1	37.0	31.2	2.5	24.9	61.1	4.3	27.5	16.5	698
Middle school complete	19.3	18.3	42.8	39.3	3.8	28.6	73.2	4.1	28.9	9.8	259
High school complete and above	23.6	29.8	54.7	46.5	5.3	41.2	73.7	7.5	32.7	2.5	315
Religion											
Hindu	16.8	14.7	39.3	33.9	2.8	27.1	61.6	4.9	24.9	16.0	1,661
Muslim	14.2	7.5	40.0	45.5	1.3	31.7	69.7	3.9	30.1	5.2	44
Christian	(28.6)	(5.6)	(51.6)	(57.1)	(5.6)	(17.0)	(68.7)	(8.6)	(37.2)	(11.4)	19
Caste/tribe											
Scheduled caste	12.4	9.4	37.8	25.4	2.1	27.8	54.0	5.5	20.4	20.0	311
Scheduled tribe	12.1	16.6	30.7	22.2	1.1	11.5	35.7	0.0	13.6	31.5	96
Other backward class	12.1	8.5	39.6	34.3	2.3	28.0	60.7	5.2	22.7	16.6	527
Other	22.4	20.2	41.1	39.7	3.5	28.1	68.9	5.0	30.1	11.5	794
Standard of living index											
Low	11.6	7.9	32.5	31.8	1.4	21.5	53.3	3.8	18.6	20.2	478
Medium	15.7	13.3	39.6	31.3	2.5	24.6	61.0	4.9	27.1	16.9	818
High	25.0	24.2	47.3	44.0	4.9	37.6	72.6	5.9	29.1	8.3	425
Exposure to mass media											
Exposed to any media	19.2	16.5	40.5	37.3	3.3	29.9	66.4	5.6	27.3	12.9	1,363
Listens to radio weekly	21.3	15.9	39.3	40.6	3.2	29.5	67.0	5.7	29.4	12.3	985
Watches television weekly	19.7	19.2	43.7	35.4	3.3	31.4	67.5	5.9	28.0	11.2	1,012
Goes to cinema/theatre monthly	24.7	23.0	42.3	41.6	4.4	42.5	75.1	6.2	30.1	6.5	179
Reads newspaper/magazine weekly	25.2	25.0	48.2	42.8	4.4	33.1	74.1	5.3	30.7	6.8	435
Not regularly exposed to any media	8.1	6.9	35.9	24.3	0.9	16.6	44.8	2.3	17.3	26.0	364
Total	16.9	14.5	39.5	34.5	2.8	27.1	61.8	4.9	25.2	15.7	1,727

Note: Total includes 2 women belonging to 'other' religions and 7 women with missing information on the standard of living index, who are not shown separately.
( ) Based on 25–49 unweighted cases

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 greatly expanded 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. The height and weight measurements and anaemia testing were conducted by a specially-trained health investigator attached to each interviewing team.

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 women how often they consume various types of food (daily, weekly, occasionally, or never). Only 7 percent of women in Orissa never eat chicken, meat, or fish (Table 7.1). On the other hand, very few women (2 percent) eat chicken, meat, or fish every day. The majority of women (65 percent) eat these types of food only occasionally. Twenty-six percent of women never consume eggs, and a majority of women (58 percent) consume eggs only occasionally. Nineteen percent of women never consume milk or curd, and a majority of women (61 percent) consume milk or curd only occasionally. Women consume vegetables (green leafy and other vegetables) most often. A majority of women consume these types of food on a daily basis. Nearly four out of every five women consume daily vegetables other than green leafy vegetables. Pulses and beans are also an important part of the diet for the 81 percent of women who consume them either daily or weekly. Fruits, which are often available only seasonally, are eaten daily by only 2 percent of women, weekly by 12 percent of women, and occasionally by 81 percent of women.

Table 7.2 shows that there are substantial differentials in food consumption patterns by selected background characteristics. Age does not play a major role in women's consumption pattern, except that younger women are somewhat more likely than older women to eat eggs and less likely to consume milk or curd. Women in urban areas are more likely than women in rural areas to include every type of food in their diet, particularly nutritious foods such as pulses or beans, fruits, dairy products, and chicken, meat, or fish, but there are no rural-urban differences in the consumption of vegetables. Illiterate women have poorer and less varied diets than literate women, and their diet is particularly deficient in fruit, dairy products and eggs.

PREVIOUS PAGE BLANK

Table 7.1 Women's food consumption

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

Type of food	Frequency of consumption				Total percent
	Daily	Weekly	Occasionally	Never	
Milk or curd	10.1	10.6	60.7	18.6	100.0
Pulses or beans	40.3	40.4	18.2	1.1	100.0
Green, leafy vegetables	56.1	34.8	8.9	0.2	100.0
Other vegetables	78.9	17.0	4.2	0.0	100.0
Fruits	2.4	11.9	80.8	4.8	100.0
Eggs	0.8	14.8	58.1	26.3	100.0
Chicken, meat, or fish	1.5	26.7	65.3	6.5	100.0

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, Orissa, 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	17.5	80.1	91.3	96.8	14.4	17.0	27.9	1,112
25–34	21.0	81.2	91.0	95.5	14.8	16.9	28.3	1,751
35–49	22.5	80.6	90.6	95.5	13.9	13.2	28.4	1,562
Residence								
Urban	39.7	90.7	92.4	97.1	28.3	31.2	46.1	488
Rural	18.3	79.5	90.8	95.7	12.6	13.7	26.0	3,937
Education								
Illiterate	11.5	73.6	89.6	94.5	10.8	10.5	22.3	2,633
Literate, < middle school complete	25.4	88.6	91.7	97.6	13.4	18.3	31.6	1,153
Middle school complete	34.9	93.7	94.8	98.9	22.9	24.6	41.0	305
High school complete and above	63.1	97.1	95.2	98.0	38.0	38.1	51.7	334
Religion								
Hindu	20.7	80.6	91.0	95.8	14.1	14.9	27.5	4,279
Muslim	23.2	87.2	88.6	95.5	29.1	53.0	68.7	75
Christian	14.6	77.4	93.3	96.7	12.1	20.5	29.9	68
Caste/tribe								
Scheduled caste	12.7	76.1	92.2	96.3	9.9	14.3	25.1	938
Scheduled tribe	8.2	71.0	92.1	92.5	12.8	12.3	16.9	868
Other backward class	23.0	82.5	89.8	96.0	14.4	13.6	28.2	1,371
Other	32.9	89.0	90.4	97.6	18.8	21.1	38.4	1,246
Standard of living index								
Low	10.4	72.4	89.1	94.1	9.1	10.8	19.7	2,376
Medium	25.8	88.6	92.7	97.5	14.6	17.4	32.9	1,559
High	55.1	96.4	94.5	98.8	40.1	33.3	54.8	474
Total	20.7	80.7	90.9	95.8	14.4	15.6	28.2	4,425

Note: Total includes 3 women with 'other' religions and 1 and 15 woman with missing information on caste/tribe and the standard of living index, respectively, who are not shown separately.

Muslims consume almost every food item more often than either Hindus or Christians, except for vegetables. Women from scheduled castes, scheduled tribes, and other backward classes have relatively poor diets compared with the diets of women not in any backward class. As expected, poverty has a strong negative effect on the consumption of nutritious types of food. Women in households with the lowest standard of living are much less likely than other women to eat fruits; eggs; chicken, meat or fish; or milk or curd on a regular basis. Compared with these women, women in households with a high standard of living are about five times as likely to consume dairy products, four times as likely to consume fruits, and three times as likely to consume eggs, chicken, meat, or fish 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 as 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 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 Orissa of 151 cm. The mean height varies only slightly between 149 and 152 cm for women in different population groups, as shown in Table 7.3. Fifteen percent of women are under 145 cm in height. Older women are more likely than younger women to be short, as are illiterate women, women from scheduled castes or tribes, and women who are self-employed or who are employed by someone else. Short stature is also strongly related to poverty. One in every six women living in households with a low standard of living is below 145 cm in height, compared with 1 in every 10 women living in households with a high standard of living. On average, women in households with a high standard of living are about two centimetres taller than women in households with a low standard of living.

Table 7.3 also shows an index that relates a woman's weight to her height. 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). 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 mean BMI for women in Orissa is 19.2. Chronic energy deficiency is usually indicated by a BMI of less than 18.5. Almost half (48 percent) of women have a BMI below 18.5, indicating a high prevalence of nutritional deficiency. Nutritional problems are particularly serious for younger women, rural women, illiterate women, and women from scheduled castes, and scheduled tribes. Standard of living is negatively related to chronic energy deficiency. Women in households with a low standard of living are more than two and half times as likely to have a low BMI as women in households with a high standard of living. Hindu women are much more likely than Muslim or Christian women to have a low BMI. Women who are employed by someone else and women who are working in a family

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, Orissa, 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	150.5	12.4	292	18.8	50.0	270
20–24	150.5	14.8	788	18.6	52.5	689
25–29	150.9	14.5	910	18.9	50.3	820
30–34	150.8	15.3	809	19.3	47.5	768
35–49	150.1	15.4	1,522	19.5	44.6	1,513
Marital status						
Currently married	150.5	14.8	4,043	19.2	47.7	3,781
Not currently married	150.4	15.8	278	18.8	52.2	278
Residence						
Urban	151.1	13.1	477	20.7	32.9	450
Rural	150.4	15.1	3,843	19.0	49.9	3,609
Education						
Illiterate	150.1	16.3	2,555	18.6	54.6	2,414
Literate, < middle school complete	150.8	13.8	1,141	19.6	40.8	1,066
Middle school complete	151.4	9.8	299	19.8	41.5	275
High school complete and above	151.7	12.3	325	21.2	27.2	304
Religion						
Hindu	150.5	15.0	4,178	19.1	48.3	3,927
Muslim	150.9	12.4	73	20.1	39.1	69
Christian	151.2	14.5	67	19.2	40.3	62
Caste/tribe						
Scheduled caste	149.4	19.4	912	18.6	54.6	837
Scheduled tribe	150.2	15.8	843	18.5	55.5	796
Other backward class	150.8	14.0	1,345	19.1	48.2	1,264
Other	151.2	11.9	1,219	19.9	37.9	1,163
Work status						
Working in family farm/business	150.3	13.8	310	18.6	52.0	297
Employed by someone else	150.4	16.4	683	18.5	56.3	645
Self-employed	149.8	18.7	325	19.2	45.2	309
Not worked in past 12 months	150.6	14.3	3,003	19.3	46.0	2,808
Standard of living index						
Low	149.9	17.5	2,319	18.5	55.2	2,164
Medium	150.9	12.4	1,522	19.3	45.7	1,434
High	152.1	9.7	465	21.6	20.8	446
Total	150.5	14.9	4,321	19.2	48.0	4,059

Note: Total includes a small number of women belonging to 'other' religions and a small number of women with missing information on 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).

farm/business are more likely than other women to have a low BMI. Women who are not currently married are slightly more likely than currently married women to have a low BMI.

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, may become an underlying cause of maternal mortality and perinatal mortality, and 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 the haemoglobin levels of all ever-married women 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 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, emphasizing the voluntary nature of the test, and asking whether 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 statement asking whether or not she would give her permission for the health investigator 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. Three levels of severity of anaemia are distinguished: mild anaemia (10.0–10.9 g/dl 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). Appropriate adjustments in these cutoff points were made for

[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.

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, Orissa, 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	67.1	42.3	22.5	2.3	291
20–24	63.3	43.0	19.3	1.0	784
25–29	60.6	42.8	16.4	1.4	902
30–34	61.8	45.4	15.4	0.9	795
35–49	64.2	47.9	14.1	2.2	1,510
Marital status					
Currently married	62.8	45.1	16.3	1.4	4,005
Not currently married	66.9	44.8	17.7	4.4	277
Residence					
Urban	54.8	41.3	11.9	1.6	473
Rural	64.1	45.6	16.9	1.6	3,809
Education					
Illiterate	68.3	46.7	19.7	1.9	2,535
Literate, < middle school complete	59.7	45.1	13.2	1.5	1,127
Middle school complete	51.3	41.3	9.6	0.4	298
High school complete and above	43.9	36.2	7.3	0.3	321
Religion					
Hindu	63.1	45.3	16.3	1.6	4,140
Muslim	50.4	36.3	12.5	1.7	72
Christian	72.7	45.7	24.4	2.5	67
Caste/tribe					
Scheduled caste	66.3	45.3	18.6	2.4	908
Scheduled tribe	74.7	49.6	23.2	1.9	834
Other backward class	61.3	44.7	14.9	1.7	1,335
Other	54.4	42.3	11.6	0.6	1,205
Work status					
Working in family farm/business	67.1	48.5	17.3	1.3	308
Employed by someone else	68.3	45.6	20.0	2.7	673
Self-employed	68.0	49.7	17.3	1.0	325
Not worked in past 12 months	60.9	44.1	15.3	1.4	2,976
Standard of living Index					
Low	68.0	47.3	18.9	1.7	2,295
Medium	61.1	44.3	15.2	1.7	1,512
High	44.3	36.2	7.8	0.3	460
Pregnancy/breastfeeding status					
Pregnant	60.5	26.8	33.0	0.7	297
Breastfeeding (not pregnant)	64.9	45.8	17.9	1.1	1,098
Not pregnant/not breastfeeding	62.6	46.7	14.1	1.8	2,887
Height					
< 145 cm	65.6	46.5	17.5	1.6	642
≥ 145 cm	62.6	44.9	16.2	1.5	3,635

Contd...

women living at altitudes above 1,000 metres and women who smoke, since both of these groups require more haemoglobin in their blood (Centers for Disease Control and Prevention, 1998).

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, Orissa, 1999

Background characteristic	Percentage of women with any anaemia	Percentage of women with: Mild anaemia	Moderate anaemia	Severe anaemia	Number of women
Body mass index					
< 18.5 kg/m^2	65.9	46.5	17.2	2.2	2,010
≥ 18.5 kg/m^2	60.5	43.8	15.7	1.0	2,258
Fruit and vegetable consumption[1]					
Fruit and vegetables	57.9	43.5	13.2	1.2	607
Vegetables only	64.2	45.6	17.1	1.5	3,294
Neither	62.3	44.2	14.9	3.2	368
Total	63.0	45.1	16.4	1.6	4,282

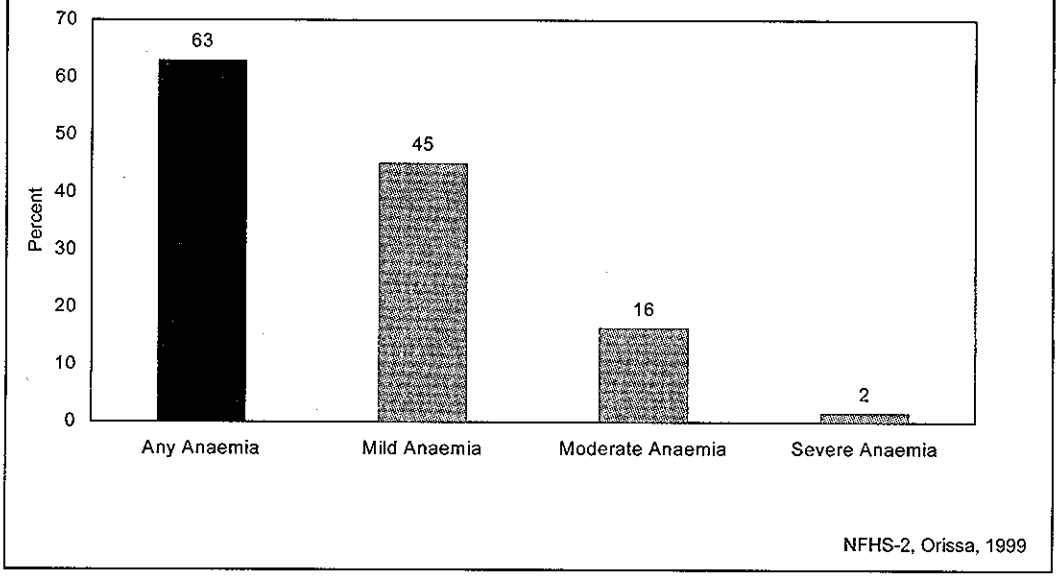
Note: The haemoglobin levels are adjusted for altitude of the enumeration area and for smoking when calculating the degree of anaemia. Total includes 3 women with 'other' religions, 13 women characterized by 'fruit consumption only', and 1, 15, 5, and 14 women with missing information on caste/tribe, the standard of living index, height, and body mass index, respectively, who are not shown separately.
[1]Based on consumption at least weekly. Vegetables include only green, leafy vegetables.

In Orissa, hemoglobin levels were tested for 97 percent of women (see Table B.3 in Appendix B). Overall, 63 percent of women have some degree of anaemia. Forty-five percent of women are mildly anaemic, 16 percent are moderately anaemic, and 2 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 women less than age 20 than for older women, and slightly higher for women who are not currently married than for currently married women. It is somewhat higher for rural women (64 percent) than for urban women (55 percent). Differences by education, religion, caste/tribe, work status, and standard of living are more pronounced. Anaemia is relatively high for Christians and women from scheduled castes/tribes and relatively low for Muslims and women who have completed high school. Anaemia decreases with increase in standard of living. Women with at least middle school and women with a high standard of living have a much lower prevalence of both moderate and severe anaemia than women in other groups shown in the table.

Pregnant women are considerably more likely to have moderate to severe anaemia (34 percent) than nonpregnant women (16–19 percent). However, pregnant women are less likely than other women to have mild anaemia (perhaps because a substantial proportion of pregnant women consume iron and folic acid tablets or syrup). Shorter women and women with a low body mass index have somewhat higher prevalence of anaemia than other women. The diet of women also plays a role in the likelihood that they have 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 NFHS-2, differentials in anaemia by consumption of fruits and green, leafy vegetables are surprisingly small.

[3]Rates that are not adjusted for altitude and smoking are the same as the corresponding adjusted rates (with at most a 0.3 decimal point difference in any rate). This result is expected, because in Orissa the proportion of women who smoke is very small (see Table 2.12), and almost all of the sample PSUs (131 of the 133 PSUs) are at an altitude below 1,000 metres.

Figure 7.1
Anaemia Among Women



7.4 Infant Feeding Practices

Infant feeding practices have significant effects on both mothers and children. Mothers are affected 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 UNICEF, recommends initiation of breastfeeding immediately after childbirth. The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) recommend that infants should be given only breast milk for about 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.). 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. These indicators of breastfeeding and other feeding practices are presented in this section.

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 1995, 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.

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 (colostrum) should be given to the child rather than squeezed from the breast and discarded, because it 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 the recommended practice. Although breastfeeding is nearly universal in Orissa, very few children are put to the breast immediately after birth. Only one-fourth of the children began breastfeeding within one hour of birth, and 63 percent began breastfeeding within one day. Fifty-eight percent of women squeezed the first milk from the breast before they began breastfeeding. Differentials in the early initiation of breastfeeding and in squeezing the first milk from the breast are also shown in Table 7.5. No more than 37 percent (and usually considerably less) of children in any group were put to the breast within one hour of birth. The percentage of children who started breastfeeding within one day of birth does not vary much by urban/rural residence or type of assistance at delivery. The percentage starting within one day increases with mother's education and standard of living. It is relatively high for children of scheduled-tribe women, children of women who are self-employed or work in a family farm/business, children born in a public health facility, and children of women living in households with a high standard of living. The percentage starting breastfeeding within one day is especially low (52 percent) for children whose place of delivery is the mother's parents' home.

The custom of squeezing the first milk from the breast before breastfeeding a child is widely practised in every group, but it is more common for children of mothers who are illiterate, children of scheduled-tribe women, children of women who worked in the last 12 months, children in households with a low standard of living, children whose mothers did not receive assistance at delivery from a health professional or TBA, and children born at home or in the mother's parents' home. Contrary to recommendations for feeding infants, mothers squeeze the first milk from the breast before breastfeeding for a majority of children in most of the groups shown in the table; however, the proportion of such children is much lower for those born in a public health facility (36 percent) or a private health facility (38 percent).

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, Orissa, 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	30.5	69.3	47.7	153
Rural	24.3	62.5	59.2	1,359
Mother's education				
Illiterate	25.6	62.7	65.2	888
Literate, < middle school complete	19.8	58.8	56.3	367
Middle school complete	25.7	65.0	37.1	136
High school complete and above	34.9	78.3	34.7	120
Religion				
Hindu	25.1	62.9	57.8	1,456
Muslim	(16.0)	(57.1)	(64.7)	29
Christian	(26.8)	(84.0)	(64.8)	27
Caste/tribe				
Scheduled caste	25.8	57.6	58.7	350
Scheduled tribe	27.6	74.1	72.5	333
Other backward class	24.2	59.5	59.0	473
Other	22.6	63.4	42.6	356
Mother's work status				
Working in family farm/business	23.7	73.8	62.7	92
Employed by someone else	37.1	68.8	66.6	195
Self-employed	22.4	74.0	62.5	91
Not worked in past 12 months	23.2	60.5	55.9	1,133
Standard of living index				
Low	25.9	61.6	65.0	866
Medium	23.1	64.3	52.0	513
High	26.3	70.9	34.9	124
Assistance during delivery				
Health professional[2]	27.6	64.6	43.0	505
Dai (TBA)	19.4	56.9	58.9	340
Other	25.9	65.7	69.4	664
Place of delivery				
Public health facility	28.3	69.8	35.9	291
Private health facility	20.3	59.7	38.2	49
Own home	24.7	62.8	64.3	1,074
Parents' home	20.4	52.2	68.9	86
Total	24.9	63.2	58.1	1,512

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 2 and 7 children delivered in a nongovermental organization or trust hospital/clinic and 'other' place and 9, 3, and 3 children with missing information on the standard of living index, assistance during delivery, and place of delivery, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases
TBA: Traditional birth attendant
[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

Mothers of children born in the three years before 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 puts 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.

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, Orissa, 1999

	Breastfeeding status						
			Breastfeeding and:				
Age in months	Not breastfeeding	Exclusively breastfeeding	Receiving plain water only	Receiving supplements	Don't know if fed supplements	Total percent	Number of living children
< 2	4.3	69.1	20.5	6.1	0.0	100.0	53
2–3	1.5	49.7	31.1	17.7	0.0	100.0	72
4–5	2.0	17.9	40.2	39.8	0.0	100.0	84
6–7	3.1	12.4	34.3	50.3	0.0	100.0	90
8–9	5.3	10.7	16.5	67.6	0.0	100.0	83
10–11	5.0	1.9	25.0	68.1	0.0	100.0	88
12–13	2.7	0.0	22.2	75.1	0.0	100.0	62
14–15	6.9	4.9	13.3	75.0	0.0	100.0	113
16–17	10.2	2.9	6.5	80.3	0.0	100.0	76
18–19	1.7	1.6	0.0	96.7	0.0	100.0	70
20–21	10.6	0.0	6.9	82.5	0.0	100.0	73
22–23	9.9	0.0	5.0	85.0	0.0	100.0	67
24–25	24.0	0.0	4.1	71.9	0.0	100.0	81
26–27	25.8	0.0	5.4	67.6	1.3	100.0	84
28–29	30.0	0.0	1.6	68.4	0.0	100.0	69
30–31	35.1	0.0	1.6	63.3	0.0	100.0	76
32–33	46.2	0.0	0.0	53.8	0.0	100.0	72
34–35	40.3	1.5	1.4	56.8	0.0	100.0	78
< 4 months	2.7	58.0	26.5	12.8	0.0	100.0	125
4–6 months	2.4	15.0	36.9	45.6	0.0	100.0	137
7–9 months	4.6	12.1	23.1	60.3	0.0	100.0	120

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.

In Orissa, 50 percent of children age 2–3 months are exclusively breastfed, 31 percent receive breast milk plus water, and 18 percent receive supplements along with breast milk (Table 7.6). The percentage of infants exclusively breastfed drops off after three months to 18 percent at age 4–5 months and 11 percent at age 8–9 months. The proportion of children receiving supplements along with breast milk increases from 40 percent for children age 4–5 months to 97 percent for children age 18–19 months, and declines thereafter as children are weaned from the breast and their food consumption is no longer supplementing breast milk. However,

breastfeeding generally continues for a long period. Ninety-seven percent of children age 12–13 months are still being breastfed, as are 90 percent of children age 22–23 months. Sixty percent of children are still breastfeeding at 34–35 months.

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 nonbreastfeeding children under age two, some two-month age categories have been combined into broader age groups. Only 5–7 percent of children age less than 4 months were given powdered milk, other

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, Orissa, 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	2.1	2.1	2.1	0.0	0.0	0.0	2.1	51
2–3	7.0	7.1	7.0	0.0	0.0	0.0	12.4	70
4–5	21.8	16.1	7.4	1.3	0.0	9.4	19.4	82
6–7	12.0	16.5	18.7	4.6	1.3	21.1	15.3	87
8–9	16.2	17.4	29.2	13.5	0.7	42.7	8.4	79
10–11	7.8	10.7	23.2	21.4	4.6	54.6	6.7	84
12–13	13.7	16.7	22.3	33.0	6.5	64.3	7.3	60
14–15	10.0	21.1	22.7	44.4	10.1	70.0	9.9	105
16–17	9.7	16.3	24.8	38.7	16.3	82.2	6.5	69
18–23	9.9	19.9	34.2	53.0	17.9	88.6	6.8	195
24–29	6.7	18.7	36.5	64.7	16.4	89.3	5.4	172
30–35	4.5	21.5	36.2	57.3	16.9	93.0	2.1	134
< 4 months	4.9	5.0	5.0	0.0	0.0	0.0	8.1	122
4–5 months	21.8	16.1	7.4	1.3	0.0	9.4	19.4	82
6–9 months	14.0	17.0	23.7	8.8	1.0	31.4	12.0	166
NON-BREASTFEEDING CHILDREN								
< 16	(63.7)	(42.4)	(48.7)	(25.6)	(12.8)	(46.8)	(66.3)	26
16–23	(23.7)	(55.0)	(43.0)	(52.9)	(7.2)	(92.8)	(41.0)	23
24–29	10.0	37.1	40.9	79.3	29.0	93.7	17.1	62
30–35	15.9	31.2	51.5	80.0	21.6	93.9	10.3	91
ALL CHILDREN								
< 2	4.2	2.0	2.1	0.0	0.0	0.0	6.4	53
2–3	8.4	7.0	6.9	0.0	0.0	0.0	13.7	72
4–5	22.0	15.8	7.3	1.3	0.0	9.3	21.1	84
6–7	13.5	17.8	20.0	4.4	1.2	22.9	16.6	90
8–9	19.3	20.5	31.6	14.1	2.0	41.8	13.2	83
10–11	10.5	12.1	25.1	22.3	4.3	55.6	8.9	88
12–13	15.1	16.2	21.7	34.8	6.4	65.3	9.8	62
14–15	13.7	23.6	25.5	43.3	11.4	68.7	11.2	113
16–17	11.6	21.3	26.0	42.8	14.6	84.0	11.1	76
18–23	10.8	22.1	35.1	52.0	17.4	88.7	9.0	210
24–29	7.6	23.6	37.6	68.6	19.7	90.5	8.5	234
30–35	9.1	25.4	42.4	66.5	18.8	93.3	5.4	226
< 4 months	6.6	4.9	4.8	0.0	0.0	0.0	10.6	125
4–5 months	22.0	15.8	7.3	1.3	0.0	9.3	21.1	84
6–9 months	16.3	19.1	25.6	9.1	1.6	32.0	15.0	173

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

milk (such as cow's milk or buffalo's milk), or other liquids (such as juice and tea). However, powdered milk and other milk are given to children 4–9 months more often. Other liquids are given to 26 percent of children age 6–9 months. Among the non-breastfeeding children, 42 percent of children age less than 16 months were given 'any other milk' the day or night before the interview, while 64 percent were given powdered milk. Corresponding proportions for children age 16–23 are 55 and 24 percent. Consumption of powdered milk or other milk by children older than 23 months declines substantially. About 11–22 percent of breastfeeding children in various age groups (4–35 months) received nonpowdered milk in addition to breast milk. A similar proportion of breastfeeding children age 4–15 months received powdered milk in addition to breast milk. For all children, the consumption of green leafy vegetables generally increases with age up to 69 percent at age 24–29 months. The consumption of fruits also increases with age up to 20 percent at age 24–29 months.

From about six months of age, the introduction of complementary food is critical to meeting the protein, energy, and micronutrient needs of children. However, in Orissa the introduction of complementary food is delayed for a substantial proportion of children. Among all children, consumption of solid or mushy foods is only 23 percent at age 6–7 months and rises to 84–93 percent at age 16–35 months. Only 31 percent of breastfeeding children age 6–9 months receive solid or mushy food, as recommended.

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 developing diarrhoea and other diseases. The use of bottles with nipples is not common in Orissa, especially for children who are being breastfed. In every age group, less than 22 percent of breastfeeding children drank anything from a bottle with a nipple during the day or night before the interview (Table 7.7). The use of a bottle with a nipple is much more common at ages 2–9 months than at other ages of all children, and among children who are not being breastfed.

Table 7.8 shows several statistics that describe the duration of breastfeeding. The median duration of any breastfeeding is greater than 35 months. In urban areas, it is considerably lower, at 29.1 months. Supplementation begins relatively early, however. The median length of exclusive breastfeeding is 1.8 months, and the median length of full breastfeeding is 5.3 months. By sex, the median duration of any breastfeeding is 33.6 months for boys and more than 35 months for girls. The median lengths of exclusive and full breastfeeding are almost the same for boys and girls.

The mean durations of breastfeeding differ somewhat from the median durations of breastfeeding. The mean durations of any breastfeeding, exclusive breastfeeding, and exclusive breastfeeding or breastfeeding supplemented by plain water only are 28.6 months, 3.7 months, and 7.9 months, respectively. 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 mean durations differ slightly from the median durations because of extreme values of the duration of breastfeeding for some children. (The mean duration is strongly affected by extreme values, but the median is not.)

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, Orissa, 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	33.6	1.8	5.5	801
Female	≥36.0	1.7	5.1	711
Residence				
Urban	29.1	*	(2.9)	153
Rural	≥36.0	1.8	5.5	1,359
Median duration	≥36.0	1.8	5.3	1,512
Mean duration (months)[1]	28.6	3.7	7.9	1,512
Prevalence/incidence mean	27.9	2.8	7.2	1,512

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 months for groups in which the exact median cannot be calculated because the proportion of breastfeeding children does not drop below 50 percent in any age group for children under 36 months of age.
( ) Based on 25–49 unweighted cases in the relevant age group
*Percentage not shown; based on fewer than 25 unweighted cases
[1]Based on current status

An alternative measure of the duration of breastfeeding is the prevalence-incidence mean, which is calculated as the 'prevalence' of breastfeeding divided by its 'incidence'. In this case, prevalence is defined as the number of children whose mothers were breastfeeding at the time of the survey, and incidence is defined as the average number of births per month (averaged over a 48–month period to overcome problems of 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.

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 among 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 type of scales and measuring boards used for women. Data on weight and height 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 a 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 Orissa, NFHS-2 failed to measure 3 percent of children under age three (see Table B.3 in Appendix B). Also excluded from the analysis are children whose month and year of birth were not known and those with grossly improbable 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. More than half of children under three years of age are underweight (54 percent), and 44 percent are stunted. The proportion of children who are severely undernourished is also notable—21 percent according to weight-for-age and 18 percent according to height-for-age. Wasting is also quite evident in Orissa, affecting about one-fourth of children under three years of age. The proportions of children who are underweight, stunted, or

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, Orissa, 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	4.1	17.8	2.2	14.9	3.1	14.1	180
6–11 months	11.2	42.8	7.2	27.8	3.2	19.7	243
12–23 months	26.0	66.6	24.2	54.7	6.5	31.1	427
24–35 months	27.8	64.3	23.5	54.7	2.0	24.4	431
Sex of child							
Male	21.1	54.6	17.4	44.1	4.1	24.8	680
Female	20.2	54.3	17.8	43.8	3.7	23.8	602
Birth order							
1	18.8	51.1	15.0	40.5	3.4	25.1	375
2–3	19.8	53.6	15.2	42.8	3.1	22.8	595
4–5	23.3	59.5	25.6	52.2	4.4	24.5	225
6+	28.8	61.5	24.9	45.5	10.2	30.7	86
Previous birth interval[2]							
First birth	19.0	51.3	14.9	40.6	3.4	25.5	378
< 24 months	20.8	57.2	19.8	51.3	2.1	24.1	158
24–47 months	22.2	56.2	18.6	46.2	4.8	23.6	503
48+ months	20.2	53.9	18.6	40.0	4.0	24.1	243
Total	20.7	54.4	17.6	44.0	3.9	24.3	1,282

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.

wasted remained more or less constant between NFHS-1 and NFHS-2. However, the proportions of children who are severely underweight and severely stunted decreased between NFHS-1 and NFHS-2, from 23 to 21 percent and from 25 to 18 percent, respectively.

The proportions of children who are underweight or stunted increase steadily with child's age up to 12–23 months and then level off, whereas wasting increases up to age 12–23 months and then declines. Even during the first six months of life, when most babies are breastfed, 14–18 percent of children are undernourished according to the three nutritional indices. It is notable that at age 24–35 months, when most children have been weaned from breast milk, 24 percent are severely stunted and 28 percent are severely underweight.

Overall, girls and boys are about equally undernourished. Undernourishment generally increases with increasing birth order. Children in families with four or more children are the most nutritionally disadvantaged. First births have lower than average levels of undernutrition on most of the measures. Interestingly, children born after a short birth interval (less than 24 months) do not appear to be nutritionally disadvantaged compared with children born after a longer birth interval.

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, 45 percent of children are underweight and 37 percent are stunted. Children whose

Table 7.10 Nutritional status of children by background characteristics

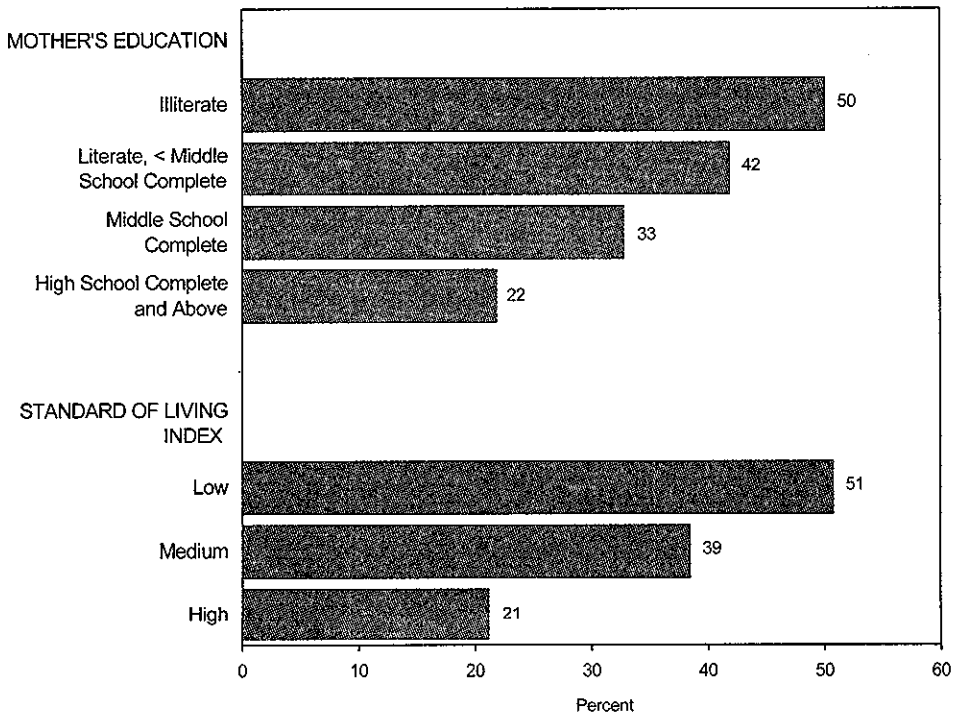
Percentage of children under age 3 years classified as undernourished on three anthropometric indices of nutritional status, according to selected background characteristics, Orissa, 1999

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	16.7	45.3	14.3	37.0	3.6	23.6	138
Rural	21.2	55.5	18.0	44.8	3.9	24.4	1,143
Mother's education							
Illiterate	25.8	60.7	22.6	50.1	4.7	26.6	729
Literate, < middle school complete	15.2	50.6	13.1	41.9	3.4	21.1	321
Middle school complete	14.7	44.0	10.5	32.8	1.8	22.2	117
High school complete and above	9.7	35.5	6.3	21.9	2.5	20.8	114
Religion							
Hindu	20.6	54.8	18.1	44.4	3.8	24.4	1,233
Muslim	(23.5)	(53.2)	(11.5)	(43.5)	(2.5)	(16.4)	24
Christian	(22.2)	(35.4)	(2.3)	(20.2)	(10.9)	(26.9)	24
Caste/tribe							
Scheduled caste	24.2	59.4	22.8	50.7	3.0	22.8	289
Scheduled tribe	26.5	59.0	19.9	49.4	5.7	30.5	278
Other backward class	20.7	56.3	18.3	44.2	4.5	24.6	410
Other	12.2	43.0	9.8	32.4	2.3	19.7	305
Mother's work status							
Working in family farm/business	36.5	65.1	25.7	61.8	4.1	32.4	80
Employed by someone else	18.8	57.1	20.3	46.1	3.4	28.9	160
Self-employed	19.4	54.9	13.5	43.7	0.0	22.4	72
Not worked in past 12 months	19.8	53.1	16.8	42.2	4.3	23.0	969
Mother's height							
< 145 cm	32.1	68.3	28.3	63.2	2.9	26.4	190
≥ 145 cm	18.8	52.0	15.8	40.7	4.1	24.0	1,090
Mother's body mass index							
< 18.5 kg/m^2	25.5	61.1	18.6	46.2	3.9	27.4	622
≥ 18.5 kg/m^2	16.3	48.3	16.7	42.1	3.9	21.6	655
Standard of living index							
Low	26.0	61.9	20.4	50.8	5.0	28.6	714
Medium	15.5	48.9	16.4	38.5	2.6	19.8	447
High	9.9	27.8	4.3	21.2	2.4	16.9	113
Total	20.7	54.4	17.6	44.0	3.9	24.3	1,282

Note: Each index is expressed in standard deviation units (SD) from the median of the International Reference Population. Total includes 2, 5, and 9 children with missing information on mother's height, mother's body mass index, 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

mothers are illiterate are more than twice as likely to be severely underweight or stunted as children whose mothers have completed at least high school (see Figure 7.2). Children belonging to scheduled castes, scheduled tribes, or other backward classes have relatively high levels of undernutrition according to all three measures. Undernutrition is relatively high for children whose mothers have worked in a family farm/business in the past 12 months.

Figure 7.2
Stunting Among Children Under Three Years by Mother's Education and SLI



Undernutrition among children is strongly related to maternal nutritional status. Undernutrition is more common for children of mothers whose height is less than 145 centimetres or whose body mass index is below 18.5 than for other children. All of the measures of undernutrition are strongly related to the household's standard of living. Children in households with a low standard of living are 2–3 times as likely to be undernourished as children in households with a high standard of living.

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 increasing morbidity from infectious diseases. One of the most vulnerable groups is children age 6–24 months (Stoltzfus and Dreyfuss, 1998).

Table 7.11 and Figure 7.3 show anaemia levels for children age 6–35 months. Overall, nearly three-quarters (72 percent) of these children have some level of anaemia, including 26 percent who are mildly anaemic, 43 percent who are moderately anaemic, and 3 percent who are severely anaemic. A higher proportion of children than women are anaemic. Because only 4 PSUs out of 133 were above 1,000 metres in Orissa, the unadjusted rates for anaemia among children are almost identical to the corresponding rates presented here, which are adjusted for altitude.

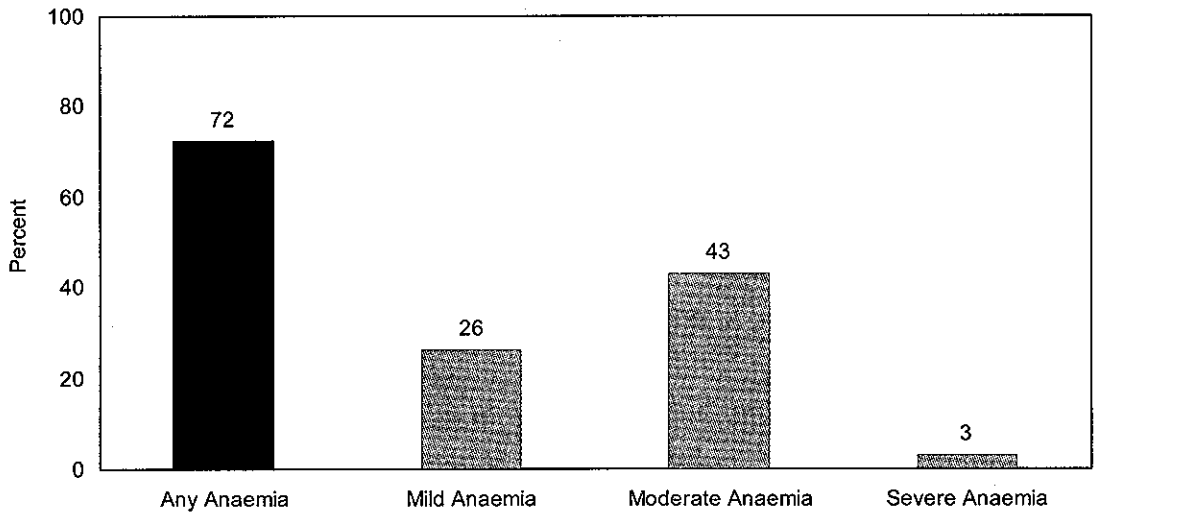
Table 7.11 Anaemia among children

Percentage of children age 6–35 months classified as having iron-deficiency anaemia by selected background characteristics, Orissa, 1999

Background characteristic	Percentage of children with any anaemia	Percentage of children with:			Number of children
		Mild anaemia	Moderate anaemia	Severe anaemia	
Age of child					
6–11 months	79.6	29.7	47.6	2.3	253
12–23 months	73.5	24.1	46.4	3.1	439
24–35 months	66.9	26.3	37.5	3.0	441
Sex of child					
Male	72.8	26.5	43.5	2.7	605
Female	71.7	25.9	42.8	3.0	527
Birth order					
1	67.6	24.6	40.2	2.8	332
2–3	71.9	24.9	44.7	2.2	522
4–5	79.0	30.4	44.4	4.2	204
6+	77.8	31.2	42.7	3.9	74
Residence					
Urban	68.3	24.6	41.3	2.4	119
Rural	72.7	26.4	43.4	2.9	1,013
Mother's education					
Illiterate	77.6	24.6	48.7	4.3	632
Literate, < middle school complete	72.4	32.5	38.4	1.4	283
Middle school complete	58.0	24.6	33.3	0.0	115
High school complete and above	55.0	20.2	33.6	1.1	102
Religion					
Hindu	72.5	25.8	43.8	2.9	1,086
Muslim	(60.5)	(36.4)	(21.5)	(2.5)	23
Caste/tribe					
Scheduled caste	75.2	20.5	51.9	2.8	252
Scheduled tribe	83.9	25.6	52.7	5.5	239
Other backward class	70.9	29.7	38.8	2.4	364
Other	61.3	27.3	32.8	1.2	277
Mother's work status					
Working in family farm/business	75.8	31.1	38.6	6.1	73
Employed by someone else	73.8	24.5	46.6	2.7	133
Self-employed	70.9	21.0	48.2	1.6	68
Not worked in past 12 months	71.8	26.5	42.7	2.7	858
Standard of living index					
Low	75.2	26.6	44.7	3.9	628
Medium	72.3	26.6	43.6	2.0	398
High	53.6	21.3	32.4	0.0	98
Mother's anaemia status					
Not anaemic	65.6	28.1	34.9	2.7	430
Mildly anaemic	73.5	24.1	47.0	2.4	493
Moderately anaemic	82.1	25.8	51.7	4.7	196
Total	72.3	26.2	43.2	2.9	1,132

Note: Haemoglobin levels are adjusted for altitude when calculating the degree of anaemia. Total includes 22 children with Christian religion, 9 children whose mothers are severely anaemic, and 8 and 2 children with missing information on 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



Several groups of children have particularly high levels of moderate to severe anaemia. These include children age 6–11 and 12–23 months (when children are often being weaned), rural children, children of mothers with less than a middle school education, Hindu children, children from scheduled tribes, and children in households with a low or medium standard of living. As expected, there is a strong positive relationship between the anaemia status of mothers and prevalence of anaemia among children. Differences by mother's work status are small.

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. It 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 and 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 for the attainment of that goal. 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 (MOHFW, 1994). The Government of India has advised all states and union territories to issue notifications banning the sale of edible salt that is not iodized. However, the ban on iodized salt was lifted in September 2000.

NFHS-2, with its representative sample of households throughout Orissa and the rest of India, is an ideal vehicle for measuring the degree of salt iodization in the country. 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 of a weak acid-based solution. The interviewer squeezes one drop of the starch solution on a sample of cooking salt obtained from the household respondent. If the colour changes (to 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 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 reasonable information on whether salt is iodized, as well as the extent of iodization. A recent 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, only slightly more than one-third of households (35 percent) use cooking salt that is iodized at the recommended level of 15 ppm or more. Thirty percent of households use salt that is not iodized at all, and 35 percent use salt that is minimally iodized (less than 15 ppm). Differentials in salt iodization by background characteristics are pronounced. Four-fifths of households in large cities use salt with 15 ppm or more of iodine, compared with two-thirds of households in small cities and towns and only 31 percent of households in rural areas. Households with Muslim heads are more likely to use iodized salt than households with Hindu or Christian heads. The use of iodized salt is relatively low in households headed by persons from scheduled castes or scheduled tribes; it is slightly higher in households headed by persons from other backward classes. The widest differentials are observed by standard of living. Seventy-two percent of households with a high standard of living use adequately iodized salt, compared with only one-fourth of households with a low standard of living.

Table 7.12 Iodization of salt

Percent distribution of households by degree of iodization of salt, according to selected background characteristics, Orissa, 1999

Background characteristic	Not iodized	7 ppm	15 ppm	30 ppm	Missing	Total percent	Number of households
Type of place of residence							
Large city	3.1	18.3	26.2	52.5	0.0	100.0	74
Small city	17.5	15.8	12.3	54.5	0.0	100.0	64
Town	16.6	16.4	14.7	51.9	0.4	100.0	383
Rural area	31.4	37.4	18.5	12.4	0.4	100.0	4,168
Religion of household head							
Hindu	29.6	35.2	18.3	16.5	0.4	100.0	4,523
Muslim	10.0	30.2	27.7	32.1	0.0	100.0	73
Christian	43.4	30.1	6.8	19.8	0.0	100.0	90
Caste/tribe of household head							
Scheduled caste	28.2	39.6	19.6	12.1	0.5	100.0	1,015
Scheduled tribe	38.7	33.4	14.6	13.0	0.3	100.0	1,016
Other backward class	30.0	33.9	19.8	15.8	0.4	100.0	1,390
Other	22.8	34.0	18.3	24.7	0.2	100.0	1,268
Standard of living index							
Low	34.8	39.4	18.1	7.3	0.4	100.0	2,761
Medium	24.7	32.6	20.3	22.1	0.4	100.0	1,484
High	11.6	15.9	11.6	60.6	0.3	100.0	423
Total	29.6	35.1	18.2	16.8	0.4	100.0	4,689

Note: Total includes 3 households with a household head with 'other' religions and 1 and 21 households with missing information on caste/tribe and the standard of living index, respectively, who are not shown separately.
ppm: Parts per million

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 mothers, 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 mainly through its network of Primary Health Centres (PHCs) and sub-centres. 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 various 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 the 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 ANMs are 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).

An important objective of NFHS-2 is to provide information on the use of safe-motherhood services. In addition, the survey includes questions on the prevalence and treatment of reproductive health problems. The Woman's Questionnaire includes relevant questions on safe motherhood for women age 15–49 who have given birth since 1 January 1995. The topics covered include pregnancy complications, antenatal and postnatal care, place of and assistance during delivery, delivery characteristics, and postpartum complications. Although the survey obtained information for the two most recent live births since 1 January 1995, the information presented in this chapter pertains only to the subset of births that took place during the three years preceding the survey. 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. 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 and should be interpreted with care.

As shown in Table 8.1 and Figure 8.1, the problem most commonly reported is excessive fatigue (45 percent), followed by swelling of the legs, body or face (33 percent), convulsions that were not from fever (29 percent), and anaemia (23 percent). Nineteen percent reported night blindness, 15 percent reported blurred vision, and 3 percent reported vaginal bleeding. The reported prevalence of both kinds of vision problems and of swelling of the legs, body, or face is

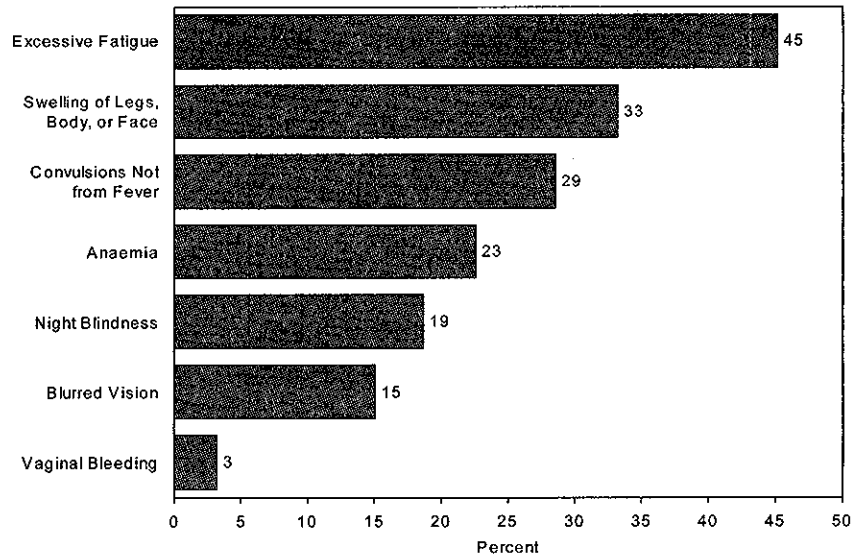
Table 8.1 Health problems during pregnancy

Among births during the three years preceding the survey, percentage of mothers experiencing specific health problems during pregnancy by residence, Orissa, 1999

Problem during pregnancy	Urban	Rural	Total
Night blindness	13.0	19.3	18.7
Blurred vision	9.0	15.8	15.1
Convulsions not from fever	28.6	28.5	28.5
Swelling of the legs, body, or face	28.8	33.7	33.2
Excessive fatigue	45.8	45.1	45.2
Anaemia	25.5	22.3	22.6
Vaginal bleeding	3.3	3.3	3.3
Number of births	153	1,359	1,512

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, Orissa, 1999

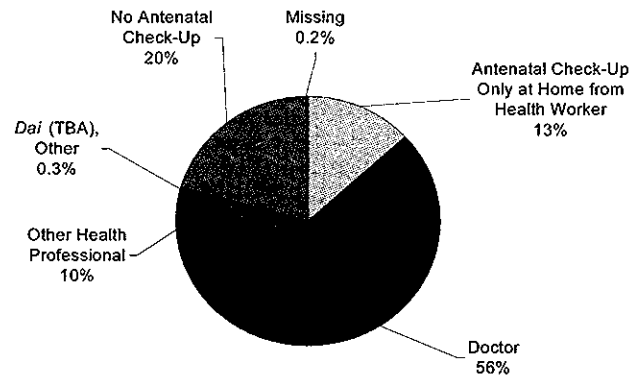
considerably higher in rural areas than in urban areas. A somewhat higher proportion of urban than rural women reported having anaemia.

Antenatal Check-Ups

A pregnant woman can have an antenatal check-up by visiting a doctor or other 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 source of antenatal care 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 women received check-ups from more than one type of health provider, only the provider with the highest qualification is considered.

Figure 8.2
Source of Antenatal Check-Ups During Pregnancy



Note: Percents add to less than 100.0 due to rounding

NFHS-2, Orissa, 1999

NFHS-2 results for Orissa show that mothers received antenatal check-ups for 80 percent of births during the three years preceding the survey, up from 64 percent in NFHS-1. Mothers received antenatal check-ups from doctors for 56 percent of births and from other health professionals (such as ANMs, nurses, midwives, or LHVs) for 10 percent of births. Mothers received antenatal check-ups exclusively at home from a health worker for 13 percent of births.

Older women, rural women and women having higher-order births are much less likely to have received antenatal check-ups for their births, but women having higher-order births are more likely to have received check-ups exclusively at home. As expected, antenatal check-ups from doctors are much more common in urban areas than in rural areas.

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, Orissa, 1999

Background characteristic	Antenatal check-up only at home from health worker	Antenatal check-up outside home[1] from: Doctor	Other health professional	Traditional birth attendant, other	No antenatal check-up	Missing	Total percent	Number of births
Mother's age at birth								
< 20	13.5	53.5	10.0	0.0	23.0	0.0	100.0	285
20–34	13.2	56.8	10.4	0.3	19.0	0.3	100.0	1,178
35–49	(9.2)	(45.4)	(9.0)	(0.0)	(36.4)	(0.0)	100.0	49
Birth order								
1	9.0	69.4	9.4	0.3	11.9	0.0	100.0	437
2–3	12.9	55.5	10.7	0.3	20.2	0.4	100.0	705
4–5	16.2	46.8	12.6	0.0	24.2	0.2	100.0	264
6+	24.2	24.5	5.7	0.0	45.6	0.0	100.0	106
Residence								
Urban	1.2	77.7	7.8	0.0	12.7	0.7	100.0	153
Rural	14.5	53.4	10.6	0.3	21.2	0.2	100.0	1,359
Mother's education								
Illiterate	17.2	42.0	12.1	0.2	28.2	0.2	100.0	888
Literate, < middle school complete	8.9	68.6	9.6	0.0	12.9	0.0	100.0	367
Middle school complete	5.6	82.5	5.3	0.9	4.9	0.8	100.0	136
High school complete and above	4.5	88.6	5.1	0.0	1.8	0.0	100.0	120
Religion								
Hindu	13.3	55.4	10.2	0.2	20.6	0.2	100.0	1,456
Muslim	(2.1)	(70.8)	(15.4)	(0.0)	(11.7)	(0.0)	100.0	29
Christian	(15.9)	(63.6)	(8.3)	(0.0)	(12.3)	(0.0)	100.0	27
Caste/tribe								
Scheduled caste	12.2	54.9	14.4	0.3	17.7	0.5	100.0	350
Scheduled tribe	22.2	30.0	10.7	0.0	37.0	0.2	100.0	333
Other backward class	11.5	63.4	10.0	0.5	14.6	0.0	100.0	473
Other	7.7	70.8	6.3	0.0	14.8	0.3	100.0	356
Standard of living index								
Low	17.4	43.9	11.3	0.4	26.9	0.1	100.0	866
Medium	8.0	69.2	9.2	0.0	13.2	0.3	100.0	513
High	4.4	85.3	6.8	0.0	2.6	0.9	100.0	124
Total	13.1	55.8	10.3	0.2	20.3	0.2	100.0	1,512

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 9 births with missing information on the standard of living index, who 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.

In Orissa, 87 percent or more of all literate mothers received antenatal check-ups for their births, whereas 72 percent of illiterate mothers received antenatal check-ups. The proportion of births whose mothers received antenatal check-ups from a doctor increases steadily with education, from 42 percent for illiterate mothers to 89 percent for mothers who have completed at least high school. Conversely, the prevalence of only home visits from a health worker decreases with mother's education. The utilization of antenatal check-up services varies by religion. Hindu mothers received antenatal check-ups for 79 percent of births, compared with 88 percent for Muslims and Christians. Muslim mothers received antenatal check-ups at home for a much smaller proportion of births than Hindu or Christian mothers, but utilised the services of doctors and other health professionals for a larger proportion of births. By caste/tribe, the likelihood of having received antenatal check-ups overall and from a doctor is lowest for births to scheduled-tribe mothers and highest for births to mothers who do not belong to a scheduled caste or scheduled tribe. The likelihood of having received antenatal check-ups from a doctor increases steadily with the household's standard of living, from 44 percent for births to mothers in households with a low standard of living to 85 percent for births to mothers in households with a high standard of living.

In summary, women in Orissa who did not receive any antenatal check-ups for births in the three years preceding the survey are disproportionately women of high parity, women from scheduled tribes, illiterate women, and poor women. This suggests that improving the coverage of antenatal programmes in Orissa requires special efforts to reach high-parity women and women who are socioeconomically 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 in a health facility or at home by the main reason for not receiving check-ups. For births to mothers who did not have any antenatal check-ups, almost one-half of mothers did not consider having a check-up to be necessary (45 percent) or customary (4 percent). Costs (25 percent) and 'family did not allow' (7 percent) account for another one-third of cases. For 4 percent of births, mothers did not have antenatal check-ups because of lack of knowledge of antenatal services. The percentages who deemed a check-up to be not necessary, whose family did not allow, and who lacked knowledge of antenatal services are somewhat greater in urban than rural areas, whereas the percentages citing 'costs too much', 'too far or no transportation', and 'no health worker visited' as reasons for not receiving an antenatal check-up are greater in rural than urban areas. Percentages for the other reasons are small and vary little by residence. These results suggest the need to inform mothers about the availability and benefits of antenatal check-ups and to help them overcome traditional attitudes and other hurdles that prevent mothers from seeking antenatal care. Utilization of antenatal care services could also be increased by lowering costs and, in rural areas, making the 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 a pregnancy is confirmed, antenatal check-ups should be scheduled at four-week intervals during the first seven months, then every two weeks until the

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, according to residence, Orissa, 1999

Reason for not receiving an antenatal check-up	Urban	Rural	Total
Not necessary	(53.6)	44.7	45.3
Not customary	(3.0)	3.8	3.8
Costs too much	(20.0)	25.6	25.3
Too far/no transport	(0.0)	4.6	4.3
Poor quality service	(0.0)	1.5	1.4
No time to go	(2.8)	1.9	2.0
Family did not allow	(11.7)	6.9	7.2
Lack of knowledge	(5.9)	4.2	4.3
No health worker visited	(3.0)	5.1	5.0
Other	(0.0)	1.5	1.4
Total percent	100.0	100.0	100.0
Number of births	19	288	307

Note: Table includes only the two most recent births during the three years preceding the survey.
( ) Based on 25–49 unweighted cases

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. Programme guidelines 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 pregnancies 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 number and timing of antenatal check-ups. In Orissa, mothers of 47 percent of births received at least three antenatal check-ups, and 24 percent had four or more check-ups. The median number of check-ups was 2.3. There are substantial differences by residence in the number of antenatal check-ups. At least three antenatal check-ups were received for 58 percent of births to mothers living in urban areas, compared with only 46 percent of births to mothers living in rural areas. The median number of check-ups is also higher in urban areas (2.8) than in rural areas (2.3). 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 in urban areas, could be important factors for the larger number of check-ups received by mothers in urban areas.

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 first check-up, according to residence, Orissa, 1999

Number and timing of check-ups	Urban	Rural	Total
Number of antenatal check-ups			
0	12.7	21.2	20.3
1	7.4	10.6	10.3
2	21.1	22.0	21.9
3	18.7	23.3	22.8
4+	39.4	22.7	24.4
Don't know/missing	0.7	0.2	0.3
Total percent	100.0	100.0	100.0
Median number of check-ups (for those who received antenatal check-ups)	2.8	2.3	2.3
Stage of pregnancy at the time of the first antenatal check-up			
No antenatal check-up	12.7	21.2	20.3
First trimester	48.7	32.0	33.7
Second trimester	30.6	36.9	36.3
Third trimester	7.3	9.6	9.4
Don't know/missing	0.7	0.2	0.3
Total percent	100.0	100.0	100.0
Median months pregnant at first antenatal check-up (for those who received at least one check-up)	3.3	4.1	4.0
Number of births	153	1,359	1,512

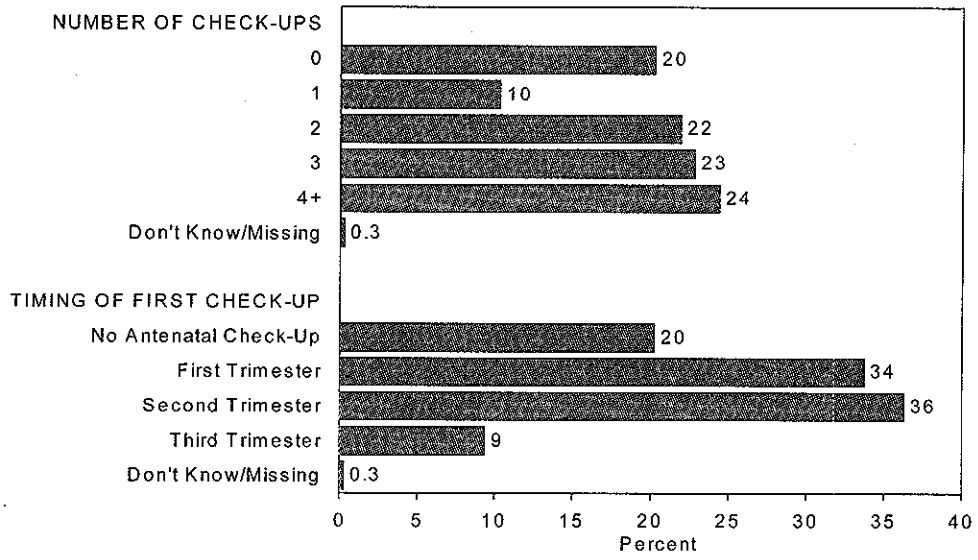
Note: Table includes only the two most recent births during the three years preceding the survey.

Mothers of one-third (34 percent) of the births that took place in the three years preceding the survey received their first antenatal check-up in the first trimester of pregnancy, and another third (36 percent) received their first check-up in the second trimester (Table 8.4 and Figure 8.3). Check-ups during the first trimester were much more common in urban areas (49 percent) than in rural areas (32 percent). The first check-up was rarely received as late as the third trimester. The median timing of the first antenatal check-up is 4.0 months for Orissa as a whole, and it is 0.8 month later in rural areas than in urban areas.

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. 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

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, Orissa, 1999

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, Orissa, 1999

Components of antenatal check-ups	Urban	Rural	Total
Antenatal measurements/tests			
Weight measured	60.6	42.6	44.6
Height measured	17.6	11.6	12.3
Blood pressure checked	64.1	43.3	45.6
Blood tested	59.0	40.5	42.5
Urine tested	53.0	31.8	34.1
Abdomen examined	85.2	74.8	76.0
Internal examination	28.6	18.5	19.7
X-ray	4.3	2.0	2.2
Sonography or ultrasound	8.5	2.5	3.2
Amniocentesis	1.3	0.4	0.5
Antenatal advice			
Diet	68.4	66.3	66.5
Danger signs of pregnancy	31.2	22.3	23.3
Delivery care	42.6	29.9	31.3
Newborn care	31.4	23.1	24.0
Family planning	23.7	21.6	21.8
Number of births for which the mother received at least one antenatal check-up	132	1,069	1,202

Note: Table includes only the two most recent births during the three years preceding the survey.

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, 76 percent of mothers had an abdominal examination and 46 percent had their blood pressure checked as part of the antenatal check-ups. Other common components of antenatal check-ups were the measurement of weight (45 percent), blood test (43 percent), urine test (34 percent), and internal examination (20 percent). Mothers of only 12 percent of births had their height measured during any antenatal check-up. X-rays, sonography or ultrasound, and amniocentesis were rarely performed. All of these measurements or tests were performed more often during antenatal check-ups for mothers in urban than in rural areas.

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 67 percent of cases). Mothers were less likely to receive advice on delivery care (31 percent), on newborn care (24 percent), on the danger signs of pregnancy (23 percent), and on family planning (22 percent). The proportions receiving advice on danger signs of pregnancy, delivery care, and newborn care are considerably greater, whereas the proportions who were advised on diet and family planning are only slightly greater, 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). Where expert medical help is not available, as is common in many rural areas in India, death due to neonatal tetanus is almost certain. Neonatal tetanus is, however, a preventable disease. Two doses of tetanus toxoid vaccine given one month apart during early pregnancy are nearly 100 percent effective in preventing tetanus both among 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 injection, 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 birth during the three years preceding the survey, NFHS-2 asked mothers 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 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 Orissa, although high, is not yet complete. For births in the three years preceding the survey, eighteen percent of the mothers did not receive any tetanus toxoid injections during pregnancy, and another 7 percent received only one injection. The proportion of mothers who received two or more tetanus toxoid injections during their pregnancies rose from 55 percent to 74 percent between NFHS-1 and NFHS-2.

Tetanus toxoid injections are slightly more common in urban areas than in rural areas. Coverage is higher for births to mothers age 20–34 than for births to older and younger mothers and varies inversely with birth order. At least two tetanus toxoid injections were received by mothers for 84 percent of first births, compared with 67 percent of fourth and fifth births and about half of higher-order births. Tetanus toxoid coverage (two or more injections) is somewhat lower for births to Hindu mothers (74 percent) than for births to Muslim mothers (85 percent) or Christian mothers (87 percent). Coverage is substantially lower for births to scheduled-tribe mothers (56 percent) than for births to mothers in all other caste and class groups (77–84 percent). Illiterate mothers received at least two tetanus toxoid injections for 65 percent of their births, compared with 83 percent or higher for births to literate mothers. Tetanus toxoid coverage (at least two injections) increases from 66 to 93 percent as the standard of living of the household increases. These results indicate that despite generally improving coverage of tetanus toxoid vaccinations, the coverage for socioeconomically 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) 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 iron-deficiency anaemia forms an integral part of the safe motherhood services offered as part of the MCH activities of the Family Welfare Programme (Ministry of Health and Family Welfare, 1991), now 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. Table 8.6 shows that mothers in Orissa received IFA supplements for a substantial majority (68 percent) of births.

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, Orissa, 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	21.8	8.5	68.9	0.8	100.0	63.4	285	86.8	77.4	181
20–34	16.3	6.4	76.3	0.9	100.0	69.1	1,178	93.2	77.5	814
35–49	(37.5)	(3.4)	(55.5)	(3.6)	100.0	(54.5)	49	(91.8)	(79.0)	27
Birth order										
1	10.7	5.2	83.9	0.2	100.0	73.9	437	92.1	82.3	323
2–3	16.5	7.7	74.7	1.1	100.0	68.6	705	92.1	73.3	483
4–5	24.1	8.0	66.6	1.3	100.0	63.1	264	91.6	79.6	167
6+	43.0	3.1	51.2	2.7	100.0	46.1	106	(92.1)	(80.8)	49
Residence										
Urban	13.7	6.9	77.1	2.2	100.0	69.3	153	94.0	84.4	106
Rural	18.5	6.7	74.0	0.8	100.0	67.4	1,359	91.8	76.7	916
Mother's education										
Illiterate	25.8	7.8	65.1	1.3	100.0	60.2	888	90.5	78.2	535
Literate, < middle school complete	10.9	6.1	82.6	0.3	100.0	73.5	367	92.4	74.3	270
Middle school complete	1.7	2.9	93.9	1.6	100.0	81.3	136	96.1	72.4	111
High school complete and above	0.9	5.0	94.1	0.0	100.0	88.2	120	94.7	87.4	106
Religion										
Hindu	18.4	6.8	73.8	1.0	100.0	67.3	1,456	91.9	76.8	981
Muslim	(11.7)	(3.8)	(84.5)	(0.0)	100.0	(60.6)	29	*	*	17
Christian	(6.4)	(6.2)	(87.4)	(0.0)	100.0	(87.5)	27	(92.8)	(100.0)	24
Caste/tribe										
Scheduled caste	16.0	5.7	77.5	0.8	100.0	64.7	350	94.8	75.5	226
Scheduled tribe	34.5	8.6	55.8	1.2	100.0	58.3	333	86.3	77.8	194
Other backward class	13.8	7.8	77.4	1.0	100.0	72.8	473	91.4	78.2	344
Other	10.3	4.5	84.2	1.0	100.0	72.1	356	94.8	78.1	257
Standard of living index										
Low	24.7	8.2	66.4	0.7	100.0	61.8	866	90.1	76.3	535
Medium	10.2	4.9	83.4	1.4	100.0	73.4	513	94.2	77.0	376
High	1.8	4.4	93.0	0.9	100.0	86.1	124	93.9	86.5	107
Total	18.0	6.7	74.3	1.0	100.0	67.6	1,512	92.0	77.5	1,022

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes a small number of births with missing information on 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 mother received iron and folic acid tablets or syrup

As with tetanus toxoid coverage, however, IFA coverage is well below average for births to younger women, illiterate women, women with a low standard of living, scheduled-tribe women, and mothers of higher-order births. IFA coverage is about the same in urban areas and rural

areas. For the state as a whole, IFA coverage increased from 52 percent to 68 percent between NFHS-1 and NFHS-2.

Not all mothers who received IFA received the recommended three-month supply of tablets or syrup. Among mothers who received IFA during pregnancy, 92 percent received at least a three-month supply, and 78 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 are minimal, but consumption of the supply received is greatest for mothers who have at least completed high school, have a high standard of living, or reside in urban areas. Thus, despite a fair amount of success in ensuring that pregnant women receive the recommended dosage of IFA, many women, particularly those socioeconomically disadvantaged, are not actually 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, finding out why women resist consuming IFA, and overcoming this resistance.

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 supervised by 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 23 percent of births in Orissa took place in health facilities, 71 percent took place in the women's own homes, and 6 percent took place in their parents' homes. Only 3 percent of births took place in a private health facility, 19 percent took place in public institutions (such as government-operated district, *tahsil*, town, or municipal hospitals and Primary Health Centres), and less than 1 percent took place in facilities operated by nongovernmental organizations or trusts. The proportion of deliveries that took place in health facilities is almost three times as high in urban areas (55 percent) as in rural areas (19 percent). The 1997 SRS estimated that 14 percent of births in Orissa took place in institutions, which is somewhat lower than the NFHS-2 estimate of 23 percent. There is a considerable difference between SRS and NFHS-2 estimates for both rural areas (11 percent in the SRS compared with 19 percent in NFHS-2) and urban areas (39 percent in the SRS compared with 55 percent in NFHS-2).

The proportion of births occurring in health facilities is lower for mothers age less than 20 years (19 percent) than for mothers age 20–34 (24 percent). Muslim mothers are slightly more likely to give birth in a health facility (24 percent) than are Hindu (23 percent) or Christian (17 percent) mothers. Only 8 percent of births to scheduled-tribe mothers are institutional deliveries, compared with 40 percent of births to mothers who do not belong to scheduled castes, scheduled tribes, or other backward classes. The proportion of births that were delivered in a health facility decreases as birth order rises from 1 (40 percent) to 4–5 (13 percent) and is lowest for birth orders 6 and above (6 percent). Institutional deliveries in both public and private facilities increase sharply with education (from 11 percent to 61 percent) and with standard of living (from 12 percent to 62 percent).

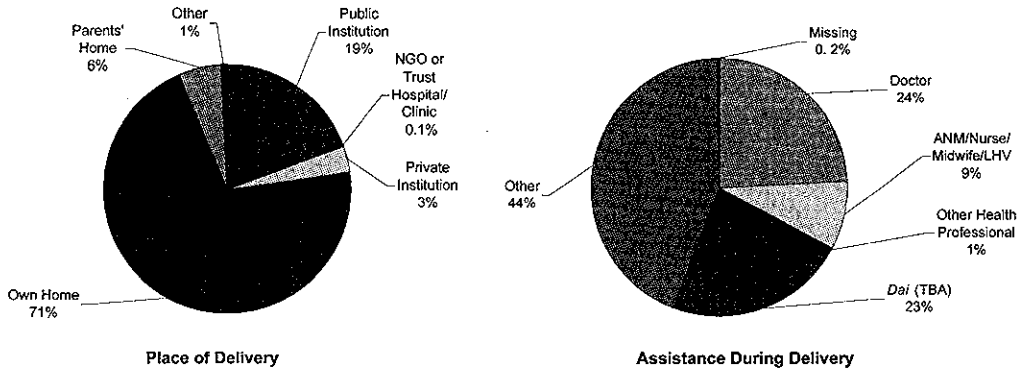
Table 8.7 Place of delivery

Percent distribution of births during the three years preceding the survey by place of delivery, according to selected background characteristics, Orissa, 1999

Background characteristic	Place of delivery						Total percent	Number of births
	Health facility/institution			Home				
	Public	NGO/trust	Private	Own home	Parents' home	Other[1]		
Mother's age at birth								
< 20	16.7	0.4	1.9	72.5	8.4	0.0	100.0	285
20–34	20.0	0.1	3.7	70.2	5.2	0.9	100.0	1,178
35–49	(15.9)	(0.0)	(1.1)	(82.9)	(0.0)	(0.0)	100.0	49
Birth order								
1	34.1	0.3	5.9	51.7	7.8	0.2	100.0	437
2–3	15.0	0.0	3.0	75.8	5.3	0.9	100.0	705
4–5	12.0	0.0	0.6	82.2	4.1	1.0	100.0	264
6+	4.7	0.6	0.5	91.0	3.2	0.0	100.0	106
Residence								
Urban	40.8	0.4	13.5	38.9	5.3	1.1	100.0	153
Rural	16.8	0.1	2.1	74.6	5.7	0.6	100.0	1,359
Mother's education								
Illiterate	10.0	0.2	0.5	82.8	5.9	0.7	100.0	888
Literate, < middle school complete	26.7	0.0	3.6	63.7	5.4	0.6	100.0	367
Middle school complete	37.9	0.0	8.1	49.1	3.3	1.6	100.0	136
High school complete and above	43.9	0.0	17.1	31.7	7.3	0.0	100.0	120
Religion								
Hindu	19.4	0.1	3.2	70.9	5.6	0.7	100.0	1,456
Muslim	(22.0)	(0.0)	(2.1)	(68.0)	(7.9)	(0.0)	100.0	29
Christian	(10.5)	(0.0)	(6.0)	(79.3)	(4.1)	(0.0)	100.0	27
Caste/tribe								
Scheduled caste	12.9	0.3	1.1	80.7	4.2	0.8	100.0	350
Scheduled tribe	6.5	0.0	1.2	86.7	5.5	0.2	100.0	333
Other backward class	22.4	0.0	4.2	64.4	8.1	1.0	100.0	473
Other	33.4	0.2	6.1	55.7	4.1	0.6	100.0	356
Standard of living index								
Low	11.1	0.2	0.7	83.0	4.5	0.4	100.0	866
Medium	27.6	0.0	3.9	61.0	6.7	0.8	100.0	513
High	43.0	0.0	18.8	29.3	8.1	0.9	100.0	124
Number of antenatal check-ups								
0	7.7	0.2	0.0	85.8	5.9	0.4	100.0	307
1	12.9	0.0	0.0	78.5	6.5	2.1	100.0	155
2	12.4	0.0	1.5	79.8	6.2	0.0	100.0	331
3	23.7	0.0	1.4	68.7	5.8	0.3	100.0	345
4+	33.7	0.3	10.6	50.4	4.5	0.4	100.0	369
Total	19.3	0.1	3.3	71.0	5.7	0.7	100.0	1,512

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 9 and 4 births with missing information on the standard of living index and antenatal check-ups, respectively, which are not shown separately.
NGO: Nongovernmental organization
( ) Based on 25–49 unweighted cases
[1]Includes missing

Figure 8.4
Place of Delivery and Assistance During Delivery



Note: Percents may add to more than 100.0 due to rounding

NFHS-2, Orissa, 1999

Institutional deliveries are more than three times as common among births to mothers who had four or more antenatal check-ups (45 percent) as among those who had only two or fewer antenatal check-ups (14 percent or less). Institutional deliveries are least prevalent (8 percent) among births to mothers 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 advised them to do so. Conversely, women who register themselves with a health facility for delivery may be called for regular 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. Yet another contributing factor may be the growing awareness of the benefits of professional medical care during both pregnancy and delivery, especially among urban, young, and educated women.

With regard to deliveries at home, the proportion of deliveries in a woman's own home increases and the proportion at her parents' home decreases with birth order. Mothers' education and standard of living are both negatively associated with deliveries in their own homes, but not with deliveries in their parents' homes.

Deliveries in health facilities have risen in Orissa from 14 percent at the time of NFHS-1 to 23 percent at the time of NFHS-2. The increase has been substantial in both rural areas (from 10 to 19 percent) and urban areas (from 41 to 55 percent).

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.

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, Orissa, 1999

Background characteristic	Attendant assisting during delivery[1]						Total percent	Number of births
	Doctor	ANM/nurse/ midwife/ LHV	Other health professional	*Dai* (TBA)	Other	Missing		
Mother's age at birth								
< 20	20.8	6.2	0.4	24.8	47.8	0.0	100.0	285
20–34	25.4	9.0	0.7	22.0	42.7	0.3	100.0	1,178
35–49	(16.9)	(11.5)	(0.0)	(21.5)	(50.2)	(0.0)	100.0	49
Birth order								
1	42.3	10.1	0.5	19.6	27.5	0.0	100.0	437
2–3	18.9	8.0	0.7	24.5	47.5	0.4	100.0	705
4–5	15.3	6.7	0.8	24.3	52.7	0.2	100.0	264
6+	7.9	10.4	0.0	16.1	65.6	0.0	100.0	106
Residence								
Urban	48.9	12.2	0.0	12.5	25.7	0.7	100.0	153
Rural	21.5	8.1	0.7	23.6	45.9	0.2	100.0	1,359
Mother's education								
Illiterate	12.0	7.4	0.6	23.3	56.4	0.2	100.0	888
Literate, < middle school complete	33.5	7.8	0.6	23.4	34.7	0.0	100.0	367
Middle school complete	47.5	9.8	0.8	23.4	17.7	0.8	100.0	136
High school complete and above	60.8	17.5	0.0	12.4	9.2	0.0	100.0	120
Religion								
Hindu	24.5	8.5	0.5	22.4	43.9	0.2	100.0	1,456
Muslim	(22.1)	(5.8)	(0.0)	(38.5)	(33.6)	(0.0)	100.0	29
Christian	(16.6)	(12.2)	(4.1)	(10.4)	(56.7)	(0.0)	100.0	27
Caste/tribe								
Scheduled caste	17.3	9.3	1.3	22.0	49.7	0.5	100.0	350
Scheduled tribe	8.5	6.3	0.0	21.3	63.7	0.2	100.0	333
Other backward class	29.0	8.0	0.7	23.5	38.8	0.0	100.0	473
Other	39.8	10.6	0.3	22.6	26.4	0.3	100.0	356
Standard of living index								
Low	13.3	7.3	1.0	24.3	53.9	0.1	100.0	866
Medium	34.2	9.3	0.0	21.2	34.9	0.3	100.0	513
High	61.1	13.1	0.0	16.8	8.1	0.9	100.0	124
Number of antenatal check-ups								
0	8.2	4.0	0.4	27.5	60.0	0.0	100.0	307
1	10.8	7.5	1.5	24.8	55.4	0.0	100.0	155
2	17.6	9.4	0.7	22.8	49.5	0.0	100.0	331
3	28.1	11.4	0.3	20.3	39.8	0.0	100.0	345
4+	46.0	9.2	0.6	19.3	24.9	0.0	100.0	369
Place of delivery								
Public health facility	90.4	9.2	0.4	0.0	0.0	0.0	100.0	291
Private health facility	88.8	10.0	0.0	1.2	0.0	0.0	100.0	49
Own home	5.2	7.8	0.6	28.8	57.5	0.0	100.0	1,074
Parents' home	2.6	14.8	1.3	31.1	50.3	0.0	100.0	86
Total	24.3	8.5	0.6	22.5	43.9	0.2	100.0	1,512

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 2 and 10 births which were delivered at a nongovernmental organization or trust hospital/clinic, or other place, respectively, and 9 and 4 births with missing information on the standard of living index and antenatal check-ups, respectively, which are not shown separately.
ANM: Auxiliary nurse midwife; LHV: Lady health visitor; TBA: Traditional birth attendant
( ) Based on 25–49 unweighted cases
[1]If the respondent mentioned more than one attendant, only the most qualified attendant is shown.

One-third of births (33 percent) in the last three years were attended by a health professional, including about one-fourth by a doctor (24 percent) and 9 percent by an ANM, nurse, midwife, or LHV. Twenty-three percent of births were attended by a traditional birth attendant, and 44 percent were attended by friends, relatives, and other persons. The NFHS-2 estimates for assistance during delivery are similar to corresponding SRS estimates for Orissa. According to the 1997 SRS, 24 percent of deliveries were attended by a health professional, 28 percent by a TBA, and 35 percent by relatives or others. The proportion of deliveries attended by a health professional increased from 19 percent in NFHS-1 to 33 percent in NFHS-2.

Ninety percent of deliveries in public institutions were attended by a doctor, compared with 89 percent of deliveries in private institutions. Among deliveries at home (the respondent's or her parents' home), more than half were attended by friends, relatives, or other persons, about three-tenths were attended by a traditional birth attendant (TBA), and less than one-fifth were attended by a health professional. The percentage of births attended by a doctor varies only slightly by age of the mother, with births to mothers age 20–34 more likely to be assisted by a doctor than births to older or younger women, but it decreases steadily by birth order. Deliveries are much more likely to be attended by a doctor in urban areas (49 percent) than in rural areas (22 percent). The proportion of births attended by doctors is five times as high for births to mothers with at least a high school education (61 percent) as for births to illiterate mothers (12 percent). A similar difference exists between births to mothers in households with a high standard of living (61 percent attended by a doctor) and births to mothers in households with a low standard of living (13 percent attended by a doctor). Among religious groups, Muslim women are almost as likely (22 percent) as Hindu women (25 percent) to have a delivery attended by a doctor, and Christian women are least likely (17 percent). Births to women who do not belong to a scheduled caste, scheduled tribe, or other backward class are more likely to be attended by a doctor (40 percent) than are other births. Only 9 percent of births to women who belong to scheduled tribes, 17 percent of births to women who belong to scheduled castes, and 29 percent of births to women who belong to other backward classes were attended by a doctor. Only 8 percent of births to women who did not have any antenatal check-ups were attended by a doctor, compared with 46 percent of births to women who had four or more antenatal check-ups.

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 children by birth weight and the mother's estimate of the baby's size at birth. Based on mothers' reports, 5 percent of children born in Orissa in the past three years were delivered by caesarian section. The proportion of deliveries by caesarian section was slightly higher in urban areas (7 percent) than in rural areas (5 percent).

Low-birth-weight babies face higher risks of dying than do babies of normal birth weight. For each birth that took place in the three years preceding the survey, respondents were asked the baby's birth weight. Since babies delivered at home are unlikely to be weighed, the survey asked mothers to estimate the size of each baby at birth (large, average, small, or very small).

In Orissa, more than three-fourths (78 percent) of babies born in the three years preceding the survey were not weighed at birth. The proportion not weighed is 54 percent in urban areas and 80 percent in rural areas. Even for babies that were weighed, some mothers did not

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, Orissa, 1999

Characteristic of births	Urban	Rural	Total
Percentage delivered by caesarian section	7.0	4.8	5.0
Birth weight			
< 2.5 kg	9.2	4.4	4.9
2.5 kg or more	29.4	13.0	14.6
Don't know/missing	7.5	2.4	2.9
Not weighed	53.9	80.3	77.6
Total percent	100.0	100.0	100.0
Size at birth			
Large	18.9	17.3	17.5
Average	57.4	60.9	60.5
Small	18.4	19.1	19.1
Very small	4.6	2.5	2.7
Don't know/missing	0.7	0.2	0.2
Total percent	100.0	100.0	100.0
Number of births	153	1,359	1,512

Note: Table includes only the two most recent births during the three years preceding the survey.

remember the weight. Therefore, the resulting sample of births whose weights are reported is subject to a potentially large selection bias, and the results should be interpreted with caution. Among children for whom birth weights were reported, 25 percent weighed less than 2.5 kilograms. The proportion weighing less than 2.5 kilograms is almost the same in rural areas (25 percent) as in urban areas (24 percent).

According to mothers' estimates, 61 percent of births in the three years preceding the survey were of average size, 18 percent were large, 19 percent were small, and 3 percent were very small. The proportion of babies reported as small or very small was 23 percent 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 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 deliveries in the three years preceding the survey that were followed by a postpartum check-up within two months of delivery. Among

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, Orissa, 1999

Background characteristic	Percentage with a postpartum check-up within two months of birth	Number of births	Among those with a 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	17.9	231	(9.2)	(25.5)	(39.2)	(13.7)	(57.2)	(54.3)	41
20–34	19.5	895	11.4	28.0	33.1	31.5	41.9	46.2	175
35–49	(20.8)	40	*	*	*	*	*	*	8
Birth order									
1	21.1	261	10.1	29.3	45.6	16.1	57.7	53.7	55
2–3	18.7	576	10.8	28.4	35.6	25.4	44.4	49.7	108
4–5	21.5	230	(13.4)	(24.8)	(24.7)	(49.4)	(34.8)	(38.3)	49
6+	12.2	100	*	*	*	*	*	*	12
Residence									
Urban	18.2	68	*	*	*	*	*	*	12
Rural	19.3	1,098	12.0	28.8	35.7	29.4	46.7	48.3	212
Mother's education									
Illiterate	17.7	791	12.8	27.6	34.8	31.1	43.9	48.7	140
Literate, < middle school complete	18.1	256	(8.3)	(35.8)	(24.9)	(21.7)	(43.0)	(40.8)	46
Middle school complete	26.5	72	*	*	*	*	*	*	19
High school complete and above	(40.2)	47	*	*	*	*	*	*	19
Caste/tribe									
Scheduled caste	21.9	298	15.4	32.5	25.2	28.7	47.4	47.4	65
Scheduled tribe	14.0	307	(3.8)	(16.9)	(35.3)	(17.0)	(33.8)	(46.8)	43
Other backward class	21.7	347	13.3	33.2	46.9	32.9	45.4	43.4	75
Other	19.1	214	(10.8)	(27.0)	(32.4)	(35.2)	(52.8)	(55.7)	41
Standard of living index									
Low	17.9	761	11.0	28.1	34.0	31.0	40.9	45.5	136
Medium	19.3	350	14.7	32.3	39.3	26.4	50.8	49.2	68
High	(38.0)	46	*	*	*	*	*	*	18
Number of antenatal check-ups									
0	8.3	283	*	*	*	*	*	*	23
1	10.8	135	*	*	*	*	*	*	15
2	14.8	285	(13.0)	(28.8)	(45.4)	(36.6)	(41.5)	(51.9)	42
3+	31.2	463	10.0	27.0	35.4	29.8	50.4	47.8	144
Assistance during delivery									
Doctor/nurse/midwife/LHV[1]	36.4	164	20.4	48.2	44.4	29.8	47.5	47.5	60
Dai (TBA)	17.6	339	5.4	21.3	42.4	31.3	43.6	45.7	60
Other	15.8	664	10.2	22.0	27.0	27.3	44.6	48.4	105
Total	19.2	1,167	11.6	28.8	35.8	29.0	45.1	47.4	224

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes a small number of births with missing information on the standard of living index and number of antenatal check-ups, which are not shown separately.
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

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.

Slightly less than one-fifth (19 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, few check-ups took place shortly after birth—only 12 percent within two days and 29 percent within one week. The likelihood of a postpartum check-up increases with mother's education and the standard of living. Births to mothers who received three or more antenatal check-ups were much more likely to be followed by a postpartum check-up than were births to mothers who received less than three antenatal check-ups. Births delivered with the assistance of a health professional were more likely to be followed by a postpartum check-up (36 percent) than were births delivered with the assistance of a TBA (18 percent) or other person (16 percent). These results clearly indicate that women are more likely to have a postpartum check-up if they have had continuous interaction with health providers throughout their pregnancy and delivery, even if they did not give birth in a health facility. There is no pronounced variation in prevalence of postpartum check-ups by mother's age, birth order, residence, or caste/tribe affiliation, although births of order 6 and above and births to scheduled-tribe mothers are somewhat less likely to be followed by a postpartum check-up than are other births.

Mothers who did not deliver in a health facility but who received a postpartum check-up were asked whether they had received specific components of postpartum care, including an abdominal examination and advice on family planning, breastfeeding, and baby care. For 36 percent of births, mothers who received a postpartum check-up said that their abdomen was examined during the check-up, and for 29 percent of births, they said that they received family planning advice. Advice on breastfeeding and baby care was somewhat more common (given in 45–47 percent of cases). For women having postpartum check-ups after noninstitutional births, women with births of higher birth order were more likely to receive family planning advice and less likely to receive an abdominal examination and advice on breast-feeding and baby care. Notably, only 16 percent of mothers received advice about family planning during postpartum check-ups after a first birth, even though these women are especially likely to need advice on birth spacing and general information on family planning. With the exception of advice on family planning, mothers who were less than 20 years of age were more likely than older mothers to receive all components of the postpartum check-up. Generally, the proportion receiving each component of the postpartum check-up varies little with type of assistance during delivery. Due to the small number of births having postpartum check-ups in each category, it is not possible to draw conclusions about the effects of other background characteristics.

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 (Table 8.11). Mothers reported massive vaginal bleeding for 18 percent of births and a very high fever in the postpartum period for 12 percent of births. The two complications do not show any pronounced variation by residence or by age of mother. Fourteen percent of births to mothers who were age 19 or younger at the time of birth were followed by massive vaginal bleeding, and 16 percent were followed by

Table 8.11 Symptoms of postpartum complications

Among births during the three years preceding the survey percentage for which the mother had massive vaginal bleeding or very high fever within two months after the delivery by selected background characteristics, Orissa, 1999

Background characteristic	Massive vaginal bleeding	Very high fever	Number of births
Residence			
Urban	15.5	13.5	146
Rural	18.1	12.3	1,308
Mother's age at birth			
< 20	14.1	15.5	276
20–34	19.0	11.6	1,132
35–49	(9.4)	(13.3)	46
Birth order			
1	17.8	15.2	414
2–3	19.2	12.8	684
4–5	13.5	7.6	254
6+	19.4	10.4	103
Place of delivery			
Public health facility	19.8	15.2	277
Private health facility	26.5	16.2	48
Own home	16.7	11.8	1,035
Parents' home	21.2	9.4	83
Assistance during delivery			
Doctor	22.3	17.3	350
ANM/nurse/midwife/LHV	17.4	15.1	124
Dai (TBA)	24.5	12.7	327
Other[1]	12.1	9.0	644
Total	17.8	12.4	1,455

Note: Table includes only the two most recent births during the 2–35 months preceding the survey. Total includes 2 births delivered in nongovernmental organization or trust hospitals/clinics, 10 births delivered in 'other' places, and 9 births assisted during delivery by other health professionals, 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

very high fever of the mother, compared with 19 and 12 percent, respectively, of births to mothers age 20–34. Surprisingly, the likelihood of massive vaginal bleeding and very high fever is greater following births delivered at a private health facility (27 percent with massive vaginal bleeding and 16 percent with very high fever) than following births delivered at the mother's own home or her parents' home (or at a public health facility). Moreover, births assisted by a health professional were more likely to be followed by very high fever than were births assisted by a traditional birth attendant or other person. These surprising results raise the question of whether women who deliver at a private health facility or with the assistance of a health professional are more aware of any complications and hence report them more readily.

8.4 Reproductive Health Problems

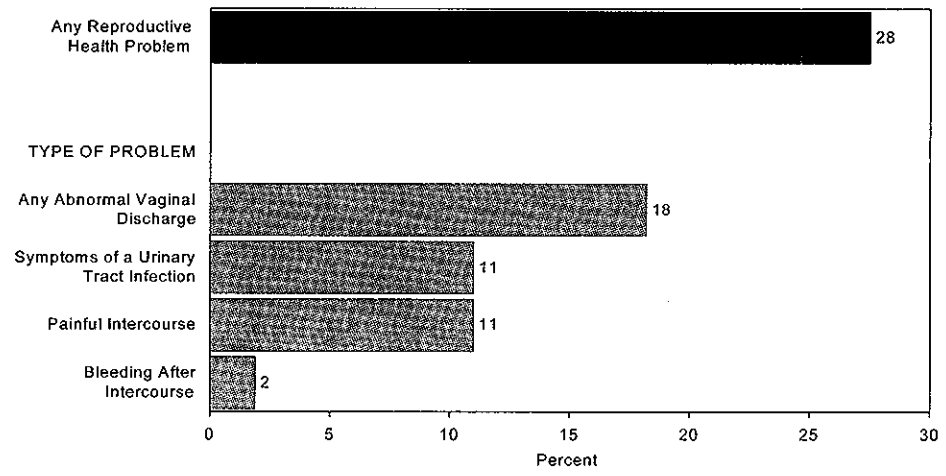
Freedom from reproductive tract infections (RTIs) is essential for the reproductive health of both women and men and is also critical for their ability to meet their reproductive goals. For women there are three different types of reproductive tract infections: endogenous infections that are caused by 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 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 Gittlesohn, 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 Ministry of Health and Family Welfare 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: 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, urinary tract infections, and intercourse-related pain and bleeding. Specifically, the prevalence of reproductive health problems among ever-married women is estimated from women's self-reported experience in the three months preceding the survey with each of the following problems: vaginal discharge accompanied by itching, irritation around the vaginal area, bad odour, severe lower abdominal pain, fever, or any other problem; pain or burning while urinating or frequent or difficult urination; and (among married women) 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 ever-married women in Orissa during the three months preceding the survey by background characteristics. Eighteen percent of ever-married women report at least one type of problem related to vaginal discharge, and 11 percent report symptoms of a urinary tract infection. Overall,

Figure 8.5
Reproductive Health Problems Among Currently Married Women



NFHS-2, Orissa, 1999

23 percent of women report either problems with vaginal discharge or symptoms of a urinary tract infection. Among problems related to vaginal discharge, severe lower abdominal pain (11 percent) is mentioned most frequently, followed by itching or irritation (10 percent). Problems related to vaginal discharge and symptoms of urinary tract infections are equally prevalent among currently married women and ever-married women.

Table 8.12 and Figure 8.5 show that more than one-fourth of currently married women (28 percent) report one or more reproductive health problems. Eleven percent report painful intercourse, and 2 percent report bleeding after intercourse. Reproductive health problems are more common among currently married women below age 35 (28–34 percent) than among older women (23–25 percent). There is almost no difference in the prevalence of reproductive health problems between urban and rural women. Among education groups, the prevalence of reproductive health problems is highest for women who have completed middle school (31 percent) and lowest for women who have at least completed high school (24 percent) with illiterate women and literate women who have not completed middle school in between (27–28 percent). Muslim women (29 percent) are somewhat more likely to have reproductive health problems than Hindu women (28 percent) or Christian women (18 percent). There is very little variation in prevalence of reproductive health problems by caste/tribe.

Reproductive health problems vary little by either standard of living or work status of currently married women. Women with no children are considerably more likely than women with one or more children to have reproductive health problems. Among women with at least one child, there is almost no difference in reproductive health problems by number of children.

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, Orissa, 1999

Background characteristic	Ever-married women									Currently married women			
		Vaginal discharge accompanied by:											
	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
Age													
15–19	18.6	8.9	4.8	13.4	4.3	2.6	13.2	25.5	300	18.1	5.7	33.7	293
20–24	16.1	9.0	4.1	11.1	3.2	1.7	11.0	20.9	811	16.3	2.7	29.6	790
25–29	19.2	10.4	6.5	11.5	3.6	2.6	10.5	23.5	931	12.3	1.8	27.6	885
30–34	19.0	11.2	7.6	10.5	3.2	2.4	12.1	24.6	820	11.4	1.9	30.2	769
35–39	19.4	10.8	6.7	12.5	4.6	3.3	10.4	22.7	601	6.4	0.9	24.5	549
40–44	17.8	8.2	5.2	11.3	4.2	1.7	9.2	21.2	554	4.5	0.7	22.7	495
45–49	14.5	8.9	5.3	9.6	1.6	0.9	9.9	19.2	407	5.5	0.8	23.2	361
Residence													
Urban	18.4	9.4	4.9	11.2	3.3	3.1	10.7	23.1	488	11.1	2.2	28.5	454
Rural	17.9	9.9	6.0	11.3	3.6	2.1	10.9	22.5	3,937	11.0	1.9	27.4	3,688
Education													
Illiterate	18.4	9.4	5.7	12.6	4.2	2.2	11.7	23.4	2,633	10.4	1.6	27.7	2,420
Literate, < middle school complete	17.6	10.8	5.7	10.0	2.6	2.1	10.4	22.4	1,153	11.2	2.1	27.2	1,095
Middle school complete	20.3	11.8	10.6	9.4	2.7	4.3	8.7	22.5	305	15.1	4.0	31.1	301
High school complete and above	13.9	8.0	4.3	7.2	2.0	1.5	7.6	16.9	334	11.4	2.0	24.0	327
Religion													
Hindu	18.1	9.9	6.0	11.4	3.6	2.2	10.9	22.7	4,279	11.1	1.9	27.6	4,011
Muslim	17.3	9.6	3.0	9.9	2.3	3.0	10.7	24.2	75	9.5	5.1	28.8	64
Christian	12.8	6.4	4.0	6.4	3.2	3.2	4.9	13.6	68	5.2	0.9	18.0	64
Caste/tribe													
Scheduled caste	18.0	10.5	6.7	12.5	3.9	2.4	11.8	23.1	938	10.7	1.5	27.9	876
Scheduled tribe	18.0	8.0	5.4	11.8	3.9	1.0	12.3	23.4	868	11.4	1.5	28.0	778
Other backward class	18.6	9.7	6.2	11.1	3.5	2.6	10.2	23.0	1,371	11.9	1.6	28.6	1,306
Other	17.2	10.6	5.3	10.4	3.1	2.6	9.8	21.2	1,246	10.0	2.9	25.8	1,182

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, Orissa, 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	18.4	9.6	6.3	12.2	4.3	1.8	11.4	23.5	2,376	10.4	1.6	27.9	2,168
Medium	17.9	10.1	5.7	10.8	2.8	2.9	11.0	22.6	1,559	11.9	2.0	27.9	1,498
High	15.9	10.5	4.9	8.7	2.5	1.9	7.7	18.4	474	11.2	3.2	25.0	462
Work status													
Working in family farm/ business	19.1	11.1	6.0	14.5	3.8	1.7	10.9	23.1	317	9.2	1.7	26.9	291
Employed by someone else	16.7	8.1	4.4	12.3	3.7	1.6	10.8	21.6	706	12.5	1.0	27.8	609
Self-employed	19.5	9.2	5.5	12.7	4.7	2.6	9.6	23.3	332	9.2	1.7	27.5	283
Not worked in past 12 months	18.0	10.2	6.3	10.6	3.3	2.4	11.0	22.7	3,071	11.1	2.1	27.5	2,960
Number of children ever born													
0	19.6	10.3	6.7	11.9	3.9	2.3	12.9	24.9	489	21.3	6.2	36.6	433
1	16.7	9.1	5.3	11.7	2.9	1.9	10.6	21.5	655	14.1	1.7	27.8	604
2–3	18.5	10.6	6.5	11.2	3.8	2.9	10.7	22.5	1,820	10.6	1.7	27.2	1,720
4–5	16.9	8.6	5.2	10.4	3.3	1.4	9.6	21.8	1,062	6.9	0.8	24.5	1,007
6+	18.9	10.0	5.3	12.8	3.4	1.8	12.7	23.9	399	7.1	1.0	26.3	378
All ever-married women	18.0	9.8	5.9	11.3	3.5	2.2	10.8	22.6	4,425	NA	NA	NA	NA
All currently married women	18.2	10.1	6.1	11.4	3.5	2.3	11.0	22.9	4,143	11.0	1.9	27.5	4,143

Note: Total includes a small number of women with 'other' religions and women with missing information on caste/tribe and the standard of living index, who are not shown separately.
NA: Not applicable
[1]Not related to menstruation
[2]Includes pain or burning while urinating or more frequent or difficult urination

Among women who report any reproductive health problems, 75 percent 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 (76 percent) than in urban areas (65 percent). Among women with a reproductive health problem, 7 percent saw a private doctor and 14 percent saw a government doctor. Women in urban areas are more likely to see a private doctor or government doctor (18 and 17 percent, respectively) than women in rural areas (6 and 13 percent, respectively).

Table 8.13 Treatment of reproductive health problems

Among women with a reproductive health problem, the percentage who sought advice or treatment from specific providers by residence, Orissa, 1999

Provider	Urban	Rural	Total
Public medical sector	17.1	14.8	15.1
Government doctor	16.7	13.1	13.6
Public health nurse	0.0	0.7	0.6
ANM/LHV	0.4	0.9	0.9
Male MPW/supervisior	0.0	0.1	0.1
Aganwadi worker	0.4	0.5	0.5
Other public medical sector	0.0	0.6	0.6
NGO worker	0.9	0.0	0.1
Private medical sector	18.9	9.5	10.6
Private doctor	18.1	5.9	7.3
Private nurse	0.4	0.1	0.1
Compounder/pharmacist	0.0	0.4	0.4
Vaidya/hakim/homeopath	0.9	2.4	2.2
Traditional healer	0.4	0.6	0.6
Other private medical sector	0.8	0.4	0.5
Other	3.7	2.1	2.3
None	65.2	75.9	74.6
Number of women	136	1,053	1,189

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

NFHS-2 results show that although more than one in every four currently married women in Orissa report at least one reproductive health problem that could be symptomatic of a more serious reproductive tract infection, a large majority (three-fourths) of them bear the problems silently without seeking advice or treatment. These findings highlight the urgent needs to educate women regarding the symptoms and consequences of reproductive health problems and 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 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 adequately reflect user needs and preferences and adversely affects the quality of care provided (Ministry of Health and Family Welfare, 1998a). 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 meet 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 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-centered, demand-driven, high-quality integrated RCH services' (Ministry of Health and Family Welfare, 1998a: 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 as well as 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, source, and quality. Finally, information is presented on the quality of care for 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 use of services from various types of health providers. In Orissa a large majority of households (84 percent) normally use the public medical sector when a household member gets sick. Only 15 percent normally use private-sector medical services. The pattern of service utilization is, however, somewhat different for rural and urban households. One-third of urban households use private-sector medical services but only 13 percent of rural households. In the private medical sector as well as in the public medical sector, hospitals are the most popular source of health care. More than half of rural households use CHC/rural hospital/PHC services.

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, Orissa, 1999

Source	Residence		Standard of living index			Total
	Urban	Rural	Low	Medium	High	
Public medical sector	63.2	86.5	86.2	83.4	70.9	83.9
Government/municipal hospital	52.5	22.8	23.4	28.7	35.0	26.1
Government dispensary	1.7	1.6	1.3	1.7	2.8	1.6
UHC/UHP/UFWC	1.1	0.2	0.4	0.3	0.3	0.3
CHC/rural hospital/PHC	7.5	56.7	55.8	48.7	30.0	51.2
Sub-centre	0.1	3.5	4.3	1.9	0.5	3.2
Government paramedic	0.2	0.3	0.4	0.1	0.1	0.3
Other public medical sector	0.1	1.3	0.6	2.0	2.2	1.2
NGO or trust	0.9	0.0	0.1	0.1	0.0	0.1
Hospital/clinic	0.9	0.0	0.1	0.1	0.0	0.1
Private medical sector	34.4	12.8	12.9	15.9	28.1	15.2
Private hospital/clinic	23.7	6.3	5.8	9.4	19.5	8.2
Private doctor	6.2	4.0	4.3	3.9	5.5	4.3
Private mobile clinic	0.0	0.1	0.1	0.0	0.3	0.1
Private paramedic	0.0	0.2	0.2	0.1	0.0	0.2
Vaidya/hakim /homeopath	2.5	1.6	1.6	1.5	2.5	1.7
Traditional healer	0.0	0.2	0.3	0.1	0.0	0.2
Pharmacy/drugstore	0.2	0.3	0.2	0.4	0.0	0.3
Other private medical sector	1.8	0.1	0.2	0.4	0.3	0.3
Other source	1.5	0.7	0.8	0.6	1.0	0.8
Shop	0.7	0.2	0.2	0.2	0.4	0.2
Home treatment	0.7	0.5	0.6	0.3	0.7	0.5
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of households	521	4,168	2,761	1,484	423	4,689

Note: Total includes 21 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

Use of health-care services is influenced by the standard of living of the household. As the standard of living increases, use of private-sector services increases. Twenty-eight percent of households with a high standard of living use the private medical sector, compared with 13–16 percent of households with a low or medium standard of living. Among households with a low standard of living, 86 percent typically use public-sector services for their health care.

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 required 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 nine percent of women in Orissa, 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).

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 and, among women who had home visits, median number of visits, and median number of months since the most recent visit by background characteristics, Orissa, 1999

Background characteristic	Percentage with at least one visit	Number of Women	Median number of visits[1]	Median months since the most recent visit[1]	Number of women with home visit
Age					
15–24	13.6	1,112	1.6	2.4	151
25–34	9.6	1,751	1.7	2.9	167
35–49	5.2	1,562	1.6	3.0	82
Residence					
Urban	8.2	488	1.4	3.7	40
Rural	9.1	3,937	1.7	2.6	360
Education					
Illiterate	8.7	2,633	1.7	2.3	229
Literate, < middle school complete	8.6	1,153	1.7	2.8	99
Middle school complete	12.6	305	(1.5)	(4.0)	39
High school complete and above	9.7	334	(1.7)	(4.6)	32
Religion					
Hindu	8.9	4,279	1.6	2.7	382
Muslim	10.4	75	*	*	8
Christian	14.6	68	*	*	10
Caste/tribe					
Scheduled caste	9.1	938	1.7	2.8	85
Scheduled tribe	11.5	868	1.6	1.8	100
Other backward class	8.6	1,371	1.8	2.8	118
Other	7.7	1,246	1.5	4.7	96
Standard of living index					
Low	9.1	2,376	1.6	2.5	216
Medium	9.7	1,559	1.6	3.1	150
High	6.7	474	(4.1)	(3.2)	32
Number of children ever born					
0	7.7	489	(1.5)	(1.9)	38
1	13.3	655	1.4	4.4	87
2	9.8	950	1.8	2.9	93
3	8.9	870	1.7	2.8	78
4	9.0	665	1.7	1.9	60
5+	5.5	796	(1.7)	(2.5)	44
Family planning status					
Sterilized	5.8	1,475	1.3	3.5	85
Using method other than sterilization	8.6	465	(1.7)	(2.9)	40
Nonuser	11.0	2,485	1.7	2.4	274
Total	9.0	4,425	1.6	2.7	399

Note: Total includes a small number of women of 'other' religions and a small number of women with missing information on caste/tribe and the standard of living index, who are not shown separately.
( ) Based on 25–49 unweighted cases
* Median not shown; based on fewer than 25 unweighted cases
[1]For women who received at least one visit

Younger women are more likely to report a home visit than are older women. Fourteen percent of women age 15–24 reported at least one home visit, compared with only five percent of women age 35 years and older. The proportion of women reporting a home visit from a health or family planning worker is almost the same (8-9 percent) in urban and rural and also does not vary much by woman's education, except that among women who have completed middle

school, the proportion reporting a home visit is somewhat higher (13 percent) than in the other education groups (9–10 percent).

The likelihood of a home visit is less for households with high standard of living (7 percent) than for households with a medium or low standard of living (9-10 percent). Hindu women (9 percent) are slightly less likely to report a home visit than either Muslim women (10 percent) or Christian women (15 percent). Home visits are slightly more common among scheduled-tribe women (12 percent) than among scheduled-caste women (9 percent), women from other backward classes (9 percent), or women not in any backward class (8 percent). Women with no children and women with five or more children are least likely (6-8 percent) to receive a home visit, while those with one child are most likely (13 percent) to receive a home visit. Home visits are more common for nonusers of contraception than for users.

Women who reported a visit by a health or family planning worker during the 12 months preceding the survey were asked the frequency of the visits during the past 12 months and the number of months since the last visit. These women, on average, received 1.6 home visits over the year with a median duration since the last visit of 2.7 months (Table 9.2). The average number of home visits does not vary much by any of the background characteristics measured. The median duration since last visit shows more variation. By caste/tribe, for example, the median duration ranges from 1.8 months for scheduled-tribe women to 4.7 months for women not in any backward class.

9.3 Quality of Home Visits

The quality of 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 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 provides this information by the type of services received and whether the worker was from the private or public medical sector.

Most of the recent home visits were provided by public-sector health or family planning workers; private-sector workers provided 16 percent of the home visits during the last 12 months. A large majority of women who were visited at home reported that they received services related to health (88 percent), and 11 percent reported that they received family planning services.

Irrespective of the type of service received, a large majority of women (86 percent or more) who were visited by a public-sector worker for health or family planning services were satisfied that the worker had spent enough time with them. The proportion of women satisfied with the time the worker spent was higher for visits by a private-sector worker (92 percent or more) than for visits by a public-sector worker. In general, only a handful of women had complaints about the way the worker talked to them. About three-fourths of the women who received family planning or health services reported that the worker talked to them nicely; less than one percent said that the worker did not talk to them nicely. Women who received health services gave workers a somewhat better assessment than did women who received family planning services.

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, according to type of health worker and type of services received during the visit, Orissa, 1998–99

	Type of health worker and type of services received											
	Public-sector worker				Private-sector/NGO/trust worker				Total			
Quality indicator	Family planning	Health	Family planning or health	Neither family planning nor health	Family planning	Health	Family planning or health	Neither family planning nor health	Family planning	Health	Family planning or health	Neither family planning nor health
Percentage who said worker spent enough time with them	(86.2)	86.7	85.7	*	*	95.0	91.5	*	(81.8)	88.0	86.6	(60.3)
Percentage who said worker talked to them:												
Nicely	(61.1)	73.3	72.7	*	*	80.5	79.3	*	(60.6)	74.4	73.8	(67.7)
Somewhat nicely	(37.5)	26.3	26.7	*	*	19.5	20.7	*	(38.1)	25.2	25.8	(30.2)
Not nicely	(1.4)	0.4	0.5	*	*	0.0	0.0	*	(1.3)	0.3	0.4	(2.1)
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women visited at home	40	294	312	20	2	57	59	8	42	351	371	28

Note: Cases where the source of service was neither the public sector nor the private sector/NGO/trust are excluded from the table. The number of women receiving family planning and health services add to more than the number receiving any family planning or health visit because some visits were for both family planning and health.
NGO: Nongovernmental organization
( ) Based on 25–49 unweighted cases
* Percentage not shown; based on fewer than 25 unweighted cases

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 proportions of women who discussed specific topics during home visits or visits to a health facility during the past 12 months.

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, Orissa, 1999

Topic discussed	Pregnant women or women with children under age 3	Other women		Total
		Current contraceptive users	Current nonusers	
During home visit				
Family planning	12.5	13.3	10.3	12.2
Breastfeeding	2.3	0.7	0.0	1.5
Supplementary feeding	0.5	0.7	0.0	0.4
Immunization	42.3	17.9	7.9	30.8
Nutrition	4.4	0.7	0.0	2.8
Disease prevention	18.4	35.7	37.8	25.6
Treatment of health problem	26.0	49.6	61.5	37.6
Antenatal care	43.1	1.4	4.4	27.3
Delivery care	15.3	2.0	0.8	9.8
Postpartum care	11.1	0.0	0.8	6.9
Child care	18.5	7.6	5.1	13.7
Sanitation/cleanliness	3.3	7.7	3.0	4.1
Other	0.0	0.7	2.9	0.7
Number of women	242	81	76	399
During visit to health facility				
Family planning	3.8	2.8	0.7	2.8
Breastfeeding	1.0	0.0	0.0	0.5
Supplementary feeding	0.2	0.0	0.0	0.1
Immunization	35.2	0.5	0.9	16.8
Nutrition	1.8	0.0	0.4	0.9
Disease prevention	11.5	15.8	18.5	14.4
Treatment of health problem	48.6	88.8	87.3	69.7
Antenatal care	27.3	0.2	1.8	13.2
Delivery care	11.6	0.3	1.9	5.9
Postpartum care	6.8	0.0	0.2	3.2
Child care	31.1	14.1	7.9	20.7
Sanitation/cleanliness	0.5	0.5	0.2	0.4
Oral rehydration	1.0	0.2	0.0	0.5
Other	0.1	0.0	0.2	0.1
Number of women	1,018	696	462	2,176

Note: Percentages may add to more than 100.0 because of multiple responses.

The major focus of home visits was treatment of health problems, immunizations, and antenatal care and disease prevention. About 27 percent reported having discussions about antenatal care during home visits. Twelve percent of women mentioned that family planning was discussed during home visits. Surprisingly, women who were pregnant or women with children under age three are not more likely than other women to have talked about family planning, but

they are much more likely to have talked about immunizations, antenatal care, and delivery care. They are far less likely to have discussed health problems.

Visits to health facilities are largely for treatment of health problems (70 percent) or childcare (21 percent). Only three percent of the women say that they discussed family planning during the visits. Even among currently pregnant women or women with children under age three, only four percent report having discussed family planning. Nearly one-third of these women discussed childcare, 49 percent discussed treatment of a health problem, 27 percent discussed antenatal care, and 12 percent discussed delivery care. These data suggest that health facilities and workers in the process of providing health and childcare services infrequently take the opportunity to discuss family planning with women who may be most in need of such services. It is also evident that many important health-related topics (feeding practices, nutrition, 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 had 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 their opinion regarding the cleanliness of the facility.

Almost all respondents (99 percent) said that they received the services for which they had visited the facility (Table 9.5). The median waiting time to receive services was about 19 minutes. The median waiting time in public sector health facilities (20 minutes) is twice as high as in private-sector facilities (10 minutes). Median waiting time in public-sector facilities does not vary by urban-rural residence, but median waiting time in private-sector facilities is somewhat shorter in rural areas than in urban areas. Satisfaction with the amount of time the staff spent with the woman was generally high (91 percent), but slightly lower in the public sector (90 percent) than in the private sector (94 percent).

The private sector was also rated higher than the public sector on all of the other indicators of quality. Seventy-five percent of women who received services in a private-sector facility said that the staff talked to them nicely, compared with 59 percent of women who received services in a public-sector facility. Only 3 percent of women said that staff did not talk nicely to them. Urban-rural differences in these proportions are small.

Among women who wanted privacy during their visit, only 57 percent of all women (63 percent of urban women and 56 percent of rural women) were satisfied that the staff respected their need for privacy. Satisfaction with the amount of privacy afforded to the client was higher for visits to private-sector facilities (65 percent) than public-sector facilities (55 percent). In the private sector the rural-urban difference is very small in this respect.

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 health sector of most recent visit and residence, Orissa, 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	99.7	98.7	98.8	100.0	100.0	100.0	99.8	99.0	99.1
Median waiting time (minutes)	19.4	19.6	19.5	14.3	9.6	9.7	15.0	19.2	19.2
Percentage who said the staff spent enough time with them	90.7	89.8	89.9	96.9	92.9	93.9	93.2	90.4	90.8
Percentage who said the staff talked to them:									
Nicely	68.1	58.3	59.3	79.8	74.0	75.4	72.7	61.4	62.9
Somewhat nicely	29.6	38.3	37.4	20.2	24.5	23.5	25.9	35.5	34.3
Not nicely	2.3	3.4	3.3	0.0	1.5	1.1	1.4	3.1	2.8
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]	64.0	53.7	54.7	62.7	65.8	65.0	63.4	56.0	57.0
Percentage who rated facility as:									
Very clean	45.9	39.6	40.3	69.9	69.3	69.4	55.5	45.5	46.8
Somewhat clean	48.0	56.1	55.3	28.6	29.3	29.1	40.3	50.8	49.4
Not clean	6.1	4.3	4.5	0.5	1.5	1.3	3.9	3.7	3.7
Missing	0.0	0.0	0.0	1.0	0.0	0.2	0.4	0.0	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	172	1,511	1,684	114	375	488	286	1,886	2,172
Number of women who said they needed privacy	86	788	874	67	186	253	153	974	1,127

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

Private-sector facilities are also perceived to be cleaner than public-sector facilities. Sixty-nine percent of women who visited a private-sector facility as compared to only 40 percent of women who visited a public-sector facility said that the facility was very clean.

9.6 Family Planning Information and Advice Received

To gain a better understanding of the information provided to women about different contraceptive methods, all eligible women were asked to recollect all the specific methods that had ever been discussed during any of the contacts they had ever had with a health or family planning worker. Overall, 49 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). Among those who discussed contraception, by far the most frequently discussed method was sterilization (52 percent), particularly female sterilization (44 percent). Eleven percent of women reported ever discussing pills, and 5 percent reported ever discussing IUDs with a health or family planning worker. Discussions about condoms or traditional methods such as rhythm or

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, Orissa, 1999

Method	Urban	Rural	Total
Pill	17.4	10.5	11.3
Condom	6.4	1.9	2.4
IUD	11.1	4.4	5.1
Female sterilization	40.4	43.9	43.5
Male sterilization	8.3	8.4	8.4
Rhythm/safe period	3.8	1.6	1.8
Withdrawal	2.9	0.7	1.0
Other method	1.5	0.6	0.7
No method/no contact	42.7	49.4	48.7
Number of women	488	3,937	4,425

Note: Percentages add to more than 100.0 because more than one method may have been discussed.

withdrawal were rare. For all methods except sterilization, the proportion of women who reported having ever discussed the method is higher in urban areas than in rural areas.

9.7 Availability of Regular Supply of Condoms/Pills

In order to understand whether irregularity of supply is a constraint for users of spacing methods, in NFHS-2, a question was asked to women whether they had any problem in getting a regular supply of condoms/ pills. In Orissa, women do not have a problem getting pills, but 8 percent of condom users reported that they had a problem in getting supplies (Table 9.7).

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, Orissa, 1999

Method/residence	Percentage who had a problem getting supply	Number of users
Condom		
Total	(7.6)	38
Pill		
Urban	0.0	29
Rural	1.1	96
Total	0.9	125

Note: Total includes 14 and 24 users of condoms in urban and rural areas, respectively, who are not shown separately.
( ) Based on 25–49 unweighted cases

9.8 Person Motivating Users of a Modern Contraceptive Method

To help understand the dynamics of adoption of contraceptive methods and the roles that different persons play, NFHS-2 asked current users of modern methods who had motivated them to use their current method. In Orissa, slightly more than one-third of current users of a modern method said that they were not motivated by anyone, but adopted the method on their own (Table 9.8 and Figure 9.1). One-fourth of current users of modern methods said that a

Table 9.8 Motivation to use family planning

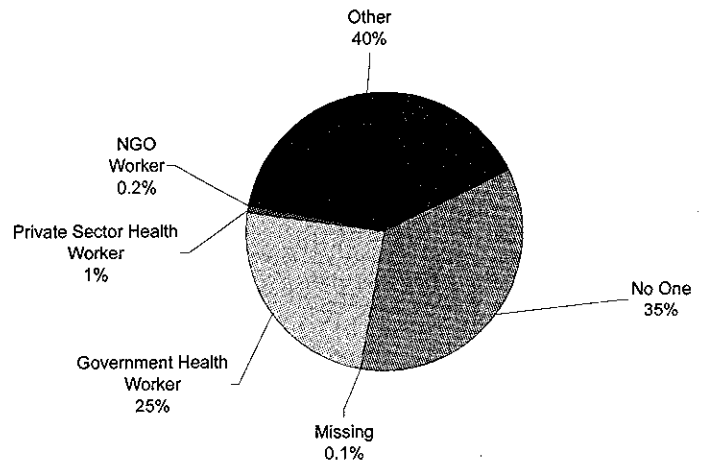
Percent distribution of current users of modern contraceptive methods by type of person who motivated them to use the method, according to current method and residence, Orissa, 1999

Current method	Type of person who motivated the user to use current method						Total percent	Number of users
	Government health worker	Private-sector health worker	NGO worker	Other	No one	Missing		
				URBAN				
Pill	27.0	13.4	0.0	38.7	20.9	0.0	100.0	29
Condom	*	*	*	*	*	*	100.0	14
IUD	*	*	*	*	*	*	100.0	13
Female sterilization	16.3	1.2	0.4	35.4	46.7	0.0	100.0	141
Male sterilization	*	*	*	*	*	*	100.0	8
All modern methods	18.8	3.0	0.3	38.0	39.9	0.0	100.0	205
				RURAL				
Pill	26.7	3.4	0.0	46.8	23.1	0.0	100.0	96
Condom	*	*	*	*	*	*	100.0	24
IUD	*	*	*	*	*	*	100.0	20
Female sterilization	25.7	0.3	0.3	40.6	33.2	0.0	100.0	1,263
Male sterilization	12.3	0.0	0.0	14.2	71.7	1.8	100.0	63
All modern methods	25.3	0.5	0.2	39.9	34.1	0.1	100.0	1,466
				TOTAL				
Pill	26.7	5.8	0.0	44.9	22.6	0.0	100.0	125
Condom	(26.5)	(0.0)	(0.0)	(66.0)	(7.4)	(0.0)	100.0	38
IUD	(28.0)	(1.6)	(0.0)	(23.5)	(46.8)	(0.0)	100.0	34
Female sterilization	24.7	0.4	0.3	40.1	34.5	0.0	100.0	1,403
Male sterilization	13.2	0.0	0.0	14.9	70.4	1.6	100.0	71
All modern methods	24.5	0.8	0.2	39.7	34.8	0.1	100.0	1,671

NGO: Nongovernmental organization
( ) Based on 25–49 unweighted cases
* Percentage not shown; based on fewer than 25 unweighted cases

government worker was the one who mainly motivated them, and 40 percent reported that the motivator was someone other than a government, private, or NGO worker. As expected, the role of government workers was more important for motivating users in rural areas than in urban areas. Users in urban areas are more likely than rural users to be self-motivated. It is noteworthy that among acceptors of female sterilization, slightly more than one-third said that it was their own decision to use the method and that no one else had motivated them. Among women whose husbands had accepted sterilization, 70 percent stated that no one had motivated their husband to get sterilized.

Figure 9.1
Motivator for Current Users of Modern Contraceptive Methods



Note: Percents add to more than 100.0 due to rounding

NFHS-2, Orissa, 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 the method at the time that she accepted the method; and whether she received any follow-up care either at home or in a health facility after she accepted the method. Tables 9.9 and 9.10 present the results of this investigation.

An important indication of the quality of family planning services is whether women are informed about a variety of methods and are allowed to make an informed choice about 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 alternate methods that they could use. Only 12 percent of users of modern contraceptive methods who were motivated by someone were informed about at least one alternative method (Table 9.9). Nearly 18 percent of users who were motivated by a worker in the public sector received such information, compared with only 8 percent of users who were motivated by a private-sector worker. Thus, in Orissa, users are more likely to be told about other methods if the person who motivated them is from the public health sector. Users in urban areas (18 percent) were more likely than users in rural areas (12 percent) to be told about other methods.

Another important element of informed contraceptive choice is being fully informed about any side effects associated with the method. Table 9.10 shows the percentage of current users of modern contraception who were told about side effects by a health or family planning

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 person who motivated them to use the current method, according to the sector of motivator and residence, Orissa, 1999

Sector of motivator	Urban	Rural	Total	Number of users
Public health sector	28.8	17.1	18.2	409
Other	10.7	7.7	8.0	663
Total	18.0	11.5	12.2	1,088

Note: Table excludes women who said that no one motivated them to use their current method. Total includes 13 and 4 users of modern methods who were motivated by a private sector worker or a worker from a nongovernmental organization, respectively, who are not shown separately.

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 with 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, Orissa, 1999

Information/ follow-up	Urban	Rural	Total
Told about side effects			
Sterilization	30.3	36.3	35.7
Other modern method	36.2	26.0	28.9
Any modern method	31.9	35.3	34.9
Received follow-up			
Sterilization	60.0	63.3	62.9
Other modern method	33.1	34.7	34.3
Any modern method	52.6	60.5	59.6

worker at the time they accepted their current method. Women were also asked if they received follow-up services after they had accepted the method.

In Orissa, slightly more than one-third of users of any modern method were informed about possible side effects of their current method at the time of adopting the method. Sixty-four percent of acceptors of sterilization report that they were not informed about side effects. This percentage was higher for users in urban areas (70 percent) than in rural areas (64 percent). Among the small proportion of users of modern methods other than sterilization, 71 percent of women were not informed of side effects, and this proportion is somewhat higher in rural areas (74 percent) than in urban areas (64 percent). It is clear from the table that both public and private health and family planning workers in both rural and urban areas of Orissa 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. Among sterilization users, 63 percent in rural areas and 60 percent in urban areas received follow-up services. Even so, this implies that two in five users of sterilization had no follow-up. About one-third of users of other modern methods received follow-up services.

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.

Basu, Alaka Malwade. 1993. Cultural influences on the timing of first births in India: Large differences that add up to little difference. *Population Studies* 47:88–93.

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. 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.

Central Statistical Organisation. 1999. *Selected Socio-Economic Statistics, India 1998.* New Delhi: Department of Statistics and Programme Implementation, Government of India.

Centre for Monitoring Indian Economy. 1991. *Basic Statistics Relating to the Indian Economy*, Vol 2: States. Bombay: Centre for Monitoring Indian Economy.

Centre for Monitoring Indian Economy. 1993. *Basic Statistics Relating to the Indian Economy*, Vol 2: States. Bombay: Centre for Monitoring Indian Economy.

Das Gupta, Monica. 1987. Selective discrimination against female children in rural Punjab, India. *Population and Development Review* 13(1): 77–101.

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, Government of Orissa. 1993. *Hand Book of Statistics for Orissa*. Bhubaneshwar: Government of Orissa.

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.

Government of Orissa. 1991. *Orissa State Gazetter*, Vols. 1 & 2. Bhubaneshwar: Department of Revenue.

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

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

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 among 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 D.C.: 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 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). 2000. *Reproductive and Child Health Project: Rapid Household Survey–Phase I, 1998.* Mumbai: 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 Sumati Kulkarni. 1998. Reproductive motivation: A comparison of wives and husbands in India. *Studies in Family Planning* 20(5).

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 multivariate 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, B. Santosh Kumar, and Udoy Sankar Saikia. 1996. *Son preference and fertility decline in India.* Paper presented at the IUSSP Seminar on Comparative Perspectives on Fertility Transition in South Asia, International Union for the Scientific Study of Population, Rawalpindi, 17–20 December.

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.

Malhotra, Rajiv. 1997. Incidences of poverty in India—Towards a consensus on estimating the poor. *Indian Journal of Labour Economics* 40:89.

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. *Manual on Community Needs Assessment Approach in Family Welfare Programme.* New Delhi: Department of Family Welfare, MOHFW.

Ministry of Health and Family Welfare (MOHFW). 1998b. *Family Welfare Programme in India, Year Book, 1996–1997.* 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. 1998. *Sample Registration Bulletin.* Vol. 32(1 and 2). New Delhi: Office of the Registrar General, Ministry of Home Affairs.

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.

Pachauri, S. and J. Gittlesohn. 1994. Summary of Research Studies and Implications for Health Policy and Programmes. In J. Gittlesohn, 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.

Pandey, Arvind, Sada Nand Dwivedi, and Ravindra Nath Mishra. 1990. Distribution of closed birth-intervals with some biosocial components: A stochastic model and its applications. *Journal of Mathematical Sociology* 16(1): 89–106.

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.

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, D.C.: World Bank, Policy Research Department, Poverty and Human Resources Division.

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* 26:439–440.

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:

$$\text{var}(r) = \frac{1-f}{x^2} \sum_{h=1}^{H} \left[\frac{m_h}{m_h - 1} \left(\sum_{i=1}^{m_h} z_{hi}^2 - \frac{z_h^2}{m_h} \right) \right]$$

in which

$$z_{hi} = y_{hi} - rx_{hi}$$
$$z_h = y_h - rx_h$$

where

h = the stratum that varies from 1 to H,
m_h = the total number of PSUs selected in the hth stratum,
y_{hi} = the sum of the values of variable y in PSU i in the hth stratum,
x_{hi} = the sum of the number of cases in PSU i in the hth stratum,
f = the overall sampling fraction, which is so small that the program ignores it.

In addition to the standard error, ISSA computes the design effect (DEFT) for each estimate, which is defined as the ratio of the standard error using the given sample design to the standard error that would result if a simple random sample had been used. A DEFT value of 1.0 indicates that the sample design is as efficient as a simple random sample, while a value greater than 1.0 indicates the increase in the sampling error due to the use of a more complex and less statistically efficient design. ISSA also computes the relative error and confidence limits for the estimates.

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, Orissa, 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 15ppm 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 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 the 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 age15	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, Orissa, 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	929	22.802	2435	1359	21.288	1.071	0.025	884	975
Rural	976	13.105	9495	10521	10.726	1.222	0.013	950	1002
Total	971	11.962	11930	11880	9.590	1.247	0.012	947	994
Illiterate (*De facto* household population age 6 and above)									
Urban	0.220	0.038	4117	2297	0.010	3.892	0.175	0.143	0.297
Rural	0.380	0.016	16286	18050	0.006	2.944	0.043	0.347	0.413
Total	0.362	0.015	20403	20347	0.005	3.102	0.043	0.331	0.393
Have tuberculosis (1,000 *de jure* household population)									
Urban	8.186	1.725	4754	2655	1.342	1.285	0.211	4.736	11.637
Rural	8.348	0.882	19098	21170	0.726	1.215	0.106	6.584	10.111
Total	8.330	0.805	23852	23824	0.644	1.250	0.097	6.719	9.941
Salt iodized at 15ppm or more (Households)									
Large city	0.787	0.076	130	74	0.036	2.115	0.097	0.634	0.939
Small city	0.667	0.167	115	64	0.044	3.793	0.251	0.333	1.000
Town	0.665	0.063	687	383	0.018	3.512	0.095	0.539	0.792
Rural	0.309	0.024	3757	4168	0.008	3.150	0.077	0.261	0.356
Total	0.350	0.023	4689	4689	0.007	3.290	0.065	0.304	0.396
Illiterate (Ever-married women age 15-49)									
Urban	0.379	0.054	868	488	0.016	3.263	0.142	0.271	0.487
Rural	0.622	0.021	3557	3937	0.008	2.533	0.033	0.581	0.663
Total	0.595	0.020	4425	4425	0.007	2.669	0.033	0.556	0.634
High school complete and above (Ever-married women age 15-49)									
Urban	0.232	0.040	868	488	0.014	2.774	0.171	0.153	0.312
Rural	0.056	0.006	3557	3937	0.004	1.594	0.110	0.044	0.068
Total	0.075	0.007	4425	4425	0.004	1.884	0.099	0.060	0.090
Currently married (Ever-married women age 15–49)									
Urban	0.930	0.008	868	488	0.009	0.934	0.009	0.914	0.947
Rural	0.937	0.005	3557	3937	0.004	1.319	0.006	0.926	0.948
Total	0.936	0.005	4425	4425	0.004	1.327	0.005	0.926	0.946
Number of children ever born (Currently married women age 15–49)									
Urban	2.838	0.076	808	454	0.066	1.166	0.027	2.686	2.991
Rural	2.860	0.041	3333	3688	0.033	1.237	0.014	2.778	2.942
Total	2.857	0.038	4141	4143	0.030	1.263	0.013	2.782	2.933
Number of living children (Currently married women age 15–49)									
Urban	2.494	0.049	808	454	0.055	0.890	0.020	2.395	2.592
Rural	2.438	0.033	3333	3688	0.028	1.183	0.014	2.372	2.505
Total	2.444	0.030	4141	4143	0.025	1.199	0.012	2.384	2.505
Have ever used any method (Currently married women age 15–49)									
Urban	0.647	0.025	808	454	0.017	1.504	0.039	0.596	0.697
Rural	0.518	0.014	3333	3688	0.009	1.560	0.026	0.491	0.545
Total	0.532	0.013	4141	4143	0.008	1.619	0.024	0.507	0.557

Table A.2 Sampling errors, Orissa, 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	0.540	0.024	808	454	0.018	1.382	0.045	0.492	0.589
Rural	0.459	0.013	3333	3688	0.009	1.522	0.029	0.433	0.486
Total	0.468	0.012	4141	4143	0.008	1.556	0.026	0.444	0.492
Currently using any modern method (Currently married women age 15–49)									
Urban	0.452	0.022	808	454	0.018	1.249	0.048	0.408	0.495
Rural	0.397	0.013	3333	3688	0.008	1.481	0.032	0.372	0.423
Total	0.403	0.011	4141	4143	0.008	1.502	0.028	0.381	0.426
Currently using pills (Currently married women age 15–49)									
Urban	0.064	0.010	808	454	0.009	1.184	0.159	0.044	0.085
Rural	0.026	0.003	3333	3688	0.003	1.197	0.127	0.019	0.033
Total	0.030	0.003	4141	4143	0.003	1.214	0.107	0.024	0.037
Currently using IUD (Currently married women age 15–49)									
Urban	0.030	0.007	808	454	0.006	1.133	0.228	0.016	0.043
Rural	0.005	0.001	3333	3688	0.001	1.173	0.275	0.002	0.008
Total	0.008	0.002	4141	4143	0.001	1.141	0.196	0.005	0.011
Currently using condoms (Currently married women age 15–49)									
Urban	0.030	0.006	808	454	0.006	1.035	0.207	0.018	0.042
Rural	0.007	0.001	3333	3688	0.001	1.064	0.227	0.004	0.010
Total	0.009	0.002	4141	4143	0.001	1.034	0.167	0.006	0.012
Currently using female sterilization (Currently married women age 15–49)									
Urban	0.309	0.017	808	454	0.016	1.073	0.056	0.274	0.344
Rural	0.342	0.012	3333	3688	0.008	1.485	0.036	0.318	0.367
Total	0.339	0.011	4141	4143	0.007	1.503	0.033	0.317	0.361
Currently using male sterilization (Currently married women age 15–49)									
Urban	0.018	0.005	808	454	0.005	1.142	0.293	0.008	0.029
Rural	0.017	0.005	3333	3688	0.002	2.064	0.271	0.008	0.026
Total	0.017	0.004	4141	4143	0.002	2.060	0.242	0.009	0.026
Currently using rhythm/safe period (Currently married women age 15–49)									
Urban	0.050	0.010	808	454	0.008	1.283	0.196	0.031	0.070
Rural	0.037	0.005	3333	3688	0.003	1.645	0.146	0.026	0.048
Total	0.038	0.005	4141	4143	0.003	1.644	0.128	0.029	0.048
Using public source for modern method (Current users of modern methods)									
Urban	0.742	0.030	365	205	0.023	1.309	0.040	0.682	0.802
Rural	0.916	0.010	1325	1466	0.008	1.310	0.011	0.896	0.936
Total	0.895	0.010	1690	1671	0.007	1.371	0.011	0.874	0.915
Do not want any more children (Currently married women age 15–49)									
Urban	0.378	0.022	808	454	0.017	1.266	0.057	0.335	0.421
Rural	0.265	0.011	3333	3688	0.008	1.497	0.043	0.242	0.288
Total	0.277	0.011	4141	4143	0.007	1.540	0.039	0.256	0.299
Want to delay birth at least two years (Currently married women age 15–49)									
Urban	0.128	0.013	808	454	0.012	1.073	0.098	0.103	0.154
Rural	0.156	0.007	3333	3688	0.006	1.141	0.046	0.142	0.170
Total	0.153	0.007	4141	4143	0.006	1.172	0.043	0.140	0.166

Table A.2 Sampling errors, Orissa, 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	2.455	0.063	851	479	0.031	2.015	0.026	2.330	2.581
Rural	2.698	0.036	3480	3851	0.016	2.198	0.013	2.627	2.770
Total	2.671	0.033	4331	4330	0.015	2.264	0.012	2.605	2.738
Ideal number of sons (Ever-married women age 15–49)									
Urban	1.290	0.043	850	478	0.025	1.705	0.034	1.204	1.377
Rural	1.505	0.027	3480	3851	0.013	2.070	0.018	1.451	1.560
Total	1.482	0.025	4330	4330	0.012	2.134	0.017	1.431	1.532
Ideal number of daughters (Ever-married women age 15–49)									
Urban	0.947	0.033	850	478	0.019	1.745	0.034	0.882	1.012
Rural	1.034	0.017	3480	3851	0.010	1.660	0.017	0.999	1.068
Total	1.024	0.016	4330	4330	0.009	1.720	0.015	0.992	1.056
Visited by health/family planning worker (Ever-married women age 15–49)									
Urban	0.082	0.019	868	488	0.009	2.067	0.236	0.043	0.120
Rural	0.091	0.009	3557	3937	0.005	1.894	0.100	0.073	0.110
Total	0.090	0.008	4425	4425	0.004	1.949	0.093	0.073	0.107
Received no antenatal check-up (Births in past 3 years)									
Urban	0.127	0.024	270	153	0.022	1.082	0.191	0.078	0.175
Rural	0.212	0.018	1228	1359	0.012	1.443	0.084	0.176	0.247
Total	0.203	0.016	1498	1512	0.011	1.482	0.080	0.170	0.236
Received iron and folic acid tablets or syrup (Births in past 3 years)									
Urban	0.693	0.031	270	153	0.028	1.113	0.045	0.631	0.756
Rural	0.674	0.020	1228	1359	0.013	1.500	0.030	0.634	0.714
Total	0.676	0.018	1498	1512	0.012	1.513	0.027	0.639	0.712
Received medical assistance at delivery (Births in past 3 years)									
Urban	0.610	0.062	270	153	0.032	1.931	0.101	0.487	0.734
Rural	0.303	0.022	1228	1359	0.014	1.628	0.074	0.258	0.348
Total	0.334	0.022	1498	1512	0.013	1.720	0.066	0.290	0.378
Received postpartum check-up (Noninstitutional births in past 3 years)									
Urban	0.182	0.036	120	68	0.035	1.017	0.198	0.110	0.254
Rural	0.193	0.018	992	1098	0.013	1.441	0.094	0.157	0.229
Total	0.192	0.017	1112	1167	0.012	1.450	0.089	0.158	0.227
Had diarrhoea in the past 2 weeks (Children under 3 years)									
Urban	0.292	0.034	251	142	0.029	1.194	0.118	0.223	0.361
Rural	0.280	0.019	1111	1229	0.013	1.390	0.067	0.243	0.318
Total	0.281	0.017	1362	1372	0.012	1.406	0.061	0.247	0.316
Treated with ORS packets (Children under 3 with diarrhoea in past 2 weeks)									
Urban	0.346	0.075	73	42	0.058	1.309	0.218	0.195	0.496
Rural	0.351	0.030	311	344	0.028	1.068	0.084	0.292	0.411
Total	0.351	0.028	384	386	0.025	1.104	0.079	0.296	0.406
Taken to a health facility/provider for diarrhoea (Children under 3 with diarrhoea in past 2 weeks)									
Urban	0.511	0.061	73	42	0.061	1.005	0.119	0.389	0.633
Rural	0.464	0.036	311	344	0.029	1.234	0.077	0.392	0.535
Total	0.469	0.032	384	386	0.026	1.246	0.069	0.404	0.533

Table A.2 Sampling errors, Orissa, 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	0.565	0.078	85	48	0.055	1.436	0.139	0.408	0.721
Rural	0.450	0.033	374	413	0.026	1.285	0.074	0.384	0.517
Total	0.462	0.031	459	461	0.023	1.323	0.067	0.400	0.524
Received BCG vaccination (Children age 12–23 months)									
Urban	0.811	0.083	85	48	0.045	1.871	0.103	0.645	0.978
Rural	0.851	0.024	374	413	0.019	1.260	0.028	0.804	0.898
Total	0.847	0.023	459	461	0.017	1.329	0.027	0.801	0.892
Received DPT vaccination (3 doses) (Children age 12–23 months)									
Urban	0.624	0.089	85	48	0.054	1.663	0.143	0.446	0.802
Rural	0.618	0.035	374	413	0.025	1.362	0.056	0.549	0.688
Total	0.619	0.032	459	461	0.023	1.408	0.052	0.555	0.683
Received polio vaccination (3 doses) (Children age 12–23 months)									
Urban	0.648	0.080	85	48	0.053	1.515	0.124	0.487	0.808
Rural	0.688	0.032	374	413	0.024	1.335	0.047	0.624	0.753
Total	0.684	0.030	459	461	0.022	1.374	0.044	0.624	0.744
Received measles vaccination (Children age 12–23 months)									
Urban	0.634	0.081	85	48	0.053	1.514	0.127	0.472	0.795
Rural	0.529	0.034	374	413	0.026	1.313	0.065	0.460	0.597
Total	0.540	0.032	459	461	0.023	1.349	0.059	0.476	0.603
Fully vaccinated (Children age 12–23 months)									
Urban	0.564	0.088	85	48	0.055	1.608	0.155	0.389	0.740
Rural	0.422	0.035	374	413	0.026	1.371	0.084	0.352	0.493
Total	0.437	0.033	459	461	0.023	1.405	0.075	0.372	0.503
Received vitamin A (Children age 12–35 months)									
Urban	0.478	0.044	169	96	0.038	1.147	0.092	0.390	0.566
Rural	0.415	0.026	746	825	0.018	1.425	0.063	0.362	0.467
Total	0.421	0.024	915	921	0.017	1.445	0.057	0.373	0.469
Had reproductive health problem (Currently married women age 15–49)									
Urban	0.285	0.026	808	454	0.016	1.618	0.090	0.234	0.337
Rural	0.274	0.013	3333	3688	0.008	1.741	0.049	0.247	0.301
Total	0.275	0.012	4141	4143	0.007	1.772	0.045	0.251	0.300
Not involved in any decisionmaking (Ever-married women age 15–49)									
Urban	0.106	0.018	868	488	0.010	1.755	0.173	0.070	0.143
Rural	0.106	0.008	3557	3937	0.005	1.596	0.078	0.089	0.122
Total	0.106	0.008	4425	4425	0.005	1.640	0.072	0.090	0.121
Ever beaten or physically mistreated since age 15 (Ever-married women age 15–49)									
Urban	0.279	0.029	868	488	0.015	1.934	0.106	0.220	0.338
Rural	0.291	0.011	3557	3937	0.008	1.412	0.037	0.269	0.312
Total	0.289	0.010	4425	4425	0.007	1.477	0.035	0.269	0.310
Not worked in past 12 months (Ever-married women age 15–49)									
Urban	0.777	0.032	868	488	0.014	2.252	0.041	0.714	0.841
Rural	0.684	0.021	3557	3937	0.008	2.667	0.030	0.642	0.725
Total	0.694	0.019	4425	4425	0.007	2.728	0.027	0.656	0.732

Table A.2 Sampling errors, Orissa, 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	0.548	0.028	833	473	0.017	1.603	0.051	0.492	0.603
Rural	0.641	0.013	3449	3809	0.008	1.624	0.021	0.614	0.667
Total	0.630	0.012	4282	4282	0.007	1.673	0.020	0.606	0.655
Anaemic children (Children age 6–35 months)									
Urban	0.683	0.043	208	119	0.032	1.323	0.063	0.597	0.769
Rural	0.727	0.018	918	1013	0.015	1.257	0.025	0.690	0.764
Total	0.723	0.017	1126	1132	0.013	1.279	0.024	0.689	0.757

Table A.2 Sampling errors, Orissa, 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	2.187	0.119	0.054	1.949	2.425
Rural	2.498	0.080	0.032	2.339	2.658
Total	2.462	0.071	0.029	2.319	2.604
Age-specific fertility rate (Women age 15–19)					
Urban	0.057	0.009	0.152	0.040	0.074
Rural	0.081	0.006	0.076	0.069	0.093
Total	0.079	0.006	0.071	0.067	0.090
Age-specific fertility rate (Women age 20–24)					
Urban	0.166	0.014	0.082	0.139	0.194
Rural	0.175	0.009	0.050	0.158	0.193
Total	0.174	0.008	0.045	0.158	0.190
Age-specific fertility rate (Women age 25–29)					
Urban	0.123	0.012	0.100	0.099	0.148
Rural	0.140	0.007	0.050	0.126	0.154
Total	0.138	0.006	0.046	0.126	0.151
Age-specific fertility rate (Women age 30–34)					
Urban	0.059	0.009	0.153	0.041	0.077
Rural	0.073	0.007	0.096	0.059	0.087
Total	0.071	0.006	0.088	0.059	0.084
Age-specific fertility rate (Women age 35–39)					
Urban	0.023	0.009	0.388	0.005	0.040
Rural	0.023	0.004	0.167	0.015	0.031
Total	0.023	0.004	0.153	0.016	0.030
Age-specific fertility rate (Women age 40–44)					
Urban	0.009	0.005	0.565	0.000	0.020
Rural	0.006	0.002	0.362	0.002	0.010
Total	0.006	0.002	0.312	0.002	0.010
Age-specific fertility rate (Women age 45–49)					
Urban	0.000	0.000	NC	0.000	0.000
Rural	0.001	0.002	1.004	0.000	0.005
Total	0.001	0.001	1.003	0.000	0.004

Table A.2 Sampling errors, Orissa, 1999 (contd.)

Variable/ residence	Value (R)	Standard error (SE)	Relative standard error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
Neonatal mortality (5-year period preceding survey)					
Urban	49.262	9.765	0.198	29.733	68.791
Rural	48.577	5.167	0.106	38.244	58.911
Total	48.649	4.727	0.097	39.195	58.102
Infant mortality $_1q_0$ (5-year period preceding survey)					
Urban	81.141	16.085	0.198	48.970	113.312
Rural	80.948	6.015	0.074	68.919	92.977
Total	80.964	5.618	0.069	69.729	92.200
Child mortality $_4q_1$ (5-year period preceding survey)					
Urban	22.704	7.117	0.313	8.470	36.938
Rural	25.899	3.927	0.152	18.045	33.753
Total	25.544	3.570	0.140	18.403	32.685
Under-five mortality $_5q_0$ (5-year period preceding survey)					
Urban	102.002	20.048	0.197	61.907	142.098
Rural	104.750	7.103	0.068	90.544	118.957
Total	104.441	6.661	0.064	91.118	117.763
Crude death rate (Based on household questionnaire)					
Urban	9.229	1.169	0.127	6.891	11.567
Rural	13.322	0.718	0.054	11.885	14.758
Total	12.866	0.667	0.052	11.532	14.200
Crude birth rate (Based women's birth history)					
Urban	20.145	0.995	0.049	18.154	22.136
Rural	22.372	0.756	0.034	20.859	23.884
Total	22.108	0.677	0.031	20.753	23.462

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

APPENDIX B

DATA QUALITY TABLES

The purpose of this appendix is to provide the data user with an 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 work loads; 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 the following paragraphs.

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 and 5 is considerable and is particularly severe in the older age groups. Also, the typical pattern of heaping on ages 10 and 12 is evident. However, the NFHS-2 age data are evidently of considerably better quality than age data from other sources. This can be seen, for example, by comparing the degree of age heaping in NFHS-2 with that in the 1991 Census. Age reporting appears to be particularly better in NFHS-2 than in the 1991 Census at the young adult ages. 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 Orissa, information on age was available for all except one of the 23,410 persons listed on the household schedules.

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 Orissa.

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 Orissa, the extent of missing information is very low for age at death, age at first marriage, woman's education, and prevalence of diarrhoea in the two weeks preceding the survey (Table B.3). Data on month and year of birth for children born in the last 15 years are available in almost 100

Table B.1 Household age distribution

Single-year age distribution of *de facto* household population by sex (weighted), Orissa, 1999

	Male		Female			Male		Female	
Age	Number	Percent	Number	Percent	Age	Number	Percent	Number	Percent
< 1	255	2.1	238	2.1	38	165	1.4	134	1.2
1	256	2.2	188	1.6	39	66	0.6	60	0.5
2	250	2.1	225	2.0	40	354	3.0	269	2.3
3	212	1.8	234	2.0	41	44	0.4	37	0.3
4	274	2.3	292	2.5	42	121	1.0	127	1.1
5	329	2.8	310	2.7	43	48	0.4	51	0.4
6	263	2.2	266	2.3	44	37	0.3	48	0.4
7	302	2.5	275	2.4	45	319	2.7	227	2.0
8	284	2.4	301	2.6	46	48	0.4	56	0.5
9	252	2.1	225	2.0	47	50	0.4	71	0.6
10	302	2.5	286	2.5	48	97	0.8	95	0.8
11	221	1.9	179	1.6	49	36	0.3	30	0.3
12	341	2.9	300	2.6	50	180	1.5	44	0.4
13	212	1.8	192	1.7	51	34	0.3	51	0.4
14	242	2.0	239	2.1	52	81	0.7	83	0.7
15	263	2.2	262	2.3	53	37	0.3	74	0.6
16	213	1.8	244	2.1	54	32	0.3	69	0.6
17	202	1.7	230	2.0	55	187	1.6	201	1.7
18	294	2.5	301	2.6	56	52	0.4	67	0.6
19	183	1.5	184	1.6	57	29	0.2	49	0.4
20	297	2.5	303	2.6	58	62	0.5	106	0.9
21	156	1.3	146	1.3	59	23	0.2	45	0.4
22	268	2.3	253	2.2	60	260	2.2	217	1.9
23	160	1.3	169	1.5	61	27	0.2	43	0.4
24	128	1.1	185	1.6	62	64	0.5	93	0.8
25	324	2.7	412	3.6	63	22	0.2	30	0.3
26	171	1.4	182	1.6	64	20	0.2	22	0.2
27	143	1.2	190	1.7	65	195	1.6	153	1.3
28	251	2.1	266	2.3	66	13	0.1	15	0.1
29	106	0.9	111	1.0	67	30	0.3	12	0.1
30	373	3.1	386	3.3	68	38	0.3	52	0.4
31	75	0.6	68	0.6	69	30	0.3	13	0.1
32	220	1.9	223	1.9	70+	454	3.8	360	3.1
33	79	0.7	73	0.6	Don't				
34	95	0.8	62	0.5	know/				
35	473	4.0	365	3.2	missing	1	0.0	0	0.0
36	74	0.6	97	0.8					
37	82	0.7	62	0.5	Total	11,880	100.0	11,530	100.0

Note: The *de facto* population includes usual residents and visitors who stayed in the household the night before the interview.

percent of cases. (The plausibility of such complete reporting of month and year of birth is discussed below.) Data on height and weight of children are available for 97 percent of cases. Data on woman's and child's haemoglobin levels are available for 96-97 percent of cases. The high response rates for height and weight of children are especially impressive, given that in any survey many children cannot be measured because they are not at home or are ill at the time of the survey. In some cases when the child was at home, either the child refused to be measured or the mother refused to allow the child to be measured because of cultural beliefs, and no amount of persuasion could change their mind.

Table B.2 Age distribution of eligible and interviewed women

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), Orissa, 1999

Age	All women	Ever-married women	Interviewed women		Percent interviewed
			Number	Percent	
10–14	1,196	8	NA	NA	NA
15–19	1,221	212	209	4.7	98.7
20–24	1,056	713	696	15.7	97.6
25–29	1,161	1,078	1,064	24.0	98.7
30–34	812	787	777	17.6	98.7
35–39	718	704	694	15.7	98.6
40–44	532	526	517	11.7	98.2
45–49	480	476	470	10.6	98.6
50–54	322	322	NA	NA	NA
15–49	5,980	4,497	4,427	100.0	98.4

Note: The *de facto* population includes all 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), Orissa, 1999

Indicator	Reference group	Percentage missing information	Number of cases
Birth date	Births in past 15 years		
Month only		0.12	8,097
Month and year		0.01	8,097
Age at death	Deaths to births in past 15 years	0.69	971
Age at first marriage	Ever-married women age 15–49	0.00	4,425
Woman's education	Ever-married women age 15–49	0.00	4,425
Anthropometry	Living children age 0–35 months		
Height		3.41	1,393
Weight		2.93	1,393
Height or weight		3.45	1,393
Woman's haemoglobin level	Ever-married women age 15–49	3.15	4,425
Child's haemoglobin level	Living children age 6–35 months	4.25	1,184
Diarrhoea in past 2 weeks	Living children age 1–35 months	0.17	1,372

Another measure of data quality is the completeness and accuracy of information on births. Table B.4 examines the distribution of births by calendar year to identify any unusual patterns which may indicate that births have been omitted or that the ages of children have been displaced. Overall, 99.9 percent of living children listed in the birth history had complete birth dates recorded, as did 98.9 percent of children who had died. These percentages are unusually high. It seems unlikely that in Orissa respondents gave such complete information, and likely that interviewers inferred month and year in many cases after probing (interviewers were required to record a year of birth for each child). If so, the fact that a month and year of birth is recorded does not necessarily mean that they are accurate.

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 in 1996 suggests that interviewers sometimes moved births back to 1995 and 1994 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 was not entirely successful in avoiding this type of problem.

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 Orissa, because the ratios of deaths under seven days to all neonatal deaths are quite high (a ratio of less than 25 percent is often used as a guideline to indicate underreporting of early neonatal deaths). The ratios are 72 for 0–4 years, 65 for 5–9 years, and 61 for 10–14 years preceding the survey. Also, in Orissa there appears to be little of the common tendency to overreport age at death at multiples of 5 days, except perhaps at age 15 days.

Table B.6 shows the percentage of infant deaths that occurred during the neonatal period. These percentages are also quite high and nearly constant over time, 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, which are reported to have occurred after infancy (that is, at ages 12–23 months), may have actually occurred during infancy (that is, at ages 0–11

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), Orissa, 1999

Calendar year	Number of births			Percent with complete birth date[1]			Sex ratio at birth[2]			Calendar year ratio[3]		
	L	D	T	L	D	T	L	D	T	L	D	T
1999	148	11	159	100.0	100.0	100.0	840	244	780	NA	NA	NA
1998	513	47	559	100.0	100.0	100.0	873	921	877	NC	NC	NC
1997	461	41	502	100.0	100.0	100.0	870	1,397	904	100.8	92.4	100.1
1996	402	42	444	100.0	97.4	99.8	919	1,362	954	81.6	83.7	81.8
1995	525	59	584	100.0	99.0	99.9	1,141	578	1,066	112.9	111.1	112.7
1994	527	65	592	100.0	99.1	99.9	971	763	946	97.1	100.2	97.4
1993	561	70	631	100.0	98.3	99.8	1,055	1,222	1,072	108.8	101.4	107.9
1992	505	73	578	100.0	100.0	100.0	954	769	928	94.3	97.7	94.7
1991	509	80	589	99.8	97.9	99.5	930	948	932	105.0	101.8	104.5
1990	466	84	550	100.0	98.7	99.8	1,093	1,074	1,090	95.3	107.2	96.9
1989	468	76	545	100.0	100.0	100.0	911	663	872	98.0	101.5	98.5
1988	490	67	556	99.8	100.0	99.8	955	779	932	108.0	97.3	106.6
1993–97	2,477	277	2,753	100.0	98.8	99.9	994	969	992	NA	NA	NA
1988–92	2,438	380	2,818	99.9	99.3	99.8	965	842	948	NA	NA	NA
1983–87	2,131	367	2,498	99.9	98.8	99.8	901	891	899	NA	NA	NA
1978–82	1,594	326	1,920	99.9	99.5	99.8	963	912	954	NA	NA	NA
1977 or earlier	1,386	431	1,817	99.8	98.0	99.4	879	854	873	NA	NA	NA
All	10,687	1,837	12,525	99.9	98.9	99.8	940	882	932	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

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), Orissa, 1999

	Years preceding survey			
Age at death (days)	0–4	5–9	10–14	0–14
< 1	23	26	15	64
1	21	34	35	90
2	9	14	11	34
3	14	15	10	39
4	11	10	6	28
5	9	10	12	32
6	5	2	4	12
7	7	7	14	28
8	6	13	7	26
9	1	5	2	8
10	2	3	3	8
11	1	3	2	7
12	1	4	4	9
13	2	0	3	5
14	1	1	1	3
15	3	9	5	17
16	2	1	2	6
17	1	1	0	2
18	3	0	3	6
19	0	3	0	3
20	0	2	2	4
21	1	4	7	12
22	2	0	4	6
23	2	0	0	2
24	0	1	0	1
25	0	0	0	0
26	0	1	0	1
27	0	1	1	2
28	0	0	1	1
29	0	0	0	0
30	0	0	0	0
0–30	128	172	154	454
Percent early neonatal[1]	72.2	65.0	61.2	65.7

[1] Deaths during the first 6 days divided by deaths during the first 30 days

months). In this case, heaping would bias the infant mortality rate downward and the child mortality rate 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 slight heaping of deaths at 12 and 18 months of age. Digit preference appears not to be serious enough to alter substantially the mortality rates calculated here. Because the extent of heaping on 12 months is minor, probably due to the strong emphasis on this potential problem during training of the interviewers, adjustment of the infant and child mortality rates is unnecessary.

Table B.6 Reporting of age at death in months

Distribution of reported deaths under two years of age by age at death in months and percentage of infant deaths reported to occur at age under one month, for births occurring during five-year periods preceding the survey (weighted), Orissa, 1999

	Years preceding survey			
Age at death (months)	0–4	5–9	10–14	0–14
< 1	128	172	154	454
1	24	29	17	70
2	9	10	8	27
3	11	15	9	35
4	9	8	10	27
5	7	10	3	21
6	2	11	19	32
7	3	7	4	14
8	4	3	3	11
9	1	7	2	10
10	3	0	4	8
11	4	3	3	11
12	13	13	14	40
13	0	3	1	4
14	2	2	2	6
15	2	3	3	9
16	1	1	1	3
17	0	0	0	0
18	2	2	4	8
19	0	0	1	1
20	1	0	0	1
21	1	0	1	2
1 year	0	1	1	2
0–11 months	206	277	237	719
Percent neonatal[1]	62.2	62.2	65.0	63.2

[1] Deaths during the first month divided by deaths during the first year

This brief check on internal consistency of the Orissa NFHS-2 childhood mortality data suggests that there is no serious underreporting of deaths during the time periods for which mortality rates are estimated.

APPENDIX C

ORISSA NFHS-2 STAFF

Centre for Population and Development Studies, Hyderabad

Mr. G. Kumaraswamy Reddy
(Project Director)

Dr. G. Rama Padma
(Project Coordinator)
Dr. P. Sreenivasulu Reddy
(Regional Officer)

Mr. Jaya Ram Parasa
Mr. N. J. Rama Rao
(Research Officers)

Mrs. Madhavi Reddy
Mr. P.V.S.S. Prasad
(Programmer)

Ms. Jyotishikha Nanda
Mr. Akshaya Kumar Biswal
(Field Officers)

Team Supervisors

Mr. Prasant Kumar Mohapatra
Mr. Swayambu Mohapatra
Ms. Priyadarshi Singh Samant
Mr. Abhina Kumar Jena
Mr. Prasanta Kumar Panda
Mr. Kartik Dash

Field Editors

Mrs. Reema Pani
Ms. Kumuduni Panda
Ms. Nandini Mishra
Ms. Swati Patnaik
Ms. Manishree Naik
Ms. Rajalakshmi Jenamani

Health Investigators

Mr. Debadutta Pani
Mr. Sukumara Sahoo
Mr. Pramod Kumar Panda
Mr. Abhaya Kumar Sahoo

Mr. Akrura Kumar Sahoo
Mr. Avaya Kumar Sahoo
Mr. Ajit Behera
Mr. Indrajeet Srichandan

Interviewers

Ms. Reeta Pani
Ms Archana Sahoo
Ms. Smrutishree Bhanja
Ms. Laxmi Priya
Ms. Kalpana Sahoo
Ms. Kamala Rout
Ms. Mamata Dash
Ms. Debanjani Bal
Ms. Jasoda Dei
Ms. Truptimayee Lenka

Ms. Mamata Sahoo
Ms. Monalisa Samantaray
Ms. Sasmita Rani Bhadra
Ms. Anima Mohanty
Ms. Sandhya Rani Satpathy
Ms. Sujata Naik
Ms. Sakuntala Sahu
Ms. Santilata Moharana
Ms. Kalpana Biswal
Ms. Rasmitha Pradhan

PREVIOUS PAGE BLANK

Interviewers

Ms. Debasmita Das
Ms. Geetanjali Behra
Ms. Gitanjali Nayak

Household Listing Supervisors

Mr. Akshay Kumar Biswal
Mr. Ashok Bhargava
Mr. Suresh Singh
Mr. Lingaraj Acharya

Household Listers & Mappers

Mr. S. Kumar Nayak
Mr. S. Pradhan
Mr. S. Satpathy
Mr. S.M. Rath
Mr. S. Dwivedy
Mr. S. Kumar Sahu
Mr. S.R. Kanungo
Mr. Bichitra Kanungo
Mr. B. Mohapatra
Mr. Tamasa Satpathy

Office Editors

Ms. G. Anuradha
Ms. N. Chandra Rekha
Mrs. B. Vijayalakshmi
Mrs. P. Vijayalakshmi

Data Entry Operators

Ms. M. Kumudini
Mrs. K. Panchakshri
Mr. T. Ranga Babu
Mr. K. Venkateswara Raju

International Institute for Population Sciences, Mumbai

Prof. K. B. Pathak
Prof. T. K. Roy
(Project Directors)
Prof. Sumati Kulkarni
Prof. Arvind Pandey
Dr. Kamla Gupta
Dr. Parveen Nangia
(Project Coordinators)

Senior Research Officers

Dr. Rajeshri Chitanand
Dr. Damodar Sahu
Dr. Yonah Bhutia

Health Coordinators

Dr. Vikash Chandra
Dr. P. V. Kaushik
Dr. Sanjeev P. Walokar

Research Officers

Mr. Mukul Agarwal
Dr. Sushanta Kumar Banerjee
Ms. Shahina Begum
Mr. B. N. N. Chowdary
Mr. Anurag Mishra
Mr. M. N. Murthy
Mr. Rajesh Nainakwal
Mr. Anup Murari Ranjan

Research Officers

Dr. Madhumita Das
Mrs. N. Hemalata
Dr. A. A. Jayachandran
Dr. V. Jayachandran
Dr. Biranchi N. Jena
Mr. Nizamuddin Khan
Mr. K. I. Shajy
Mr. Vivek Sharma
Mr. Vishal Dev Shastri
Ms. Preeti Upadhyaya
Ms. Pavani Upadrashta
Mrs. Y. Vaidehi

Accounts & Administrative Staff

Mr. R. S. Hegde, Sr. Accountant
Mr. D. Lokanathan, Sr. Secretarial Assistant
Mr. Sadashiv Jathade, Jr. Secretarial Assistant
Mr. Pramod T. Sawant, Office Boy
Mr. Parasnath Verma, Office Boy
Mr. John D'souza, Jr. Secretarial Assistant

Consultants

Dr. Rajib Acharya
Dr. Fred Arnold
Dr. Umesh Kapil
Mr. Zaheer Ahmad Khan
Dr. Sunita Kishor
Dr. Norman Y. Luther
Dr. Vinod Mishra
Mr. Han Raggers
Dr. Robert Retherford
Dr. Tulshi Saha
Mr. O. P. Sharma
Dr. Almaz Sharman
Dr. Vijay K. Verma
Mr. Martin Wulfe

Steering Committee for NFHS-2

Secretary (Family Welfare)
Ministry of Health and Family Welfare
New Delhi

Joint Secretary (S)
Department of Family Welfare
Ministry of Health and Family Welfare
New Delhi

Joint Secretary and Financial Advisor
Ministry of Health and Family Welfare
New Delhi

Chief Director (S)
Department of Family Welfare
Ministry of Health and Family Welfare
New Delhi

Advisor (Health)
Planning Commission
New Delhi

Secretary
Department of Statistics Ministry of
Planning and Programme Implementation
New Delhi

Secretary
Women and Child Welfare
Ministry of Human Resource Development
New Delhi

Registrar General, India
New Delhi

Director General of Health Services
Ministry of Health and Family Welfare
New Delhi

Representative
United States Agency for International Development
New Delhi

Prof. M. M. Gandotra
Additional Director
Population Research Centre
M. S. University of Baroda
Vadodara

Dr. K. Srinivasan
Executive Director
Population Foundation of India
New Delhi

Prof. Pravin Visaria
Director
Institute of Economic Growth
New Delhi

Director
International Institute for Population Sciences
Mumbai

Administrative and Financial Management Committee for NFHS-2

Joint Secretary and Financial Advisor (S)
Ministry of Health and Family Welfare
New Delhi

Joint Secretary (S)
Department of Family Welfare
Ministry of Health and Family Welfare
New Delhi

Chief Director (S)
Department of Family Welfare
Ministry of Health and Family Welfare
New Delhi

Representative
ORC Macro
Calverton, Maryland, USA

Representative
United States Agency for International Development, New Delhi

Prof. A. K. Sengupta
Honorary Director
Population Research Centre
Department of Economics
Lucknow University
Lucknow

Dr. Sumati Kulkarni
Professor & Head
Department of Development Studies
International Institute for Population Sciences
Mumbai

Director
International Institute for Population Sciences
Mumbai

Technical Advisory Committee for NFHS-2

Director
International Institute for Population Sciences
Mumbai

Chief Director (S)
Department of Family Welfare
Ministry of Health and Family Welfare
New Delhi

Secretary
Department of Statistics
Ministry of Planning and Programme Implementation
New Delhi

Prof. P. N. Mari Bhat
Head
Population Research Centre
Institute of Economic Growth
New Delhi

Prof. M. M. Gandotra
Additional Director
Population Research Centre
M. S. University of Baroda
Vadodara

Prof. P. Hanumantha Rayappa
Former Head
Population Research Centre
Institute of Social and Economic Change
Bangalore

Representative
ORC Macro
Calverton, Maryland, USA

Representative
East-West Center
Honolulu, Hawaii, USA

Representative
United States Agency for International Development
New Delhi

Dr. Sumati Kulkarni
Professor & Head
Department of Development Studies
International Institute for Population Sciences
Mumbai

LIST OF CONTRIBUTORS

Dr. Sumati Kulkarni, Professor and Head, Department of Development Studies, International Institute for Population Sciences, Govandi Station Road, Deonar, Mumbai-400 088, India

Dr. Robert D. Retherford, Coordinator, Population and Health Studies Research Program, East-West Center, 1601 East-West Road, Honolulu, Hawaii, 96848, USA

Mr. Bipin Bihari Hota, Chief Executive, Population Research Centre, Department of Statistics, Utkal University, Vanivihar, Bhubaneshwar-751 004, India

Dr. Sayeed Unisa, Reader, Department of Mathematical Demography and Statistics, International Institute for Population Sciences, Govandi Station Road, Deonar, Mumbai-400 088, India

Dr. Pradeep Kumar Panda, Lecturer, Centre for Development Studies, Prasantha Nagar Road, Thiruvananthapuram-695 011, India

Dr. Yonah Bhutia, Senior Research Officer, National Family Health Survey, International Institute for Population Sciences, Govandi Station Road, Deonar, Mumbai-400 088, India

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. (2)	USUAL RESIDENTS AND VISITORS 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. (3)	RELATIONSHIP TO HEAD OF HOUSEHOLD What is the relationship of (NAME) to the head of the household?* (4)	RESIDENCE Does (NAME) usually live here? (5)	RESIDENCE Did (NAME) stay here last night? (6)	SEX Is (NAME) male or female? (7)	AGE How old is (NAME)?** (8)	IF AGE 6 YEARS OR OLDER MARITAL STATUS What is the current marital status of (NAME)?*** (9)	IF AGE 6 YEARS OR OLDER ELIGIBILITY CIRCLE LINE NUMBER OF EVER-MARRIED FEMALES AGE 15-49 (EXCLUDE NG AND NM) (10)	IF AGE 6 YEARS OR OLDER EDUCATION Can (NAME) read and write? (11)	IF AGE 6 YEARS OR OLDER EDUCATION Has (NAME) ever been to school? (12)	IF AGE 6 YEARS OR OLDER EDUCATION IF NEVER ATTENDED SCHOOL What is the main reason (NAME) never went to school? **** (13)	IF AGE 6 YEARS OR OLDER EDUCATION IF EVER ATTENDED SCHOOL What is the highest grade (NAME) has completed? ***** (14)	IF AGE 6 YEARS OR OLDER EDUCATION IF EVER ATTENDED SCHOOL IF AGE LESS THAN 18 YEARS Is (NAME) still in school? (15)	IF AGE 6 YEARS OR OLDER EDUCATION IF EVER ATTENDED SCHOOL IF AGE LESS THAN 18 YEARS IF NOT IN SCHOOL What is the main reason (NAME) is not going to school?****** (16)
01		☐☐	YES NO 1 2	YES NO 1 2	M F 1 2	IN YEARS ☐☐	CM NG S DS D W NM 1 2 3 4 5 6 7	01	YES NO 1 2	YES NO 1 2	REASON ☐☐	GRADE ☐☐	YES NO 1 2	REASON ☐☐
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:							
	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)		Has any (other) person listed ever smoked regularly? RECORD FOR CURRENT NONSMOKERS ONLY (27)	
		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 3
02		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 3
04		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 3
06		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 3
08		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_____6 (SPECIFY)	

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				TOTAL NUMBER OF VISITS
TIME				

*RESULT CODES:
1 COMPLETED 3 POSTPONED 5 PARTLY COMPLETED
2 NOT AT HOME 4 REFUSED 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

V

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 ↓	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	WEEKLY	OCCASIONALLY	NEVER
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 — How long did you have to wait before being served? DID NOT RECEIVE SERVICE ☐ v — 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	

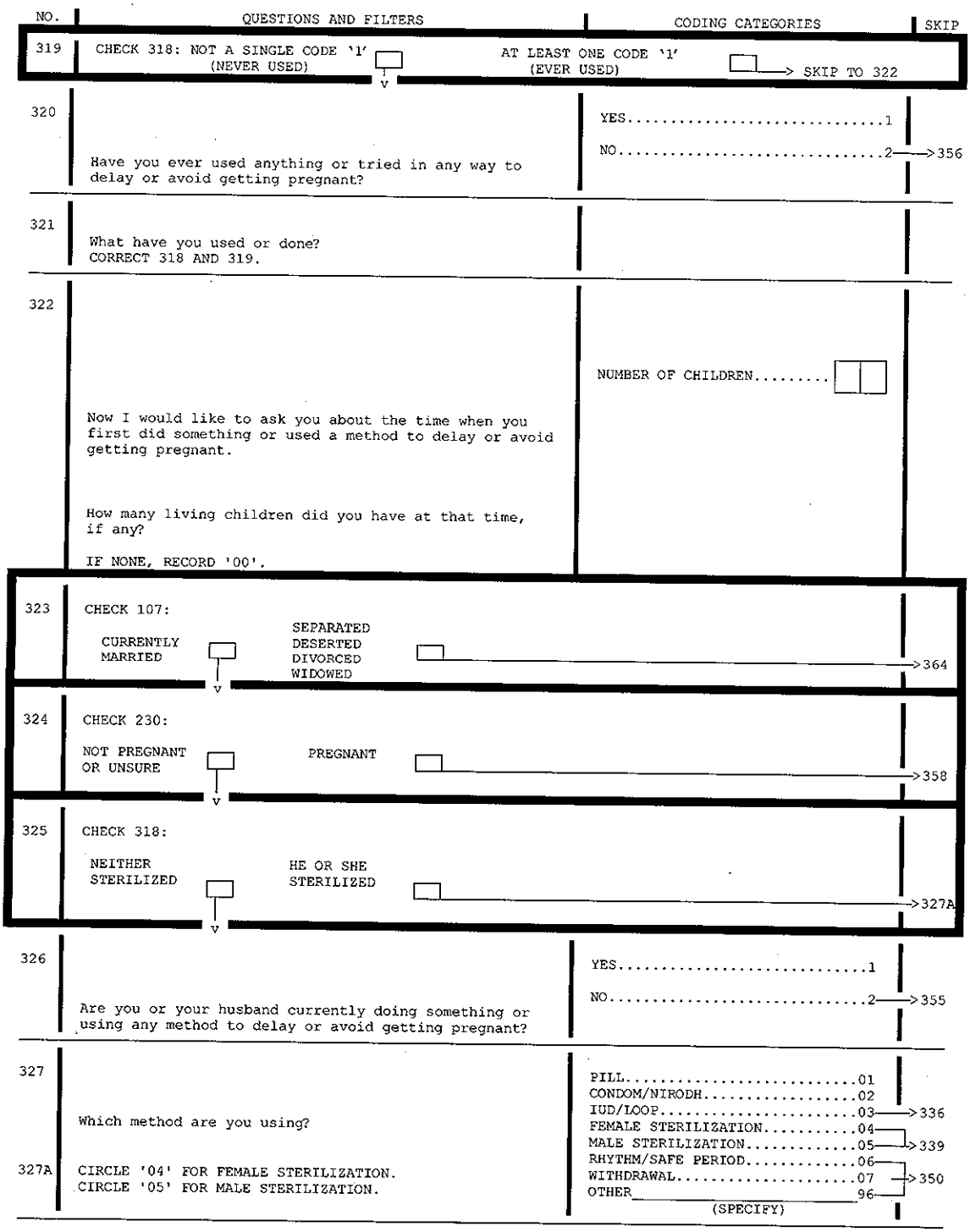
SECTION 3B. CONTRACEPTION

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 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 (SPECIFY)	→331 →331
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.....98	

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_____ X (SPECIFY)	
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_____ X (SPECIFY)	→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_____ 96 (SPECIFY)	→358

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_____96 (SPECIFY) 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_____X (SPECIFY)	
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	

SECTION 4A. ANTENATAL, NATAL, AND POSTNATAL CARE

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_____ (SPECIFY) X	HEALTH PROFESSIONAL DOCTOR.....A ANM/NURSE/MIDWIFE/LHV...B OTHER HEALTH PROFSSNL...C TRADITIONAL BIRTH ATTENDANT (DAI).....D OTHER_____ (SPECIFY) X
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 ☐ v PREGNANT OR UNSURE ☐ v (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 ☐ (SKIP TO 446)	ALIVE ☐ DEAD ☐ (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?	YES, SEEN.....1 (SKIP TO 456) YES, NOT SEEN.....2 (SKIP TO 458) NO CARD.....3	YES, SEEN.....1 (SKIP TO 456) YES, NOT SEEN.....2 (SKIP TO 458) NO CARD.....3
455 Did you ever have a vaccination card for (NAME)?	YES.....1 (SKIP TO 458) NO.....2	YES.....1 (SKIP TO 458) NO.....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.	DAY MO YEAR	DAY MO 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).	YES.....1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 456) (SKIP TO 460) NO.....2 DK.....8 (SKIP TO 460)	YES.....1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 456) (SKIP TO 460) NO.....2 DK.....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 ☐ (SKIP TO 478)	YES ☐ NO OR DK ☐ (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 ☐ → v		
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_____X (SPECIFY) 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_____X (SPECIFY) 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_____ (SPECIFY) X NO, NOBODY SEEN.....Y	

SECTION 5A. FERTILITY PREFERENCES

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
501	CHECK 107: CURRENTLY MARRIED ☐ v SEPARATED DESERTED DIVORCED WIDOWED ☐		→507
502	CHECK 327/327A: NEITHER STERILIZED ☐ v HE OR SHE STERILIZED ☐		→507
503	CHECK 230: NOT PREGNANT OR UNSURE ☐ v PREGNANT ☐ v 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 ☐ v PREGNANT ☐ v 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_____996 (SPECIFY) 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_____ (SPECIFY) 96	→509
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_____ (SPECIFY) 999996	
509	In your opinion, how much education should be given to girls 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 boys 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 TIME	_____ _____	_____ _____		TOTAL NUMBER OF VISITS ☐

*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 :_____

v

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 ☐ v 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. _____	